



The Cabinet
Information and Decision Support Center

*The global, regional and Egyptian
futures*

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Executive Summary

Several organizations have investigated the futures of the world as an attempt for understanding the challenges facing the world and achieving a better future. In addition, as a strategic region, the futures of the Middle East (ME) are always on the focus and a number of alternative future scenarios were developed for the region. This covers the futures of Egypt, however other reports were particularly focusing on the futures of Egypt. This report aims at representing different alternative scenarios developed for the world, the ME, and Egypt, with particular attention given to the later.

Regarding the ***futures of the world***, the National Intelligence Council (NIC) has released *mapping the global future* report in 2004. The report states that the speed of change resulting from a globalized world will be the defining feature of the world in the year 2020, where the world will be characterized by: the rise of new powers, new challenges to governance, and a more pervasive sense of insecurity including terrorism. The report represents four scenarios for the world in the year 2020. Firstly the *Davos scenario* which focuses on the economic aspect, where robust economic growth over the next 15 years could reshape the globalization process by giving it a more non-Western face. In addition, global business and technology will be attracted by Asian tigers and other developing states. Another Middle Eastern countries will continue to benefit from the increase in energy prices, however it will lag behind and even threaten the future of globalization.

Secondly, the *Pax Americana scenario*: focuses on the political aspect and illustrates the impact that radical changes to the global political landscape will have on United States of America (USA) predominance, with Washington remaining the central pivot for international politics. USA-European cooperation will be renewed even on matters concerning the ME. While the *New Caliphate scenario*: focuses on the religious aspect and portrays the emergence of a global movement fueled by radical religious identity, where a new caliphate succeeds in gaining widespread appeal from its powerful counter ideology, the *Cycle of Fear scenario*: focuses on the security aspect and explores the situation where proliferation concerns increased due to the spread of Weapons of Mass Destruction (WMD), as more countries seek to arm themselves for their own protection. Under this scenario, there is a clear cycle of Fear originating from excessive WMD-laden terrorist attacks.

Another report, "*The World in 2025*", (Glenn, 2001), suggests two different scenarios for the world in the year 2025: the *Hopeful scenario* and the *Unhopeful one*. For the Hopeful scenario, democracy flourishes and developing countries make remarkable progress via tele-education, tele-medicine, e-business partners and tele-citizens in developed countries assisting their poorer homelands. The division between people in the year 2025 also shifts from being a North-South division to being a digital division between global actors.

The *Unhopeful scenario*: which suggests that living standards do not improve as a result of aging populations. In addition, pressure on economic systems increases and political unrest are fostered by the national debt problems, and increasing unemployment and under-employment due to the continuous population growth.

Other global scenarios for the world 2015 were represented by "*World out of Balance*", (Laudicina, 2005). Firstly, *Castles and Moats scenario*, adopts a pessimistic view of the future in which terrorist groups continue their attacks against the USA. This urges governments to adopt higher levels of economic protectionism catalyzed by rising nationalist and populist sentiment.

Secondly, the Patchwork World scenario where a "muddle-through" mentality characterizes the business environment and the state of the world which is fairly chaotic since most governments lack leadership or vision. Poverty and violence characterize large regions but does not significantly affect North America, Europe and Australasia.

Thirdly, the Open Borders, Lingering Fears scenario which is characterized by intense business activity and technological innovation, and increasing living standards in countries open to the global economy. Under this scenario, the USA and China are the dominant economic, political and demographic players on the world scene.

Also the *futures of the ME* have been investigated by several authors and organizations. Three alternative scenarios were presented in the "*Meeting the challenges in the middle east*" conference (Schwartz, 2005). These scenarios are the Stale Mate scenario, the Miraculous ME scenario and the New Exodus scenario. *The Stale mate scenario* is based on the assumption that there is not enough pressure for change, as the price of failure may not yet be high enough. The situation needs to be more deteriorated in order to initiate momentum for a fundamental change. In this scenario all the trends are downward and the situation in 2025 is a worse image of today's situation.

Another scenario is the *Miraculous ME* which considers current signs as real signals for change. The reform process is at the heart of this scenario. Therefore political openness is increased with a better leadership which leads to a much broader economic progress and political legitimacy of the regime. This scenario could be called the "Arab spring scenario".

The *New Exodus scenario* is characterized by a general deterioration. There are vicious circles of rising antipathy, falling trust and poor economic performance with Leaders make bad choices to protect their current positions and privileges. In addition, the USA presence persists and the situation in Iraq and Palestine is deteriorating and the ME will be a region in chaos.

The *Centre for Future Studies, UK* has developed five alternative scenarios for the future of the ME. Firstly, *Stagnation scenario*, which is based on the assumption that changes over the next 10-15 years in the current status quo will be insignificant. No political advancement will take place and stagnation might encourage terrorism where Poor economic performance and lack of progress in the development of democratic institutions fuels unemployment, lowers living standards and leads to frustration.

Democratization and political reform scenario is a more optimistic scenario which envisages gradual democratization and political reform, leading to a group of states that share common democratic values but behave in different ways.

The *Arab-Israeli conflict scenario* assumes that settlement of the Palestine issue which leads to new and peaceful relations between Israel, Syria, Lebanon and the wider ME might be a viable scenario. On the other hand, the creation of an unstable Palestinian state and prolonged conflict with Israel would push other countries in the region to 'compartmentalized' the area, not to be affected by the conflict spilled over their territories.

Fragmentation of Middle Eastern states scenario depends on the highly debatable argument that Middle Eastern countries are not solid enough to withstand severe economic and social pressure. Consequently, new states could emerge from the remnants of fragmented states (e.g. Kurdish state).

Weapons proliferation intensifies scenario assumes an arm race in the region which is fuelled by the current tension where Iran opens declaration of military nuclear capacity. In such case, Egypt would respond by acquiring WMD. In addition, other countries such as Saudi Arabia might need to develop this capability.

Another important study was released by Rand Corporation in 2004 titled "*The Future security environment in the ME: Conflict, Stability and Political change*", investigates prospects for political security in the ME. In addition, it investigates current political, economic, and social trends in the ME to forecast future threats to regional security and their potential impact on the USA. The key findings of the study are summarized as follows:

- Liberalization will advance slowly and democratization will be even more limited
- Declining economies will likely increase popular dissatisfaction with governments
- Militaries will be more devoted to internal control than to external defense
- New leaders may be weaker and less likely to cooperate with the USA.
- Changing patterns in the energy market will strengthen ME ties with Asia.
- Communication technologies may increase the demand for public participation in government.
- Middle Eastern states will continue to develop and acquire WMD

In addition, several studies have explored the *futures of Egypt* in different fields such as politics, economics, environment and demography. According to Bensahel et al, (2004), the *political reform* in Egypt (before the last presidential elections) has been a top down approach with the regime pursuing reforms that serve its own interests while failing to adopt any measures to reduce its firm grasp on power. This was particularly true in the early 1990s where the Islamic movement represented by the Muslim Brotherhood gained increasing support. Muslim Brotherhood would probably win more votes than any other party - if they are allowed to form a political party - in a free and fair legislative elections, which is a challenge for the regime in the future to stay in power. The current political system lacks structures that are

responsive to public opinion and that can mediate between regime and popular preferences. The Egyptian government may therefore find itself in a precarious position if popular opposition intensifies.

Concerning the *economic reform*, the Egyptian economic performance has recently been more robust than existing data suggest. The government's current interest rate policy is largely responsible both for the government's ability to maintain an overvalued real exchange rate and also for the existence of large foreign exchange reserves. However, most of the capital inflows have been in short-term government securities. Such a policy is reminiscent of the Mexican situation before the crash of the peso in December 1994, when a political event triggered a run on the peso.

The recent historical experience with such a nominal anchor policy is disquieting. Similar policies have been tried in Chile (1978–1982), Mexico (1994–1995), and Argentina which may lead the conclusion that a similar economic crises in those countries may occur in Egypt in the future. In Chile, output fell by 14 percent, and over one-quarter of the labor force was unemployed. Mexico's experience was equally grim. There is no obvious reason why Egypt, which is following similar policies, should be spared a similar fate.

Demographic indicators have shown that rapid population growth is one of the main challenges facing Egypt. The number of population in year 2025 is expected to be approximately 94.7 million. This number is expected to increase by 20% in the year 2050. In addition, *the Tourism* vision forecasts shows that by the year 2020, Egypt will remain the largest tourist receiving country in the ME with more than 17 million international tourist arrivals.

Regarding *water and food*, a food and water model, IMPACT-WATER shows that the irrigation water consumption represents the highest percentage of the total consumption in the year 2010 and 2025. In addition, water withdrawal is nearly equal to the amount of renewable water by the year 2010 and will exceed the amount of renewable water by the year 2025. Also it was shown that by the year 2025 both food demand and imports will increase from that on the year 2010, where rice which was exported on the year 2010 will be imported by the year 2025.

The Africa *Environment* Outlook (AEO) report released by the United Nations Environment Programme (UNEP) in 2004, is the first comprehensive integrated report on the African environment. The AEO report provides four scenarios on the futures of the African environment, including Egypt, in 30 years time frame. Firstly, the *market force scenario* assumes the transformation of the world economy to western model with the spread of materialism and individualism. According to this scenario Air pollution is in a continuous increase and pressure on land, especially agricultural areas, caused by urbanization increases where Cairo is expected to grow larger with many resources and services need to be stretched.

The *policy reform scenario* is similar in many ways to the Market Forces scenario. This scenario assumes that politics will guide market-driven growth with a comprehensive set of sustainability policies. According to this scenario, there will be a remarkable positive changes regarding the use of reliable public transportation, population growth rates, water resources management, and marine pollution.

The *Fortress World scenario* assumes an increase in social and environmental problems, which leads to authoritarian ‘solutions’, with an isolation of the elite from the rest of the society. In this scenario poor areas suffer from high air pollution levels due to the concentration of industries in those areas, with a remarkable differences between areas designed for the elite and those designed for the poor. In addition, biodiversity and fresh water resources are respected as they will be controlled by the elite.

The Great Transitions scenario assumes that there will be strategies to deal with violations to the environment. In addition, a new generation of thinkers, leaders and activists join and shape national and global dialogue towards environmental sustainability. In this scenario congestion and its associated air pollution are eliminated by the redistribution of the population between urban and rural areas. The quality of the environment will be positively affected by the adoption of strict environmental laws.

An International Futures (IFs) model was developed by the NIC to explore the futures of different countries according to the four scenarios developed by the Council and represented by the “*Mapping the global future*”. The model was used to generate in-depth, year-by-year projections through 2020 for a large number of variables (e.g. gross domestic product, energy production, annual carbon emissions from fusel fuels). The topics covered include demographic, economic, energy, socio-political and environmental factors, Appendix A.

Introduction

Exploring possible and probable alternative future scenarios is a crucial step for coping with the accelerated pace of change in different fields. In addition, the decision making process should be based on a solid knowledge base on the future consequences of the decisions. Therefore, several efforts were exerted in order to explore the futures of the world as well as the futures of individual countries with the aim of reaching a better future.

Due to the political situation in the ME and its central location, the futures of the world affects and affected by the futures of the ME to a great extent. Therefore, the futures of the world can not be drawn without exploring the futures of the ME. In addition, the geopolitical position and the pivotal role of Egypt in the ME and the Arab and African regions, urge different organizations to explore and draw a number of alternative scenarios the futures of Egypt. These scenarios should be carefully studied and analyzed in order to investigate the expected role and position of Egypt in the world. It is also important to consider different point of views regarding the opportunities and challenges of development facing Egypt.

This report introduces the alternative scenarios developed by different organizations for the world, the ME, and Egypt. The report is divided into three main sections. While the first discusses the global scenarios developed for the futures of the world, the second represents the futures of the ME. The third section represents alternative futures for Egypt as well as a year by year prediction for a number of demographic, economic, energy, socio-political and environmental variables represented by the International Futures (Ifs) model which was developed by the National Intelligence Council.

1. The Global future

1.1 Mapping the global future¹

Based on consultations with nongovernmental experts, a report on the world's features 2020 was developed by the National Intelligence Council (NIC), Bensahel and Byman, 2004. This report states that the speed of change resulting from a globalized world will be the defining feature of the world in the year 2020 which will be characterized by the rise of new powers, new challenges to governance, and a more pervasive sense of insecurity including terrorism. The following sections describe briefly each of these defining features:

- ***The rise of new powers:*** It is expected that the geopolitical landscape will be transformed by the emergence of new major global players, the most prominent of which are China (whose GNP is forecasted to exceed that of individual Western economic powers except for the United States of America (USA) by the year 2020) and India (whose GNP is expected to approach or even exceed that of European economies). Similar to Germany which was united in the 19th century and a powerful USA in the early 20th century, the impacts of the rise of these new powers on the international arena are likely to be as dramatic. In addition, it is expected that other new powers (e.g. Brazil and Indonesia) will rise from the developing world. Regarding Russia, although it faces the demographic problem of low birth rates, a threatening AIDS situation and poor medical care, its position as a major oil and gas exporter strengthens its potential to take active part on the international level- whether as an important partner to the rising powers of China and India or to the existing powers of the USA and Europe. As for the established powers, the USA will remain an unmatched power by the year 2020 as a pivotal player on the economic, political, technological and military levels, and Europe will also flourish on the international arena backed by its single currency, market size, highly skilled workforce, stable democratic governments and unified trade blocs.
- ***New challenges to governance:*** Although nation states will continue to dominate the global order, several new major forces are expected to challenge governance as a result of economic globalization and the dispersion of technologies (mainly information technologies). The most important challenge to governance and the most significant with regards to global impact is that of political Islam, which is expected to transcend national boundaries. Political Islam is backed by increasing youth numbers in Arab states, poor economic conditions, influential religious education, and the islamization of trade unions, non governmental organizations and political parties.

¹ National Intelligence Council (NIC) (2004), National Intelligence Council's 2020 project: Mapping the global future. Available from: http://www.cia.gov/nic/NIC_globaltrend2020.html

Another challenge to governance lies in the wave of democratization, which is expected to place mounting pressures on authoritarian regimes, although newly established democracies might not be able to develop and survive due to lack of adaptive capacity. This might result in the reversing of the "third wave" of democratization by the year 2020 especially in regions which have never really embraced democracies; such as Southeast Asia and former Soviet Union states. In contrast, previously repressive Middle Eastern regimes are likely to become more democratic and enjoy greater pluralism.

Moreover, governments will have to face the challenges of multi-ethnicity which accompanies the increasing waves of migration (mainly from North Africa, Latin America and Southeast Asia to Europe and the USA) and which involves integrating the migrants into their societies and respecting their ethnic and religious identities.

- ***Pervasive Insecurity***, Although the likelihood of great power conflict or local conflicts escalating into total war in the next 15 years is lower than at any time in the past century, globalization will profoundly affect the status quo leading to huge economic, cultural, and consequently political convulsions. Internal conflicts have become more likely in some regions due to the prevailing situation of weak governments, lagging economies, religious extremism, and youth bulges, and which all lead to a greater sense of insecurity. This prompts countries without nuclear weapons (especially in the ME and Northeast Asia) to seek them similar to their regional rivals.
- ***Terrorism***, International terrorism has become one of the most important challenges facing the world and is likely to remain a threat in the future due to the persistence of the driving forces fueling terrorism over the next 15 years. Terrorism is mainly facilitated by global communications, where information technology has allowed for instant connectivity, communication, and learning which enhances terrorist decentralization and does not require the existence of stationary headquarters for terrorists to plan and carry out operations. Information technology also means that terrorist tools (e.g. training materials, targeting guidance, weapons know-how, fund-raising) will become virtual, and that terrorists might be able to acquire biological agents or even a nuclear device which would cause mass casualties. Another key factor that is likely to enhance terrorist movements is the spread of radical Islamic ideology inside the Middle East (ME) and even to regions where religious identity is not strong such as Southeast Asia, Central Asia and Western Europe. Al Qa'ida, which is now considered the most highly ranking terrorist group, is expected to be superseded by other Islamic extremist groups which are inspired by the same ideology by the year 2020. Moreover, Islamic groups akin to al-Qaida might even merge with local separatist movements.

In addition to the features described above, the report proposes **four different scenarios** for the world in the year 2020 which are: Davos World scenario, Pax Americana scenario, A New Caliphate scenario and Cycle of Fear scenario. Each

scenario is concluded by a set of lessons to be learned from how the scenario plays out:

1. ***Davos scenario:*** This scenario focuses on the economic aspect and it illustrates how robust economic growth over the next 15 years could reshape the globalization process by giving it a more non-Western face. The scenario gets its name from the fact that it was expressed in the form of a hypothetical letter from the head of the World Economic Forum to a former USA Federal Reserve chairman on the eve of the annual Davos meeting in 2020. Under this scenario, Western countries will be outpaced by the Asian tigers and other developing states whose huge, consumer driven domestic markets attract global business and technology. Medium-sized emerging countries are likely to be unremarkable in this scenario although Africa does better than expected. The ME will continue to benefit from the increase in energy prices but nevertheless will lag behind and even threaten the future of globalization. In addition, an economic meltdown can be triggered by growing tensions over Taiwan. Under this scenario, Western powers (including the USA) will have to deal with the problem of job insecurity which accompanies an expanding global economy.
2. ***Pax Americana scenario:*** This scenario focuses on the political aspect and it illustrates the impact that radical changes to the global political landscape will have on USA predominance, with Washington remaining the central pivot for international politics. This scenario is expressed as a diary entry by a fictitious UN Secretary-General in the year 2020. Under this scenario, Washington will struggle to assert leadership in a world that will become increasingly diverse, complex, and fast-paced. Also, new security arrangements will take place in Asia even though the USA will still be the main player in the area. USA-European cooperation will be renewed even on matters concerning the ME. In addition, under this scenario key alliances and relationships with Europe and Asia undergo change.
3. ***A New Caliphate scenario:*** This scenario focuses on the religious aspect and it portrays the emergence of a global movement fueled by radical religious identity, where a new caliphate succeeds in gaining widespread appeal from its powerful counter ideology. This scenario is expressed in the form of a hypothetical letter from a fictional grandson of Bin Ladin to a family relative in the year 2020, in which the challenges facing the caliph in trying to wrest control from traditional regimes are discussed. In addition, confusion and conflict within the Muslim world and between the Muslims and the USA, Europe, Russia and China caused by those trials are discussed. Although under this scenario the Caliph succeeds in mobilizing some support, his appeals cause convulsions in places far outside the Muslim core in the ME (Africa and Asia). Unlike previous Caliphates, the scenario ends before the Caliph is able to establish spiritual and temporal authority over a territory.
4. ***Cycle of Fear scenario:*** This scenario focuses on the security aspect and it explores what might happen if proliferation concerns increased due to the spread of Weapons of Mass Destruction (WMD) as more countries want to arm

themselves for their own protection, to the point that large-scale intrusive security measures become necessary, making it increasingly difficult for proliferators (such as illegal arms merchants) to operate. This scenario is expressed in the form of a series of text-message exchanges between two arms dealers; while the first is ideologically committed to ensuring that the Muslim world has its fair share of WMD, the other is strictly for hire, and both have no clear information on their clients—a government or terrorist front. Under this scenario, there is a clear cycle of Fear originating from excessive WMD-laden terrorist attacks which at first play for the benefit of the arms dealers who appear to be engaged in lucrative deals. Therefore Fear begins to fill the arms dealers as governments implement draconian measures to stem proliferation and guard against terrorism. As part of this scenario, globalization could be the real victim.

1.2 State of the future 2001¹

Following September the 11th attacks, the World Future Society issued "*The World in 2025*" report (Glenn, 2001), which proposes 2 different scenarios for the world in year 2025:

1. ***Hopeful scenario:*** This scenario envisions a world in which democracy flourishes, developing countries make remarkable progress via tele-education, tele-medicine, e-business partners and tele-citizens in richer areas assisting their poorer homelands. The division between people in the year 2025 also shifts from being a North-South division to being a digital division between global actors, where technology provides easy access to world education and markets, and therefore individuals invest their time in diverse activities, inventing their careers, and granting access to others in the same manner that nations used to grant visas.
2. ***Unhopeful scenario:*** Under this scenario, living standards do not improve as a result of aging populations, national debt problems, increasing pressures on natural resources, and increasing unemployment and under-employment as population growth outpaces job growth in most regions. This increases pressure on economic systems and fosters political unrest. This scenario identifies the newly developing countries that have succeeded in functioning within viable trading blocs.

1.3 World Out of Balance²

¹ Glenn, J. (2001), State of the Future: The World in 2025. Available from <http://www.theglobalist.com/DBWeb/StoryId.aspx?StoryId=2175>

² Laudicina, P. (2005), World Out of Balance. Available from <http://www.theglobalist.com/DBWeb/StoryId.aspx?StoryId=4429>

Three alternative scenarios for the world 2015 were developed (Lauiciana, 2005). The scenarios were developed with five driving forces on the focus: globalization, demographics, consumption patterns, natural resources/environment and regulation/activism. The developed scenarios are Castles and Moats scenario, Patchwork World scenario and Open Borders, Lingering Fears scenario.

1. ***Castles and Moats scenario:*** This scenario adopts a pessimistic view of the future in which terrorist groups continue their attacks against the USA and its institutions abroad leading to a world plagued with instability, where confidence in the world's preeminent political and economic superpower erodes. In addition, this results in national security concerns topping the priority list in Western nations, which might restrict civil liberties as governments subject their citizens to constant surveillance. The xenophobia that accompanies these attacks will impact immigrants, foreign workers and ethnic minorities as they become subject to intense scrutiny which makes them more unwilling to travel, work or live abroad. On the economic side, governments start to adopt higher levels of economic protectionism catalyzed by rising nationalist and populist sentiment and which is embodied in governments trying to protect jobs and prevent them from going overseas, and putting barriers to foreign investment and cross-border travel to ensure that they can safeguard their own unique ways of life.
2. ***Patchwork World scenario:*** Under this scenario, a "muddle-through" mentality characterizes the business environment and the state of the world which is fairly chaotic where most governments not only lack leadership or vision but also the skills required for achieving them. The same logic plagues the corporate sector which seeks growth and profits. Poverty and violence characterize large regions but does not significantly affect North America, Europe and Australia where much of the trouble is localized.

Due to the scarcity of government aid and emergency financing, developing world struggles to survive. On the other hand, the world's wealthiest consumers account for a greater share of global spending power than at any other time in modern history. Macroeconomic growth in Japan, China and Southeast Asian countries are curtailed due to the damaging impact of trade barriers on their key exporting industrial sectors. Expenditure by middle-income consumers, who account for 29% of the world population, shifts to emerging markets such as China, India, Mexico and Brazil. In addition, under this scenario, national governments will face mounting difficulties to regulate corporations, partly as a result of the mass exodus of talented senior policymakers to the private sector as they seek more lucrative careers. Governments also turn to corporations to handle a number of formerly public sector services (such as technical training programs, law enforcement and healthcare) as they are confronted with tight budgets and growing obligations to care for their aging populations. This makes corporations increasingly sensitive about how they are perceived by the general public due to their bigger role in the public sphere. This decline in government oversight encourages activist groups to step in and enforce certain standards of corporate behavior.

3. ***Open Borders, Lingering Fears scenario:*** This scenario is characterized by intense business activity and technological innovation, and increasing living

standards in countries open to the global economy, although further trade liberalization remains gradual. In this scenario, the richest markets consumption patterns shift to more high-end, lifestyle-enhancing products and services. In addition, a surge in trade in services is apparent and truly global production and distribution networks emerge facilitated by digital connections. Consumers become less tolerant to unsatisfactory products and services as their expectations are continuously rising and are coupled with demand for constant innovation. Under this scenario, the USA and China are the dominant economic, political and demographic players on the world scene and their markets are large, robust, and highly intertwined.

2. The Regional future

The futures of the ME have been investigated by several authors and organizations. The following sections represent the most comprehensive studies and their proposed alternative scenarios.

2.1 Meeting the challenges in the ME

Three alternative scenarios were presented in the "*Meeting the challenges in the middle east*" conference (Schwartz, 2005)¹. These scenarios are State Mate scenario, the Miraculous ME scenario and the New Exodus scenario.

- 1- ***Stale Mate scenario:*** this scenario is based on the assumption that there is not enough pressure for change, where the price of failure may not be high enough. The situation needs to be deteriorated more in order to initiate momentum for fundamental change. In this scenario all the trends are downward and the situation in 2025 is a worse image of today's situation.
- 2- ***The miraculous ME scenario:*** Current signs are considered by this scenario a real signal for change. The reform process is at the heart of this scenario. Therefore political openness is increased with a better leadership which leads to a much broader economic progress and political legitimacy of the regime. In addition, peace is made possible by the success of a Palestinian state & security is increasing by order in Iraq. This scenario could be called the "Arab spring scenario". This scenario of virtuous of circles rising trust in the economy, which feeds political participation and openness and vice versa.

Outside players support the right moves and do not interfere in the countries internal and/or external policies and therefore rather tilting the playing field in the right direction. The USA invests in diplomacy, education and the tools of collaboration than investing in military intervention. Also the USA would have to reduce its dependence on imported oil so that other countries would join that effort.

- 3- ***The New Exodus scenario:*** the major characteristic of this scenario is a general deterioration. There are vicious circles of rising antipathy, falling trust and poor economic performance with leaders make bad choices to protect their current positions and privileges. While reform processes are supervised and the cosmetic and the legitimacy of most regimes is in question, their powers are not.

¹ Peter Schwartz, P. (2005), The future of the ME. In "*Meeting the challenges inn the middle east*", April 2005. Available from <http://www.gbn.com/GBNDocumentDisplayServlet.srv?aid=30287&url=%2FUploadDocumentDisplayServlet.srv%3Fid%3D31127>

The USA presence persists and claims that it maintains order in Iraq is still valid, however it is really a civil war in Iraq with the new slogan is "Iraq is Arabic for Vietnam". In addition, the Palestinian state devolves into something like Somalia, and the settlements problems remain unresolved, this results in Intifada III. By the year 2025, it is expected that the ME will be a region in chaos where Egypt and Syria shoot Israel from time to time. Iran owns nuclear weapons and one of the ME leading countries is an authoritarian regime sinking into vast poverty.

2.2 Future of the ME project¹

The Centre for Future Studies in the UK, Shaw, 2005 developed five alternative scenarios for the ME. The scenarios were based on the following driving forces: natural resources, population, demographics, governance and social identity. With respect to natural resources, it is important to investigate the impact of the supplier of oil and gas on the relations between states in the region and external powers. Population demographics discuss who wins and who losses over time. The governance as a driving force is concerned with the democratization process and which countries of the region will be more democratic by the year 2020. Finally, social identity investigates whether Islam will be politically important for Middle Eastern social identity by 2020. The following section presents the developed scenarios.

- 1. Stagnation scenario:** The basic assumption of this scenario is that change over the next 10-15 years in the current status quo will be insignificant. Governments will manage without conflicts and no political advancement will take place with just enough income and growth for the regimes to keep the situation stable in their countries. Although it is unlikely, a dramatic change could take place if there is a major fall in oil revenues.

Unfortunately, the stagnation scenario might encourage the continuation of terrorism where poor economic performance and lack of progress in the development of democratic institutions fuels unemployment, lowers living standards and leads to frustration that can be exploited by groups that espouse violence as a means to promote change.

On the contrary, an ideal scenario assumes that the Arab-Israeli peace is achievable in the near future. This might promote democracy which positively affects the economic growth and employment. This leads to regional integration and a move towards secularization in which moderate forms of Islam would be the predominant culture.

¹ Shaw, D., et al. (2005), Future of the ME in "*Towards formulating a future vision for Egypt*", June 27-29 2005, Cairo, Egypt. Available form <http://www.futurestudies.co.uk/images/A%20future%20vision%20for%20Egypt.pdf>

Because the ME is not a homogenous region, reality will be a mix of good and bad and some leaders might try to avoid significant change, but social and economic pressures will force many of them to embrace it. The role of USA foreign policy in the region will continue to be crucial and the support given to the obsolete regimes will continue for the USA to secure its oil resources. This would cause continued stagnation

2. ***Democratization and political reform:*** This is a more optimistic scenario which envisages gradual democratization and political reform. This will lead to a group of states that share common democratic values but which are organized and behave in different ways. Because most of the ME regimes are authoritarian, the challenges of democratization must not be underestimated.

The democratization process will have an impact on the political system. As democratization progresses, there will be an opening up of political systems, greater public participation in political life, development of a strong civil society improvement in the freedom of information with the help of increased access to internet sources of information, and the development of independent media. Unlike the previous situation, autocratic regimes will be thrown out of power if they fail to deliver a reasonable standards of living.

Opening up of the political system would result in a broader cross-section of political opinion as more political parties emerge. This indicates that the traditional Islamist parties need to regroup and organize themselves to meet the challenge of political competition with politically democratic principles, while maintaining their conservatism to gain support in the election process.

This democratization process will be carried out on a country basis with tensions expected due to the presence of new political forces. However this process will promote a democratic culture where extremist elements are likely to be gradually neutralized.

3. ***Arab-Israeli conflict:*** A settlement of the Palestine issue which leading to new and peaceful relations between Israel, Syria, Lebanon and the wider ME was argued to be a viable scenario. The conflict which was on the top of the political agenda, has given regimes an excuse for not adopting an economic and social reform. Although peace would not promote democracy elsewhere in the region, it would have a strong positive regional effect and force governments to address other pressing problems.

On the other hand, the creation of an unstable Palestinian state and prolonged conflict with Israel would push other countries in the region to 'compartmentalized' the area not to be affected by the conflict spilled over their territories.

Unlike the current situation and eventhough it affects political development, the Israel–Palestine conflict would not be the dominant driver in the region over the next 15-20 years.

4. **Fragmentation of Middle Eastern states:** This scenario depends on the highly debatable argument that the Middle Eastern countries are not solid enough to withstand severe economic and social pressure. Consequently, new states could emerge from the remnants of fragmented states (e.g. Kurdish state). Another possibility could be the fragmentation of Saudi Arabia into a series of mini states, as a result of a final showdown between modernists and traditionalists.

Fragmentation of the region would result from failures of the international community rather than from purely internal and regional dynamics.

The failure of the USA-led war on terror and the military intervention in the region in securing a lasting peace could promote internal divisions and conflicts which could end up in a disaster. Although it is unlikely that this scenario would take place, the possibility of a catastrophic situation that could be managed in the traditional political manner (e.g. future emergence of a new and hostile nuclear power) should be taken into consideration.

Rather than complete fragmentation of states, it was thought that regional devolution and semi-autonomous regions within states are more probable. These areas could be exploited by extremists not wishing to work within the normal mainstream political institutions of the country.

The opposite scenario of a unified region was also considered. This scenario requires the emergence of an Arab leader accepted by all –including Israel- and has the ability to unify the whole region.

5. **Weapons proliferation intensifies:** The weapons proliferation scenario assumes an arm race in the region which is fuelled by the current tension where Iran opens declaration of military nuclear capacity. In such case, Egypt would respond by acquiring such weapons which could be ‘bought in’ rather than developed ‘in-house’. Moreover, other countries such as Saudi Arabia might need to develop this capability. This scenario could happen especially if one nation has the temerity to promote actual friction through conducting missile tests or similar unfriendly actions.

2.3 The Future security environment in the ME: Conflict, Stability and Political change¹

Rand Corporation has investigated the prospects of the foreseeable future of the political security in the ME, (Bensahel and Byman, 2004) . RAND Project AIR FORCE studied current political, economic, and social trends in the ME to forecast future threats to regional security and their potential impact on the USA. The key findings of the study are summarized as follows:

¹ Bensahel, N., and Byman, D. (2004), The future security environment in the ME: Conflict, Stability, and Political Change, Rand Corporation. Available from <http://www.rand.org/publications/MR/MR1640>

- *Liberalization will advance slowly and democratization will be even more limited*

This finding was expected due to the well publicized information that Middle Eastern countries are typically controlled by authoritarian, nondemocratic regimes, however these regimes have come under pressure in recent years to reform their political systems and to allow for more freedom over the media and other forms of public expression. It is crucial here to distinguish between liberalization and democratization where liberalization can be seen as the introduction of civil liberties such as free speech and freedom of assembly, while democratization can be defined as the development of democratic institutions such as elections and representative legislature. The response of some states to this mounting pressure was to allow for liberalization but with limited democratization. This takes place by allowing citizens to participate in civic organizations that are tied to the state rather than representing grassroots interests. There is a possibility, however, that continued liberalization may induce the public to demand political reform leading to more long-term democratic change.

- *Declining economies will likely increase popular dissatisfaction with governments*

Middle Eastern governments currently face significant obstacles to achieving economic growth such as heavy debt, over taxation, and government corruption. In addition, the recent economic reform efforts made by those countries have failed to create jobs or to attract foreign investment. Therefore the region is suffering from high rates of unemployment, poverty, and heavy demands on both clean water and domestic food supplies. High population growth rates which characterize the region are expected to increase even more in the future, which means that countries will need to import more food and will have to invest in expensive water reclamation technologies. This unstable situation and the deteriorating economic conditions will increase potential for unrest as public confidence in the governments starts to erode. The situation will be worse by the surplus of unemployed, educated youths who will provide fertile ground for radical fundamentalism to grow. Economic improvement becomes nearly impossible as the reform measures needed (e.g. fewer government regulations and greater accountability) could alienate special-interest constituencies leading to a destabilization of the regimes.

- *Militaries will be more devoted to internal control than to external defense*

The nature of many ME states is of “dual mandate” militaries responsibilities, where the military is responsible for facing internal challenges as well as external threats. Because most Middle Eastern countries suffer from mounting economic and social pressures that would increase domestic threats, it is expected that these militaries will commit their best resources to establish internal control (e.g. by suppressing demonstrations) leading the military forces to be less effective at external defense. The military will be even more weakened as regimes become reluctant to grant power to frontline commanders as a way of seeking to consolidate control. This will have positive and negative implications on the USA, where the USA allies in the region will possess the means to suppress terrorist groups within their borders and will be less effective in combat operations.

- *New leaders may be weaker and less likely to cooperate with the USA.*

The current political situation in the ME has shown that since 1997, new leaders have come to power in Iran, Algeria, Bahrain, Jordan, Morocco, and Syria, and that leadership changes are expected in Saudi Arabia and Egypt in the near future. This means that most of the ME will be governed by relatively new leaders who will have to build popular support for their regimes by resorting to suspending unpopular policies such as cooperating with the USA on its war on terrorism or supporting Arab concessions to Israel in future peace negotiations. These new and relatively inexperienced leaders are likely to make foreign policy mistakes due to an overestimation of their countries' military strength, or by believing that they can intimidate their adversaries, or by trusting in international support which proves to be unreliable and will increase tensions between different states.

- *Changing patterns in the energy market will strengthen ME ties to Asia.*

The ME region dominates the global energy market with roughly 70 percent of the world's proven oil reserves. This domination is expected to be further strengthened in the future through new exploration and increases in production capacity. Given the nature of unstable political relations between the ME and the West, the USA and Europe are expected to rely heavily on consuming Russian oil as opposed to Middle Eastern oil in the future. Another important change is expected in the energy market is that Asia will become the leading consumer of oil from the ME, which could have important political implications for the West. This is because China, North Korea, and Russia are among the leading suppliers of WMD and missile technologies, therefore as Asian energy demands increase, the defense trade between Asia and the ME is expected to grow. This will present a difficulty in the USA's mission to pressure Asian governments not to export arms to hostile ME regimes.

- *Communications technologies may increase the demand for public participation in government.*

Although advanced technologies (e.g. Internet) are limited to the wealthier and more educated strata of Middle Eastern society, mid-level technologies (e.g. satellite television, videocassettes) are widespread among the general population and could have a profound impact on the political landscape, as they permit the quick and inexpensive circulation of printed materials that are beyond the control of government media and publishing monopolies, and they expose people to Western media. This means that the Middle Eastern society will have more diverse views on politics and world events and they will have the ability to participate in more forums and debates. This is likely to compel Middle Eastern governments to take greater steps to eradicate corruption, to become more transparent, and to increase living standards. However, some governments might take the other extreme and become even more authoritarian, and resort to intimidation or force to silence dissenting voices and to limit popular access to certain technologies.

- *ME states will continue to develop and acquire WMD*

Although WMD capabilities in the ME region have increased in recent decades, they have not reached an alarming level as originally feared by Western analysts.

However more Middle Eastern countries (e.g. Iran) are seeking to develop or acquire chemical, biological, radiological, or nuclear weapons as well as advanced delivery systems. Continued proliferation of WMD in the ME would have serious implications both within the region and around the world. Firstly, because the geographical distance between adversaries in the ME is very short, sudden and catastrophic damage could be easily inflicted without needing long-range delivery systems. Moreover, USA freedom of action will be greatly limited and constrained in the ME as its deployed forces become more vulnerable. Finally, this continued proliferation of WMD in the ME poses a threat to the USA homeland as terrorist groups have more access to such weapons, and this can be demonstrated by September the 11th attacks where certain groups were able to stage large-scale offensives against the USA.

In addition to the above features that are likely to occur in the future, there are five other developments of tremendous importance but that are difficult to predict: the price of oil, the future of Iraq, the future of the Arab-Israeli conflict, the policies of Russia and China, and the nature of regime change.

The ME has traditionally been a turbulent region and it is expected to remain, therefore the reasons have changed dramatically from Fears of conventional military attacks from an aggressive state to more complicated challenges such as proliferation of WMD and terrorism. The region is also vulnerable to sudden and profound changes in its politics due to a lack of democratic institutions and the individual-dependent nature of many of the regimes, which is a problem that has to be realized by USA policy.

The region has not only changed in itself but the American role in the region has also changed to become more influential than ever before, as can be demonstrated by the USA involvement in postwar Iraq and in closely co-operating with many countries in the region to counter terrorism. This increasing role in the region also increases threats to the USA as it is perceived as upholding the regional status quo, an issue that place great importance on the USA efforts to rebuild Iraq and mediate the Arab-Israeli conflict.

Given the current and expected turbulence in the region, the USA should resort to a multidimensional and coordinated policy approach which requires more dependence on tools such as economic restructuring, counterterrorism training and encouraging the rule of law. Unless it pursues a multidimensional and coordinated policy approach, the USA will be confined to reacting to crises rather than preventing and managing them.

3. The Egyptian future

The following sections introduce the futures of Egypt as drawn by international organizations. Political reform, economic reform, futures of demography, tourism, and environment are discussed. Also expectations for important economic, agriculture, energy, political, and social variables till the year 2020 are represented.

3.1 Political reform¹

Unfortunately, the political reform process in Egypt has improved theoretically rather than practically although the democratization process has improved with respect to the legislative elections that is held every four years, these elections are characterized by government intervention. Despite the fact that there are fourteen political parties, only few of them are practically significant. Moreover, legislative seats given to opposition groups have been increased recently, however non of these parties could challenge the dominant position of the National Democratic Party (NDP), Bensahel and Byman, 2004.

Similarly, the liberalization process has progressed with respect to the increasing number of civil organizations during the past 20 years but with limited and controlled freedom. In addition, associational groups must register with the state where their activities and public meetings are regulated by the government. Although press freedom has relatively improved after the release of a responsive press law in 1996, the media still depends on the state for access to resources and permits to operate. This limits the freedom of the media and therefore restricts the diversification of different opinions.

Although judiciary is independent of the state and in some important cases has acted as a check on the regime's power, the government has the right to transfer sensitive cases to security and military courts which are controlled, to a great extent, by the government. This happened recently in the case of Saad Eddin Ibrahim the sociology professor that was sentenced by the supreme security court to seven years in jail on charge of defaming the state. This decision was taken by 3 judge panel leading after 90 minutes of deliberation. Many believe that the decision was politically motivated and later Saad Eddin Ibrahim was released by the Egyptian appeal court in a challenge to the Egyptian emergency law (Bensahel and Byman, 2004).

According to Bensahel and Byman (2004), the political reform in Egypt has been a top down approach with the regime pursuing reforms that serve its own interests while failing to adopt any measures to reduce its firm grasp on power. This was particularly true in the early 1990s when the Islamic movement represented by the Muslim Brotherhood gained increasing support. The popularity of the Muslim

¹ Bensahel, N., and Byman, D. (2004), *The future security environment in the ME: Conflict, Stability, and Political Change*, Rand Corporation. Available from <http://www.rand.org/publications/MR/MR1640>

Brotherhood emits from the fact that they provide tangible benefits to its members that are not provided by the state. Muslim Brotherhood is likely to win more votes than any other party - if they are allowed to form a political party - in a free and fair legislative elections.

The continuous declaration of the state of emergency allows government to arrest suspects and detain them for unlimited periods of time without an explosion. It was claimed by the government that this action is necessary to contain Islamic radical groups. However the continuity of this law is considered a crack down on political and civil rights.

In case the current conditions, before the latest elections on September the 7th 2005, continue the Egyptians government seems unlikely to restart the political reform process. The increasing popularity of the Islamic opposition is a challenge for the regime to stay in power which is not expected to involve other parties in a power sharing process. Moreover, both the political leaders and military and security forces want to retain their positions. If the political situation changes significantly (due to an economic crisis or popular frustrations due to regime restrictions), political reform might be considered as a way to restore the government's eroding legitimacy. The current political system lacks structures that are responsive to public opinion and that can mediate between regime and popular preferences. The Egyptian government may therefore find itself in a precarious position if popular opposition intensifies.

3.2 Economic reform¹

Egypt illustrates the reform challenges faced throughout the region. The Egyptian economic reform began in 1991. During the past decade, some progress was made toward converting a grotesquely overregulated, unbalanced socialist economy into a more modern economy with a greater role for the private sector. Growth rebounded during the 1990s, averaging 4.9 percent per year from 1991 to 2001. However, significant problems remain. Stabilization has been fairly successful, while structural adjustment has been weaker, and there are signs that the pace of reform has slackened recently (Bensahel and Byman, 2004).

Most importantly, reforms to date have failed either to reduce unemployment substantially or to halt the decline in real wages, however reforms have prevented unemployment from rising. The transition to growth led by labor-intensive exports has not happened. Growth in the 1990s was mainly driven by domestic demand rather than by trade expansion. In 1999, merchandise exports were only 3 percent of GDP, and today are less labor-intensive than they were a decade ago. In addition, living standards have shown very modest improvement.

At the same time, accusations of corruption in the privatization process abound, and many observers expected the rise of "crony capitalism," similar to Suharto's Indonesia. Privatization seems to have resembled the Russian case, with a few

¹ Bensahel, N., and Byman, D. (2004), *The future security environment in the ME: Conflict, Stability, and Political Change*, Rand Corporation. Available from <http://www.rand.org/publications/MR/MR1640>

insiders reaping the most gains. Newly wealthy Egyptians are flaunting their wealth in a conspicuous consumption binge that offends the poor and provides ready propaganda for radical Islamists. The government is widely perceived as a geriatocracy, devoid of new ideas, while budgetary stringency has led the state to withdraw from some welfare functions (e.g. disaster relief, medical care, education), leaving a vacuum increasingly filled by Islamists. The medium-term political implications are disquieting.

Until 1998, the government pursued tight fiscal and monetary policies. The balance of payments was stabilized, and the rate of economic growth picked up. However, there are two major problems: The current macroeconomic posture blocks export-led growth, and the sluggishness of microeconomic and structural reforms such as privatization and deregulation impede a more vigorous private sector response. These problems have combined to retard achieving the ultimate goal, the acceleration of growth, and job creation and real wage increases.

The current macroeconomic posture implies that high interest rates will continue to attract Egyptians' funds abroad, however high interest rates reduce investment and growth. Such rates are probably less significant as a growth impediment than remaining regulatory problems, but they should be addressed. However, due to the Egyptian government persists in its present policies of exchange rate management, the government cannot reduce interest rates. With respect to this issue, there are significant differences of views between many Egyptian government officials and many foreign observers, including the World Bank.

The Egyptian government acknowledges that inflation has exceeded that of its major trading partners during the past decade. Because the nominal exchange rate has been pegged since the devaluation of February 1991, the real exchange rate has become increasingly overvalued. By 1997, the World Bank estimates the overvaluation to be approximately 37 percent compared with that of February 1991 level, and 40 percent compared with the 1987 level (when foreign exchange controls were partially relaxed). The government argued that Egyptian exports are inelastic with respect to the exchange rate, and that a fixed nominal exchange rate is essential to increase investor's confidence in the entire economic reform package (the so-called "nominal anchor" argument). The government has pegged the credibility of its reform efforts to the nominal exchange rate. While oil exports are, of course, inelastic with respect to the exchange rate, this is much less obviously for workers' remittances, especially for nontraditional manufactured goods and processed agricultural commodities. The overvalued exchange rate contributes to the relatively sluggish growth performance of the Egyptian economy by weakening such exports—the hoped for "engine of growth" for jobs and incomes.

The *Egyptian economic performance* has recently been more robust than existing data suggest, current exchange rate policy is quite risky. The government's current interest rate policy is largely responsible both for the government's ability to maintain an overvalued real exchange rate and also for the existence of large foreign exchange reserves. However, most of the capital inflows have been in short-term government securities. Such a policy is reminiscent of the Mexican situation before the crash of the peso in December 1994, when a political event triggered a run on the peso.

Recent historical experience with such a nominal anchor policy is disquieting. Similar policies have been tried in Chile (1978–1982), Mexico (1994–1995), and Argentina. In each case, the nominal anchor was deemed necessary to bolster investor confidence. However, the country was ultimately forced to undertake large, sudden devaluations when the credibility of the overvalued rate finally became unsustainable (often the result of some exogenous “shock to confidence” of a political nature). The resulting recessions were typically very sharp: In Chile, output fell by 14 percent, and over one-quarter of the labor force was unemployed. Mexico’s experience was equally grim. There is no obvious reason why Egypt, which is following similar policies, should be spared a similar fate. Unfortunately, in most cases shifting from a “nominal anchor” policy is as dangerous as sticking to it.

Since 1998, there have been increasingly disturbing signs. Firstly, the macroeconomic achievements seem to be in jeopardy, due to the government’s insistence on maintaining both a fixed nominal exchange rate and pursuing its growth objectives. Secondly, Egypt’s exchange reserves have fallen, credit expansion has accelerated, government payment debts have accumulated, and the level of dollarization has increased. In addition, continued high levels of protection has discourage production for export. Meanwhile, the unemployment rates exceed 15 percent, and real hourly wages/ person in 1998 were only two-thirds those of 1988. Urban poverty has increased from 20.3 percent in 1991 to 22.5 percent in 1995. These are the most conservative estimates available; other sources find considerably higher levels of poverty and show steeper levels of poverty increase. To support the exchange rate and to finance continuing fiscal deficits, the Egyptian government has borrowed heavily domestically. Currently, debt service consumes about a quarter of the budget. The analogy with Indonesia in the last days of Suharto is disturbing.

Although Egyptian reform is often held up as an example of progress (particularly by the World Bank), reality is rather different. The combination of interest-group structures, strategic rents, and the personality of the president has yielded patchwork reform, which has failed to accomplish its central goal of launching the economy on a path of employment-generating growth, led by manufactured exports. The largest Arab economy is failing to provide the necessary jobs for young men, which delegitimizes the regime in the eyes of its increasingly restless youth.

3.3 Demographic indicators¹

Rapid population growth is one of the main challenges facing Egypt. The Department of Economic and Social Affairs of the United Nations, (Department of Economic and Social Affairs, ud) states that in year 2025 the number of population is expected to be approximately 94.7 million with 47 million female and 47.7 million male. Population growth is expected to increase by 20% in the year 2050.

¹ United Nations (UN), Department of Economic and Social Affairs-Population Division, World Population Aging: 1950-2050. Available from <http://www.un.org/esa/population/publications/worldageing19502050/pdf/084egypt.pdf>

Because the total fertility rate/woman is expected to decline from 2.9 in the period 2000-2005 to 2.1 in the period 2025-2030, the population growth rate of 1.7% in the period 2000-2005 is expected to decline in the periods 2025-2030 and 2045-2050 to 1% and 0.5% respectively. While the projected life expectancy in Egypt is projected to be 74.7 and 77.8 in the periods 2025-2030 and 2045-2050 respectively, the projected median age will be 31 and 37.4 in years 2025 and 2050 respectively.

3.4 Tourism¹

According to the tourism vision forecasts developed by the World Tourism Organization, (World Tourism Organization, 2001) the annual tourist arrival growth rate to the ME will reach 7.1% during the period 1995-2020 exceeding the global annual tourist arrival growth rate of 4.1%. by the year 2020, tourist arrivals to the Mediterranean represents 22% of the arrivals around the world with an average annual growth rate of 3% that makes the Mediterranean region the world's largest tourist receiving region.

The individual inbound country forecast shows that by the year 2020 Egypt will remain the region's largest tourist receiving region with more than 17 million international tourist arrivals. In addition the largest tourist generating country in the Mediterranean is Saudi Arabia with over 9 million arrivals world wide.

3.5 Water and Food²

A food and water model, IMPACT-WATER was designed and applied, (International Food Policy Research Institute, 2002) to predict water demand and supply, food production, demand, and trade components in many countries to the year 2025. The model was customized to suit the Egyptian case where water demand and supply, food production, food demand and trade, tables (1,2,3), respectively, were predicted for the years 2010 and 2025.

As shown in table (1), irrigation water consumption represents the highest percentage of the total consumption in the year 2010 and 2025 respectively. In addition, water withdrawal is nearly equal to the amount of renewable water by the year 2010 and will exceed the amount of renewable water by the year 2025.

¹ World Tourism Organization (WTO) (2001), *Tourism 2020 vision-ME*. Available from <http://www.world-tourism.org/cgi-bin/infoshop.storefront/EN/product/1183-1>

² International Food Policy Research Institute (2002), *World Water and Food to 2025: Dealing with Scarcity*. Available from <http://www.ifpri.org/pubs/books/water2025book.htm>

Table 1
Water demand and supply as estimated by IMPACT-WATER model

<i>Elements</i>	<i>2010</i>	<i>2025</i>
Total water consumption (km3)	30	31.9
Irrigation water consumption (km3)	26.4	27.2
Total water withdrawal (km3)	60.4	65.6
Ratio of withdrawal to total renewable water (%)	0.99	1.08
Irrigation water supply reliability	0.72	0.71
Non-irrigation reliability	1	1

Table 2
Food production as estimated by IMPACT-WATER model

<i>Elements</i>	<i>2010</i>			<i>2025</i>		
	Irrigated area (000 hectares)	Irrigated yield (kg/hectare)	Irrigated production (million metric tons)	Irrigated area (000 hectares)	Irrigated yield (kg/hectare)	Irrigated production (million metric tons)
Rice	670	6347	4.25	674	7731	5.21
Wheat	790	6514	5.15	834	7893	6.58
Maize	763	8621	6.58	770	10539	8.11
Soybean	23	2968	0.07	23	3758	0.09

Also table (3) shows that by the year 2025 both food demand and imports will increase from that of the year 2010, where rice which was exported in the year 2010 will be imported by the year 2025.

Table 3
Food demand and trade as estimated by IMPACT-WATER model

<i>Elements</i>	<i>2010</i>		<i>2025</i>	
	Demand (million metric tons)	Trade (million metric tons)	Demand (million metric tons)	Trade (million metric tons)
Rice	4.01	0.23	5.58	-0.39
Wheat	14.46	-9.33	17.39	-10.82
Maize	9.28	-2.77	11.47	-3.42
Soybean	0.21	-0.14	0.31	-0.23

3.6 Environment¹

The Africa Environment Outlook (AEO) report released by the United Nations Environment Programme (UNEP) in 2004 is the first comprehensive integrated report on the African environment. The report was developed based on wide consultation and participation between UNEP and various partners in the African region and therefore reflects a variety of sub-regional perspectives and priorities. The AEO also combines comprehensive environmental information with policy analysis, within an overall context of socio-economic conditions and development imperatives which are ideally relevant to policy making, (United Nations Environment Programme, 2004).

The AEO report provides four scenarios on the future of the African environment in a 30 years time frame. The following table introduces the 4 scenarios for the northern African countries (including Egypt).

¹ United Nations Environment Programme (UNEP), (2004) ,Africa Environment Outlook 2004: Past, present and future perspectives. Available from <http://www.grida.no/aeo/>

Table 4
Scenarios on the future of the African environment

Scenarios	Basic assumptions	Atmosphere	Land	Biodiversity	Freshwater	Coastal and marine environments	Urban areas
Market Force scenario	<ul style="list-style-type: none"> - Transformation of the world economy to a western model with the spread of materialism and individualism. - Adoption of policies promoted by international financial institutions with a positive impact on aggregated growth. - Economic growth contributes to recovering the Environmental damage caused by development - Active policy-making environment. 	<ul style="list-style-type: none"> - Air pollution is in a continuous increase with vehicles and industry remaining the main sources of air pollution -The use of chlorofluorocarbons (CFCs) and other ozone-depleting products in the air-conditioning industry is reduced. 	<ul style="list-style-type: none"> -Increased pressure on land (especially agricultural area) caused by urbanization, with increasing numbers of people migrating from rural to urban areas. - Overexploitation due to unsafe and unsustainable farming practices that are adopted to meet increasing food demand. 	<ul style="list-style-type: none"> -Biodiversity is at risk due to urbanization, industrialization, and uncontrolled hunting and fishing associated with the rapid population growth. 	<ul style="list-style-type: none"> -Egypt would suffer from groundwater resources exploitation due to over abstraction and pollution that reaches its worst levels in 2032. -Water quality and sustainability will deteriorate. -Shallow ground water could be affected by Sea water intrusion along the Mediterranean coast 	<ul style="list-style-type: none"> -Untreated wastewater is the main source of pollution, causing eutrophication in coastal waters. -Other risks are caused by oil mining industry; marine tourism; and the large increases in the numbers of ships visiting the ports, as the sub-region opens up to free trading with the global market and high population density. 	<ul style="list-style-type: none"> -Cairo is expected to grow larger requiring many resources and services to be stretched to satisfy the continuously increasing demands. -Huge number of people are deprived from basic services, such as safe water, sanitation and power supply.

Scenarios	Basic assumptions	Atmosphere	Land	Biodiversity	Freshwater	Coastal and marine environments	Urban areas
<p>Policy Reform scenario</p>	<p>-Similar in many ways to the Market Forces scenario.</p> <p>- Based on a set of social and environmental goals adopted by the international community.</p> <p>- Politics will guide market-driven growth with a comprehensive set of sustainability policies.</p> <p>- Policy initiatives for achieving goals include a mix of economic reform, regulatory instruments, voluntary actions, social programmes and technological development.</p> <p>-The 'western' model and values still prevails.</p>	<p>- Governments take good steps towards improving atmosphere.</p> <p>- Solar energy is used in tourism and housing developments.</p> <p>- Use of reliable public transportation increases.</p>	<p>-Population growth rate eases are relatively decreased which release pressure on different resources including land.</p> <p>- More attention will be given by government to the planning and implementation of land use plans and the reduction of the numbers of migrants from rural to urban areas.</p>	<p>-Measures to protect the national environment from industrial activities and urbanization are applied.</p> <p>-Industrial activities near protected areas are banned.</p>	<p>-Water resources remain the main focus of the Egyptian government due to its extreme importance to development.</p> <p>-Water scarcity still a problem despite relative decreases in population growth rates.</p>	<p>-Necessary measures for reducing marine pollution (e.g. developing waste water treatment infrastructure to test water before its disposal in the Mediterranean sea are taken.</p> <p>- Strict Laws and regulations to protect the coastal areas and water bodies from unplanned development and the associated environmental impacts are issued.</p>	<p>-Efforts to reduce population densities in large cities, and well-planned urban development, improve the urban environment.</p> <p>-Safe drinking water, sanitation, transportation and power supply are all available to old and new cities.</p> <p>-As public transport improves, more people use it and therefore the air quality improves.</p>

Scenarios	Basic assumptions	Atmosphere	Land	Biodiversity	Freshwater	Coastal and marine environments	Urban areas
Fortress World scenario	<ul style="list-style-type: none"> - Increasing social and environmental problems lead to authoritarian 'solutions'. - Elite are isolated from the rest of the society. - Benefits of globalization are restricted to the elite. - The state of the environment could be improved under this scenario, because valuable environmental resources are controlled by the elite. - Improvements could be sustainable, however it might not be feasible to maintain it for a long time. 	<ul style="list-style-type: none"> - Quality of air will be improved in the higher class areas. - Poor areas suffer from high air pollution levels due to the concentration of industries in those areas. 	<ul style="list-style-type: none"> - As an impact of intensive practices, most of the land resources are degraded. - Land use planning has become almost nonexistent and ad hoc development spreads. This also has an adverse impact on the land quality and access to land. -Allocation and access to land becomes grossly inequitable. 	<ul style="list-style-type: none"> -Biodiversity is respected in some areas controlled by the elite. -Preserving the natural environment is very low on the list of priorities, where industrial developments and rapid urbanization are required. 	<ul style="list-style-type: none"> -Fresh water resources will be controlled by the industry-driven elite, and marginal water resources will be left to the poor majority. -More water will be allocated to the industrial sector, controlled by the elite, depriving irrigated agriculture from a much-needed vital input. 	<ul style="list-style-type: none"> -The environment along the coastal and marine areas remains quite diversified. -Population densities in old developments along the Mediterranean coast increase, with the rate of infrastructure development is much slower than the rate of population growth. 	<ul style="list-style-type: none"> -There are remarkable differences between urban areas designed for the elite and those designed for the poor. -Services are more reliable for the elite and the quality of the environment is taken care of. -Low population densities and sufficient green areas are ensured for the elite, with no industrial activities to be carried out inside the fortresses.

Scenarios	Basic assumptions	Atmosphere	Land	Biodiversity	Freshwater	Coastal and marine environments	Urban areas
<p>Great Transition scenario</p>	<ul style="list-style-type: none"> - Strategies to deal with environmental violations are not addressed neither by the Market Forces scenario nor by the Policy Reform scenario. - Given current trends in the adoption of environmental treaties, policies alone cannot be sufficiently effective against social inequities and environmental uncertainty. - Social, cultural and environmental goals take precedence in thinking about development. - Notions of sustainability fundamentally change the values and lifestyles of the peoples. - A cultural renaissance outlines new ways of thinking, and fosters environmental goals. 	<ul style="list-style-type: none"> -Congestion and its associated air pollution are eliminated by the redistribution of the population between urban and rural areas. -Replacement of fossil fuels by natural gas and solar energy. -The adoption of strict environmental laws leads to a better air quality. 	<ul style="list-style-type: none"> -Economic diversification inhibits the high demand on specific natural resources, including land. - Demand on agricultural land will be decreased due to the role that is played by industry in economic growth. 	<ul style="list-style-type: none"> -Biodiversity is positively affected. -The whole ecosystem shows symptoms of recovery, after long deterioration. 	<ul style="list-style-type: none"> -Water scarcity problem is on the top of the government's agenda. - Careful and sustainable management of conventional water resources are taken into consideration. -The management of non-conventional resources (e.g. desalination and water recycling) are implemented, with an affordable cost due to the industrial revolution that reduces the cost of the new technologies 	<ul style="list-style-type: none"> -Laws regulating coastal areas are issued and strictly enforced with developments in sensitive areas being totally banned. Protection measures such as prohibition of waste disposal in the sea, refusal of projects that cause sedimentation or erosion of shorelines; and issuing guidelines to boats, divers and fishermen regarding safe practices in territorial waters and the protection of marine life are taken. 	<ul style="list-style-type: none"> -Equal distribution of public expenditure between urban areas and underdeveloped areas, narrows the gap between them. -People have access to available services due to the improved economic conditions. -Fossil fuels are replaced by unleaded petrol and natural gas and polluting industries are moved out of urban areas which positively affect the quality of the environment.

4. International Futures (IFS) Model

International Futures (IFs) model was developed by the National Intelligence Council (NIC), discussed earlier in this report (section 1.1). The model explores a large number of variables through the years 2020, in case each of the four scenarios developed by NIC take place. In addition, the model allows users for creating their own scenarios. The variables explored by the model include demographic, economic, energy, socio-political and environmental factors, (National Intelligence Council, 2004). The structure of the model and its main components are represented by the following diagram.

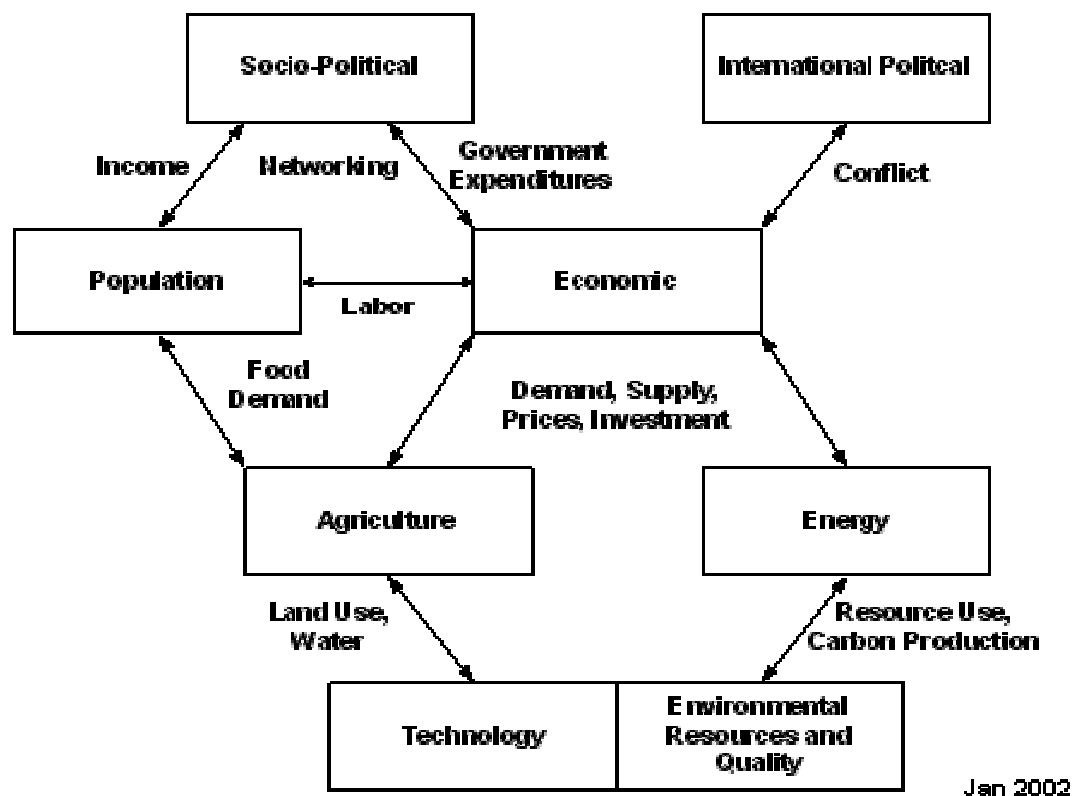


Figure 1 Structure of the Ifs model and its main components

IFs can be used at the country-specific level, and results can even be aggregated for regions or the world. Users can display forecasts in tables and on maps or graphically. Pre-computed forecasts exist for the IFs base case and for the four scenarios developed by NIC. The forecasts of IFs should be treated as illustrations of possible futures rather than predictions. In addition to enabling its users to look forward, IFs also contains data on 182 countries stretching back to more than forty years.

For Egypt, a list of variables was forecasted -for the four scenarios stated above- year by year till the year 2020 by the IFs model including agricultural, economic, energy, environment, population, political and social variables, **Appendix A**.

The IFs shows that for **agricultural variables** there will be no significant differences in the agriculture demand and imports between the four developed scenarios through the years 2010 and 2020. For the year 2020, while agriculture demand ranges between 44.06 and 45.69 Mil Met Tons, agriculture imports range between 20.36 and 22.45 Mil Met Tons. Regarding agriculture exports, the Davos World scenario represents an optimistic value of 1.16 Mil Met Tons in the year 202, which is approximately twice the amount expected if the cycle of Fear scenarios is to take place.

With respect to the **economic variables**, the most optimistic scenario is the Davos World, which states that Gross Domestic Product (GDP) will increase from 120 to 229.6 \$billion from 2010 to 2020. On the other hand, the cycle of Fear scenario is the least optimistic one, which shows that GDP will be around 113.5 \$billion in the year 2010 and 177.9 \$billion in the year 2020. Government expenditures is expected to increase from 41.47 to 85.97 \$billion from 2010 to 2020 according to the Pax Americana scenario, however if the cycle of Fear scenario takes place, government expenditure is expected to increase from 38.94 in the year 2010 to 68.97 \$billion in the year 2020.

Regarding **energy variables**, in the year 2020, energy price will range from 45.8 \$/barrel and 124.7 \$/barrel according to Pax Americana scenario and the cycle of Fear scenario respectively. In addition, the energy production will increase to 0.1597 and 0.1065 billion barrels in years 2010 and 2020 respectively in the Pax Americana scenario, while it will increase to 0.1641 and 0.1123 billion barrels in years 2010 and 2020 respectively in the cycle of Fear scenario.

Concerning the **environment variables**, the annual carbon emissions from fossil fuels will increase to 0.0342 and 0.054 billion tons in years 2010 and 2020 respectively in the Pax Americana scenario, while it will increase to 0.037 and 0.0616 billion tons in years 2010 and 2020 respectively in the Davos scenario. In addition, the annual water usage will increase to 63.5 and 70.11 cubic km in years 2010 and 2020 respectively in the Davos Scenario, while it will increase to 63.43 and 70.24 cubic km in years 2010 and 2020 respectively in the Pax Americana.

With respect to **international political variables**, the net foreign aid to Egypt is expected to reach its maximal value of 4.858 \$billion in the year 2020 if the Pax Americana scenario takes place, and its minimal value of 1.792 in the year 2020 if the cycle of Fear scenario takes place.

The **population variables**, shows that the population growth rate in Egypt is expected to decrease in the four scenarios to reach 1.673 and 1.169 in years 2010 and 2020 respectively in the Pax Americana scenario.

For the **social variables**, the percentage of literate people is expected to increase in the four scenarios to reach 61.91 and 66.19 in years 2010 and 2020 respectively in the Pax Americana scenario while it is expected to increase to 61.88 and 65.88 in years 2010 and 2020 respectively in the cycle of Fear scenario.

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Appendices

Appendix A

International Futures (IFS) model results – Egypt

Scenarios Elements	Cycle of Fear			Davos world			New caliphate			Pax Americana		
	2010	2015	2020	2010	2015	2020	2010	2015	2020	2010	2015	2020
AGRICULTURE												
Agricultural demand - Mil Met Tons	38.33	41.12	44.06	38.71	42.24	45.69	38.26	42.09	45.52	38.6	42.02	45.39
Agricultural imports - Mil Met Tons	15.49	19.1	20.36	15.76	18.85	21.35	18.12	17.43	22.45	15.53	18.74	20.85
Agricultural production - Mil Met Tons	43.77	43.42	43.3	44.65	45.75	46.18	43.32	43.4	47.21	44.5	45.55	46.09
Agricultural exports - Mil Met Tons	0.645	0.4989	0.4878	1.022	1.063	1.161	0.6722	0.697	0.5506	0.891	0.8367	0.861
Yield in agriculture, tons/hectare	10.66	10.47	10.33	10.88	11.04	11.07	10.57	10.57	11.39	10.84	10.98	11.01
ECONOMIC												
Private consumption - Billion \$	89.88	113	142.2	93.99	130.8	181.7	88.83	118.6	159.8	92.11	127.3	175.5
Gross domestic product - Billion \$	113.5	138.7	177.9	120.2	161.7	229.6	111.6	144.6	194.3	117.4	155	217
Gross domestic product at PPP - Billion \$	307.5	356.9	427.5	319.3	393.8	502.8	301.9	366	451.3	314.6	383.5	486
GDP per capita - Thousand \$	1.402	1.582	1.893	1.486	1.85	2.462	1.379	1.649	2.07	1.451	1.77	2.318
GDP per capita at PPP - Thousand \$	3.801	4.07	4.549	3.949	4.506	5.394	3.729	4.173	4.808	3.888	4.38	5.192

Scenarios Elements	Cycle of Fear			Davos world			New caliphate			Pax Americana		
	2010	2015	2020	2010	2015	2020	2010	2015	2020	2010	2015	2020
Years												
GDP annual growth rate - Growth Rate	3.635	4.565	5.276	5.563	6.525	7.58	3.96	5.813	5.979	5.02	6.21	7.304
Globalization level index - Index	56.81	58.64	59.47	57.54	60.25	61.91	55.86	58.04	59.74	57.13	59.52	60.85
Government consumption (net of transfers) - Billion \$	11.86	14.58	18.88	12.61	17.16	24.76	11.61	15.24	20.74	13.31	17.45	24.37
Government expenditures - Billion \$	38.94	50.81	68.97	41.38	59.72	89.67	38.8	53.24	76.17	41.47	58.5	85.97
Investment - Billion \$	17.97	20.76	22.3	20.76	27.81	35.77	17.83	21.16	30.03	20.22	26.14	31.98
Infrastructure index, modern - Ind Base 100	4.927	5.385	6.128	5.118	5.957	7.26	4.834	5.52	6.475	5.04	5.792	6.989
Knowledge society index - Index	18.88	19.94	21.57	19.82	21.79	24.46	19.2	20.87	22.87	20.32	22.68	25.41
iMports - Billion \$	24.88	32.62	38.46	29.77	45.91	64.52	26.39	34.37	50.2	28.08	43.07	57.83
eXports - Billion \$	18.64	23	32.91	22.62	31.89	51.9	19.75	23.97	33.86	19.88	27.21	42.93
ENERGY												
Energy imports - Bil Barr OE	0.0336	0.1007	0.2465	0.0364	0.1	0.338	0.0226	0.0589	0.2166	0.0439	0.1311	0.2998
Energy production - Bil Barr OE	0.1641	0.1336	0.1123	0.1814	0.1551	0.1345	0.1688	0.1391	0.118	0.1597	0.1268	0.1065
Energy price,\$ per barrel	132	118.8	124.7	101.4	87.62	82.68	206.7	157.6	140.1	94.99	62.62	45.78

Scenarios Elements	Cycle of Fear			Davos world			New caliphate			Pax Americana		
	2010	2015	2020	2010	2015	2020	2010	2015	2020	2010	2015	2020
Years												
Energy demand ratio to GDP, BBL/billion currency	4.485	4.21	3.965	4.208	3.92	3.64	4.446	3.881	3.617	3.982	3.646	3.367
Energy exports - Bil Barr OE	0.1422	0.0764	0.0673	0.1467	0.1024	0.0831	0.1364	0.0614	0.0548	0.0966	0.0717	0.0802
ENVIRONMENT												
Annual carbon emissions from fossil fuels - Billion Tons	0.0372	0.0425	0.0526	0.037	0.0453	0.0616	0.0363	0.0406	0.0523	0.0342	0.0406	0.054
Land - Mil Hectare	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Water usage, annual - Cubic Km	63	65.93	68.78	63.5	67.16	70.11	62.77	65.93	71.01	63.43	67.13	70.24
POLITICAL, DOMESTIC												
Freedom House freedom indicator (lower is more democratic;2-14)	5.299	5.55	5.859	4.998	4.961	4.962	5.107	5.231	5.387	5.153	5.284	5.472
Government balance (deficit if negative), billion currency	-3.068	-3.991	-5.446	-3.997	-7.609	-10.52	-3.236	-4.428	-8.541	-2.979	-7.447	-9.65
Household dividends and interest (from firms), by skill level	2.75	3.306	4.145	2.996	3.988	5.502	2.63	3.484	4.606	2.903	3.819	5.191
Household social security payments to government, by skill level	1.329	1.703	2.267	1.371	1.873	2.791	1.332	1.763	2.411	1.331	1.749	2.603

Scenarios Elements	Cycle of Fear			Davos world			New caliphate			Pax Americana		
	2010	2015	2020	2010	2015	2020	2010	2015	2020	2010	2015	2020
Household savings, by skill level	-3.931	-6.884	-7.555	-2.738	-5.524	-6.505	-4.847	-7.34	-9.184	-2.774	-5.897	-8.134
Tax rate of central government - Ratio	0.304	0.3232	0.3448	0.2993	0.3083	0.3324	0.3007	0.3215	0.333	0.2962	0.2991	0.3272
POLITICAL, INTERNATIONAL												
Aid (foreign), net - Billion \$	1.397	1.549	1.792	1.458	1.723	2.103	1.244	1.624	1.948	3.711	4.202	4.858
Power index	0.5914	0.6043	0.6305	0.5939	0.6085	0.6341	0.6298	0.5997	0.6161	0.5844	0.5957	0.621
POPULATION												
Birth - Mil People	2.016	2.014	1.929	1.993	1.948	1.813	2.026	1.995	1.887	2.002	1.966	1.839
Crude birthrate - Per Thous	24.91	22.97	20.52	24.65	22.29	19.44	25.02	22.75	20.1	24.75	22.46	19.65
Deaths - Mil People	0.6264	0.6842	0.7344	0.6191	0.6682	0.7078	0.6232	0.6753	0.72	0.6136	0.6623	0.7032
Infant mortality rate per 1,000 live births	47.74	46.67	45.21	47.29	45.84	43.91	47.43	46.09	44.37	46.85	45.26	43.33
Life expectancy, years	68.23	68.62	69.17	68.39	68.92	69.69	68.33	68.83	69.5	68.54	69.13	69.92
Malnourished children as percent	8.102	7.478	6.772	8.014	7.142	6.093	8.058	7.236	6.378	8.044	7.222	6.231
Population - Mil People	80.91	87.68	93.98	80.87	87.39	93.22	80.96	87.7	93.86	80.91	87.57	93.61
Population growth rate - Growth Rate	1.684	1.492	1.246	1.648	1.403	1.123	1.692	1.465	1.202	1.673	1.446	1.169
Population in urban areas - Mil People	34.41	39.35	44.92	34.44	39.54	45.48	34.39	39.36	45.07	34.43	39.5	45.39

Scenarios Elements	Cycle of Fear			Davos world			New caliphate			Pax Americana		
	2010	2015	2020	2010	2015	2020	2010	2015	2020	2010	2015	2020
Population in urban areas, growth rate	2.665	2.724	2.636	2.694	2.839	2.825	2.646	2.764	2.722	2.687	2.818	2.803
SOCIAL												
Calories per capita available	3311	3286	3290	3344	3375	3427	3328	3350	3369	3333	3353	3398
Literacy, percentage of population	61.88	64.21	65.88	61.91	64.34	66.17	61.9	64.32	66.12	61.91	64.34	66.19
Materialism/post materialism index - Index	2.051	2.096	2.137	2.055	2.108	2.16	2.048	2.097	2.142	2.053	2.104	2.154
Physical quality of life index - Ind Max 100	72.54	73.39	73.55	72.6	73.18	74.13	72.48	72.9	73.87	72.69	73.26	74.33
Survival/self-expression index - Index	-0.2709	-0.2294	-0.184	-0.2638	-0.2082	-0.1449	-0.2755	-0.2278	-0.1754	-0.2669	-0.2149	-0.1551
Traditional/Secular-Rational index	-0.0913	-0.0818	-0.0708	-0.0876	-0.0706	-0.0501	-0.0937	-0.0809	-0.0662	-0.0892	-0.0741	-0.0555