

Middle Eastern Countries in Suspended Animation

Defective Complex Adaptive Systems

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ABSTRACT

The Middle East is taken here to mean the 'Arab' countries in the Middle East and North Africa (MENA). These countries are home to other ethnic groups such as Kurds and Armenians.

Part One, outlines the behaviour of complex adaptive systems and conditions needed for such systems to attain a state of evolving self-organisation that does not need top-down control. A healthy person is an example of a properly functioning complex adaptive system, and nations are in turn nested complex adaptive systems. Part Two argues that Middle Eastern countries, to a greater or lesser extent, suffer from deficits that inhibit their ability as complex adaptive systems, to achieve good performance. The deficits concern the ability of citizens to interact freely in all aspects of life and their capability to do so effectively. Fragmentation, low levels of education and health, and gender inequality are key factors in this respect.

The paper argues that locally driven long-term evolution is the only sustainable way forward. There are no shortcuts to good performance. Middle Eastern nations will have to work hard, and for long, to recapture high level performance that they enjoyed in the distant past.

Keywords: Arab, Middle East, complexity, sustainability, evolution, adaptation, cooperation.

Part One: Life is Complex

Complex Adaptive Systems

It is intended here to outline only those aspects of Complex Adaptive Systems that are of significance for discussion of the lacklustre performance of Middle Eastern countries. Excellent textbooks are available that provide a wider view of the subject (see for instance Gleick, 1988, Coveney and Highfield, 1991, Kauffman, 1993 and 1996, Mainzer, 1997, Lewin, 1999, Stacey, et al., 2000, Plesk and Greenhalgh, 2001, Kerninick, 2004, Bogg and Geyer, 2007, Harris, 2007, and Geyer and Rihani, 2010). The case for treating nations, and their development, as Complex Adaptive Systems has been argued by Rihani, 2002.

The key feature of complex adaptive systems concerns the presence of numerous internal elements that interact to produce, under suitable conditions, a state of self-organisation that does not require external direction. Such systems exist in conditions far from equilibrium. Contrary to the case of systems at or near equilibrium, small perturbations might cause major avalanches of change. On the other hand, they might pass without any apparent effect. Predication is difficult under these circumstances. In social (conscious) complex systems the elements are principally human beings.

Several conditions are needed for a complex adaptive system to survive and evolve sustainably:

- 1) The elements have to be able to interact otherwise nothing happens.
- 2) Simple rules must regulate the interactions; too many complicated rules lead to rigid uncreative order and too few result in chaos.
- 3) Continual flow of energy through the system is needed to drive the internal dynamics.
- 4) Variety among the elements is essential for the system to negotiate changing circumstances successfully.

When it functions properly a complex adaptive system presents a coherent external pattern but it hides inside a state of chaos created by the interactions between its elements. This is easy to visualise in the case of an economy where vast numbers of activities take place at the local level but the whole economy provides a reasonably recognisable picture. The stable external pattern is subject to continual evolution but as long as conditions are right it would maintain its structural stability. Internal elements that rotate through various states are contained by an attractor. At the risk of oversimplification it is possible to describe the 'British way of life' for instance as an attractor. A new national attractor could, and often does, emerge from accumulation of changes over long periods of evolution.

Complex adaptive systems acquire more complexity as time goes by (Kauffman, 1993: 232 and Gell-Mann, 1994: 244). In social systems constant adjustments have to be made by the communities concerned to cope with the increasing complexity. This is an unavoidable process and mistaken efforts to reduce the complexity; fragmentation into smaller units, dictatorship, etc., inevitably produce negative outcomes as discussed later.

Nested Complex Adaptive Systems

Complex adaptive systems do not exist in isolation. A system has to exchange (dissipate) energy with other systems to acquire and maintain self-organised stable patterns. In the case of social systems the elements (human beings) are themselves complex adaptive systems. They form other complex adaptive systems as families, neighbourhoods, communities, nations and so on. Collaboration and 'good neighbourly relations' are not optional extras. They are of fundamental importance to efficient performance by nations.

The idea of fitness landscape has been put forward to visualise how a system 'fits' with different situations created by its own activities and those of other complex adaptive systems in its domain. The fitness landscape is shown diagrammatically as a three dimensional graph with the two horizontal axes defining the nature of the landscape at different points and the vertical axis giving a measure of the fitness of a given system at various locations (circumstances).

The fitness landscape is a helpful tool in drawing attention to the need for decision-makers to consider risks and opportunities posed by their country's capabilities and resources and those presented by others active on the same fitness landscape. The landscape changes in time as a result of the combined activities of all its systems. Learning, therefore is "essential and it never stops. Being aware, making choices, experimenting, exploring is how an individual, institution or country learn about their evolving landscape and develop tactics for dealing with the inevitable unknown." (Geyer and Rihani, 2010: 64)

Assessment of risks and opportunities and the cyclical process needed to deal with wicked complex problems is not a new idea (see for instance Langley et al., 2009). Sadly, although businesses and some countries have now embraced the need for such techniques the same could not be said of countries in Middle East.

Elites and Hierarchies

Study of elites has been a popular field for long. Ibn Khaldun (1332-1406) tackled the topic in his *Introduction to History* (al-Muquaddimah). His research was focused on the rise and fall of dynasties and empires. However, it is clear from his *Introduction to History* that the subject matter quickly comes down to discussion of individual leaders and how they manage to seize power in their rise to the top.

When settled human societies first emerged, there were minimal levels of complexity. The communities concerned could be treated as linear (mechanistic) systems. These systems present tame problems that could be managed through a number of specific steps leading to a desired outcome. The problem is usually obvious and the end-state as well as the process that moves from problem to solution are reasonably clear. A leader takes charge of the situation and action is typically undertaken through a steep hierarchy.

The model of exclusive elite and steep hierarchy worked well for a while. For some mechanistic situations; such as an industrial assembly line, the model continues to provide excellent results. However, by the time Ibn Khaldun began his epic report, it was already clear that the continual rise and fall of dynasties suggested something was not quite right.

Human societies accumulated complexity over the centuries and the command-and-control process mediated by an elite at the top of a steep hierarchy became less fit for purpose. Societies that addressed this issue evolved organisational skills to manage their complexity. The Australian Public Service Commission, for instance, published a report in 2007 titled *Tackling Wicked Problems: A Public Policy Perspective* (www.apsc.gov.au/publications07/wickedproblems.htm) that demonstrated full awareness of this point.

Others, the Middle East being a notable example, who persisted with their mechanistic view of life fell behind. Command-and-control imposed by a minute group of people is the very antithesis of how to manage complex adaptive systems. Typically, Mubarak, ruler of Egypt until he was deposed in 2011, maintained his absolute grip on power through the tenure of five US presidents. In a futile effort to square the circle numerous rigid customs, rules, and regulations are adopted which curtail local interactions and variety and drive the system into lower activity modes. In the Middle East the preferred option is emergency powers which once introduced last for years. When failure persists the search begins for new more resolute leaders and the cycle of decline continues.

There is another, questionable, step taken when some societies are faced by mounting complexity. They fragment into smaller units. These units sometimes remain 'too complex to manage' as the recent division of Sudan into two statelets illustrates. Settlements after major wars are notorious for creating unstable entities. As discussed later, the map of the Middle East arbitrarily defined by the victorious powers after World War One created ideal conditions for turmoil that continues on a seemingly increasing scale to this day.

Human and Economic Development

The development of nations, as complex adaptive systems, is an uncertain and endless evolutionary process. Vast numbers of internal interactions, cooperation and competition on a fitness landscape that involves other systems, and an existence far from equilibrium leaves little room for certainty.

Pronouncements about development made in earlier decades; especially after World War Two, have not only delivered little but they have had negative aspects in some cases (Perkins, 2004). Development was seen wrongly as a mechanistic process with well-defined beginning and, presumably, an idealised end based on European and American experience. Rostow (1960), for example, reduced economic development to five steps. Within that mechanistic framework, the World Bank adopted and then discarded a succession of economic growth theories. Easterly (2001) presented an analysis of the pitfalls of that approach.

Moreover, economic development within the mechanistic paradigm was viewed as being separate from human development. It was assumed that human development; better education, health, human rights, etc., would follow naturally once economic development were achieved. Divorcing economic development from human development is easily revealed as a false premise once nations are treated as social complex adaptive systems (Rihani, 2001). Leaving technical and academic discussion aside, it is intuitively obvious that a nation whose population is suffering from low standards of education and health could not make progress towards sustainable economic development.

When a country ‘fails to develop,’ the search is on to find a reason for that failure. In some cases; the Middle East being a prime example, the subject becomes a matter of international agitation. Failure to develop, for instance, could come to mean that the country has not adopted liberal economic policies or Western democratic norms overnight. The accent is on speed of transformation presumed to be possible through perfect predictability. Any shortcomings are attributed to failure of leadership that could be rectified through regime change or external intervention, or both. This mistaken view is perplexing. Even the scantiest knowledge of how so-called developed countries made progress readily reveals a lengthy history full of twists and turns. Ha-Joon Chang dealt with this paradox in *Kicking Away the Ladder* (2003). Later, in *Bad Samaritans* (2007), he underlined the negative role played by foreign powers and advisors. Sadly, there is still a belief when it comes to the Middle East that development, democracy, etc., could be imported from abroad and easily grafted, willingly or unwillingly, on local societies.

History Casts a Long Shadow

The above view of development suggests that it is impossible to divorce a community from its past. To a large extent the latest ‘attractor’ presented by a complex adaptive system is the product of what happened to the system in the past and what it is doing at present. Equally, it is not possible to insulate a country from the influences of others within its ‘fitness landscape’ which also brings the history of these systems into play. Post World War One geographic divisions and the creation of Israel in 1948, to mention just two recent events, could not be detached from what is happening to Middle Eastern countries now; up to and including the so-called Arab Spring.

An overwhelming external power, or exceptional circumstances such as a major war, could force the system into a different attractor but to keep it there that power must continue to be applied relentlessly, as the tragic events in Afghanistan and Iraq show unerringly. The system moves along an unexpected path the moment the power is reduced or suspended. Paradoxically, maintaining Arab Israeli relations on a war footing is both unavoidable and unsustainable as a long term strategy. This is an inherent feature of the way complex adaptive systems behave. Britain moved into a different 'attractor' during two world wars. However, in each case the 'British way of life attractor' resumed albeit altered by the experience. The same could be said of Germany during twelve years of Nazi rule. East and West Germany went into dissimilar attractors later and then drifted back into 'the German way of life attractor' after unification. The British and German 'systems' reverted to a more familiar attractor from that prevailing under the exceptional conditions, but these systems were affected by the experience, and by all the other experiences in their history. They simply went back to more recognisable forms. Ultimately, the Arab Israeli situation will be resolved and both communities will assume more settled, but somewhat altered attractors.

What takes a system back to a recognisable, but not exact, form? Complex adaptive systems whose elements are conscious human beings have an inbuilt 'culture' that develops from its long history (Chapman, 2002: 41-42). It is the combined knowledge, stored in many locations formal and informal and written and unwritten. At its most basic the culture is perceived as custom and practice, shared values, norms, etc. Culture, a key component for a properly functioning system, is slow to change, and it does not respond to external compulsion. History and heritage of a nation are, therefore, valuable assets worthy of both attention and protection. Uncontrolled looting of museums and ancient libraries in Iraq after the 2003 war had deeper significance than simple lawlessness would suggest (Baker, et al., editors, 2010).

How to Manage a Complex Adaptive System

A move to a complexity formulation offers little to leaders focused on personal status and rewards and the legacy they would wish to leave behind. For others, a shift to a management style based on recognition that nations behave as complex adaptive systems, offers an exciting prospect of much that could be done to achieve sustainable progress. The most fundamental change concerns the need to focus on the long term. Ultimately, the fortunes of a nation are hardly ever attributable to one person. This applies in particular to leaders who choose the dictatorial path. Within a complexity formulation, command-and-control is replaced by a collective view in which all stakeholders collaborate actively in a process that accepts learning and change as natural components of good management (see Langley et al., 2009). Langley and his colleagues present a cyclical process based on Plan-Do-Study-Act that regularly revisits both problems and solutions; which contrary to the case with mechanistic systems can and do change over time.

Indeterminacy of problems and solutions imposes a need that most leaders; especially those in the Middle East, find irksome: an intense and continuous approach to stakeholder engagement. As that involvement is unavoidable a question arises about the present model of exclusive elite and steep hierarchies. Most countries in the world are actively engaged with this issue but countries in the Middle East have only recently begun tentatively to question the command-and-control model.

This brings the discussion to another thorny subject: what role can ordinary people play in a revised model in which actions and decisions become a communal activities. Nations as complex adaptive systems rely for their proper operation on the ability and capability of people to interact at the local level. Ability means freedom to interact within simple rules of engagement that have popular support, and capability means that people are physically, educationally, and culturally equipped to interact. It should be understood here that interaction does not simply mean taking part in a political process. The activity is infinitely broader than that as it embraces all aspects of life including business, culture, travel, having fun, etc.

Is all the above pie in the sky? Toyota and Xerox from the business world do not think so. The Australian Public Service Commission, mentioned earlier, from the public sector does not think so. Similarly, The Canadian Institute on Governance (IOG) established in 1990 does not think so. In defining its 'unique value proposition' the IOG states that it offers the people and organisations it works with "A system approach taking into account the interaction of complex systems and decision-making." (www.iog.ca)

Middle Eastern countries have so far ignored the complex adaptive nature of their affairs. They do so in future at their peril as it is the only way for them to achieve real progress.

Part Two: Complexity Confronts the Middle East

Defective Complex Adaptive Systems

The outline presented in Part One provides a ready explanation for the condition of disarray that affects countries in the Middle East to a lesser or greater degree. It is necessary to clarify a key difference at this point between countries that manage to operate efficiently as complex adaptive systems and ones that fail to do so. Europe, for instance, has had a history that is just as turbulent as the Middle East; including religious extremism, and the turmoil continues (see for instance The Washington Post, 17 October 2011, 'Why our children's future no longer looks so bright' by Robert J. Samuelson). However, in all these cases there is high probability that the societies concerned will manage to tackle setbacks as they arise without compromising the coherence of whole nations.

As discussed below, this is not generally the case when it comes to the Middle East. The Libyans rid themselves of a hated regime but then quickly became mired into a state of anarchy (The Observer, 19 February 2012, 'As Libya celebrates a year of freedom, evidence grows of its disintegration' by Chris Stephen). Rafic Hariri, previous prime minister of Lebanon was assassinated in 2005. Instead of a criminal investigation by the Lebanese authorities followed by prosecution according to laws of the land, the murder resulted in a so-called Cedar Revolution, and political turmoil in the Lebanon that still lingers on. The murder attracted extensive involvement by foreign powers and organisations. Invasion of Iraq in 2003 promptly led to collapse of almost all the country's services, institutions, and social, political, and economic structures.

What is the difference between Europe and the Middle East? Fundamentally, Middle Eastern countries embody deficits that inhibit their proper functioning as complex adaptive systems. Just as important, they lack the checks and balances that, in other locations, ameliorate the worst effects of these factors. The United Nations Development Programme

and the Arab Fund for Economic and Social Development sponsored the publication of four Arab Human Development Reports (2002 to 2006). These reports; through comprehensive research and surveys, exposed the extent of deficits suffered by the region.

Arab Human Development Reports (AHDR)

The four AHDRs met with widespread support in the Arab region and beyond. Time magazine identified the first AHDR as the most important publication in 2002. They were not conceived within an approach based on complexity. However, they arrived at identical conclusions derived from analysis that treats the Middle East as a collection of interlinked (nested) complex adaptive systems. This is fortuitous as they provide a treasure trove of pertinent information of use within a complexity formulation. Significantly, the first AHDR, as its chosen subtitle indicated, put the emphasis on “Creating Opportunities for Future Generations.” The task is seen, in line with a complexity based approach, as a long-term process that relies on and designed for the upcoming generations.

As mentioned earlier, complexity advocates that human development, as opposed to economic development, is at the heart of efforts to generate sustainable progress. The first report stated unambiguously that, “Preoccupation with economic growth and the creation of wealth and material opulence has obscured the fact that development is ultimately about people.” (AHDR 2002: 15) The first report, accordingly, put forward a revised way of measuring human development that gave gross domestic product per capita less importance than that accorded by the traditional Human Development Index (HDI). The Alternative Human Development Index (AHDI) “consists of the two fundamental human capabilities: living a long and healthy life and knowledge acquisition through education. This it can be claimed is the irreducible core of human development.” (AHDR 2002: 21) Furthermore, the AHDI included factors for freedom, women empowerment, and internet access. Application of the AHDI to 111 countries showed interesting results as the position of all Arab countries deteriorated badly from their position using HDI (AHDR 2002: 22).

Detailed discussion of the AHDRs is beyond the scope of this paper but the following aspects are highlighted as they relate directly to an analysis of the Middle East based on complexity. The first AHDR defined three major deficits that hamper human development that were picked up in detail in subsequent reports:

- 1) Human capabilities and knowledge deficit. AHDR 2003 was devoted to this topic but the message was clear: “lasting reform in the Arab world must come from within.” (AHDR, 2003: 1) The report described a worsening deficit: “Roughly 25% of 300,000 first degree graduates from Arab universities in 1995/96 emigrated. Between 1998 and 2000 more than 15,000 Arab doctors” did the same (AHDR, 2003: 10). Arab respondents expressed overwhelming support for democracy and rejection of authoritarian rule (AHDR, 2003: 19). Basically, the region and its dominant religion are not predisposed to dictatorship.
- 2) Freedoms deficit. AHDR 2004 focused on this issue as well as on good governance and political reform and stated that: “Of all the impediments to an Arab renaissance, political restrictions on human development are the most stubborn.” (AHDR 2004: 5) However, it raised a matter of critical importance in complexity terms: “a constraining regional and international environment.” In essence, Arab countries suffer from excessive command-and-control from domestic, regional, and international forces. AHDR 2004 also considered a key question relating to pan Arab cooperation., and reported exceptionally high public support for a free Arab citizenship zone, a free Arab trade zone, and unified

- currency with only slightly less positive support for full political unity (Figure 7.2, AHDR 2004: 174). Again, the region does not seem to be predisposed to fragmentation.
- 3) Women's empowerment deficit. AHDR 2005 addressed this key constraint on human development. This is a critical topic as roughly half of all interactions when a nation is viewed as a complex system are at stake. A paragraph from the report presents the positive and negative aspects: "Starting from a low base, between 1990 and 2003, the Arab region witnessed a greater increase in women's share in economic activity than all other regions of the world. Despite this, Arab women's economic participation remains the lowest in the world: not more than 33.3 per cent of women fifteen years and older in contrast to the world average of 55.6 per cent." (AHDR 2005: 8) If anything, women's empowerment has deteriorated further since the report was published. For example, four women were elected into the Kuwaiti Assembly in May 2009. In February 2012 elections not a single woman was successful in winning a seat!

The Arab Human Development Reports help to underline two points. First, information is readily available about the Middle East that leave little doubt about deficits as well as remedial actions. Second, traditional methods of analysis lead to similar conclusions to those drawn from complexity. That degree of convergence leaves little room for doubt.

Ethnic, Religious and Social Fragmentation

Along with the topics considered by the AHDRs, there are other issues that have key importance to the Middle East when that region is viewed as nested complex adaptive systems. Of these, fragmentation in all its manifestations is one of the cardinal factors that hinder stability and successful evolution in the area. Nations in the Middle East (and north Africa) present a bewildering ethnic, religious, and tribal mix. History suggests that they managed in the past to coexist and to collaboratively evolve exceptionally advanced civilisations for many centuries (Al-Khalili, 2010).

With the arrival of the twentieth century, and especially the post World War One geographical settlements imposed by foreign powers, diversity began to be seen as a problem. Leaders pretended there was no diversity or alternatively tried to exclude minorities, and in some cases majorities. In addition, external powers, throughout the colonial period and up to the present, attempted to exploit diversity as a means to 'divide and rule.'

Fear of diversity and the search for uniformity (and imposed conformity) are contraindicated for successful evolution of adaptive systems (Coveney and Highfield, 1991: 121). The explanation is straightforward. Confronted by a changing fitness landscape, a system stands best chances of survival and evolution if at least some of its elements show high fitness for conditions prevailing at any time. In other words, far from being a problem, diversity in all its manifestations is an asset. Put another way, no amount of attention to good education and health could compensate for the constraints imposed by ethnic, religious and tribal divisions; both domestically grown and encouraged from abroad.

Alarmingly, this feature has become more commonplace in areas which were relatively free from such impediments. After the 2003 war, Iraq became a patchwork of zones exclusively inhabited by this or that sect of Muslims. Minorities, such as Christians, had virtually nowhere to go and many left the country as refugees. In a lecture at Georgetown University on 5 April 2006, a past governor of the Iraqi Central bank and past Chief of Natural Resources in the Science and Technology Department in the U.N. Economic

Commission for Western Asia commented that the Coalition Provisional Authority “never used the term Iraqi people... They started using “Kurds,” “Turkmen,” “Arabs,” “Sunnis,” “Shias,” etc...[and yet] of the different prime ministers who took office between 1920 and 2003, eight of them were Shia and four were Kurds. Out of eighteen military chiefs of staff, eight were Kurds... Out of the fifty-five people on the ‘Wanted List’ that the occupying authority published, thirty-one were Shia.”

(www.iraqsnuclearmirage.com/articles/Haseeb_Wash_DC.html)

Friction between Christian Copts and Muslims in Egypt came to the surface shortly after the ‘revolution’ in January 2011 and increased through 2011 (see *The Washington Times*, 8 May 2011 and *BBC News*, 10 October 2011). Similarly, divisions, this time between Sunni and Shia Muslims, erupted in Bahrain and continue to rumble on.

At the time of writing, conflict in Syria is increasing. The Assad regime is drawn from the Alawi sect that is loosely related to Shia Islam. They form about 13% of Syria’s population. As a minority regime, the government developed good relations with other minorities; including Christians. It is possible that if the mainly Sunni opposition were to win then Alawis and other minorities might well have a hard time.

A post ‘revolution’ story is in evidence in Tunisia. The past ruling class is still there but this time closer to the Salafists. “Women began to wear the niqab, men to grow beards and wear Afghan-style clothes” (*The Independent*, 21 February 2012, ‘Poisoned spring: revolution brings Tunisia more fear than freedom’, Robert Fisk). Salafists, a particular form of Sunni Islam, won about 20% of the vote in recent elections in Egypt. Their leaders are already making disconcerting statements.

The situation in neighbouring Libya is not better. “As recent reports by human rights groups and journalists have made clear, the country has descended into rival fiefdoms of competing militias. Misrata, has set itself up as a “city state” with its own prisons and justice system... The new post-Gaddafi state, far from coalescing into meaningful institutions, is becoming ever more fractured.” (*The Observer*, 19 February 2012, ‘One year on: chaotic Libya reveals the perils of humanitarian intervention’, Peter Beaumont.)

The conflict between Palestinians and Israelis, and within the Palestinian camp itself, is of course a long standing divisive issue that does not require elaboration. Nonetheless, one aspect merits mention: it has been obvious for long that successive Israeli governments, rightly or wrongly, have considered it in the national interest for the Arabs to remain fragmented and preoccupied with internecine conflicts.

Fear of Islam as a Unifying Force

Mind-making, alongside state-making and wealth-making, is recognised as a fundamental part of the international political economy (IPE). Furthermore, metaphors are often used to simplify a complex world. They are readily deployed by domestic and foreign interest groups to promote their aims. For centuries Christianity and Judaism were active opponents. During the twentieth century the rivalry was transformed into one in which the two are united against Islam.

Islam is, and has been since its inception, a political economic philosophy that is possibly even “more important than any doctrinal teaching about God.” (Armstrong, 2001:6)

Pearson and Payaslian (1999:33) included Islam as one of the main IPE theories. Islam, therefore, transcends geographical boundaries and ethnic groupings. It is potentially a unifying force and as such is feared by many existing and aspiring local leaders as well as by foreign powers with an interest in controlling events in the Middle East. Today's metaphors are not new. During the Crusades "Islam was described by scholar-monks of Europe as an inherently violent and intolerant faith. The myth has become one of the received ideas of the West." (Armstrong, 2001: 153) It did not cause much comment when an author described 1967 "as the decades-long war between Israel and Islam began..." (Barnett, 2004: 42) The metaphor of 'Islam' is useful indeed in mind-making, although many Arabs are Christians and most Muslims are not Arabs!

Most of the Middle East, irrespective of ethnicity, was essentially one political unit under the banner of Islam and other religious groups lived and prospered within the system. One hundred years after the birth of Muhammad in 570 CE Islam had spread to the whole of the Middle East and North Africa. Within another hundred years Persia and today's Afghanistan had converted to Islam and Islamic rule had expanded to cover the Iberian Peninsula and Sicily. The Ottoman Empire came into being at about 1300 CE and lasted some six centuries. Attitudes to, and fears of, Islam as a dynamic political economy, therefore, are not unexpected but they came to the fore in the aftermath of post World War One settlements and the demise of the Ottoman Empire.

The Arabs had asked for a united Arab country as the price for helping the Allies in World War One. Two years before the end of the war, however, a deal was signed between Britain and France (the Sykes-Picot agreement of 1961) to divide the Arab Middle East into small and ineffectual, essentially colonised, states (Simons, 2003:16 and Lewis 2003: xiii). Unity that existed for centuries was ended with long-lasting consequences (Hourani, 1991: 85 and 316). In a recent interview with al-Ahram, a well-read Egyptian daily, Mohamed Heikal, a distinguished Arab political commentator, suggested the Arab Spring might well prove to be a second Sykes-Picot leading to more disarray.

Islam was viewed by Arab dictators in recent decades as a threat to their grip on power. In consequence they sought to create sectoral divisions. The same fears and responses were presented by foreign powers who, rightly or wrongly, thought their interests would be threatened by a return to unity in the region. Is it not sensible to blame foreign influences exclusively as an author writing in Al-Ittihad; Arabic paper published in the Gulf, argued convincingly (A-Ittihad, 2 February 2012, 'Freedom and redrawing maps') He argued that discord could not be created without local roots. On the other hand external preferences cannot be missed. For instance, Anderson and Stanfield (2004) considered US options for "the future of Iraq" and reached the conclusion that, "division" on sectoral and ethnic lines into three states is an attractive possibility.

Divisions along ethnic, religious, and tribal bases are powerful impediments to proper functioning of most if not all the Arab countries of the Middle East as complex adaptive systems. Islam has now been turned from an agency for unity and cooperation to one of discord. The matter is made worse by the continuing dispute between Palestinians and Israelis. There have been some encouraging signs in recent decades such the creation of the Gulf Cooperation Council. Unfortunately, time which is badly needed for these efforts to lead to larger moves towards unity, is not on the Arab's side. The fitness landscape in the Middle East is becoming even more inhospitable for the local populations as competition between the West led by the USA is gearing up to a new cold war with the rising East (The Independent,

25 February 2012, 'The new cold war has already started- in Syria', Robert Fisk). The latest US Defense Strategy announced by president Obama in January 2012 leaves little doubt about the direction of travel.

Brain Drain Turned into a Flood

There is one further deficit that should be of grave concern to decision-makers in the Middle East: a brain drain that is now a flood. Tragically, this situation is deteriorating due to a number of factors including divisions, insecurity and external interference. This subject was discussed by the AHDRs but it merits further attention as the loss of highly qualified professionals has increased substantially since the reports were drafted.

One specific cause relates to the violent nature of succession in governing elites. It is now almost traditional that when one regime is replaced by another that a whole layer of managers in both the public and private sectors is hounded out and replaced by others more acceptable to the new regime.

As always, what happened in Iraq offers an extreme example of the application of this punitive tradition. The army coup in 1958 resulted in a relatively limited shake up, but changes of ruling factions in quick succession thereafter produced larger upheavals. By the time Saddam and the Ba'ath Party acquired supreme power a whole generation of so-called 'nationalists' and 'communists' were sacked, liquidated or forced to leave the country. When the Coalition Provisional Authority was set up by the occupying forces after the 2003 invasion the matter was elevated to the status of overt policy. CAP Order No. 1 concerned the 'De-Ba'athification of Iraqi Society'; involving in the words of Bremer, the ruler of Iraq at the time "approximately 20,000 people, overwhelmingly Sunni Arabs." (Bremer, 2006: 40) One can only imagine the effect that action had on relations between Shia and Sunnis!

The erosion of human assets did not stop there. In the years after 2003 a systematic process unfolded in which academics and professionals; especially in the field of medicine were assassinated or kidnapped and then ransomed on condition that they leave the country. Dr I. Jalili, FRCS summarised the position at an international conference held in Madrid in April 2006 on the assassination of Iraqi academics. www.globalcomplexity.org/PlightofIraqiacademics.htm). The Brussels Tribunal (www.brussellstribunal.org) has continued to pursue this subject. Moreover, the proceedings of an international seminar on the same subject held at Ghent University in March 2011 were published in a textbook entitled *Beyond Educide* (Adriaenssens et al., 2012). UNESCO (2010: 202, 209) considered education under conditions of conflict, including sections in the report on Iraq and Lebanon. Space does not allow a full presentation of the process of erosion but detailed information is available in Baker et al., 2010. However, it has to be said that the process of attrition started well before 2003 during thirteen years of UN sanctions that had profound effects on the ability of a whole nation to function properly as a complex adaptive system (Simons, 1998).

It was appropriate to devote space for the above topic, which affects other nations in the Middle East in more subtle and less dramatic ways, as it demonstrates that it is possible to wage a kind of 'complexity war' on a society through reduction of the capacity of its citizens to interact productively. Most of the countries in the Middle East are involved in such a war, self inflicted in some instances and externally waged in others. Realisation that there is such a process is a major step towards seeking remedial actions.

Conclusions

Once nations are seen as social complex adaptive systems both deficits and remedies become clearer. Looking at the Middle East from a complexity perspective reveals a number of preconditions for success:

- 1) There are no shortcuts to sustainable progress. Mirroring past experience of other nations, changing the fortunes of the Middle East will take many decades of focused work.
- 2) There are no certainties. Trial and error coupled with readiness to learn from mistakes is a mandatory style of management.
- 3) Exclusive elites could not impose progress. Full stakeholder engagement of all members of society, including women, is needed for progress.
- 4) Ethnic, religious and all other forms of diversity are essential assets for successful evolution.
- 5) Cooperation with other nations is of fundamental importance, but progress is driven mainly by domestic efforts.

The above prescriptions might seem disappointing especially to those wishing to achieve instantaneous success. Sadly, a complexity formulation is unambiguous about the road ahead. It describes an endless path with many twists and turns and few signposts. However, with experience the journey could be undertaken with fewer mishaps. The principal task before Middle Eastern nations is to enter that learning process otherwise there will be more pain and little gain.

About the Author:

Samir Rihani, Ph.D. was born in Iraq in a large Christian family. He went to university in Britain, and worked in the Middle East for a while. His professional life in Britain included senior appointments in both the public and private sectors; mainly in planning and development. He has written two books on complexity, one of which was co-authored with Professor Robert Geyer, Lancaster University. Samir Rihani is a research fellow at the University of Liverpool and for the last sixteen years he has served as a non-executive director on a number of National Health Service Trusts. He can be reached at: Email: S.Rihani@liverpool.ac.uk.

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