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Introduction

1.1 Opening Remarks

Nobel laureate economist, Robert J. Shiller, famously pointed out: "Since the global financial crisis and recession of 2007–2009, criticism of the economics profession has intensified. The failure of all but a few professional economists to forecast the episode – the aftereffects of which still linger – has led many to question whether the economics profession contributes anything significant to society." There is no denying that there is a sentiment in today's world that the economists with all their economic theories have largely disappointed the general public. While energy is the driver of modern civilization, the role played by the economy in the formation of modern culture is pivotal. An energy manager has to be redeemed by the economic appeal of the project, despite more recent concern about society and the environment. In this regard, the biggest challenge of a new book on this is to present an answer to the question that Shiller's comment poses. Of course, the answer is not trivial and it is no exaggeration to state that the answer has eluded all researchers and pundits of modern

era. Recent studies reveal another depressing fact. Recent findings of Islam (2017) reveal that liberal economies grow faster (for instance, Poland) than the other (for instance, Bulgaria) but also create inequality and can lead to political failure in the long-run. This finding resonates depressingly when one tries to explain the current state of the economy of the United States in particular and the world in general. Recently, Oxfam reported that 388 billionaires had the same amount of money as the bottom 50% of the Earth's population in 2010. The charity's report also said that the richest one percent of the population would own more than half the world's wealth by 2016. Indeed, the Oxfam report turned out to be 'prophetic' as the number whose wealth is equal to that of the poorest half of the world's population has declined steadily since 2010. Of course, the discipline of economics has long been disconnected from social justice, but how can the irony of the original definition of economy (the Greek origins, meaning οίκος – "household" and νέμομαι – «manage») be lost on us?

Only recently, Facebook lost $100 billion in 10 days, yet there has been no earthquake, flood, or war (Financial Post, 2018). Bitcoin has oscillated between values assessed between $1000 and $13000 within days, without any connection to real wealth (Shane, 2017). Nearly 100 million dollars worth of Bitcoin has been stolen without physically removing any real property (The Guardian, 2017). What we have seen is Information turned into a safe haven of fraud and economic disaster. In the mean time, the "leader of the free world admits" that there is a steep learning curve await the U.S. presidency. However, as usual, 'the state of the union remains strong' – the time of global deception has arrived.

Occasionally, facts are spewed out in terms of statistics, national debt, etc. However, at no time were scientific explanations provided as to what these data stand for. For instance, the U.S. debt is reported to be $21 trillion, almost all in Treasury Bonds and Bills. Excluding some $7 trillion held by states and American citizens, $14 billion is in the hands of holders outside the U.S. Just over half of that, $7 billion is held by the Chinese (Wattles and Mullen, 2018). While listing these economic data, all news outlets ignore to point out none of these 'debts', 'investments', 'securities' have any meaning in Information age, for which the exceptionalism is the rule. Tomorrow, the U.S.A. can decide that access to U.S. satellite would require a certain tariff or any other hysteria and all of a sudden all deals will be off. Instead, it is stated that if the Chinese were to begin bleeding off some of that into the financial markets (to recover the costs of the tariffs), the value could begin to go down, quickening with any acceleration on the selling pressure. If that paper began declining rapidly, it could take the value of the U.S. dollar down with it.

Overall, there is a great deal of frustration and people do not feel they are a part of the economic system. The general public has lost confidence in the government and people feel helpless as everyone agrees that there is a rush toward economic inequality and the current economic development scheme cannot be sustained. The public mood was captured by Americn writer, Gore Vidal (1925–2012), who wrote, "The genius of our ruling class is that it has kept a majority of the people from ever questioning the inequity of a system where most people drudge along paying heavy taxes for which they get nothing in return." In the mean time, there is no shortage of alarmists that continue to put out notices that perpetrate further fear and the public mood spirals down to a level of collective depression. For instance, only recently, former Greek Finance minister and economics professor, Yanis Varoufakis warned that Karl Marx 'will have his revenge' as capitalism is coming to an end because it is making itself obsolete (Embury-Dennis, 2017). The former economics professor correctly described how companies such as Google and Facebook, for the first time ever, are having their capital bought and produced by consumers. Based on that observation, Varoufakis concluded something that has no connection to the science of economics. What we have here is a conclusion that appeals to everyone but it has no scientific basis nor does it give any solution.

The energy management sector is equally hopeless. There are numerous studies and even more voluminous conclusions but all point to the same main conclusion: we agree to disagree and life must go on. After spending billions of dollars in research, scientists could not even agree on if we actually have global warming, let alone the cause of it. Considering the fact that today's science is only a degenerated form of millennia old dogma, it is no surprise that we cannot explain why sunlight is different from fluorescent light, or microwave is different from open flame, or paraffin was is different from beeswax, or carbon dioxide from trees is different from the one guzzled out of engine exhausts. If we cannot even explain these fundamental facts, how could today's engineering that starts off with denaturing then calculates everything based on New science can begin to offer a solution to what Nobel Chemistry Laureate Robert Curl characterized a "technological disaster." Every day, headlines appear that show, as a human race, we have never had to deal with more unsustainable technologies.

How can this spiralling down path be changed? Who could possibly come to rescue? The government? In reality, it has long been recognized that politicians are the most toxic of liars. A New York Times (May 11, 2015) headline reads: All Politicians Lie. Some Lie More Than Others. When policy makers lie, there appears to be no recourse of escape from a process that has been severely corrupted. British poet, William Shenstone (1714–1763)

famously pointed out, "A liar begins with making falsehood appear like truth, and ends with making truth itself appear like falsehood." What we have is ubiquitous presence of falsehood in every sector. Money being the driver and energy being the vehicle of this civilization, the falsehood that prevail in economic and energy sectors are the most extreme and it alone can cause the economic extremism that the world is experiencing today.

This book exposes the falsehood of the past with objective scientific analysis for both economics and technology development. It then shows how these falsehoods have been hidden behind hidden hands in order to incapacitate the world from discovering the scheme that has created the current culture of obscene economic inequality.

1.2 Research Questions Asked

In this book a number of key research questions are asked. Every chapter answers at least one of these questions. This format has been particularly useful since our groundbreaking book on the science of global warming and energy management (Islam *et al.*, 2010). It is important to understand the nature of these questions before embarking into reading the main text of the book. It is equally important to avoid trivializing these questions, let alone forming an answer to these research questions. These are carefully selected questions that are addressed in various chapters with in-depth research and forming an opinion prior to reading the text would create a mental block and obfuscate natural cognition.

1.2.1 What is the Natural State of an Economy?

It is often said that New science is full with paradoxes. In fact, a culture that is obsessed with tangibles and myopic vision, more knowledge amounts to more uncertainties, thereby creating the paradox of 'increasing knowledge', thus redeeming the Orwellian 'ignorance is bliss' mantra. It is so deeply rooted that the 'increasing knowledge paradox' has become a topic of psychology (Schreiner, 2018). Those looking for an answer are then directed to productivity paradox, which apparently can be solved with productivity, arguably without creating the increasing knowledge paradox (Kijek and Kijek, 2018). This would be comical if not pathetically true that says volumes about modern-day cognition. We sought to solve the causes of all paradoxes, by seeking out the answer to this question: What is true? It turned to be a pivotal question that needed over 70 pages of to answer. That document, in the form of a white paper, became a part of every book that we have written

since 2006, the time we sought the answer to this question. The usefulness of that paper was that it revealed the source of any paradox and if 'what is true' is properly defined with 100% logic, no paradox can arise from subsequent cognition. When it comes to economics, we pose this research question: What is the natural state of an economy? This is because if this natural state is scientifically defined, there would be no paradox. It is extremely important to come to grips with the reality that economists never defined what is natural before going off to define every natural state involving economy. It is no surprise that Economics is the one discipline that has the most number of paradoxes. One notable one is the Arrow information paradox, named after named after Nobel Laureate economists, Kenneth Arrow. Information being the prelude to knowledge, what we have effectively created is a double paradox and every information we have has become a recipe of the implosive top-down model, called the 'aphenomenal' model by Zatzman and Islam (Figure 1.1). It is established in this book that modern economics models are all aphenomenal and belong to Figure 1.1b, in which decisions are made based on self interest, profit margin, and myopic quarterly gains rather than going through the abstraction process (Figure 1.1a). In order to answer the research question posed, all current models are deconstructed and their spurious nature unraveled. It is after that the scientifically correct definition of natural state is shown and the truly natural state of economy is

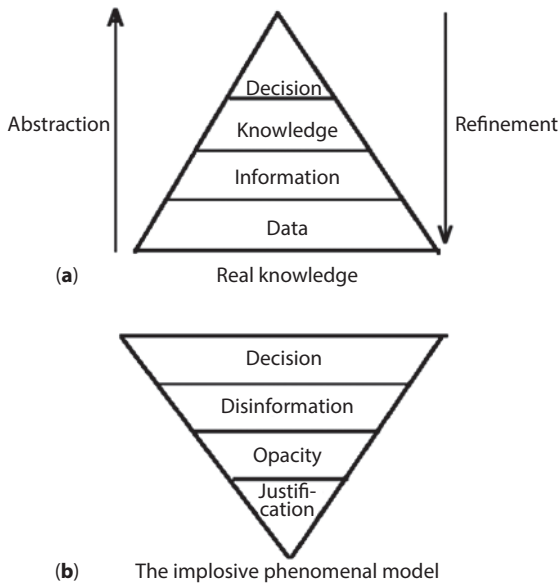

Figure 1.1 Knowledge model vs. aphenomenal model.

presented. The readership is thus prepared to see all energy policies and see past such paradoxes as Jevon's paradox to have a clear picture of what economics of sustainable energy should entail. Answer to this research question is given in Chapter 2 and part of Chapter 3. In Chapter 2, a delinearized history of money/wealth is provided in order to comprehend fundamental traits of natural state. Chapter 3 then shows how modern economic theories are incapable of tracking any natural state of economy, thereby remaining irrelevant in studying overall sustainability of any economic development project.

1.2.2 What is the Current State of Economy?

American journalist and author, Chris Hedges said, "We now live in a nation where doctors destroy health, lawyers destroy justice, universities destroy knowledge, governments destroy freedom, the press destroys information, religion destroys morals, and our banks destroy the economy." We know for fact that there is very little confidence of general public in respective governments, who merely represent the same financial elites that control the media and the scientific community. Today, in thw U.S.A., Congress' approval rate runs under 20% and often as long as 13%. It is also worth noting that the approval rate skyrocketed to over 80% only during the post 9/11 hype of war on terrorism, the same time the entire nation fell in unprecedented debt (Figure 1.2.). The question really becomes, what is really the true state of the economic status of the USA and the world that is led by USA.

The state of the economy of the modern world is depicted in Chapter 2 with a focus on historical degradation of the original meaning of the word 'economics' that once reflected real value of wealth and socio/environmental status of a community. We discover not only the current status of the economy but also how we got there. Chapter 3 presents the mindset of

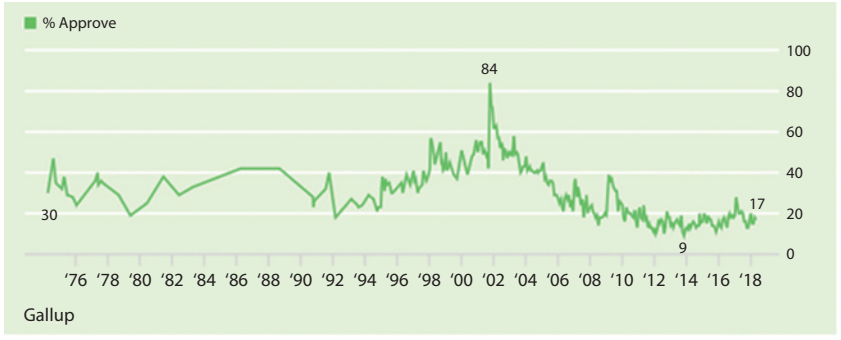

Figure 1.2 Congressional approval rate for last 32 years (Gallup data).

this socio/political degeneration or the philosophy that drove the world to such a state of obscene inequality in all sectors of the society, including the energy sector.

1.2.3 What are the Reasons Behind the Current State of Economy?

We live in a society that does not ask the 'why' questions. Lawyers obey the cardinal rule that a witness should not be asked any 'why' question, which might trigger a response that would be hard to control or give a spin toward desirable outcome. As Figure 1.1 indicated, pathological affinity toward a desired outcome is motivated by the fact that a decision has already been made prior to finding facts, let alone establishing the pathway of the truth. It is the same in the health industry: there is no shortage of medicines and vaccines for incurable diseases whereas there is no mention of the root causes of the diseases much less the path to cure the disease. It is no surprise that there is no cure for practically any disease as the world has settled in for 'managing' rather than curing an ailment (Islam *et al.*, 2015; Islam *et al.*, 2016; Islam *et al.*, 2017). Nothing manifests the crisis better than culture of cancer in medical science. There are numerous studies are published every week that all suggest often-conflicting recommendations but always settling in for more studies and more research, none of which addresses the real cause of cancer. Similarly, every week numerous studies are published about economics and policies all offering some sort of cure for the social ailment that has gripped the world but none offering the cause of such ailment.

This research question is pivotal yet amazingly simple. As we begin to answer this question, we begin to discover the root cause of this social 'cancer' that would require a surgery in the short-term but more importantly must undergo a fundamental lifestyle change in order to change the course of global economic health. This question is addressed in Chapters 2 and 3, and followed up in Chapter 4 that also discusses overall state of the technology development. Then Chapter 5 is presented in order to link the answer to energy sustainability. Such prolonged discussion was necessary in order to offer the readership with a complete diagnosis of the social 'cancer' that has made the economic health untenable.

1.2.4 What is the Current State of Technology Development?

Economics is the driver of today's technology development. So, after answering the economics questions, the natural question raised is about technology development. In answering this question, the starting point can be: What is the status of New science? Thankfully, this topic has been

addressed elsewhere (e.g. Khan and Islam, 2016). Because technology development is entire based on New science, it becomes a review of the current practices. That review makes it clear how today's technology development should not have any other consequence than a 'technological disaster' that only fuels economic implosion in a 'spiraling down' mode of thinking.

Chapter 4 addresses this research question. In answering that question, it becomes clear what needs to be done in order to render these technologies sustainable.

1.2.5 What is the Current Status of Energy Management?

In today's culture of fear and greed, in which every fear is perpetrated in order to scheme off the scared population, there are many tactics that are in place. The most popular one is that we are in every war because it is about oil. Then, the scientific community, which is also another sellout to the grand scheme, rings another warning bell, we are soon to run out of oil, and there must be another resource put in place for an extra cost. The so-called peak oil theories pop out from all corners. It is the same hype that was concocted in last century about the world running out of coal. Then comes another round of apoplectic messiahs that warn us about global warming and vilifying carbon – of all things – as the enemy of life on earth. Before anyone can get out of gasping, the economists come out and ring another warning bell – all these have to be remedied for a fee and we simply do not have enough to go around.

Chapter 4 deconstructs modern-day hypes and propaganda and calls out the fraud that once Enron personified by calling itself the 'most innovative energy management company'. This chapter puts the final nail on the coffin of disinformation that has gripped the entire world for decades.

1.2.6 Are Natural Resources Finite and Human Needs Infinite?

The fear mongering for increasing quarterly corporate profit has a long history. It started when the Roman Catholic Church terrorized ordinary people about their propensity to commit sin all because they were humans that are born with 'original sin'. New science has merely changed the 'sacred' designation of this status and sold itself as secular while promoting the same notion of 'selfish man' whose only mission is to maximize pleasure and minimize pain. Scientists have been so fixated on this notion that they did not bother considering any other premise, let alone a correct and consistent premise. It was never challenged and thereby the conclusion always became, humans are so greedy that no matter what they will be needing even more. After all, greed has no limit. Once this is established, then the

entire humanity is perceived as being engaged in a hunger game. No farther investigation can be allowed and all focus now has to concentrate on how to survive this hunger game.

By answering this research question, the book clarifies what is needed for sustainability and how to progress as a global community. This is a convoluted topic and as such needs to be addressed in multiple forums. As such, Chapter 4, 5, and 9 discusses the response to this research question. Chapter 9, which chalks out a clear path for positive government intervention, also addresses this question because the answer to this question pertains to policy changes that have profound implications on sustainability.

1.2.7 How Would a Model Economic System Look Like?

The history of the modern era *vis a vis* the general welfare of the society is bleak. Starting with philosophers and followed up by every scientist and economist, the modern era has promoted only negative side of humanity. It is as if no one could escape from the 'original sin' curse. What we have in modern history is both the political left and right basing their arguments with the same false fundamental premise. The goal here is not to demonize conventional theories and approaches, but to point out that the theoretical flaws in his model make it impossible to predict reality in economics, let alone model economics. While Chapter 2 has deconstructed all these theories and paradoxes, the question still remains as to what is the ideal in an economic system? We know from Chapter 2 Arisitotle had many of the ideals right and those ideals were later corrupted for various reasons, but we still do not have a model that captures all aspects of economic standardization.

Unfortunately, the current theories (both left and right) do not stop at predicting chaos or anarchy, it goes further and asserts that the chaos/anarchy model is the only model and there cannot be an alternative model. Zatzman and Islam (2007, p. 56) attributed this philosophy to Baroness Thatcher's infamous statement, "There Is No Alternative", calling it the TINA syndrome. This mindset has prevented scientists, philosophers and economists to even look anywhere. As pointed out by Jaan Islam (2018), there was an entirely different approach taken by Islamic philosophers, many of whom have been recognized by modern-day philosophers and scientists as the father of respective disciplines. Ibn Khaldun, who is recognized as the father of sociology, is one of them. Unlike any of modern day scholars, he made systematic observations of historical events and divided civilization in two categories – one is the Caliphate (that belonged to prophet Muhammad and his rightly guided caliphs) and the

other is the Kingdom (or empire). Modern scholars characteristically have praised Khaldun's Kingdom model and drew analogy with modern day events, including democratic reform while completely ignoring Khaldun's Caliphate model. While attempting to answer the research question of this section, we brought back Khaldun Caliphate model and examined it *vis a vis* all the shortcomings of modern economic systems. Chapter 6 presents our findings and thus makes room for creating a truly sustainable economic system than can function today. It describes a model economy, complete with model financial structure and model governance.

1.2.8 Is Sustainable Petroleum Technology Possible?

For the longest time, 'sustainable petroleum technology' was considered to be an oxymoron. Even when we published our book titled *Greening of Petroleum Operations*, an 800+ page compendium in 2010, it was a concept many struggled to grasp. After all, we were told that carbon is the enemy (despite carbon being the essence of life) and no one was ready to partake in an intellectual endeavor that challenges core beliefs. However, ever since, we have published a series of books and now it is beginning to surface what was known from the beginning of civilization that is petroleum resources are natural and as such there is no reason for them to be unsustainable unless we have created a mess during the processing cycle. So, the problem is reduced to developing processing technologies that are sustainable. Chapters 7 discusses how it is not only possible but in fact necessary to render processing of petroleum technologies to be sustainable. As such, petroleum resources become infinitely sustainable. This implies two consequences: (1) there is no limit on availability of petroleum resources; (2) growth of the human population will not become a factor, both having very positive effect on global economy. In addition, energy and material characterization shows how energy sources should be valued and energy pricing made equitable. Petroleum therefore becomes an integral part of the natural cycle as envisioned in Figure 1.3.

1.2.9 What Role the Government Should Play

Criticism of the government has reached mainstream political discourse in the U.S. and other countries, with the rise of the likes of Bernie Sanders and Jesse Ventura calling out government 'corruption'. However, with the rise of Donald Trump to presidency, cynicism of the government has reached feverish pitch. There is no shortage of quotations regarding government failing but this is not unexpected for a culture that has seen the government as an active colluder with financial establishment that everyone loves

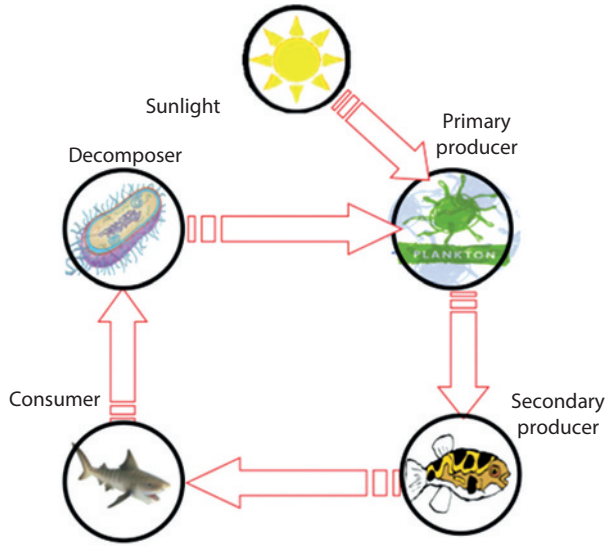

Figure 1.3 Nature is inherently sustainable (From Khan and Islam, 2007).

to hate and with the corporate media that everyone sees as the propaganda arm of the financial establishment. However, the following quote of former Minnesota Governor, Jesse Ventura sticks out as the most relevant in the context of this book. He said:

> Government's role should be only to keep the playing field level, and to work hand in hand with business on issues such as employment. But beyond this, to as great an extent as possible, it should get the hell out of the way.

Incidentally this was the role that was envisioned by Ibn Khaldun when he presented his model government that intervened only to correct injustices. In this process, a government must play a role of a benevolent arbitrator who is charged with striking a balance between nature and humans, between sellers and consumers, between the state and the external world. It also means, the government will help reversing the culture that historically benefited from war, denaturing of chemicals, and in general creating a 'technological disaster' in the past. Chapter 7 discusses the role of the government that is part of the overall sustainability of economics of sustainable energy. This is the only model that assures total sustainability as it fulfills are requirements of sustainability involving 1) Environment, 2) economics, 3) politics, and 4) culture (James *et al.*, 2015).