

AN UNFOLDING DICHOTOMY: LEADING IRANIAN POLICY MAKERS' VOICE ON DEVELOPMENTS IN SCIENCE AND TECHNOLOGY

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The term 'development' involves an extensive domain of factors, concepts, perceptions and ideas. While not restricted to questions of economy, it engages social, cultural, political and even religious issues. Many have defined development as the sole principle and cause of growth, progress, and prosperity. Nevertheless after more than sixty years of intensive development efforts in the global south, it has certainly not kept up to its promises and as problems of modernization intensify, it is now more than ever crucial to pursue alternative perspectives. Ayatollah Javadi Amoli, who has been a leading voice in an effort to establish alternative Islamic perspectives of development, has proposed the theory of "*takāthari*" versus "*karwathari*" development. The distinguishing criterion lies in the interpretation of '*Aql*' as reason and reducing it to modern rationality. This paper presents results of qualitative research and analyzes the perceptions of leading Iranian science and technology policy makers towards development in science and technology. Furthermore the study examines how these perceptions have been shaped under the country's unique circumstances of experiencing more than thirty years of severe economic sanctions. The findings show the existence of a strong dichotomy concerning the understanding of the subject 'development' among leading science and technology policy makers that influences how they make decisions about regional and world policies.

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Keywords: Science and Technology in Iran; Development; Scientism; “*kawtharī*”; “*takātharī*”; Rationality; ‘*aql*’; Iran.

In the ninth Iranian Presidential pre-election TV debate, Mir Hossein Mousavi, Iranian presidential candidate, held up graphs of GDP, inflation and other economic indicators, and incessantly criticized the previous president Ahmadinejad’s government while addressing his actions and policies as superficial, self-centered and exaggerated. Ahmadinejad in defense of his own policies presented his set of what he called accurate graphs, quite different from what his opponent was showing.

Although the 2009 elections in Iran developed diverse and voluminous discussion and debate in local and international spheres, similar to other presidential or non-presidential elections, it was less thought of in terms of its perspectives towards development and its underlying presuppositions. One of the leading discussions in all the presidential debates, talks, advertisements and banners for all four running candidates was the issue of ‘development’. Even though it did not openly question whether the modern form of development is beneficial or detrimental, it did carry invisible signs of a variety of perspectives and alternative views towards this concept. One of the very critical dimensions of the policies discussed was the issue of science and technology. The underlying questions that were debated were: in what areas should the country develop? Should development be rooted in local capabilities that have thrived through local needs, or should importing science and technology from other more ‘developed’ countries be planned? How is it possible to strengthen and boost development projects? How should the policies instructing budget allocation look like? Although development in its general form covers many diverse issues, this article attempts to explore the fundamental perceptions and underlying assumption of leading Iranian science and technology policy makers towards ‘development’ in science and technology. Moreover, it focuses on how science and technology development policies are shaped and in what ways leading perceptions vary from international standards and practices. These perceptions are then compared and contrasted with what Ayatollah Javadi Amoli, a renowned Islamic scholar and one of the prominent pillars of contemporary Islamic research in Iran has put forth about development. That is, he categorizes predominant approaches towards development into *Kawtharī* (abundant virtue) and *Takātharī* (gross rivalry). The former is illustrated as the ideal Islamic model while the latter is seen as the dominant contemporary form of development that is mainly advocated by the west. The definition of the west however does not necessarily fall into a geographical location but

rather as C. K. Raju ¹ explains, it involves a state of mind for which capitalism is a cultural value

The prolonged data collection procedure involved recordings of deep and intense interviews with key science and technology policy makers; observations of research centers and national science and technology development projects; library search; field notes; diaries and relevant documents that were circulated among participants.

Takātharī Development vs. Kawtharī Development

The term ‘development’ involves an extensive domain of factors, concepts, perceptions and ideas. It is multidisciplinary and digs deep into social, cultural, political and economic issues. Development has sometimes been described as the sole purpose and cause of growth, progress and prosperity. Although the life of the most contemporary form of development can be traced back to approximately sixty years, the principle idea is considered to have lived for much longer. Adam Smith’s *An Enquiry into the Nature and Causes of the Wealth of Nations*, published in 1776² is believed to have marked the beginning of the idea of development, particularly in economic terms. Growth and wealth were central in the economic writings of the classical period. The developmental thought was inline and tied to issues of progress, modernity, industrialization, urbanization and consumerism and it gradually prepared a solid basis of thought ³. It was not until the twentieth century that the contemporary form of the term ‘development’ gained momentum. Then it turned into something everyone yearned for without knowing what it really meant ⁴.

US President Truman’s speech in 1949,⁵ when he blatantly divided nations into developed, developing and under developed was a key turning point in development history. Countries categorized as ‘Third World’, ‘developing’, ‘under developed’ and more recently ‘south’ have further formulated governmental policies and strategies based on strict urbanization and industrialization. This demanded pouring heavy capital investment in infrastructural and industrial projects in order to boost per capita income and

1. Raju, C. K. *The Eleven Pictures of Time*. New Delhi: Sage Publications, 2003.

2. Smith, Adam. *An Enquiry into the Nature and Causes of the Wealth of Nations*. London: Methuen & Co., Ltd., 1776.

3. Alvarez, Claude. “Science.” In *The Development Dictionary*, by Wolfgang Sachs, 243-259. London: Zed Books, 2010.

4. Rahnema, Majid. *The Post-Development Reader*. London: Zed Books, 1997.

5. Sachs, Wolfgang. *The Development Dictionary*. London: Zed Books, 2010.

to quickly achieve high economic growth rates.⁶

The United Nations has been a strong voice for promoting development. Through creating and proliferating measures and indexes such as the Human Development Index (HDI), GDP Index, or the Democracy Index the UN annually measures and reports the development rate of each country. The following is taken from a statement issued by the UN in 1951:

There is a sense in which rapid economic progress is impossible without painful adjustments. Ancient philosophies have to be scrapped; old social institutions have to disintegrate; bonds of caste, creed and race have to burst; and large numbers of persons who cannot keep up with progress have to have their expectations of a comfortable life frustrated. Very few communities are willing to pay the full price of economic progress.⁷

The UN Department of Social and Economic Affairs is laying out the ‘ideal’ path towards development while expressing a point of hindrance. The very people who will be aiding the ‘underdeveloped’ are of course the ‘developed’. Following years of colonialism —direct or indirect- the same people who were being brutally abused were promised help by the colonizers and were vowed that their misery will end through development. This modern form of colonialism, involved major investments by the colonized countries and sharply increased dependence on the economically stronger country. This mainly economic dependence was offered through the glitters of development and further enhanced political, social and even cultural dependence. Science and technology stood as a key guiding vigor of these development programs.

The events following the 1950s and its relative consequences led to the creation of a form of development that in its most dominant form is characterized by: incessant economic growth; uneven distribution of wealth (capital is held among the few); stress on private ownership; economic growth predominantly overshadows other types of progress; excessive utilization of environmental resources that lead to environmental destruction and pollution; international markets created to satisfy international needs; brutal competition and rivalry among nations; over population of cities and depopulation of villages; production is valued when it leads to more profit; swallowing up of natural resources by countries who mainly possess military power; higher standards of living is defined as owning more material objects; the good citizen is defined as the good consumer; science and technology are the recipe for production and thus wealth.

6. Rist, Gilbert. *The History of Development From Western Origins to Global Faith*. London: Zed Books, 2008.

7. United Nations, Department of Social and Economic Affairs, “Measures for the Economic Development of Underdeveloped Countries, 1951”.

In the contemporary world and for more than sixty years, nations have been governed based on the above principles. Nation leaders aspire to accumulate wealth through any means possible. Vinay Lal⁸ associates development with concentration camps and perceives it as a modern form of genocide. Jalal Al-e-Ahmad⁹ sees the promises of development and mainly welfare as the modern “golden calf” propagated by the “Samiri” of our time. The critical question is however, that in what way has development reached its current status and why is this seemingly precious concept a basis for rigorous critique?

Science and technology is a critical nutrient for greater production and thus development¹⁰. However it seems necessary to question the very nature of scientific and technological development. Why are the most modern forms of technologies sponsored by militaries and then brought into the society? Why are technologies unboundedly consuming nature without any respect for it? With traditional forms of technologies and Iranian water systems people who were very much in touch with the values of nature, designed the system in a way that it made no sense to extract water from deep water aquifers. However, modern technologies, today, are perceived by many as cut off from nature and value free tools that can be used in beneficial or detrimental ways, similar to how a knife may be used to kill a person or to save a dying patient. The matter that is usually eluded is however, that technologies are not abstract objects that can function independent of their surrounding environment. A car cannot operate without roads, networks of streets, gas stations, refineries, oil wells, repair shops, police and ambulance services, spare parts, traffic lights and much more. Over half a century ago, Heidegger¹¹ pointed to the fact that not only technology has made significant developments in the twentieth century; but the essence of technology has also significantly changed through this period. One of the characteristics of technology that has remained constant from the past up to now is its tool like and means-end use. Technology, however, moves much further than its means-end use and is a method of understanding and learning and uncovering different aspects of a thing. The differences between past and present technology is its method of revealing the truth. Most of the information that is received and at times uncritically accepted today comes from different forms of media. Images of

8. Lal, Vinay. “The Concentration Camp and Development: the Past and Future of Genocide.” *Patterns of Prejudice*, 2005: 220-243.

9. Al-e-Ahmad, Jalal. *The Service and Betrayal of Intellectuals*. Tehran: Khawrazmi Publications, 1979.

10. Ullrich, Otto. “Technology.” In *The Development Dictionary*, by Wolfgang Sachs, 308-323. London: Zed Books, 2010.

11. Heidegger, Martin. *The Question Concerning Technology*. New York: Garland Publishing Inc., 1954.

the Amazon rainforest shown on TV develops a platform for people living in the unpopulated deserts of Iran to experience a part of their life among lush trees and rivers. Current technology has not only challenged nature (through humans) it has also challenged humans (through technology). In the past nature determined the limits, boundaries and standards of technology — wind mills depend on the strength of the wind that blows. The current technology sets its own standards —as in how constant energy is produced by regulating the water pressure behind modern dams. This challenging of nature has allowed us to reveal new truths from nature. Therefore modern technology has also created a new form of epistemology. Interaction with technology cannot be reduced to a simple, independent and short term use. This is essential to science and technology development policies that at times perceive technologies as value-free and thus their uncritical and unselective import and use as unproblematic.

Ayatollah Javadi Amoli,¹² a well-known Islamic scholar describes two types of development: “*Takātharī*” (gross rivalry) and “*Kawtharī*” (abundant virtue). He explains that the western ideology of development is “*Takātharī*”, where each country competes for progress and struggles for survival. In “*Takātharī*” development, terms such as conquering the earth and the environment flourish. “*Takāthar*” which originates from the word “*kathrat*” meaning multiplicity, promotes increase of quantity instead of quality. In the Qur’ān Allah states: *Competition in worldly increase diverts you; Until you visit the graveyards* (Q 102:1-2).

“*Kathrat*” (“multiplicity”) may be linked to René Guénon’s *Reign of Quantity*,¹³ a book in which he critiques quantification as a guiding motive of modernity that overlooks quality over quantity and has an essential role in modern decision making. The question is however, is there any significant difference between the proposed “*Kawtharī*” development and the already existing voluminous critiques of development? The answer lies in an important feature of modernity; rationality. The main characteristics of modern rationality are: calculability, efficiency, predictability, non-human technology and control over uncertainties. This form of rationality—according to Khosropanah¹⁴—is not at all interested in metaphysics and is thus in contradiction to any religion

12. Javadi Amoli, Abdollah. “Takasori and Kowsari Development” In *Islamic Iranian Model of Progress*. Tehran. Tehran Municipality, 2010.

13. Guénon, René. *The Reign of Quantity and the Signs of the Times*. New York: Sophia Perennis, 2004.

14. Khosropanah, Abdolhossein. “Religious Science.” *New Islamic Wisdom Cultural Institute*. June 19, 2011. <http://khosropanah.ir/fa/news/213-1390-03-29-16-05-35.html> (accessed January 3, 2012).

including Islam. *‘Aql* (intellect) and rationality are two distinct qualities. When *‘Aql* is reduced to pure reasoning, it is disjointed from revelation and thus its capability to reach Tawhid is neglected¹⁵. The power of reason can always revolt against Tawhid and revelation. Revelation is not strictly limited to religious provisions but also teachings of religion that are based on metaphysics and wisdom. This is why *‘Aql* has never been against religion and Islamic scholars such as Mulla Sadra have been striving for creating a unity among the Qur’ān, reasoning and mysticism. This is the critical point of demarcation between “*Takātharī*” and “*Kawtharī*” development. The former is rooted in and shaped by rationality while the latter is corroborated through *‘Aql*. The separation from the divine is the reason why “*Takātharī*” development has turned calamitous.

Takāthar in science and technology encompasses a variety of issues; mostly relating to possessing the latest scientific and technological know-how. Nations might decide to produce their own science and technology and others might decide to purchase that knowledge from outside. Countries that are surrounding Iran are generously gifted with the latest prebuilt technologies while Iran is sanctioned from even purchasing its necessary pharmacological medicine. *Takathor* in science and technology among ordinary people might even take the shape of the latest hand phone with capabilities that are not operable in the country. The latest Nokia 1020 mobile camera phone with 41 megapixels of picture quality raises the question of how many megapixels of clarity does an ordinary person mainly taking personal pictures really need; purchasing fetishized forms of technologies such as the latest computer, the latest car and other latest products turns into the incessant concern of ordinary people. In terms of general policy making, *Takathor* in science and technology possibly means policy makers trying to shorten the technological gap with unnecessary technological capabilities. In the continuous competition between Iran and its neighboring country, Turkey in the overall number of published articles turned into a matter of concern for the nation’s science and technology policy makers.

An essential alternative to *Takāthar* lies in a *Kawtharī* (abundant virtue) perspective. Ayatollah Javadi compares *Kawthar* to the verse from the Qur’ān (108:1) where God enlightens the Prophet about an abundant gift. A gift where many scholars interpret as being the only child of the Messenger of Allah, his daughter Fātima, may Allah be well-pleased with her. He further illustrates “*Kawtharī* Development” as holistic and sustainable for later generations; not sustainable in length, but sustainable in width; and it should be sustainable

15. Nasr, Seyyed Hossein. “Three Steps to Islamic Iranian Model of Progress.” *Khorasannews*. December 23, 2012. <http://www.khorasannews.com/News.aspx?type=9&year=1391&month=10&day=3&id=4664901> (accessed February 11, 2013).

for all human beings in all generations. This means that capital should not be held only among a certain class or group of people but rather, it should be distributed among the whole population. Ayatollah Javadi compares capital with human blood; ‘if blood were only to circulate in certain organs then the body would be paralyzed. Capital should also be distributed in the whole body of people around the world. This is while currently the 85 wealthiest own more than the bottom 3.5 billion people of the world.’¹⁶

Ayatollah Javadi Amoli has emphasized the importance of achieving success in science and technology, however, the intention he stresses, should not be for rivalry or for the desire to be the winner in the region or even in the world; but to be able to create a world of harmony and peace, and for countries to share their progress with others who have been left out and deemed weaker. “*Kawthari*” development stresses on the importance of scientific and technological progress leading to economic prosperity for everyone and not for an elite minority. In “*Kawthari*” development everyone is required to be committed, and to work with conviction while having a share in the profit as well as the loss. Ayatollah Javadi Amoli further reflects on the idea that instead of war, rivalry and competition, the desire to be content with what you have and to promote a simple lifestyle should be encouraged. Furthermore, he views the world as a whole, instead of splitting it into continents, countries, regions and races. That is, seeking prosperity among all humans and not a specific race, culture or ethnicity should be part of the vital agenda of all populations. In this perspective, in “*Kawthari*” development, the intention is to build and flourish the earth and to call for the urgent construction and revival of the earth which has already been suffering for too long.

History of *Takāthari* and *Kawthari* Development in Iran

After the first discovery of oil in Iran on May 26th 1908, this extremely valuable natural resource has had a significant role in Iranian development policies even up to present. In the beginning years of its discovery and partly before the nationalization of oil in 1951—where Iran agreed to receive only fifty percent of profits—Iranian policy makers were generously giving away the national oil profits to western oil companies, in particular to Britain. During that time in history, one of the initiatives in Iranian development policy was to shift investment and therefore profit from agriculture to industry. Industrialization was a key to maximized profit and therefore vast industrialization projects were implemented. In the 1950s and 1960s, major modernization schemes in agriculture were implemented through a series of land reforms. The aims of these technocratic schemes were to acquire maximum growth with minimum

16. Fuentes-Nieva, Ricardo, and Nick Galasso. *Working For The Few: Political capture and economic inequality*. Oxfam Briefing Paper, Oxford: Oxfam, 2014.

investment.¹⁷

Iranian policy makers of that time recognized dependence on agricultural production as ‘backward’ and ‘primitive’ and that promises of the future lie in the process of industrialization. This carried an inherent belief that industrialization would not only bring about progress but would also ensure independence and self-sufficiency. Thus, with the hope for a rapid industrialization with the potential to eradicate unemployment and poverty in rural areas and with a promise to create growth and wealth for farmers, policy makers began introducing imported heavy machinery and industrialized forms of agriculture. The buzz words for most policy makers were industrialization, growth, progress, development, efficiency, minimal input with maximum output, urbanization and of course mass production. Since agriculture was no longer seen as a guaranteed source of investment, policies were shifted more towards the flourishing of industries. The agricultural sector’s share of GNP dropped, from 32 per cent in 1960 to 9.3 per cent at the end the fifth five-year plan (1973-78). This was despite the fact that in the 1963-77 period, there existed a rapid inflow of modern imports such as chemical fertilizers and pesticides. For instance the use of chemical fertilizers grew from about 32 000 tons a year in the early 1960s to 675 000 tons by the mid-1970s. Investment in agricultural machinery increased sevenfold over the same period.¹⁸ With the investment in industrial agriculture the agricultural profits declined. A review of government funding reveals that agriculture accounted for about 30 per cent of the total in the first and second five-year plans, but fell to 20 per cent in the fourth plan and 7.5 percent in the fifth, despite the fact that 52.2 per cent of the country’s population were living in rural areas in 1986 — the final year of the fifth plan.

Parallel to such projects, inappropriate investment was also obvious in water projects for agricultural purposes. For instance priority was given to the drilling of new wells equipped with motorized pumps, which resulted in the destruction of the cheaper and more effective traditional irrigation systems called the qanats,¹⁹ and new dams were sited inappropriately and constructed poorly. Neither of these efforts substantially increased the area of irrigated

17. Shakoori, Ali. *The State and Rural Development in Post-Revolutionary Iran*. New York: Palgrave, 2001.

18. Karshenas, Massoud. *Oil, State and Industrialization in Iran*. Cambridge: Cambridge University Press, 1990.

19. Roozbeh, Hossein, and Hamidreza Mohammadi Doostdar. “The Qanat: A Technological Narrative of another Perspective of the World.” In *Multicultural Knowledge and the University*, by Claude Alvarez, 58-64. Penang: Multiversity & Citizens International, 2014.

land and consequently had little effect on the total yield.²⁰ These policies later failed most importantly because they could not keep up to what they had promised which was in essence to reduce poverty.

Nine years before the onset of the Islamic Revolution in Iran, the Shah who had reigned for thirty years following the footsteps of industrialized and developed nations decided to invest in the very controversial issue of nuclear energy. An advertisement from the 1970s of American nuclear power companies read: Guess Who's Building Nuclear Power Plants.

The Shah of Iran is sitting on top of one the largest reservoirs of oil in the world. Yet he's building two nuclear plants and planning two more to provide electricity for his country. He knows the oil is running out--and time with it. But he wouldn't build the plants now if he doubted their safety. He'd wait. As many Americans want to do. The Shah knows that nuclear energy is not only economical, it has enjoyed a remarkable 30-year safety record. A record that was good enough for the citizens of Plymouth, Massachusetts, too. They've approved their second nuclear power plant by a vote of almost 4 to 1. Which shows you don't have to go as far as Iran for an endorsement of nuclear power.²¹

Plans for developing nuclear energy were part and parcel of the general development objectives which were planned by the Shah of Iran. However, there came a time when the two thousand and five hundred year old monarchy collapsed. With the birth of the Islamic Revolution in 1979 and the leadership of Ayatollah Khomeini with the mass support of the people. Iran had shifted politically from a monarchical tradition to an Islamic Republic. The post-revolution government has since then incessantly made an effort to distribute wealth across the country and to promote and practice justice. Development policies, however, were not that simple to challenge and not that simple to change.

After the Islamic Revolution in 1979 and as a result of the continuing policies of development and imbalanced urbanization strategies, the capital of Iran, Tehran became a mega city with a permanent population of more than eight million and an average life span of forty nine years with heart attacks caused by pollution and stress leading the main causes of death. The policy of Tehran mayors to control the overgrowing population, throughout the years has mostly geared towards the construction of new highways, digging

20. Schirazi, Asghar. *Islamic Development Policy: The Agrarian Question in Iran*. London: Lynne Rienner, 1993.

21. "Nuclear program of Iran." *Wikipedia, the free encyclopedia*. n.d. http://en.wikipedia.org/wiki/Nuclear_program_of_Iran (accessed 13 January, 2009).

huge tunnels, and expanding the public transport systems. This has inevitably created an extremely polluted and already exploding city that is knocking down more hills and mountains at the altitude of more than 1200 meters above sea level, to accommodate more people and more vehicles every day. The latest of such developments that was launched on May 28, 2011, is the Sadr Expressway that plans to transform the already existing highway into a two story highway with the intention to ease traffic. This happens while Iran Khodro (the largest vehicle manufacturing company in the region) and many other huge car manufacturing industries are increasing production day by day. These projects are more often than not publicized in the name of development and equity for all. Agricultural development projects have promoted the vast use of motorized pumps and wells and therefore replaced traditional and sustainable qanat systems. Over extraction of water for agriculture has also led to contemporary crises such as the drying of Oroomiye Lake,²² northwest of Iran that is gradually turning into salt. Examples of other huge water projects was the mega project of linking the Caspian Sea to the Persian Gulf²³—which has not been implemented yet—, the vast desalination of sea water for drinking purposes, and now the recent decision to transfer water from the Caspian Sea to the Semnan province,²⁴ a distance of more than one hundred kilometers towards the south, in Dashte Kavir which is the world's twenty third largest desert.

Policy makers opposing the dominant form of development decided to take serious policy measure. Those seeking a local response to development began producing documents that could illustrate the future of the country. The vision and future outlook of Iran, namely Iran 1404 (1404 in Iranian lunar calendar and 2025 AD) illustrates the general purpose and goals of the country in the coming years. The document stresses not only on economic, scientific and technological development but on the importance of Islam as the guiding religion of the country. The document stresses that Iran should not only become a powerful independent state but must also be an inspiration

22. Bello, Patrick. *World's third-largest salt-water lake at risk of drying up*. June 15, 2011. <http://www.lakescientist.com/2011/world%E2%80%99s-third-largest-salt-water-lake-at-risk-of-drying-up-125> (accessed September 3, 2012).

23. PressTV. *New pipeline to link Caspian Sea to PG*. January 10, 2011. <http://www.presstv.ir/detail/159513.html> (accessed September 8, 2012).

24. TehranTimes. *Iran to launch project to transfer Caspian Sea water to central regions*. April 15, 2012. <http://www.tehrantimes.com/economy-and-business/96929-iran-to-launch-project-to-transfer-caspian-sea-water-to-central-regions-> (accessed September 10, 2012).

for the rest of the world. That is, Iran would be among the few countries which have taken alternative measures towards development and are showing that it is possible to build upon internal strengths and capabilities rather than looking at constant external endorsement. The leader of Iran, Ayatollah Khamenei, necessitated the Iranian nation to set this model (Iranian Islamic model of progress) in ways that have the potential to lead the Iranian community towards spirituality. That is, in his terms, spirituality is not in conflict with science, politics and freedom: “we can progress in science preserving our spirituality. This model of progress has to recognize differences in historical, natural, cultural, geopolitical, and geographical roots of countries. It should progress in thought, knowledge, life (security, welfare, freedom, government) and most importantly spirituality”.²⁵

Today’s Challenges: *Kawthari* Hearts in *Takāthari* Minds

There are major debates with regard to the characteristics of the model of science and technology development in Iran among Iranian scholars and policy makers. These policies are culturally significant since they influence the cultural beliefs and practices of the nation, while their proper implementation will bring about economic prosperity and will raise the standards of living. Although the shaping perspectives of development are interrelated and cannot be simply categorized into two black and white contrasting viewpoints, in order to comprehend the two opposing sides of the debate and for the purpose of this article the views have been rather simplified into two distinct communities. The first community chooses to abide by the set of prescriptions from the UN, the UNDP, the World Bank and the IMF and thus may be hypothesized as following the *Takāthari* method. Nevertheless there exists the rather weaker and still immature voice of *Kawthari* development that yearns for an Islamic- Iranian interpretation of development. Early documents, debates and intense discussions surrounding the promotion of an alternative model of development still have a long way to complete maturity. What has however been the driving force of *Kawthari* policy makers is the desire for change and the understanding that there is something principally wrong with the current dominant form of development.

A number of leading Iranian science and technology policy makers interviewed for this study, expressed their concern over the challenges of the *Kawthari* and *Takāthari* mentality. Even those who lived a spiritually driven lifestyle and were politically in strong opposition to the West planned *Takāthari* strategies when it came to development. For example Dr. Modarresi,²⁶ a

25. *Science and Technology in Iran*. Directed by PressTV. 2011.

26. In order to preserve the anonymity of the interlocutors of this research, all names are pseudonyms, except those of well-

leading decision maker for several huge science and technology development projects, stated that ‘developing’ or ‘under developed’ countries resemble a giraffe. That is, “you cannot define them clearly in terms of words but when you visit them you will notice it right away. The discipline which exists in developed countries is very different”. Dr. Modarresi perceived a genuine form of organized culture and discipline in the so called developed nations which he stressed was clearly visible.

Ayatollah Javadi explains that the key to the survival of *Takāthari* development is the people loyal to it and the people who willingly set aside their beliefs in order to blindly fulfill ‘development’ promises. For Iranian policy makers the challenge of yearning for material development and more wealth or what is seen as the development glamour and at the same time maintaining national values and national knowledge systems is of grave concern. Dr. Mas’oodi a pioneer in the calls for a *Kawthari* form of development, who is currently a high ranking science and technology policy maker in the country, explained that the Islamic Revolution did not transpire for welfare purposes. That is, he believes that although it is an imperative need for an Islamic country to have appropriate welfare and appropriate health systems, nevertheless, the end goals are not welfare. Dr. Mas’oodi points to the first steps of decision making for science and technology policies that must include value structures; “why do we want science and technology? If we were used to looking at a country like Turkey as our most powerful rival we are now thinking of the unity of the Muslim Ummah as our aspiration. This means that if a country is stronger in a certain field, we would be happy and will look for serious cooperation. If we are strong in a certain field of science and technology we would show a helping hand to countries that need our knowledge”. However, for him this does not necessarily mean that the other countries will be looking forward to the helping hand. The huge multimillion dollar military contracts between the United States and countries such as Saudi Arabia, Qatar and the United Arab Emirates shows otherwise.

For most of the Iranian policy makers in this study, the issue of brain drain and the concerns over the losses of its intellectuals after years of investment was continuously raised. In order to solve this problem or to lessen its harm, many diverse policies have been laid out in hopes of using the capabilities of the intellectuals while they are still living in the country and to encourage them to stay with tempting financial assistances and loans. Dr. Zeinabi saw the root of this problem in the *Takāthari* perspective and explained that university professors and policy makers plan to follow the exact footsteps of Europe and America of fifty years ago. He believed that Iranian youth would ask a very important question of “why would I want to stay in a country that in its best

case scenario will look like America in fifty years?” He stated that the ways policy makers perceive development have to change; and definitions have to change so that everyone learns to trust: “one way of demystification is creating trust within us and others. The idea of competition and measurement in the ‘western’ image of development generates a manner of local and global distrust. Trust becomes a one way street; only trust the west.”

For professors working in the field of science and technology, there exists another rather significant obstacle. Dr. Modarresi explained that science and technology development is strongly related to promotion and endorsement policies. He had examples of his own line of research and stated that: “I have handed in my professorship promotion documents and it is currently under review. Before submitting my documents, yes I was after promotion, and I tried to submit articles to journals without really thinking about whether it is needed for the country or whether it is useful. But now that I have passed the promotion stages I can work more freely. For example I identify necessary problems or instead of a couple of weak articles I try to produce a single powerful one”.

The Ministry of science, research and technology promotion policies have been a major hindrance for policy makers who were mostly university professors. These promotion schemes follow the *Takātharī* mentality that focuses mostly on quantity and authority. Quantity because the deciding criteria is limited to the number of journal articles, conferences (international and local), books or book chapters and many other strictly quantitative measures. It is therefore not important whether research has served a purpose or if it has been able to solve the problems of a community of people. The authoritative aspect of these promotion schemes points to the issue that articles published in either ISI or SCOPUS indexed journals are received at much higher value compared to locally published journals. Thus, the journals indexed under ISI or SCOPUS are considered as trusted journals even for a country with a history of anti-imperialist policies, and Iranian professors are obliged to ask for recognition and endorsement from journals that are mainly produced in the west and are now ironically sanctioning Iranian research, in order to be promoted in their own country.

However unripe the practical side of *Kawtharī* development might currently be, Dr. Mas’oodi was optimistic and predicted that with the support of policies shaped by the *Kawtharī* perspective, many sincere changes will flourish. He followed by saying that ‘we should develop our own set of goals and needs, our own strategies and policies, and then look into other countries and learn from their experiences. This means that the strong foundations of development have to be constructed locally by taking into account the Islamic and Iranian nature of these plans and after the growth of strong roots, the

seeds of foreign experiences and practices may be planted”.

Dr. Maryami, the head of one of Iran's leading science and technology research institutes identified government centered policies as the roots of the problem of slow progress in science and technology in the country's economic policies. For him, the rigid bureaucratic laws stop a local manufacturer or producer from proper production and further growth. Dr. Maryami's critique was mostly related to the national budget flow into governmental sectors, which has according to him created a vast bureaucratic government. Furthermore, since the government is both in charge of all science and technology (S&T) policies and plans and also has to implement them, this has fiercely eliminated any other type of competition which can cause progress in S&T. He persisted that: “If you modify the rules based on allowing people to ride the horse, then you can only supervise, you should not become the horse and ask others to ride you... but right now the government is not riding the horse of economics but in my opinion has become the horse itself! It wants to do everything, and believe me, a horse cannot think of everything”.

With the growth of a new wave of development (*Kawthari*) people who had been benefiting from the previous structure, eventually turn livid. Dr. Sadeq firmly stated that progress in S&T aired on national TV or that which is propagated through various media is mostly fabricated. His evidence was based on what he believes as completely imported Science and Technology in the name of local production, and that policy makers have only been beating on their own chests (referring to the point that nothing has been actually done). The critical belief that the country is “not doing anything” is not only held by Dr. Sadeq, but also by many other Iranian policy makers and scholars. Since the international bodies have not approved the country's development status, Iranian scholars do not believe in their own abilities. The power of Takathor mentality which lies in its grip on people's minds and its hegemony, does not tolerate any nation that decides to take a different path. The brutal wave of *Takāthari* development has demonstrated to only grant access to those who cherish its standards. Perhaps this is why Dr. Royani, leading a prominent research center in Tehran, complains about the times when a scientific breakthrough is achieved, faithful friends (colleagues) either address them as liars or blame them for making a big hassle out of nothing really significant.

Conclusion: The Captive Elite and the Quest for Alternatives

In 1972, when it appeared that colonialism was continuing to run deep in the minds of Malaysian scholars, Syed Hussein Alatas put forth the idea of the captive mind.²⁷ He states that the community of elites are captured and

27. Alatas, Syed Hussein, “The Captive Mind in Development Studies.”
International Social Science Journal, 1972: 9-25.

strangled in a series of beliefs that do not belong to them. The outcomes of this study also show signs of captivity and symptoms of accepting what has been forced onto scholars and intellectuals while rejecting what they used to cherish as their own values.

The US President Truman in 1949 while laying out the development package for the undeveloped world stated that:

I believe that we should make available to peace-loving peoples the benefits of our store of technical knowledge in order to help them realize their aspirations for a better life...Greater production is the key to prosperity and peace. And the key to greater production is a wider and more vigorous application of modern scientific and technical knowledge.

The ‘better life’ that was promised by President Truman remains obscured after more than sixty years of its onset. Since greater production depends on profitmaking and personal benefits, it has mostly led to greater consumption and thus the rich have become richer and the poor poorer.

“*Kawthari*” development, Ayatollah Javadi Amoli believes, is the way out of the current disarray. Only then will concepts such as *baraka*—blessings-, *rizq* (provision), content, martyrdom and other concepts that are alien and unfamiliar to “*Takāthari*” development become momentous. The blessings of Allah, according to the Qur’ān, are granted to those who believe in Allah and fear him: *And if only the people of the cities had believed and feared Allah, We would have opened upon them blessings from the heaven and the earth; but they denied the messengers, so We seized them for what they were earning.* (Q 7:96)

Rizq (provision) and contentment come from Allah and He will be sufficient for whoever relies upon Him. Plans to increase sales and profit will therefore be bound to Halal methods and performing charitable functions may be one of them.

And will provide for him from where he does not expect. And whoever relies upon Allah, then He is sufficient for him. Indeed, Allah will accomplish His purpose. Allah has already set for everything a decreed extent. (Q 65:3)

Dying in the path of Allah that seems irrational under all the criterion of modern rationality may become the necessary path. Martyrdom and the giving of life in the path of Allah is promised with the gift of Heaven:

Indeed, Allah has purchased from the believers their lives and their properties in exchange for that they will have Paradise. They fight in the cause of Allah, so they kill and are killed. It is a true promise binding upon Him in the Torah and the Gospel and the Qur’an. And who is truer to his covenant than Allah? So rejoice in your transaction which you have contracted. And it is that which is the great attainment. (Q 9:111)

One of the most common questions raised about a study of this kind is what it has to say about alternatives. It must be made clear that having very

general and universal alternatives will not work. Formulating alternatives has to take place in concrete local settings that consider the religious, social and cultural values of that community. Understanding the limits and problems of *Takātharī* development can be a guide for creating a locally owned *Kawtharī* form of development. Furthermore, a crucial step towards change is change in mentality. Awareness of the negative aspects of *Takātharī* development should be enhanced. Scholars loyal to *Takātharī* development—the captive minds—need to be challenged through discussions and debates and their loyalty has to be critically questioned.

There are many obstacles in this new perception of development. While concrete yet gradual steps seem necessary, it is crucial to understand that the country's policies have been based upon the pillars of the *Takātharī* mode of development, and as a result change is not going to come easily. One issue, however, looks promising. The almost silent voice of *Kawtharī* development is now crying out, and even if it might not be powerful enough to make necessary changes, it certainly is making itself heard.