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Multiplying Money

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Abstract

This article is not a comprehensive factual history of money as an economic instrument. It aims rather to present an essential psychological history of the power of money as a social organization or social technology. It explores the catalytic role of money in the development of society and its ever-increasing capacity for accomplishment in both economic and non-economic fields. This perspective focuses attention on the unutilized potential for harnessing the social power of money for promoting full employment, global development and human welfare. The title 'multiplying money' is intended to convey the idea that this untapped potential is exponential in nature. In order to recognize it, some fundamental misconceptions about the nature of money, how it is created and on what it is based need to be examined. This is the second article in a series.

1. Too Much or Too Little

The idea of multiplying money sounds almost sacrilegious. It evokes responses similar to what one might expect if an English clergyman were to preach the virtues of polygamy or an Indian demographer were to urge people to bear more children or an international economist were to propose that gambling and speculation be promoted as a major growth sector. Today the world is glutted with money. Witness the \$4.6 trillion circling the globe daily in search of higher speculative returns or the \$225 trillion in global financial assets, up from a mere \$12 trillion in 1980.¹ Yet, far from having too much, the world has far too little money, too little at least that is being used for its intended purpose to promote human welfare. But the merest hint about creating more money raises shouts of alarm, suspicions of conspiracy and a rush of investors to safe havens such as gold, land and other 'real' forms of wealth.

It is not surprising that the rich and famous protest against efforts to multiple money, for they presently enjoy a near monopoly in this domain and any extension of that privilege risks depriving them of the major source of social power and prestige that distinguishes them from everyone else. Imagine a conclave of dukes and earls advocating the multiplication of titled families or an assembly of physicians advocating that the number of licensed doctors in USA be tripled to bring down the costs of medical care. But ironically, it is not just the wealthy alone who resist the multiplication of money. Almost everyone else regards it with equal suspicion as an assault on common sense or sacred values. 'Beware of inflation! Remember Weimar Germany!' proclaims the man in the street born 30 years after the event, as if he has

been studying monetary theory all his life. 'Gold is the only real wealth' cries his wife as she clings to her gold wedding ring. 'It's another Wall Street conspiracy to exploit depositors and raise taxes,' insists another.

Scratch the surface and most people will tell you that a tight leash on money is a real virtue, a sign of stability and security, something you can rely on precisely because it resists change, a reassurance that greed, folly and imagination are not running away from us. This thinking is consistent with the original mindset with which the science of economy was founded at a time when wealth was confined to 10,000 families in England, the middle class was miniscule, and the vast majority scratched out a subsistence existence. Economics was founded as the science of scarcity. Although we now live in a world with the capacity to produce all types of goods and services in sufficient quantity to meet the needs of every human being, the mentality of scarcity still overshadows our thinking on the subject of both money and economy and stands as a brick wall between the human race and abundant prosperity.

The fact remains that there is not too much money in the world, but too little. At least that is what the American colonists concluded three centuries ago. Money was a revolutionary invention and a source of revolutions as well. One of the little known causes of the American Revolution was the lack of money. The Revolution was fought for the cause of freedom and one of the most prominent kinds of freedom the colonists sought was freedom to create money. England insisted that only British sterling be used as a medium of exchange in its colonies, but the colonies could not generate sufficient sterling from their one-sided trade with England, so they resorted to using Spanish dollars to supplement sterling. When this practice was banned by London, they resorted to furs, tobacco leaves, and even wampum beads as a supplementary medium of exchange. In desperation, the Massachusetts Bay Colony in 1690 became the first of the American colonies and one of the first governments in modern times to print their own paper currency notes denominated in pounds, shillings and pence. The practice was soon followed by all the other colonies. The British Parliament eventually outlawed the practice as both illegal and immoral in a series of acts, the last and most drastic completely banning the use of legal tender paper in 1764. War ensued as the result of a perpetual shortage of money to transact trade.²

Today a similar revolution is brewing in the streets of Athens, Cyprus, Egypt, Madrid, Rome and Lisbon, and among rising numbers of unemployed youth in towns and villages throughout the world. The cause célèbre is the first major crisis affecting the world's most important experiment to move beyond national currencies towards a truly global system – the Euro. The source of the problem is not any inherent deficiency in the concept of a regional currency, but in the inadequate development of European institutions of governance to support its successful application. Having relinquished their right to create money at the national level, member states of the Eurozone have encountered the very same problem that plagued the American colonies before independence – an incapacity to generate all the money that is necessary to support full utilization of their economic potential to meet the needs of their people. These nations possess the essential ingredients to continue their remarkable rise from the ashes of WWII to become the most prosperous region in the world. What they now

lack is the necessary catalyst – money. What is true of some nations of the Eurozone today is true of the world as a whole.

Economist Paul Krugman has been making a similar argument with regard to the US economy for years, citing zero interest rates and low inflation as clear symptoms that something is amiss. Randall Wray, a major proponent of Modern Monetary Theory (MMT), has provided a sound framework to explain why there is ample scope and justification for creating sufficient money to achieve full employment.³

“The more we use money, the more it multiplies and the greater the power it acquires for accomplishment in society.”

Although it directly challenges proponents of balanced budgets and tight monetary policy, MMT is gaining significant attention and support. In a web presentation to the World Academy’s Global Employment Challenge as well as in books and numerous articles, Wray explained why sovereign nations with full control over their own currencies can and should create sufficient money to ensure their economies function at full employment. But let us reserve the theory for a subsequent article and start by examining the facts.

2. The Great Catalyst

Money is a catalyst for economic activity, in the same way words are a catalyst for communication. Without language, interaction, cooperation and relationship between people would be reduced to physical gestures and signs at particular points in space and time. The gathering and transmission of information, organization and transfer of knowledge, dissemination of technologies, codification of laws, formalization of governance, diffusion of cultures, formulation of philosophies and recording of religious experiences and inspiration would be impossible without symbolic language. In the absence of the power of ideas made possible by language, these remarkable human capacities would be literally ‘unthinkable’.

Catalysts are a mysterious phenomenon. They facilitate and accelerate transactions without being altered in the process. A catalyst enables chemicals to interact with one another to produce entirely new substances, leaving the catalyst just as it was before. Without them, many reactions occur very slowly or not at all. It seems almost inconceivable that a thing so potent could remain unchanged and undiminished by the function it serves. Indeed, *when it comes to social catalysts such as language and money, each usage adds incrementally to its power and effectiveness. The more we use a language, the more it grows in subtlety and sophistication. The more we use money, the more it multiplies and the greater the power it acquires for accomplishment in society.*

Money plays a catalytic role in society, facilitating exchange, promoting enterprise, stimulating production, spurring innovation and invention. Before money, most of humanity lived at or below subsistence levels producing only enough to meet the immediate requirements of their families for self-sufficiency and for local barter exchange. *Money and trade changed all that. They provided an incentive for each person to produce the maximum of which they were capable, so that it could be converted into money and used to obtain a wide*

range of other goods, services and intangible social benefits produced by others. Thus, Adam Smith termed money as ‘the great wheel of circulation, the great instrument of commerce’.⁴

3. Untapped Global Potential

Any economy needs sufficient liquid money to facilitate full utilization of its productive capacities. A casual examination of the facts makes it abundantly clear that the world economy is far from operating at full production. According to official statistics, about 200 million people are unable to find opportunities for gainful employment. Nearly 75 million of them are below the age of 25 with dismal prospects for the future.⁵ The actual figures are much higher. Many people are forced to settle for work that utilizes only a small fraction of their productive capacities. While underemployment is difficult to measure accurately, the magnitude of the problem is clearly reflected by the fact that only 40% of the global workforce is employed full time.⁶ When underemployment is taken into account, it is reasonable to assume that more than one-third of the world’s human capital remains unutilized.

What is true of people is equally true of other productive resources. Society is an organization of human beings with the capacity to utilize knowledge, skills, technology, human and other resources to meet a wide range of human needs for production, exchange and consumption; peace, security and governance; transport and communication; health and education; scientific pursuits, artistic creativity, entertainment and recreation. Today global society has immense resources – a rapidly expanding body of scientific knowledge and technological capabilities, educational and training institutions; an ever-expanding network for communication and transportation connecting individuals, organizations and communities around the world; an enormous base of manufacturing facilities functioning far below capacity; and so much more. None of these productive resources are being fully utilized for human welfare.

Even our environmental problems are directly linked to a shortage of money. The world already possesses the technological capacity to effectively address climate change, water shortages and other ecological challenges. Massive investments in solar and other forms of renewable energy could soon make reliance on fossil fuels obsolete, if only we had the capacity to mobilize sufficient money needed for that investment. Actually those financial resources already exist but are being utilized to aggravate ecological problems rather than resolve them. A new IMF report estimates that global energy subsidies amount to a staggering \$1.9 trillion worldwide – the equivalent of 2.5% of global GDP, or 8% of total government revenues. Moreover a considerable portion of these subsidies goes to the top income group.⁷

Global society is operating at far below the level required to fully meet human needs. Unprecedented prosperity co-exists side by side with three billion people still mired in persistent poverty – a number equivalent to the entire world population in 1950. The gap between needs and performance has always existed. But the difference is that the world now possesses the capacity to meet all those needs. Poverty was once an accepted, unchanging reality of life to which people resigned. Today that is no longer the case. The Human Aspiration is awake, expectations of a better life have percolated to all parts of the world and all levels of society. People are no longer either resigned or patient. Even in the poorest democratic societies, they

want and urgently demand more. The signs of brewing revolution are reflected in the rising levels of discontent and unrest among unemployed youth and low income voters, among the rural landless and the urban poor, among the educated unemployed and the unskilled.

“Like a chemical catalyst stored in a separate beaker standing next to the reactants it is intended to catalyze, a vast portion of money today is being stored separately in financial markets insulated from the real economy.”

The catalytic role of money in mobilizing social resources to tap unutilized potential was dramatically illustrated in the town of Woergl, Austria, during the 1930s. At the height of the Great Depression, the economy of Woergl was at a standstill, public spending was drastically cut, and unemployment reached 25%. The mayor of Woergl devised an ingenious plan to revive the local economy. He deposited the entire town’s money in the local bank and used that deposit as the basis for creating local labor certificates, which he utilized to finance public works. The certificates quickly gained public acceptance because they could be utilized as legal tender to pay local taxes. Many important public works projects were undertaken using the certificates to pay local workers. The workers in turn presented the certificates to retailers in exchange for essential goods, and the stores used them to purchase materials from local wholesalers and manufacturers, who used them for further exchange as well as to pay local taxes. A one percent negative interest rate on the certificates ensured that people spent them quickly rather than saving them, leading to a very rapid turnover of funds, which further multiplied their catalytic economic impact. Very soon, the town economy was booming and reached full employment. Woergl’s success continued until the Central Bank of Austria decided that its sole authority to issue money had been compromised and declared the experiment unlawful. In a short time, unemployment in Woergl rose back to previous levels.

Today’s global economy is flush with money, but too little of it is being utilized for the intended purpose as a catalyst for the real economy. Like a chemical catalyst stored in a separate beaker standing next to the reactants it is intended to catalyze, a vast portion of money today is being stored separately in financial markets insulated from the real economy, seeking to multiply itself through speculative investment rather than by catalyzing real economic activity and employment generation. The barriers between the real economy and financial markets are porous, their interactions myriad and complex, so it is always possible to dispute this view by pointing to the positive role of financial markets in pooling capital for productive private investments, managing risks, extending credit and financing public goods. But the membrane separating the two grows ever thicker and less porous, their estrangement ever greater and closer to irreconcilable divorce.

The world already possesses the capacity to generate all the financial resources it needs to fully meet human needs. The problem is that we do not know it or rather we do not know how to design our social systems to effectively utilize it. The prevailing view of money is

so completely obscured by myth, superstition and intellectual confusion that untangling the web leads only to further confusion, debate and controversy between established dogmas and conventional wisdom. The solution lies in dispensing with dogma. The key lies in finding the answers to the following questions: What is money? How is it created? On what is it based?

4. Caveat

A caveat is necessary before we can attempt to answer these questions. Money is one of the most sophisticated and powerful of all human inventions. It takes many forms, it evolves continuously over time, and it interacts in increasingly complex ways with virtually every other aspect of human social existence. The theories formulated to describe and explain it, the systems used to administer and control it, and the multiplicity of its forms and actions appear bewildering in their complexity; so much so that most people, including most economists, have decided that understanding money must be left to monetary specialists, much as we leave speculations and research on the Higgs boson to theoretical physicists. This perception is a major source of our difficulty in managing money effectively. For regardless of how money is defined in economic textbooks, it is not merely or even primarily an economic instrument. Money is a social invention, a psychological symbol, rather than a material thing. It is a human social system based on social rules and human choice, not an inanimate, lifeless mechanism. Its one and sole legitimate purpose is to promote the welfare of human beings. The moment we lose sight of these facts and begin to regard money as some mysterious abstract entity to be worshipped or feared, we lose the power to comprehend and control it. We lose our freedom as creative human beings and become subordinate or enslaved to the instrument we have created.

There is an additional complication in striving to understand money. Money and those who possess it have always been targets of envy, jealousy, suspicion, hostility and persecution. This is especially true in periods of financial turmoil, such as the present day. In the wake of the subprime mortgage crises, the ensuing global financial crisis and the persistent economic downturn, the deficiencies, inequities and abuses of money and financial systems have been so highly publicized and well-documented that public discourse is most often characterized by scathing criticism, vilification or outright condemnation. Bankers, Wall Street traders, government officials, corporate executives and wealthy investors have become the scapegoats for all that is inadequate, unfair, inequitable and corrupt about the national and global economic system. This makes it extremely difficult to engage in an objective, impartial examination of money and its role in society.

Every social institution can be used both positively or negatively, for good or for bad. The language we use to communicate and forge rich human relations can also be used to disguise, deceive, slander and condemn, to hatch conspiracies and undertake crimes. The governments we found to secure our freedom can also be used to oppress and deprive us of that very freedom. The global Internet which has empowered individual human beings as never before can also be used to promote scams, viruses, crime and terrorism.

So too, money is a neutral instrument which can be used to create unprecedented freedom of choice, prosperity, welfare and well-being for all human beings or it can be misused to

serve other less noble, less equitable and desirable purposes. We do not condemn and reject the institution of language because it is also used by criminals and terrorists. We do not reject the principles of democracy because it so imperfectly embodies in practice the ideals on which it is founded. We do not shut down the internet because it is used for anti-social purposes. Instead, we strive to develop ways to extend its positive applications and minimize or eliminate its negative expressions as far as possible.

“Money, like democracy, is a work in progress – imperfect in its structure, often misdirected and misapplied in the exercise of its power – but nevertheless a remarkable invention that has resulted in unprecedented wealth generation and welfare.”

Thus, in examining the origins and evolution of money as a social institution, we need to recall that money, like democracy, is a work in progress – imperfect in its structure, often misdirected and misapplied in the exercise of its power – but nevertheless a remarkable invention that has resulted in unprecedented wealth generation and welfare. It is necessary that we keep in mind the remarkable contribution money has made to human development, the power it has placed at the disposal of human beings, and the vast untapped potential for extending and multiplying that power until its benefits fully reach all humanity. Then we will be in a position to impartially identify and correct the many blatant deficiencies and gross inequities that have been generated by the partial and biased misapplication of a power that is rightly intended to promote the equitable development of all.

5. Origin and First Principles of Money

Let us approach the issue of money from first principles, starting with a few basic premises. First, society is an organization of human beings which possesses power to utilize knowledge, skills, technology, human and other resources to promote the survival, security, growth and development of its members. Among these powers is society’s ever-growing capacity for production, exchange and consumption. The development of a society is a function of the degree to which it has acquired the capacity to harness this social power to evolve beyond a subsistence level existence in Nature. The greater its capacity to raise the productivity of resources – land, human labor, mechanical energy and natural resources – the more economically advanced the society becomes. The discovery of fire, creation of languages, invention of the wheel, development of agriculture, establishment of markets and trade routes for exchange of goods, founding of towns and cities are some of the significant early steps in the evolution of social power. During the past two centuries global society has harnessed this power to dramatically raise the living standards of a rapidly expanding human population, generating an eight-fold multiplication in real global per capita income.

Money is one of the primary instruments responsible for this remarkable achievement. The invention of money has played a central part in the general evolution of social organization and social power. Money is a social organization relating people, institutions,

communities and activities together in a seamless web. Money is not merely an economic tool or institution. It is integrated with virtually every field of social activity – law and politics, education and research, entertainment and recreation, religion and spirituality. Money is a social technology that facilitates, expedites and improves the efficiency of all types of social transactions, the way language facilitates oral and written communications and the Internet facilitates global communications and digital transactions.

Money is a social symbol. It is social in the sense that it has no value to a single person living alone on a deserted island. It is a symbol in the sense that it is not merely an object like a stone or a gem. Money may or may not be represented by objects with intrinsic value, but it always represents something beyond the material form it takes. Money is a symbol for value and its power derives solely from the fact that people recognize and accept that symbolic value, the way we accept the symbolic value of the word ‘love’ or ‘truth’. The value of money depends entirely on human perceptions, i.e. on the fact that it is trusted and accepted by other people. Real currency notes believed to be counterfeit are essentially worthless as a medium of exchange, just as counterfeit notes believed to be real are indistinguishable in their utility from government issued currency notes.

The symbolic nature of money is obscured by its origin as a physical commodity. Although early money often took the form of something with intrinsic value – a cow, a bag of grain, a gold nugget – its utility as money did not depend on that. Indeed, the archeological evidence of clay tablets indicates that the earliest forms of money may have simply been records of credits and debits, which were in use long before the first appearance of minted metal coins around 600 BC.⁸ Whatever its origin, money gradually evolved to acquire new forms which were more subtle, less material. The grain receipt was an early form of money issued in exchange for the deposit of grain in government and private warehouses in ancient Egypt. These receipts were accepted, circulated and widely employed as a medium of exchange and store of value. Public confidence in the issuer of the receipts made it possible for warehouses to also issue receipts that were not backed by grain as loans to borrowers. Thus, the first fiat money was born in the distant past.

From the 15th Century onwards, London goldsmiths applied the same principle when they issued gold receipts in the form of interest bearing loans, often far in excess of the actual quantity of gold left with them on deposit. Because they were known to be wealthy merchants with huge stocks of gold, the public trusted their receipts without verifying whether each one was backed by real gold. As long as that trust was maintained, their receipts were widely accepted as money and infrequently redeemed for the underlying commodity. Note the subtle shift from trust in the gold to trust in the institutions that stored the gold and were reputed for their sound management and integrity. The goldsmith bankers of London reached the zenith of their influence during the mid-17th century.⁹

The notion that money is or should be based entirely on a physical commodity is a misconception that persisted well into the 20th century and still returns periodically. Some monetary historians argue that precious metal was added to early coins primarily to make coins more difficult and expensive to counterfeit, rather than due to the belief that precious

metal was necessary to give money value. Even at the height of the Gold Standard when the British pound sterling was regarded as the strongest, most stable currency in the world, the Bank of England possessed sufficient gold to redeem only about 5% of the notes in circulation. After being compelled to abandon the gold standard during the First World War, in 1925, Churchill pushed through legislation to restore it against the advice of Keynes, who called it an ‘imbecile’ bill. The ensuing economic contraction compelled the UK to abandon the gold standard once again in 1931.

“Human relations are the real basis for wealth creation.”

6. Evolution from Field to Marketplace

The primary role of money is as a catalyst for relationships between people. Human relations are the real basis for wealth creation. The physical labor of the hunter, herdsman and farmer was indeed the original source of wealth and welfare in humanity’s early ascent from the animal kingdom. At that time wealth was commonly measured in terms of heads of livestock or acres of arable land. But long ago they ceased to be the principal source of wealth creation. Various agricultural revolutions throughout history have enhanced the capacity of farmers to produce more than they needed for personal consumption. As soon as they developed the capacity to generate surpluses, they sought ways to exchange their surplus for other things they needed to enhance their security, productive capacity, comfort and enjoyment.¹⁰ Trade was born.

Adam Smith depicts the life of feudal barons in Europe during the centuries before development of roads, market towns, foreign trade and a money economy provided an outlet for their surplus produce. It was not uncommon for a lord to support a thousand or more families of mostly idle retainers on the produce of serf labor, simply because he could find no better way to utilize the surplus. When trade opportunities opened up, many of these barons reduced their retinues from hundreds or thousands to a few dozen servants, so they could trade the surplus for manufactured and luxury goods.

Trade shifted the center of wealth creation from the field to the marketplace, where the value of produce depended solely on its exchange value to other people, not on the cost of producing it, and on the ability of prospective buyers to offer something of comparable value in exchange. The wider the market, the greater the likelihood that buyers and sellers would find a match. The more distant the market, the greater the likelihood that what was produced locally would be considered scarce and desirable. The development of ever growing networks of markets spurred a succession of commercial revolutions, such as the great Bourgeois Revolution wrought by Arab merchants travelling the caravan and sea routes from Mesopotamia to Egypt and across the over half the Mediterranean to Spain from the 8th to 12th centuries, while Europe still remained a feudal agrarian society.^{11, 12}

7. The Rise of Trust

Land and sea trade routes combined with standardized coinage were the principal cata-

lysts for the growth of markets. Without some form of money, exchange depended on the double coincidence of barter trade – finding buyers and sellers who both offered something the other was willing to buy in exchange. With the introduction of money, the probability of concluding a transaction rose exponentially, since it was sufficient that the buyer wanted what the seller had to offer and possessed money to be given in exchange. Money worked exactly like a chemical catalyst, moving from buyer to seller until the seller found something to purchase with it, moving on from one transaction to another unchanged by the process. The value of the money to the seller arose solely from the fact that it could later be redeemed for other desirable goods and services. The money itself was only a mechanism for recording the transfer of purchasing power, a symbol for the goods sold by the seller which empowered him to acquire other goods later on in exchange. The real value of that money was only as great as the availability of goods for which it could be redeemed. In other words, *the value of money was always founded on the productive capacity of the underlying economy, never on its own intrinsic value.* This remains true to the present day. That is why countries devastated by social unrest, political instability or civil war often find the value of their currency dramatically reduced.

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Commercial revolution eventually spread from the Levant to Southern Europe during the 13th century, where it took root in Italy and along the Adriatic, then gradually spread across Western Europe, laying the economic foundations for the Italian Renaissance and the mercantile empires of Venice and Dubrovnik, forerunners of the great colonial empires of the following centuries. The rigidity of a coin-based money supply was one of the major constraints to medieval business, which was overcome by a variety of creative innovations. While the Greco-Roman economy had been driven by minted coins, unstinting credit became the great lubricant of commerce in Italy.¹³ The rise of Italian merchant bankers marked a significant new phase in the evolution of money from coinage to bills of exchange and other forms of money based on credit and trust. Italian merchants exporting goods by sea to distant markets in Western Europe introduced bills of exchange as a form of promissory note in which the buyer agreed to pay for the goods at some future point in time. Often these notes were backed by the guarantee of another person or local institution of notable wealth in the buyer’s country. Although the guarantor usually did not participate in the transaction, he was able to leverage his reputation as a catalyst to facilitate trade. Eventually, the use of bills of exchange spread throughout Europe.

This practice marked a transition from commodity money based on the value of the metal of which it was composed to credit money based on trust between individuals and institutions. Each time a transaction was successfully carried out between a buyer and seller, the trust between them increased and their willingness to transact business grew. Successful transactions progressively shifted the basis of trust from the underlying commodity or the transaction to the buyers and sellers engaged in those transactions. With increasing frequency, buyers and sellers extended credit to one another to increase the volume of their

trade. Reputable traders and trading houses found that they could carry out transactions based on the confidence and trust which other buyers and sellers placed in them. This gave rise to the emergence of the original merchant-bankers, which facilitated trade by transferring charges and credits in the accounts of their clients. The annual cycle of Champagne Fairs of France during the 12th and 13th centuries relied almost exclusively on credit instruments known as fair letters. These fairs became the financial clearinghouses for long-distance trade between north and south.^{14, 15} No longer was the creation of money dependent on an underlying commodity. Credit money could be created in the marketplace based on trust in those involved in trade, that is, in their capacity to complete transactions.

We still tend to think of economics solely or primarily as a matter of production. Production in the absence of markets may have use value, but it has no economic value. Market is a creative social institution which is creative of money. Market is a social organization designed to promote mutually beneficial relationships between people. *The growth of wealth is a measure of humanity's capacity to integrate myriad points of production and consumption within an ever widening, increasingly interconnected and complex network of trust.* Each step in expansion of the network, multiplication of its interlinkages and increase in the trust underlying the relationships is directly productive of greater wealth and greater social power.

The growth of credit money has passed through many stages since then. Today credit money generated by banks to commercial and individual customers and by companies to their corporate and individual customers represents one of the major sources of money. Keynes considered money on account, money that comes into existence along with debt contracts for deferred payment, as the primary form of money.¹⁶ Indeed some monetary scholars argue that all money, even commodity based money, is based on the creation of credits and debts, which constitute the two sides of every credit transaction.¹⁷

In earlier centuries, only a relatively few individuals, mostly from the aristocratic class, had access to what we now refer to as consumer credit. Since then the power of money creation has moved from banks, merchants, governments and a few wealthy individuals to the common man. Today the power of money creation is once again getting personal, but this time on a global scale. Consumer credit now represents a major source of money creation. In the USA alone it represents upwards of \$2.7 trillion.¹⁸ This is roughly equivalent to the total value of US currency notes in circulation.

The rapid expansion of the global credit card industry represents an unprecedented stage in which the power of creating credit money has shifted to individual consumers in the form of outstanding charges on their credit cards. Banks set credit limits, but it is the individual who decides how much to use, when to use it and when to pay it back. In most cases, the underlying asset securing this money is simply trust in the credit-worthiness of the borrower based on past credit history. Visa, the world's largest retail electronic payments system, links nearly 15,000 retail banks in more than 200 countries around the world with millions of merchants and about two billion card holders in a seamlessly integrated system involving 80 billion transactions valued at more than \$6 trillion annually.* The development of a

* See http://corporate.visa.com/_media/visa-corporate-overview.pdf

highly sophisticated global system for distributing the power of money creation to millions of individuals marks a new stage in the evolution of money. Individual trust has been institutionalized as a social system.

8. Money as Social Power

Monetarists regard money as a measurable quantity of financial instruments – currency notes, deposits, debt obligations, etc. – that can be tabulated by various measures of the total money supply, M0, M1, M2, etc. In contrast, this article focuses on money as a force that accomplishes work in society. That force is best measured by the results it generates, not merely by the quantity in circulation in various forms.

The value of a chemical catalyst cannot be adequately measured by its physical weight. Its value derives from its power to drive chemical reactions. Given the right temperature and pressure, a catalyst makes possible reactions that might otherwise take years to occur or never occur at all. The power of the catalyst is inseparable from the context in which it functions.

The same applies to the physics of money. The primary aim of money is wealth creation. The power of money to create or multiply wealth depends on many factors. Most notable is the speed or velocity with which it is utilized, the number of transactions it catalyzes during a period of time. The higher the velocity with which transactions are completed, the higher the productivity and effective power of money. Therefore, examining various measurements of the money supply is insufficient to comprehend the extent to which the power of money has multiplied in recent centuries.

Another important determinate is the purpose for which money is applied. Money invested in production of beneficial goods and services possesses power to promote human welfare. Money applied for speculation in commodities, land, and financial instruments may multiply rapidly, but serve no useful social purpose. On the contrary, it may, as recently demonstrated, undermine the normal functioning of the real economy. In recent years, major corporations on every continent have been flush with funds. Often that money is being redirected for speculative purposes, even in countries where there is a serious shortage of capital for infrastructure development or other productive investments. The same applies to the utilization of money on activities that destroy or deplete the environment or threaten the security of other people by war or terrorism. A mere quantitative increase in the volume of money in circulation tells us very little about its overall contribution to human welfare or its untapped potential for catalyzing social development. Managing a society by the numbers is nothing less than speculation. *The power of money is too great and important to be left to technical specialists, any more than we would leave the choice of our marriage partners to geneticists breeding for certain desirable traits.*

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Before the advent of the Industrial Revolution more than 50% of economically productive activity in the Western world was self-production for self-consumption or barter, i.e. it did not involve monetary exchange. Since 1800 monetarization has spread rapidly to encompass a much larger portion of the world economy. From then to now, total world GDP has increased about 100 fold in real terms. During the same period, real income has grown about 15 fold in per capita terms, in spite of a seven fold increase in world population.¹⁹ Scholars most commonly attribute this incredible achievement to the development and application of technology since the dawn of the Industrial Revolution. But this is an oversimplification. The development of new industrial technologies was accompanied by a corresponding and equally radical development of new social technologies, including new types of markets, new types of institutions and new ways to create money. It was also a period in which human rights and democratic freedoms have been widely distributed and education has spread rapidly. Without these corresponding changes in social organization, the results of technological innovation would have been far lesser. Indeed, the first rudimentary steam engine can be traced back to the 1st century AD Alexandria, some 1600 years before James Watts' invention in 1775. So it is evident that technology alone does not generate development. The extended use of money as a social organization played an important part in the democratization of political, economic and social rights.

9. The Psychological Evolution of Money

We have so far traced the psychological evolution of money from commodities to transactions to the people and firms undertaking those transactions and eventually to banking institutions specialized in the financing of trade, public expenditure, war and other activities. Psychologically this marked a movement from informal types of money or credit employed locally to impersonal, institutionalized forms of money operating over an extended geographical area. The physical chronology of different forms of money differs widely from place to place, but the progressive evolution from informal to institutional money is universally valid.

Until the 20th century, the most common form of paper currency used in Europe was the 'banknote', a promissory note issued by a state or commercial bank. The first European bank notes were introduced in Sweden during the 17th century. In England, the trust once placed in the goldsmith bankers of London who held gold bullion on deposit was gradually extended to a wider range of banking institutions holding public deposits of precious metals and other assets as backing for the notes they issued. The demand for more and cheaper money culminated in establishment of the Bank of England in 1694 and the Bank of Scotland the following year, which began issuing banknotes backed by their governments, which soon replaced the goldsmiths' receipts as the principal paper in circulation. By the time Adam Smith published his famous book *The Wealth of Nations* in 1776, bank money exceeded metallic money, a milestone in world monetary history.²⁰

For much of the 19th century, banknotes were the principal source of currency circulated in the USA. In 1789 the US Congress chartered the First Bank of the United States to issue banknotes. After the bank closed in 1811, the Second Bank of the United States was

chartered until 1836. After the Civil War, national banknotes issued by federally chartered commercial banks and backed by deposits in the US Treasury came into vogue. At one time nearly 10,000 different kinds of banknotes in addition to more than 5000 counterfeit varieties were in circulation in the US, some accepted only locally and others over a much wider area depending on the reputation and perceived trustworthiness of each institution.²¹ Privately issued banknotes remained in circulation until 1936, when they were replaced by Federal Reserve Bank Notes, which in turn were later replaced by Federal Reserve Notes backed by the assets of the Federal Reserve Banks.

10. The Supremacy of the State

The generation of money as a medium of exchange in trade is only one origin of money. By a parallel route money also has been created by government fiat as a means to pay for services rendered to maintain the security and welfare of the state. Adam Smith explained the rationale for this form of money creation, “A prince, who should enact that a certain proportion of his taxes should be paid in a paper money of a certain kind, might thereby give a certain value to this paper money; even though the term of its final discharge and redemption should depend altogether on the will of the prince.”²²

The theory of Chartalism holds that tax debt has always been the principal basis for the creation of money, even in ancient times. Even when coins were the dominant form of money in ancient Greece, power of coinage was rigorously controlled by the state. According to Keynes, the issuance of fiat money in the form of government-issued tokens such as engraved clay tablets, copper or carved wooden sticks, is at least four thousand years old.²³ The state used these tokens to pay for goods and services and accepted them as legal tender for the payment of taxes.

Today we tend to look with suspicion at the idea that governments can create fiat money out of thin air without the backing of gold or silver, simply by declaring money as a legal tender for payment of taxes. The very idea that government can print money at will often evokes horrific visions of profligacy and impending financial crisis. The current Euro crisis is cited as evidence that the capacity of governments to spend must be strictly curtailed. The truth is quite different. One of the main reasons for the Euro-crisis is that the countries of the Eurozone have renounced their right to print money at the national level without creating an all-European institution with the power to take over the responsibility for ensuring the availability of sufficient money for a full employment economy.

Viewed historically, public debt is a remarkable evolutionary innovation. When the Roman Empire went bankrupt it did so without owing money to anyone, because the very concept of public debt had not yet been conceived. Given the vast resources of the Empire, the precipitous plunge into the Dark Ages may have been prevented, had it known what we know today. The invention of public debt was to play a central role in the development of the nation-state.

China introduced the first paper currency during the 10th century. Its value was linked to the value of precious metals but was not convertible. The English monarchy introduced

a unique form of money in the 12th century known as the tally stick, which was akin to a wooden bill of exchange. Tallies were notched sticks representing specific amounts of taxes payable to the King. The monarchy issued tallies to pay for its expenditures in advance of tax receipts and then accepted them back as payment of taxes in lieu of gold. For 700 years tallies were employed as a convenient method of payment by merchants for private transactions, thus becoming an earlier form of government-issued money. As the value of tallies grew to exceed the amount of taxes due to the throne during the present year, they came to constitute a form of public debt advanced by the people to the government to be repaid from future tax revenues. Over time the value of tallies in circulation continued to grow based on public confidence in the strength of the monarchy and the prosperity of the country. Thus, money was created based on trust in the government and the economy over which it presided.^{24, 25}

The psychological history of money reveals the evolution of a remarkable social invention. What began as a proxy representing things of material utility for human survival gradually evolved into a symbol representing trust in the ability and integrity of a person or organization to complete commercial transactions. From there the symbol generalized itself to reflect the trustworthiness and reliability of the institution issuing the money, be it a company, commodity exchange, merchant banker, commercial bank, central bank or government. The capacity of the state to create money required for governance, defense and public welfare is one of the essential conditions for the emergence of modern nation states.

At each stage of its development, the foundations of money became less material and dependent on specific persons, things or events, more subtle and dependent on the capacity of an institution or an economic system to fulfill an ever-widening array of human wants. As is always the case, the more subtle the forms it developed, the more powerful money has become.

The psychological basis of money was dramatically illustrated during the US banking panic of 1932. Banking panics had been a periodic occurrence throughout American history, with major occurrences in 1818, 1837, 1857, 1873, 1893, 1907, 1930, and 1931. When rumors spread that a bank was about to fail, depositors rushed to the bank to withdraw their deposits. Not even the financially soundest bank could withstand a panic, since most of its assets were lent to borrowers and could not suddenly be withdrawn to pay depositors.

The greatest panic of them all occurred in successive waves from 1930 to March 1933, resulting in the failure of 2444 commercial banks, compared with just 73 during the previous panic of 1907.²⁶ On assuming office as President that month, Franklin Roosevelt went on the radio to deliver the first of what would become known as his fireside chats. FDR appealed to the American people to halt the panic by reminding them that America still possessed the rich natural resources, industrious people and huge industrial capacity that had generated so much prosperity. He promised to immediately introduce legislation to guarantee the security of bank deposits and regulate the banking industry. When the banks reopened the following week, long lines of people formed to redeposit their hard earned money and the panic ended.

What began as a loss of faith in individual institutions of the financial system was reversed by a restoration of trust generated by faith in the national government, which represented

the wealth, people and productive capacities of the nation as a whole. Faith in America became the foundation for the American monetary and financial system. Since 1957 every US currency note proclaims that faith by the motto "In God We Trust".

11. The Ultimate Search Engine

Originally valued for the things that could be obtained with it, money has gradually come to be valued as a thing in itself, valuable not only because of what it can buy, but also because the mere possession of it signifies an accumulation of social power and capacity that can be applied for both economic and non-economic purposes.

For the individual who acquired or possessed it, money became a means to obtain political patronage, social influence, military power, religious indulgences, recreation and entertainment, and virtually every other form of social benefit. It became a measure of a person's marriageability and romantic desirability. Those who obtained it in large quantity came to be regarded as superior in intelligence, ability, and courage. They were accorded respect and deferential treatment, itself a form of power that opened up opportunities unavailable to the rest of humanity. Money became a symbol embodying all that human beings value and aspire for on earth and in society.

For the society that evolved the appropriate organization to generate and utilize it, money became a catalyst for awakening people's aspirations for the finer things of life, for releasing their energy and initiative for risky enterprise and ceaseless labor, for raising production and productivity to ever higher levels, for spurring continuous innovation and new invention. Once that energy was released, money also became the organizational means for channeling that energy effectively for productive purposes.

The remarkable role of money as a networking instrument to match needs and capacities has not been adequately recognized. Without the advent of accurate indexed search engines such as Google run by complex algorithms, trying to find information among more than 14 billion pages of the World Wide Web today would be quite like searching for a needle among millions of proverbial haystacks. Money plays a comparable role in matching buyers and sellers in the world of commerce as well as matching economic with non-economic needs and capacities in global society. Money is the ultimate search engine. For while Google is still confined largely to searching the cyberspace of virtual information and transactions, money extends its domain of power to all planes of human existence – material, social, mental, psychological and even spiritual. Money not only facilitates the free exchange of economic goods and services. It plays a similar role in the interconversion of all varieties of socially desirable 'goods', such as education, health care, culture, popularity, social status and political power. Rightly applied, money has the power to promote peace and security, save lives, educate youth, improve health, and foster understanding and the development of culture.

Money is not only a powerful catalyst. It is also a great transformer. Like the secret formula for converting lead into gold sought after by the alchemists, money facilitates the

conversion of any type and form of social power into any other type – conversion of scientific knowledge into power for greater production, conversion of political power into health and education.

Money is a great transformer. Like a dam across a raging river, it helps channel and direct the raw energy and productive potential of society so that it can be harnessed for useful work. Like the turbines of a hydroelectric project that transform the kinetic energy of the river into power that can be distributed to power a city, money transforms every variety of power for application in all fields of social activity.

“The psychological evolution of money is moving from things, institutions and governments to its ultimate source – the individual human being.”

12. Money as Human Capital

Money has evolved from a material thing to a symbol that represents material things, a symbol representing trust in commercial transactions and in the people and institutions that participate in them. From there it has evolved further to represent trust in the national government that issues currency and regulates the economy, which is founded on trust and confidence in the nation itself. There is no reason to conclude that the process will stop at this point. Given the inherent instability and inequality resulting from the current dollar-dominated global system, it seems inevitable that further efforts will be made to expand the concept of monetary union geographically from national governments and nation states to regional groupings, and ultimately beyond. A global currency was advocated by Keynes and the British government as an alternative to the Bretton Woods system in 1944. FDR directed his secretary of the treasury, Henry Morgenthau Jr., to also develop plans for a world currency, though the US subsequently withdrew support for domestic political reasons.²⁷

In another direction, the psychological evolution of money is moving from things, institutions and governments to its ultimate source – the individual human being. The human being is the source of all resources. For all things become a resource only when they are recognized as such by the human mind. Converting sand into bricks, glass or silicon chips or decayed organic matter into fuel, synthetic fabrics and pharmaceuticals are strictly human activities. In that sense Human Capital has always been and will always be the real source of wealth creation, human welfare and well-being.

The power of any society to create money ultimately resides in the psychological values and capacities of its people. The willingness of individuals to honor obligations and commitments is the basis for the creation of credit money. The willingness of society to extend and disseminate the power of money to all citizens is the true basis of democratic economy. This trend is illustrated by the unprecedented extension of consumer credit to cover the vast majority of people in USA. About three quarters of Americas now have access to credit card money, including about 45% of low income families.^{28, 29} This has been made possible not only by the development of a very sophisticated credit delivery and monitoring system, but also by the willingness of individuals to accept, utilize and repay the credit. Banks may

allocate the right to create credit card money, but it is only the individual card holder who can decide to exercise that right and actually create it.

The individual becomes the ultimate issuer of money based on the trust society places in him, which is founded on his own trustworthiness and trust in himself. In spite of four years of economic slowdown, in 2011-12, only 2-4% of US credit card holders were more than 60 days late in making payments. This reflects the psychological capacity of the people to create money and the willingness of the society to extend it to all who exhibit that capacity. Extending that capacity further to reach the entire American population and eventually to all humanity is a line of evolution that will mark a fuller recognition of the value of the individual human being and the essential role of the individual in the development of global society.

We conclude, as we began, with the observation that the world already possesses the capacity to promote the welfare of all human beings. To do so will require many changes in law, public policy and institutional functioning. It will also require a fundamental reconsideration of the nature and role of money in human development and a willingness to reorient values, attitudes and policies to unleash the full potential of this remarkable human invention for the welfare and well-being of all.

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An Aging Workforce: Employment Opportunities and Obstacles

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Abstract

The last decade has witnessed significant changes in the structure of unemployment in the global labour market. This is corroborated by the fact that the global workforce is rapidly aging and the share of people aged 50 and over in the structure of the labour market is increasing. In line with this trend, unemployment issues should be considered as a global problem that cannot be fully resolved at the level of any individual country separately.

The main objective of this paper is to throw some light on the aging workforce and the elderly population's opportunity to realise their right to work and be treated equally with younger age groups. Hence, the paper simultaneously focuses on the age and gender discrimination of elderly population in terms of their employment prospects. The aim of our research is not only to point out certain stereotypes concerning the elderly labour force, but also to stress that unless preconditions for overcoming these stereotypes are created and employment opportunities are given to this segment of the labour force, full employment as an ultimate goal of global economic policy cannot be achieved. It is in accordance with these considerations that we offer a model to achieve this goal.

“As freedom has finally been recognized as an inalienable right of every human being, we are fast approaching the time when society must recognize and ensure the right of every individual to gainful employment”¹

1. Introduction

The International Labour Organization (ILO) has warned that the global employment situation is “alarming” and unlikely to improve soon. This can be linked with the fact that the recent global economic crisis has had a big impact on unemployment. This statement can be supported by the fact that the unemployment rate across the eurozone reached 11.7% and 10.7% in EU27 in December 2012.² According to the same source, the lowest unemployment rates were recorded in Austria (4.3%), Germany and Luxembourg (both 5.3%) and the Netherlands (5.8%), and the highest in Greece (26.8% in October 2012) and Spain (26.1%).

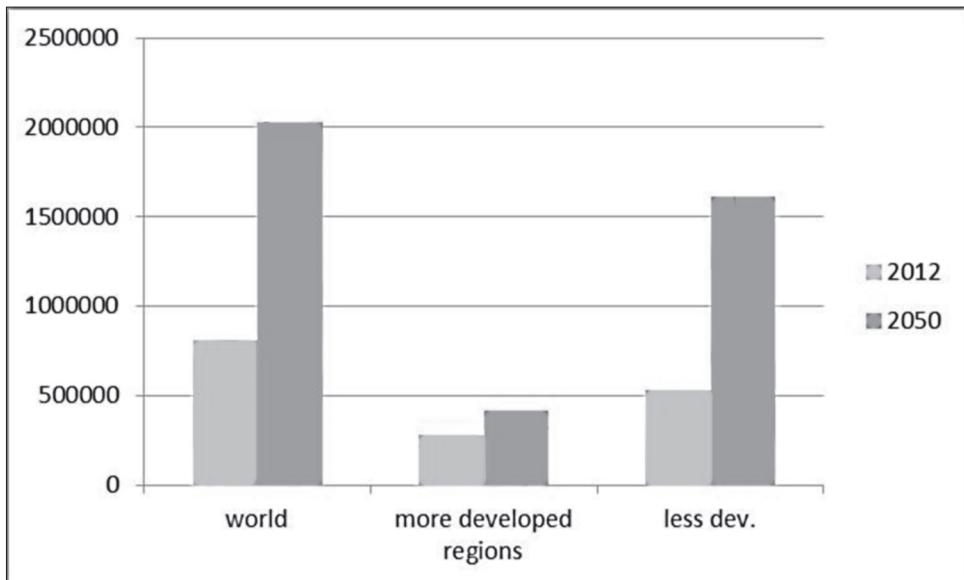
This trend is expected to continue in 2014. Some estimations show that the unemployment rate at the eurozone level will continue to rise from 11.7 percent, according to latest figures, to 12.5 percent by early 2014.³ The International Labour Organization estimates that global unemployment will rise by 5.1 million this year to more than 202 million, and by another 3 million in 2014, following a rise of 4.2 million in 2012.⁴

Between December 2011 and December 2012, the unemployment rate for males increased from 10.5% to 11.6% in the euro area and from 10.0% to 10.7% in the EU27. The female unemployment rate rose from 10.9% to 11.8% in the euro area and from 10.1% to 10.7% in the EU27.

Demographic trends tell us that, by 2050, two billion people will be aged 60 or over and 80 percent of them will be living in developing countries. With the problem of population aging, the labor force aged 60-64 will increase by 55 million between now and 2020.⁵

Recent forecasts show that the number of elderly people in the world, those over 60, will increase by 39% in the period from 2012 to 2050. This number will be higher in less developed countries than in more developed ones (66% and 33%, respectively) (See Fig.1).

Figure 1: The Labour Force aged 60 and over in thousands (2012-2050)⁶



In 2010, there were approximately 63 million more women aged 60 or older than there were men of the same age.⁷ These trends make an impact on the structure of the labour market. In line with this, the labour market has changed markedly in recent decades. Eurostat predicts a possible decrease of about 20.8 million (6.8%) people of working age by 2030.⁸ Currently, only around 50% of people in the EU are still in employment at the age of 60. Around 40%

of women and 10% of men aged 55-59 work part-time in Europe, a slightly higher number than among those aged 50-54.⁹ In addition, workers who lose their jobs in their fifties and sixties find it increasingly difficult to reactivate themselves again and continue their careers.

Active aging in employment has been a long-standing issue within the European employment strategies, and is a central issue within the recent Europe 2020 strategy. Older people are a valuable and productive economic resource. Increasing employment opportunities among older workers is essential to ensure that the labour market and workforce adapt to meet the needs of an aging population. The need to increase the employment rate of older workers has been translated into quantitative objectives intended to keep those aged 55-64 in work and to raise their average age of exit from the labour market.¹⁰

“There is an urgent need for formulation of an integrated theory of employment to explain the process by which jobs are created and to explain the contributing role of political, social, technological and economic factors in that process.”

While labour market research is not a new phenomenon, the interest in it is growing as more and more scholars come to understand the significance of and choose interdisciplinary research as a powerful tool for understanding, critique, explanation and change. Based on some research studies, we attempt to add new and important aspects (gender, knowledge, education, entrepreneurship, self-employment and informality, employment and globalization) that the analysis of employment and research puts forward. We argue that there is an urgent need for the formulation of an integrated theory of employment to explain the process by which jobs are created and to explain the contributing role of political, social, technological and economic factors in that process.

2. Theoretical Overview

The varieties of approaches towards employment analysis differ in theory, methodology, as well as in the type of research issues. The peer literature review helps us identify gaps in the form of relevant questions that appear not to have been tackled, and makes it clear where further enquiry should lie.¹¹

In the literature, the main focus has been on the identification of the factors that make a person employable as well as on the concept of employability.¹² Research shows that the degree to which workers consider their work as meaningful plays an important role as a factor that promotes the individual employability of older employees. Older workers and their respective conditions in labour markets represent a diverse panorama of realities across the globe.

The level of employment amongst people aged 50 and over is important, not only in terms of achieving full employment, but also to provide for people's retirement needs.¹³ With an

increasingly aging workforce it is important to address their work prospects as well as the obstacles they face in achieving employment security. People aged 50 and over face a range of specific barriers related to their age. One of the biggest hurdles is age discrimination, based on stereotypes and myths about the limitations of older workers.¹⁴ The age discrimination in employment refers to the use of “crude proxies” in personnel decisions, relating to hiring, promotion, retraining, firing and mandatory retirement. The negative consequences of age discrimination in employment can include barriers to recruitment and hiring, diminished conditions of work and employment, limited career development and, in the absence of legislation, diminished employment protection and rights.¹⁵ Recent literature cites that age discrimination occurs when preferential decisions are based on age, rather than on an individual’s merits, credentials or job performance.^{16,17} Riger and Galligan pointed out noticeable socio-psychological and physiological differences within age discrimination.¹⁸ Age discrimination is a moral issue as well as a personal one for everyone who expects more birthdays – but it’s also a serious issue for businesses.¹⁹ Research suggests that employers’ attitudes towards older workers are frequently related to misconceptions concerning older workers’ abilities.²⁰ A frequent accusation against older applicants is that they are less mentally flexible and less physically active than their youthful competitors.²¹ Employers judge older workers to be in poor health, resistant to change, uncreative, prone to accidents, disinterested in technological change, and hard to train.²² Further, employers’ attitudes towards elderly workers vary significantly according to company size, employers’ age and gender, with older female employers from smaller companies displaying the most positive attitudes.²³ According to a research study, women face age discrimination earlier in life than men do, and the combination of age and gender discrimination is particularly difficult for women to overcome.²⁴ Until recently, research on the redundancy and job search experiences of older workers focused primarily on the early retirement and exit of male workers and tended to neglect the experiences of older women.²⁵ Research also suggests that older women are frequently perceived as both less attractive and less competent than younger women.^{26,27} The importance of appearance in seeking or maintaining employment, particularly for females, has been noted in the literature: “When women attain the symbolic meaning of ‘physically unattractive’ (to men) they may be pushed out of visible areas or forced into retirement regardless of their skills”.²⁸ Women who have chosen clerical, secretarial or reception work may be especially liable to discrimination during the later part of their working lives as they work within female-dominated occupations where ageism and sexism frequently combine to create the ‘double jeopardy’ of ‘gendered ageism’.²⁹ In countries where unemployment is low, with fewer applicants searching for a job, employers have fewer opportunities to discard applicants simply on the basis of some arbitrary characteristics such as gender and age.³⁰

There is a lot of literature on women’s employment which has been applied to comparative research. This ranges from concepts of patriarchy to debates in Human Capital and segmented labour market theory. Rubery has argued that applying a societal perspective to women’s employment means that we need to understand the way in which the system of industrial labour market and family organization interrelate and also the role of the society’s political and social values in maintaining these relationships before we could expect to

make sense of the differences between countries in the position of women.³¹ Hers and similar studies for the most part are blind to taking into account many important factors in their research. This issue has to be paid special attention to, having in mind that the problem of discrimination both in the employment of the female labour force and in their promotion at work is still far from being solved.

As many scholars have pointed out, male-oriented ideologies often prevent adequate recognition of female contributions and, in some instances, do limit their participation.^{32, 33,} ³⁴ In some countries, women are subjected to negative stereotypes that in turn lead to their being deprived of resources thus forcing them into the informal sector.³⁵ The World Conference on Ageing held in Madrid in 2002 endorsed a life course approach to well-being in old age which is especially important for women “as they face obstacles throughout life with a cumulative effect on their social, economic, physical and psychological well-being in their later years”.³⁶ Those older women who grew up when the male breadwinner and female carer model of gender relationships were predominant may be particularly vulnerable to the effects of gendered ageism within the workplace. Such women were often forced to leave school with limited qualifications, entering traditional female occupations and either withdrawing from the labour force or working part-time whilst their children were young.³⁷

However, the finding from more than 100 research investigations is that there is no significant difference between the job performance of men and women, nor older and younger workers. In this context, some labour market economists are already beginning to re-examine their assumptions that the preference for younger workers is economically rational.³⁸

Despite a lot of literature in the area of age discrimination, limited research has been conducted in the area of age discrimination in employment against older adults, those between the ages of 55 and 64. In addition, there has been little, if any, consideration of the quality of jobs and working conditions in policy discussions and the debate surrounding the issue of extending working life.³⁹

Our own work in this area differs to some extent in these respects from some new research in the field of employment that has a partial theoretical approach to the topic. The holistic and integrated approach has a strongly grounded rationale for supporting employment theory and practice.⁴⁰

3. The Definition of Full Employment and the Possibility of Achieving it

The pooling of all social, political and economic forces and resources aimed at full employment must be the guiding principle of the new working society.⁴¹ Full employment implies a labour market where the number of job seekers and that of job openings match up very tightly, but it does not mean there is zero unemployment.⁴²

Many economists have attempted to estimate the amount of frictional unemployment. In line with this, we can find in literature that the number ranges from 2-7% of the labour force or over 80 per cent of the working age population in employment. Societies must be able to provide jobs for all those willing to work.

There are four elements that comprise a modern definition of full employment:⁴³

- Everyone who wants to work can find a job quickly
- No groups are excluded or disadvantaged in the labour market, i.e., it is necessary for all segments of the labour market to have the ability to have the access to work and to stay at work.
- There are opportunities for promotion at work
- Poverty at work is eradicated and there is employment for all.

Full employment is achieved, in principle, when all available resources (labour, capital, land, and entrepreneurship) are employed to produce goods and services. Achieving full employment, while promoting equality and social stability, has great significance for individuals, families, and the economy as a whole.⁴⁴

When we are considering the issue of achieving full employment and social welfare, it is necessary to revise current employment theory and propose a new employment strategy. They should follow the current conditions and challenges in the labour market. That is of key importance because solutions to current crises must be found in a manner different from the one in which they were sought in the last few decades when the demographic, economic, political and other circumstances were quite different.

“The biggest obstacle to creating a full-employment economy is politics...the problem is not the lack of solutions, but the lack of political will.”

It is also necessary to stress the greater importance of full employment with respect to the human dimension, which mostly involves the right to work under equal working conditions. Therefore, the guarantee of fundamental principles and rights at work is of particular significance in that it enables the persons concerned to claim freely and, on the basis of equality of opportunity, their fair share of the wealth which they have helped to generate, and to achieve their human potential fully.⁴⁵ Nevertheless, these rights are still not duly observed or they do not even exist and are exercised in different ways in various parts of the world. They are most obvious in the gender and age aspects. They are present in the barriers to recruiting and employing personnel, in poor working conditions, in limited opportunities for career development and in the lack of legal regulations. Age discrimination is present when the applicant’s age is taken into consideration in decision making, instead of his/her merits, experience and quality of their performance. This form of discrimination includes negative attitudes, feelings and stereotypes about elderly people. Ageism is the third commonest type of discrimination, after racism and gender discrimination. Hence, much more attention in research is paid to the issues of gender discrimination than to age discrimination. Attaining gender equality is considered to be one of the priority goals in many a country worldwide and in the European Union member states too. Equality of women and men is a common value and one of the fundamental values of the EU Member States, which stipulate the promotion of gender equality as a permanent objective of the European Community in all its activities.⁴⁶ Hence, approaches to employment issues should be revised. This involves taking into

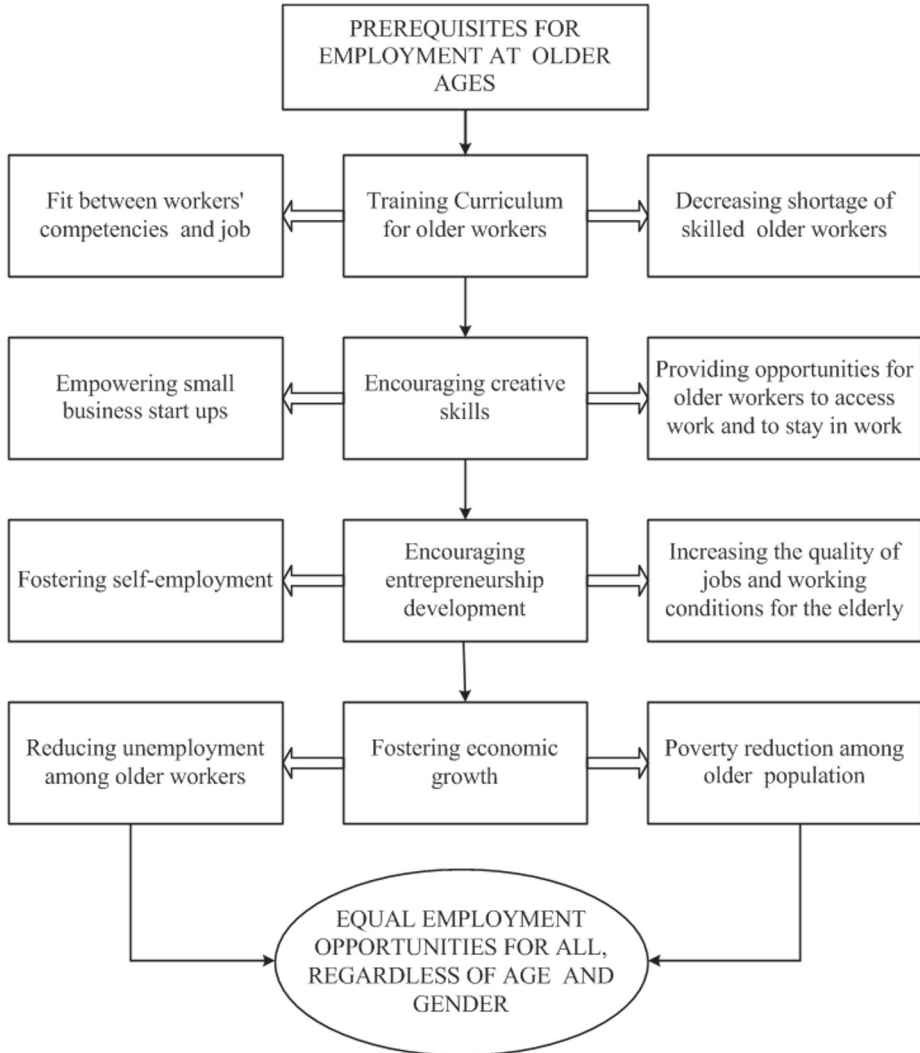
account the human perspective of employment and an absence of discrimination in relation to opportunities, an allocation of resources or benefits for women and men.⁴⁷ In line with this, Wray and Forstater justify the right to work as a fundamental prerequisite for social justice in any society in which income from work is an important determinant of access to resources. Similarly, the Gender Mainstreaming Strategy in Employment should be modified in such a way that it will effectively deal with the problems specific to gender equal opportunities at the global level.⁴⁸ Given, however, that there are significant cultural, social, economic and other differences and that this problem is not evident in equal measure throughout the world, it is necessary that a massive campaign be undertaken and various measures and activities be taken to reduce gender discrimination. Therefore, women must work together in a common struggle to reach the same power as men, to shape the society and their own lives by having the same opportunities, rights and responsibilities.

In the process of implementing policies of gender equality and empowerment of women, non-governmental organizations and networks play an important role and offer support. Thus, it is time to derive a new concept of full employment that relies less on the old rule — the relationship between unemployment and inflation — and more on the actual experience of the marketplace.⁴⁹ In addition, some scientists point out that it is very important that there is a political will for achieving full employment. In this context, the scientist Polin believes that the biggest obstacle to creating a full-employment economy is politics.⁵⁰ In his opinion and in many other scientists', the problem is not the lack of solutions, but the lack of political will. In this context, governments can save millions of jobs, as Germany has successfully done, by subsidizing employers to keep workers on the job for shorter hours, rather than laying them off.⁵¹

4. Preconditions to Employment of Persons Aged 55 and Over

Many stereotypes and prejudices related to the employment of elderly persons that employers usually exhibit to avoid employing them find no justification today and cannot be taken as valid arguments. Primarily, the demand for manual work has decreased, which suits older workers to a large extent. Similarly, due to the advances in medicine and better life conditions, the physical and mental health of elderly population have improved, which enable them to be able to work longer hours than it was possible in the past. Besides, the living style has completely changed in the last two decades. All this has led to a situation that even those who count as the richest and who can safely retire, wish to continue to work and feel useful to themselves, to their families and to their society. The poor ones are forced to work even after they have formally retired because their pensions are small and often insufficient to allow a decent life. There is also a category of people that was laid off due to the crisis, who cannot exercise their right to retirement and hence want to find a new job. The motives of elderly people to go out to work may differ; however, what is common to all of these people is that they want to be actively working as long as they are able to work. Some wish to try new jobs and start up their own firms. Here they encounter numerous barriers of different forms. Hence, we have devised a model of employment and elimination of discrimination against older workers, and set the preconditions to its implementation (Figure 2).

Figure 2: Prerequisites for Employment at older ages



This model also stresses the benefits of employing elderly people, at the individual as well as the social level. This model can also be viewed as a “communicating vessels” model, where each of the constituent parts implies and affects the other. They are all closely interconnected and act in synergy producing equal employment opportunities for everybody, regardless of age or gender.

5. Age Obstacles to Employment

Demographic changes bring about a dramatic effect upon the labour market. With the fast aging of European population and a longer life expectancy, extending working life has become a priority (Lisbon Declaration). It is for this reason that we focus on the analysis of the position of people aged 55 and over on the market as their share has increased significantly in the past decades, with a tendency to grow further in the decades to come. All indicators show that this category of people was severely hit by the socio-economic and financial crisis, which was reflected in the growth of unemployment and long term unemployment. Reasons are numerous. Some of them will be analysed later in this paper.

Primarily, the unemployed elderly population remains jobless twice as long as the overall population on average because their skills are often outdated and their salary needs are too high.⁵² In addition to the mentioned attitudes we find in literature, there are numerous stereotypes that pose a major barrier to employment of persons aged 55 and over. These stereotypes suggest that older workers: (a) are less motivated in learning new skills (b) are less physically active and mentally prepared to respond to the demands of their jobs (c) with low level of qualification are prevented from advancing in their career or getting a job. These stereotypes are dealt with individually.

5.1. They are less motivated in learning new skills

Gender diversity and age diversity are an asset for corporate image and help bring a company, its employees, shareholders and customers together, improve their brand image as well as customer satisfaction.⁵³ The generation over 50 is the generation of baby-boomers, those born between 1943 and 1960. They are a hard working generation that feel the need to be valued for their contribution. The factors that motivated in the past might have changed for many. The management has to devise suitable motivation programs for this generation. Hence, motivating gender and age diverse workforce is a challenge for the management. The issue needs to be handled efficiently so that they should feel safe, comfortable, confident and satisfied. In addition, they should be treated equal to the younger workers at work. Many of the stereotypes that prevent employers from hiring and making a good use of older workers are merely myths. One of the stereotypes is that older workers are not motivated enough to learn new skills and thrive at work. This, however, cannot be taken as a general rule for all older workers. It mostly depends on managers and their abilities to encourage workers. The benefit of understanding what motivates others is important. Motivation increases productivity, quality and service. It also helps people achieve goals, gain positive perspective, create the power to change, build self-esteem and capability and manage their own development. In line with this, motivation of older workers is better if they are managed well. There is also a growing consensus that these objectives cannot be achieved without a significant improvement in working conditions.⁵⁴

5.2. They are less physically active and mentally prepared to respond to the demands of their jobs

One stereotype is that older people are less physically active and less mentally prepared to answer the demands of their jobs than the younger age groups. It is our opinion that these

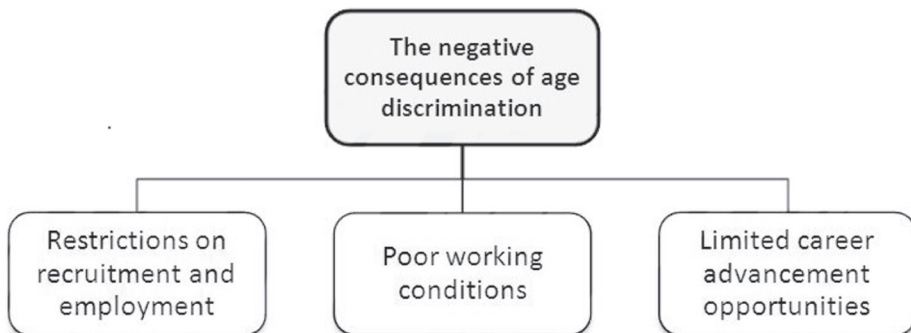
attitudes cannot be fully accepted given that the health (both mental and physical) of elderly people is much better nowadays than it used to be in the past. Hence, they represent a valid potential in terms of labour force, skills and experience that societies need to put to productive use. Experience with “active aging” shows that older people, when integrated into the society, lead a better quality life, live longer and stay healthier. A conclusion can be drawn that integration and participation in employment are closely connected with the concept of social cohesion, a vital constituent of a healthy society. This can be achieved through a more substantial support the society should provide for this category of population in terms of encouraging them to be economically active as long as they choose or are able to be. The lack of policy that will regulate these issues leaves elderly people to live their lives in poverty instead of recognizing their active economic and social contributions. It is in this view that we can rightfully conclude that aging is a natural process, and that healthy elderly people are an important resource for their families, their communities, as well as for the economies of their countries.

5.3. Low level of qualification prevents them from advancing in their career or getting a job

This age group predominantly includes individuals with low qualifications, which is one barrier to finding a new job or being promoted in the present job.

Regardless of the fact that this category includes mostly unskilled workers or workers with low qualifications, our research has shown that the workers are ready to develop in their career and learn, but need adequate support.⁵⁵ Most often, they do not receive such support. Employers are not willing to invest in the education of their employees which would in turn improve their competencies and enable them to earn more. They are not interested in investing in older people because of uncertain returns. Therefore, the lack of competencies and skills is one of the most commonly cited reasons as to why older people are generally unattractive to prospective employers.⁵⁶

Figure 3: The Negative Consequences of Age Discrimination in Employment



It is therefore necessary that training programmes should be devised for this target group. In many a country, however, little attention is paid to people aged 55 and over, hence there are no adequate training programmes to help them face business challenges and succeed in their jobs. It is important that this support comes from both the state and the educational institutions simultaneously.

6. Conclusion

Many developed nations and other advanced economies such as Japan have an aging population as a result of falling birth rates and higher life expectancy. The labour market is therefore increasingly composed of older workers. Aging is a natural process and healthy elderly people are an important resource for their families, for their communities as well as for the economies of their countries. Lack of policy, which will regulate these issues, forces elderly people to live in poverty instead of recognizing their active economic and social contribution. Hence, the goal of any society should be to give people an opportunity to work and be productive as long as they wish to do so. However, there are different reasons for and attitudes associated with unemployment after the age of fifty. Some people feel it is inevitable because of their age, but others keep trying to get a job.⁵⁷

“The goal of any society should be to give people an opportunity to work and be productive as long as they wish to do so.”

Recent literature reveals that age discrimination is present when the age of applicants is taken into consideration in decision making, instead of making decisions on the basis of an individual's merits, experience and quality of their performance. Besides, there are stereotypes about older people being less active physically and also not really capable mentally of meeting the requirements of their jobs, in comparison with younger people. Many go as far as adding other handicaps of older people, such as lack of creativity, lack of interest in gaining new knowledge, etc. It is our opinion however that the attitude employers take towards older employees largely depends on the size of the company and the type of job, the gender and the age of employers themselves. Smaller firms have proved to be more willing to employ older workers. Given that older workers are the most flexible as regards accepting part-time jobs and that they are highly ethical and loyal to their employers, as recent research has shown, the attitude towards them is expected to change gradually which in turn will make these people more eligible for work.

Recent research also shows that mostly people who are aged 50 and over and are not in employment would, however, prefer to be in work, and are often living on incapacity-related benefits. Therefore, it is necessary to find new opportunities in the labour market for the economically inactive population aged 50 and over if the goal of full employment is to become a reality. The employment rate for these people is associated with improved economic prosperity and labour market structure and movements. Labour markets are in a continuous state of change as a result of long-term demographic trends shaping the composition of labour supply. Hence, it is necessary that new solutions be found to the problem of employment of

older workers. Primarily, there are certain preconditions that need to be satisfied in order for elderly persons to be employed, that is, the qualification level of this segment of population is to be raised, measures are to be undertaken to encourage self-employment, any forms of discrimination are to be abandoned and equal conditions for work and employment for all age groups are to be created. In line with this thought, this paper proposes a model that offers a basis for stimulating employment of persons over 55 years of age. This model can be understood as a “communicating vessels” model. All its constituent parts are closely interconnected and their synergy results in creating equal opportunities for employment for all, regardless of age or gender. Only when these conditions are created can a significant progress be made towards attaining full employment. It is for such reasons that a number of academics maintain that the role of state policy is of predominant importance in the present times of high global unemployment; they also consider the fast growth rate of the elderly population whose share has permanently increased in the labour market in the last few decades. Many are of the opinion that the experience of Germany can help to a significant extent, as the country managed to increase the number of employees and attain full employment by shortening the working hours of its employees and hiring workers on a part-time basis. A lower number of working hours did not result in lower wages, as the state subsidized the difference. Such forms of subsidies, however, cannot be expected in countries with a budgetary deficit, so they have no sources out of which the difference in earnings can be financed. One opportunity for these countries is to tax the rich and use those revenues to help older groups through job creation programs or wage subsidies. But while we do need a more progressive taxation to meet revenue needs, this is not a long-term solution. It is for these reasons that other solutions need to be sought. During times of elevated joblessness, like the present time, stimulus measures such as infrastructure investment and fiscal aid to states could help us get closer to full employment.⁵⁸

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The Arms Trade Treaty Opens New Possibilities at the UN

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Abstract

On 2 April, 2013, the Arms Trade Treaty, which had been blocked for ten years in the consensus-bound Conference on Disarmament in Geneva, was put directly before the United Nations General Assembly, and was passed by a massive majority. This historic victory opens new possibilities for progress on other seemingly intractable issues. In particular, it gives hope that a Nuclear Weapons Convention might be adopted by a direct vote on the floor of the General Assembly. The adoption of the NWC, even if achieved against the bitter opposition of the nuclear weapon states, would make it clear that the world's peoples consider the threat of an all-destroying thermonuclear war to be completely unacceptable.

Other precedents can be found in the International Criminal Court and the Ottawa Land Mine Treaty, both of which were adopted despite the vehement opposition of militarily powerful states. The Arms Trade Treaty, the ICC and the Land Mine Treaty all represent great steps forward. Although they may function imperfectly because of powerful opposition, they make the question of legality clear. In time, world public opinion will force aggressor states to follow international law.

On April 2, 2013, a historic victory was won at the United Nations, and the world achieved its first treaty limiting international trade in arms. Work towards the Arms Trade Treaty (ATT) began in the Conference on Disarmament in Geneva, which requires a consensus for the adoption of any measure. Over the years, the consensus requirement has meant that no real progress in arms control measures has been made in Geneva, since a consensus among 193 nations is impossible to achieve.

To get around the blockade, British U.N. Ambassador Mark Lyall Grant sent the draft treaty to Secretary-General Ban Ki-moon and asked him on behalf of Mexico, Australia and a number of others to put the ATT to a swift vote in the General Assembly, and on Tuesday, April 3, it was adopted by a massive majority.

Among the people who have worked hardest for the ATT is Anna Macdonald, Head of Arms Control at Oxfam. The reason why Oxfam works so hard on this issue is that trade in small arms is a major cause of poverty and famine in the developing countries. On April 9, Anna Macdonald wrote:

“Thanks to the democratic process, international law will for the first time regulate the \$70 billion global arms trade. Had the process been launched in the

consensus-bound Conference on Disarmament in Geneva currently in its 12th year of meeting without even being able to agree an agenda, chances are it would never have left the starting blocks. Striving for consensus is, of course, sensible. The problem is that it can lead to a lowest-common-denominator approach. The balance of power shifts to those, often the minority, who oppose an issue, because all the effort goes into trying to persuade them not to bring everything to a shuddering halt. Tuesday, April 2, was a good day for the U.N. It showed that things can get done. It showed that the democratic process can work. And it set an important precedent. Does it make any difference, legally, that the treaty was adopted by vote, not consensus? No. It is the same text as on the final day of negotiations, and its legal status is the same as if it had been agreed by consensus. But it should give hope to those working on other seemingly intractable issues that you can change the rules of the game and make progress."

I think that the point made by Anna Macdonald is an enormously important one. The success achieved by moving discussion of the Arms Trade Treaty from the Conference on Disarmament to the UN General Assembly points the way to progress on many other issues, especially the adoption of a Nuclear Weapons Convention. In my opinion, it is highly desirable to make a motion for the adoption of a Nuclear Weapons Convention on the floor of the General Assembly, following exactly the same procedure as was followed with the ATT. If this is done, the NWC (a draft of which is already prepared) would certainly be adopted by a large majority.

It might be objected that the nuclear weapon states would be offended by this procedure, but I believe that they deserve to be offended, since the threat or use of nuclear weapons is illegal according to the 1996 ruling of the International Court of Justice, and in fact the threat or use of force in international relations is a violation of the UN Charter. The adoption of the NWC would make clear the will of the great majority of the world's peoples, who consider the enormous threat which nuclear war poses to human civilization and the biosphere to be completely unacceptable.

It is not only the ATT that forms a precedent, but also the International Criminal Court, whose establishment was vehemently opposed by several militarily powerful states. Nevertheless, the ICC was adopted because a majority of the peoples of the world believed it to be a step forward towards a stable, peaceful and just global society.

In 1998, in Rome, representatives of 120 countries signed a statute establishing the International Criminal Court, with jurisdiction over the crime of genocide, crimes against humanity, war crimes, and the crime of aggression.

Four years were to pass before the necessary ratifications were gathered, but by Thursday, April 11, 2002, 66 nations had ratified the Rome agreement, 6 more than the 60 needed to make the court permanent. It would be impossible to overstate the importance of the International Criminal Court. At last, international law acting on individuals has become a reality! The only effective and just way that international laws can act is to make individuals respon-

sible and punishable, since (in the words of Alexander Hamilton), "To coerce states is one of the maddest projects ever devised."

Although the ICC is in place, it has the defect that since it is opposed by powerful states, it functions very imperfectly. Should the Nuclear Weapons Convention be adopted by the UN General Assembly despite the opposition of the nuclear weapon states, it would have the same defect. It would function imperfectly because despite the support of the vast majority of the world's peoples, a few powerful opponents would remain.

"In the case of a Nuclear Weapons Convention, world public opinion would especially have great force."

Another precedent can be found in the Antipersonnel Land-Mine Convention, also known as the Ottawa Treaty. In 1991, six NGOs organized the International Campaign to Ban Landmines, and in 1996, the Canadian government launched the Ottawa process to ban landmines by hosting a meeting among like-minded anti-landmine states. A year later, in 1997, the Mine Ban Treaty was adopted and opened for signatures. In the same year, Jody Williams and the International Campaign to ban Landmines were jointly awarded the Nobel Peace Prize. After the 40th ratification of the Mine Ban Treaty in 1998, the treaty became binding international law on the 1st of March, 1999.

The adoption of a Nuclear Trade Treaty is a great step forward; the adoption of the ICC, although its operation is imperfect, is also a great step forward, and likewise, the Antipersonnel Land-Mine Convention is a great step forward. In my opinion, the adoption of a Nuclear Weapons Convention, even in the face of powerful opposition, would also be a great step forward. When the will of the majority of the world's peoples is clearly expressed in an international treaty, even if the treaty functions imperfectly, the question of legality is clear. Everyone can see which states are violating international law. In time, world public opinion will force the criminal states to conform to the law.

"I feel that the question may justifiably be put to the leading nuclear powers: by what right do they decide the fate of humanity? From Scandinavia to Latin America, from Europe and Africa to the Far East, the destiny of every man and woman is affected by their actions."
 – Javier Pérez de Cuéllar

In the case of a Nuclear Weapons Convention, world public opinion would especially have great force. It is generally agreed that a full-scale nuclear war would have disastrous effects, not only on belligerent nations but also on neutral countries. Mr. Javier Pérez de Cuéllar, former Secretary-General of the United Nations, emphasized this point in one of his speeches:

"I feel", he said, "that the question may justifiably be put to the leading nuclear powers: by what right do they decide the fate of humanity? From Scandinavia

to Latin America, from Europe and Africa to the Far East, the destiny of every man and woman is affected by their actions. No one can expect to escape from the catastrophic consequences of a nuclear war on the fragile structure of this planet. ...”

“No ideological confrontation can be allowed to jeopardize the future of humanity. Nothing less is at stake: today’s decisions affect not only the present; they also put at risk succeeding generations. Like supreme arbiters, with our disputes of the moment, we threaten to cut off the future and to extinguish the lives of innocent millions yet unborn. There can be no greater arrogance. At the same time, the lives of all those who lived before us may be rendered meaningless; for we have the power to dissolve in a conflict of hours or minutes the entire work of civilization, with all the brilliant cultural heritage of humankind.”

“...In a nuclear age, decisions affecting war and peace cannot be left to military strategists or even to governments. They are indeed the responsibility of every man and woman. And it is therefore the responsibility of all of us... to break the cycle of mistrust and insecurity and to respond to humanity’s yearning for peace.”

The eloquent words of Javier Pérez de Cuéllar express the situation in which we now find ourselves: Accidental nuclear war, nuclear terrorism, insanity of a person in a position of power, or unintended escalation of a conflict, could at any moment plunge our beautiful world into a catastrophic thermonuclear war which might destroy not only human civilization but also much of the biosphere.

We are reminded that such a disaster could occur at any moment by the threat of an attack by Israel on Iran and by the threat of an all-destroying nuclear war started by the conflict in the Korean Peninsula. It is clear that if the peoples of the world do not act quickly to abolish nuclear weapons, neither we nor our children nor our grandchildren have much chance of survival.

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BOOK-REVIEWS

by **Michael Marien**

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Global Trends 2030: Alternative Worlds

National Intelligence Council Washington: NIC, Dec 2012, 137p, \$9.99pb; \$1.99
Kindle (download free at www.dni.gov/nic/globaltrends).*

The fifth quadrennial installment of the NIC series “aimed at providing a framework for thinking about the future...by identifying critical trends and potential discontinuities,” described as “megatrends” (factors that will likely occur under any scenario) and “game-changers” (critical variables whose trajectories are far less certain). As appreciation of diversity and complexity grows, “we have increased attention to scenarios or alternative worlds we might face.” Alternatively stated, “*We are at a critical juncture in human history, which could lead to widely contrasting futures.*” The world of 2030 “will be radically transformed.”

1. MEGATRENDS AND RELATED TECTONIC SHIFTS

1. **Individual Empowerment.** This “most important megatrend” (both a cause and effect of most other trends) will “accelerate substantially during the next 15-20 years owing to poverty reduction and a huge growth of the global middle class, greater educational attainment, and better health care.” (p. iii) For the first time, “a majority of the world’s population will not be impoverished,” due to the expanding global economy, rapid growth of developing countries, and widespread use of new communications and manufacturing technologies. “The potential for greater individual initiative (is) key to solving the mounting global challenges over the next 15-20 years. On the other hand, in a tectonic shift, individuals and small groups will have greater access to lethal and disruptive technologies (particularly precision-strike capabilities, cyber instruments, and bioterror weaponry).” (p. iii) [Also see **Lone Wolf Terrorism: Understanding the Growing Threat** by Jeffrey D. Simon (Prometheus Books, Feb 2013).]
2. **Diffusion of Power.** Asia will surpass North America and Europe combined in terms of global power based on GDP, population size, military spending, and technological investment. China alone will probably have a larger economy than the US a few years before 2030. The health of the global economy increasingly will be linked to how well the developing world does: in addition to China, India, and Brazil, regional players such as Colombia, Indonesia, Nigeria, South Africa, and Turkey will become especially important. [Also see *GFB Update* newsletter for April 2012 on the emerging multipolar world.] “The shift in national power may be overshadowed by an even more fundamental

* The quadrennial Global Trends report of the National Intelligence Council appears to have several serious deficiencies, notably a downgrading of climate change impacts. A companion review of an earlier report on **Climate Change and National Security**, based on a 2008 NIC-sponsored workshop, provides an important Supplement

shift in the nature of power: enabled by communications technologies, power will shift toward multifaceted and amorphous networks that will form to influence state and global actions.” (p.iv)

3. **Demographic Patterns.** Global population will be close to 8.3 billion people in 2030, up from 7.1 billion in 2012. Four demographic trends will fundamentally shape economic and political conditions: aging countries (facing an uphill battle to maintain living standards), a shrinking number of youthful societies, migration, and urbanization (urban construction in the developing world “could roughly equal the entire volume of such construction to date in world history”).
4. **Growing Food, Water, and Energy Nexus.** “Demand for food, water, and energy will grow by approximately 35, 40, and 50% respectively owing to an increase in the global population and the consumption patterns of an expanding middle class” (p.iv). Nearly half of the world’s population will live in areas experiencing severe water stress. Climate change will worsen the outlook for availability of these critical resources, as wet areas get wetter and dry areas get more so. “We are not necessarily headed into a world of scarcities, but policymakers and their private sector partners will need to be proactive to avoid such a future. Many countries probably won’t have the wherewithal to avoid food and water shortages without massive help from outside.” (p.4) In a likely tectonic shift, the US could become energy-independent. Hydrofracking technology has expanded the life of natural gas reserves from 30 to 100 years and also enabled additional crude oil production such that crude oil prices could collapse, causing a major negative impact on oil-export economies. [Also see **Full Planet, Empty Plates: The New Geopolitics of Food Security** by Lester R. Brown (W.W. Norton, Oct 2012), which underscores and amplifies food and water scarcity. Brown warns that “armed aggression is no longer the principal threat to our future; the overriding threats in this century are climate change, population growth, spreading water shortages, rising food prices, and politically failing states” (p.121).]

2. GAME-CHANGERS

1. **The Crisis-Prone Global Economy.** Various regional and national economies will “almost certainly” move at significantly different speeds, reinforced by the 2008 global financial crisis. China—despite a likely slowing of its growth from 10% to only 5%—will contribute about one-third of global growth by 2025. The key question is whether the divergences and increased volatility will result in a global breakdown and collapse or whether the development of multiple growth centers will lead to resiliency. “A return to pre-2008 growth rates and previous patterns of rapid globalization looks increasingly unlikely, at least for the next decade... (and) another major global economic crisis cannot be ruled out.” (p.vi) The McKinsey Global Institute estimates that the potential impact of an unruly Greek exit from the euro zone could cause eight times the collateral damage as the Lehman Brothers bankruptcy.

2. ***The Governance Gap.*** As power becomes more diffuse, “a growing number of diverse state and non-state actors, as well as subnational actors, such as cities, will play important governance roles. The increasing number of players needed to solve major transnational challenges—and their discordant values—will complicate decision-making. Lack of consensus between and among established and emerging powers suggests that multilateral governance to 2030 will be limited at best. The chronic deficit probably will reinforce the trend toward fragmentation” (p.vii). Prospects for achieving progress on global issues will vary across issues. Some 50 countries are in the awkward stage between autocracy and democracy, and “many countries will still be zigzagging their way through the complicated democratization process.” Other countries such as China and the Gulf countries will continue to suffer from a democratic deficit. Widespread use of IT will be a double-edged sword: social networking will enable citizens to coalesce and challenge governments, but IT will provide governments with unprecedented ability to monitor their citizens. The largely Western dominance of global structures such as the UN Security Council, World Bank, and IMF will probably be transformed by 2030 to be more in line with the new economic players.
3. ***Potential for Increased Conflict.*** The past two decades show fewer major armed conflicts and fewer civilian and military casualties. Disincentives will remain strong against great power conflict: too much is at stake. Intrastate conflicts have gradually increased and will likely do so in countries with a youthful ethnic minority and insufficient water and arable land. “Though by no means inevitable, the risks of interstate conflict are increasing owing to changes in the international system. US unwillingness and/or slipping capacity to serve as a global security provider could contribute to instability. Three “baskets of risks” could increase chances of interstate conflict: changing calculations of key players (notably China, India, and Russia), increasing contention over resources, and a wider spectrum of more accessible instruments of war.”
4. ***Wider Scope of Regional Instability.*** “The Middle East and South Asia are the two regions most likely to trigger broader instability” (p.viii). If the Islamic Republic maintains power in Iran and is able to develop nuclear weapons, the Middle East will face a highly unstable future. “South Asia faces a series of internal and external shocks during the next 15-20 years” (youth bulges, rising food prices, energy shortages, inequality). An increasingly multipolar Asia is one of the largest global threats. Countries in Sub-Saharan Africa, Central America, and the Caribbean will remain vulnerable to state failure through 2030, providing safe havens for global criminal and terrorist networks and local insurgents.
5. ***Impact of New Technologies.*** Four “technology arenas” will shape economic, social, and military developments: *Information Technology* entering the big data era (providing global access and pervasive services, but also threats of an Orwellian surveillance state); *New Manufacturing and Automation Technologies* such as 3-D printing and robotics with the potential to change work patterns (they will improve productivity and diminish the need for outsourcing, but make more low-skilled workers redundant and exacerbate inequality); *Security of Vital Resources* (key resource technologies include GM crops,

precision agriculture, better irrigation, solar energy, advanced biofuels, and enhanced oil and gas extraction via fracturing); *New Health Technologies* (they will continue to extend the average age of populations around the world by ameliorating debilitating physical and mental conditions and improving overall well-being; the greatest gains are likely to be in countries with developing economies and an expanding middle class).

6. ***The Role of the United States.*** The relative decline of the US and the West vis-à-vis the rising states “is inevitable,” but the degree to which the US continues to dominate the international system could vary widely. “The US most likely will remain first among equals among the other great powers in 2030,” but the unipolar moment is over and Pax Americana is “fast winding down.” Western partners have also suffered relative economic declines. Replacement of the US by another global power seems the least likely outcome to 2030. The emerging powers are not a bloc, and do not have any unitary alternative vision. “A collapse or sudden retreat of US power would most likely result in an extended period of global anarchy.”

3. POTENTIAL BLACK SWANS THAT WOULD CAUSE THE GREATEST DISRUPTIVE IMPACT

In the midst of the summary of “Game-Changers” (pp.vi-xii), a single page chart (p.xi) with no explanation and no listing in the table of contents briefly describes eight such developments: 1) a severe pandemic that “could result in millions of people suffering and dying” in less than six months; 2) much more rapid climate change (“most scientists are not confident of being able to predict such events”); 3) Euro/EU collapse caused by an unruly Greek exit from the euro zone; 4) a democratic China could dramatically boost Chinese “soft” power worldwide; an economic collapse could trigger political unrest and shock the global economy; 5) a reformed Iran (a more liberal regime that dropped nuclear weapons aspirations and focused on economic modernization would bolster chances for a more stable Middle East); 6) nuclear war or WMD cyber-attack (“the chance of non-state actors conducting a cyber-attack—or using WMD—is increasing”); 7) solar geomagnetic storms that could knock our satellites or the electric grid; 8) a collapse or sudden retreat of US power.

4. ALTERNATIVE WORLDS

“We have more than enough information to suggest that *however rapid change has been over the past couple decades, the rate of change will accelerate in the future.*” (p.xii; emphasis added). To “encourage all of us to think more creatively about the future,” four scenarios are provided with “built-in discontinuities” that represent distinct pathways for the world out to 2030.

1. ***Stalled Engines.*** This “most plausible worst case” is a “bleak future” where the US and Europe turn inward, the euro zone unravels quickly causing Europe to be mired in recession, the US energy revolution fails to materialize, global economic growth falters, Sunni-Shiite violence erupts in the Gulf, a deadly virus erupts in Southeast Asia, and “all boats sink.”

2. **Fusion.** The “most plausible best case” in which the US, China, and Europe dampen the specter of a spreading conflict in South Asia leading to a major change in bilateral relations and worldwide cooperation to deal with global challenges; China begins a process of political reform, bolstered by its increasing role in the international system; global unilateral institutions are reformed and made more inclusive; the global economy nearly doubles in real terms to \$132 trillion, and “all boats rise substantially.” Technological innovation “is critical to the world staying ahead of the rising financial and resource constraints,” and this scenario is only possible with strong political leadership.
3. **Gini Out-of-the-Bottle.** A world of extremes and greater inequality (as measured by the Gini Coefficient widely used by economists), where countries in the euro zone core are globally competitive, while others on the periphery are forced to leave the EU; cities in China’s coastal zone continue to thrive but inequalities increase and social discontent spikes; major powers are at odds and more countries fail; the world is reasonably wealthy but less secure as “the dark side of globalization” poses an increasing challenge. “Differences between haves and have-nots become starker and increasingly immutable.” Parts of Africa suffer the most, and a growing number of states fail. Marxist and Maoist-insurgencies increasingly spread in rural areas worldwide, as globalization spawns more class struggle.
4. **Non-state World.** NGOs, multinational businesses, academic institutions, wealthy individuals, and megacities flourish and take the lead in confronting global challenges. A growing global public opinion consensus among elites and many of the growing middle classes forms the base of their support. Authoritarian regimes find it hardest to operate in this increasingly democratized world. Smaller and more agile countries in which elites are more integrated are apt to do better than larger countries. “Networks thrive in this hyper-globalized world where expertise, influence, and agility count for more than weight or position.” This is nevertheless a patchwork and very uneven world, where some global problems get solved, but security threats pose an increasing challenge.

5. COMMENT: “BLACK SWAN DOWNSIZING” AND OTHER COMPLAINTS

This global synthesis of megatrends and game-changers offers many important ideas, and is well-worth considering, especially for the emphasis that the world of 2030 will be radically transformed, and the highlighting of power diffusion, various game-changers, and four scenarios of worst case growth (all ships sinking), best case growth (all ships rising), far greater inequality, and a world of powerful non-state actors.

The GT2030 report seems to be thorough and comprehensive, with three pages of acknowledgements (pp.138-140) citing various workshops, institutions, and individuals consulted in 20 countries. This includes the International Futures model of the University of Denver Pardee Center, the Global Growth Model of McKinsey & Company, the Atlantic Council of the US, Gregory Treverton of RAND, the LBJ School of Public Affairs, the Santa Fe Institute, the Naval Postgraduate School, the China Center for Contemporary World

Studies, Russia's Institute of World Economy and International Relations, and much more. However, it appears that few if any climate scientists and environmental scientists are on this list, and UN and OECD reports are ignored. "Sustainability" and anything related to threatened planetary boundaries are nowhere to be found in the report, and there is no mention of "Green Growth" advocated by OECD and the World Bank; rather, the industrial era notion of "growth" as measured by GDP is used throughout, with no qualifications as to its many problems.

The Global Trends report does mention more extreme weather due to climate change, but the likelihood of worsening climate—viewed by many as the overriding issue of the 21st century—is relegated to a box on p.31 (which does acknowledge that sea level could rise by a meter or more by 2100) and to far-out "black swan" status. The Megatrend on growing demand for food, water, and energy does mention climate change exacerbating availability of these critical resources, but downplays the problem with the upbeat note that "we are not necessarily headed into a world of scarcities." This is certainly possible, but how likely?

The curious box on p.xi, not listed in the table of contents, describes eight "potential black swans." No definition of Nassim Nicholas Taleb's trendy term is provided by NIC, but Taleb defines it as "highly improbable," a *rara avis* that implies far less than classic wild card probability of 2% (a joker in a deck of cards), especially over the next 15-20 years. The question of rough-gauge probability is very important, because most climate scientists would very likely assign a far greater probability of "much more rapid climate change," placing it in the 10-40% "not-so-wild card" range, if not a probable or near-certain development. Similarly, public health experts would likely view a "severe pandemic" as more probable than a mere black swan. From a scholarly viewpoint, this is a sloppy treatment of a critical concern.

Climate change is already a serious problem in many major countries, as described in **Climate Change and National Security**, an NIC-sponsored study not acknowledged by GT2030 (see following GFB review). One of the four Megatrends in the 2012 report, "Diffusion of Power," cites eight nations as emerging global and regional economic powers, of which six of them are assessed as having serious climate-related problems as of 2008 (China, India, Colombia, Nigeria, South Africa, and Turkey), very likely to worsen in the years ahead.

The key criticism is that climate change deserves to be listed as one of the NIC Megatrends, if not the most important one. Doing so, however, questions any plausibility of the all-boats-rising "Fusion" scenario and would likely displace substantial acceleration of individual empowerment as the NIC's "most important megatrend." Not that empowerment isn't desirable, but it is far more problematic than NIC forecasts (or wishes), especially if seen in the context of mounting problems of climate change and environmental degradation. This is extensively explained in **Global Environment Outlook 5** (UN Environmental Programme, June 2012, 525p) and by **OECD Environmental Outlook to 2050: The Consequences of Inaction** (March 2012, 350p). Two recent reports to the Club of Rome continue this theme: **Bankrupting Nature: Denying Our Planetary Boundaries** by Anders Wijkman and Johan Rockström (Routledge, 2012; GFB Book of the Month, Jan 2013), which warns that "pres-

tures on key ecosystems have increased exponentially,” and **2052: A Global Forecast** by Jørgen Randers (Chelsea Green, 2012; GFB Book of the Month, July 2012), which points to rising climate-related costs reducing global consumption (and thus “individual empowerment”).

Another criticism of the Global Trends report is that game-changing black swans and wild cards are under-reported. In addition to the eight “potential black swans” on p.xi, several others are scattered throughout the text, e.g. natural disasters that might cause governments to collapse (p.49), spread of wheat rust (p.34; a “nasty wild card”), accelerated melting of the Greenland ice sheet and/or the West Antarctic ice shelf (p.31), a huge volcanic explosion or earthquake (p.49), and methane gas levels rising rapidly due to melting tundra (p.119). A few other wild cards (or not-so-wild cards) for better and/or worse should also have been added, such as collapse of ecological services such as bee pollination, “a deadly disease killing two billion people” (suggested by Jørgen Randers, and starkly contrasting with the NIC’s “black swan” of a pandemic afflicting and killing merely “millions”), widely available life extension technologies, many new life forms created by synthetic biology, nanotechnology extensively developed, discovery of extraterrestrial intelligence, and some new source of energy that is cheap, non-polluting, and widely available.

The four concluding scenarios are all illuminating (especially Nonstate World), but none of them consider environmental conditions, other than a brief mention in passing in the Fusion scenario that “Arctic ice melts at a far more rapid rate than anticipated and rampant exploitation of resources in the Arctic has begun” (p.119). Surely the threats of climate change deserve featuring in at least one scenario, and some mention in all. See, for example, **America’s Climate Choices** by the National Research Council (National Academies Press, May 2011, 118p; GFB Book of the Month, Oct 2011), a synthesis of four NRC panel reports totaling 1,444 pages, warning that climate change “poses significant risks for a broad range of human and natural systems.” In Canada, **Paying the Price: The Economic Impacts of Climate Change for Canada** (National Roundtable on the Environment and the Economy, Sept 2011, 168p; www.nrtee/trnee.ca) covers costly impacts on timber supply, coastal areas, health care, and ecosystem stress. A recent popularized overview, **Overheated: The Human Cost of Climate Change** by Andrew Guzman of the UC-Berkeley Law School (Oxford University Press, Feb 2013, 260p), summarizes sea level rise, food and water challenges, the many negative impacts on human health, and potential climate wars in the Middle East and elsewhere.

Speaking of the Middle East, no mention is made in GT 2030 of intensified faiths and rising Islam, two closely related “Mega-Trends” identified by former RAND analyst Yehezkel Dror of the Hebrew University of Jerusalem in **Israeli Statecraft: National Security Challenges** (Routledge, 2011; GFB Book of the Month, Sept 2011). One doesn’t have to be an Israeli to see these trends, but apparently it helps! Dror also identifies megatrends similar to GT2030 (e.g., more non-state actors, intensified kill and damage capacity, declining US hegemony) and likely “ruptures” (notably necessary for expensive and difficult global action on climate issues, as well as rising power of civilizations not based on the Bible).

A final complaint about the selective perception and distorted priorities of GT2030 is the report's focus on the industrial era definition of "growth," at a time of mounting criticism of mainstream economics for lack of attention to natural resources. (See *GFB Update* newsletter for Sept 2012 on new and appropriate economics). Placing a fair economic value on water and other ecosystem services, as advocated by the UN, World Bank, OECD, and scores of economic critics, would surely be a "game-changer" worth noting and promoting. Changing the economic focus from "Growth" to "Health," as advocated in the **Re/Source 2050** report from the Smith School of Enterprise and the Environment at the University of Oxford (Jan 2013, 83p; www.smithschool.ox.ac.uk), addressed to the financial and investor communities and advocating a "circular economy," would also be a positive "game-changer" worth considering.

In sum, when all the worthy "megatrends" are brought together and given proper priorities, the outlook to 2030 is even more worrisome than portrayed by the NIC. But if all of the positive "game-changers" were also assembled, as concerns sustainability and Green Growth, low-carbon economies, the benefits of energy conservation (see the IEA's **World Energy Outlook 2012**; Nov 2012, 668p; *GFB Book of the Month* Nov 2012; stressing the benefits of improved efficiency over new energy sources), and a focus on decent jobs for all and economic reform at national and global levels, the overall outlook would be much improved. Surely we deserve better from the National Intelligence Council.

Climate Change and National Security: A Country-Level Analysis

Edited by Daniel Moran

(Prof of National Security Affairs, Naval Postgraduate School, Monterey, CA).

Washington: Georgetown University Press, April 2011, 310p, \$29.95pb.

This extraordinary book “seeks to appraise the intermediate-term security risks that climate change may pose to the United States, its allies, and to regional and global order,” (p.1) and to be “broadly representative of the security challenges that climate change may pose during the next few decades.” (p.3) It considers the most readily anticipated effects of climate change, along with known political and social conditions of important states and regions, based on country-level data prepared by Columbia University’s CIESIN (Center for International Earth Science Information Network). CIESIN’s data on temperature change, freshwater availability, and sea-level rise are summarized in Appendixes A and B.

These meticulous and amply-documented essays originated as presentations at a workshop sponsored by the National Intelligence Council, prepared for the U.S. House of Representatives in June 2008. But are the forecasts for 2030 out-of-date? Not at all. As stated by Daniel Moran in his conclusion, “it is most unlikely that any new insight will be achieved in the next twenty years that will falsify today’s scientific consensus so decisively as to render the issue of climate change inconsequential to public life.” (p.269)

Many books on climate change have been published, and many of these warn in general about floods, droughts, storms, threats to agriculture, and displaced populations. The value of these essays is that they are country-specific, as concerns questions of state capacity, social resilience, population movement, and the differential impact of climate change across the agricultural and industrial sectors, and on sub-national regions. “The most important source of cohesion among the contributors to this book is a shared sense that, whether or not the Earth’s climate is palpably hotter in twenty years than it is now, the politics that surrounds climate almost certainly will be.” (p.269) It may be easy to underestimate the threat that climate change poses to the stability of otherwise well-established regimes. Climate change poses an especially insidious sort of challenge to policy, combining gradual accumulation of relatively subtle effects and an increasing tendency toward dramatic events liable to galvanize public opinion. “*Climate change will, without question, provide many opportunities for governments to embarrass themselves.*” (p.271). These strains will not necessarily lead to outright state failure, but such an outcome is possible.

Chapters are as follows. Note especially the growing fragility and/or serious threats to China, Vietnam, The Philippines, India, Pakistan, Bangladesh, Turkey, Egypt, The Maghreb, and Southern Africa.

1. **China.** “Climate change is expected to wreak havoc on China” through decreased precipitation (declining runoff to the six largest rivers in China has been observed since the 1950s), increased desertification, increased severity and frequency of weather events such as heat waves, glacial melt with severe impact on lakes and rivers, and sea-level rise of 0.4 to 1.0 meter by 2050 (which would submerge an area the size of Portugal

along China's eastern seaboard, e.g.: most of Shanghai is less than 2 meters above sea level). Due to climate change, "domestic instability within China is probable if current trajectories continue." (p.13) Particularly at risk are China's agricultural system and its ability to maintain strong economic development and foreign trade.

2. **Vietnam.** The world's 13th most populous country [89 million in 2010] is poised to become a major regional actor in the next two decades, but global climate change places it in jeopardy: "Vietnam is likely to be one of the countries most affected by global climate change." (p.38) It is one of the most disaster-prone countries in the world, with a coastline of 3,200 km regularly lashed by typhoons producing large-scale flooding, and tropical storms are increasing in frequency and impact.
3. **The Philippines.** Rising sea levels pose an enormous risk to a country [94 million people in 2010] with 7,150 islands and >36,000 km of coastline, and some 15 million people living in the 1-meter low-elevation coastal zone. Even in the best of times, the frequency of typhoons, floods, earthquakes, and volcanic eruptions makes the Philippines one of the most disaster-prone countries. Recent decades have brought unprecedented and mounting levels of stress in every major ecological zone, after "decades of sustained environmental degradation." Urban areas are also under mounting stress, with major infrastructure deficits in water, sewage, drainage, transport, and pollution control.
4. **Indonesia.** The world's fourth most populous country [236 million in 2010] has >17,000 islands and a coastline of >54,000 km. Nearly all major cities are in coastal areas vulnerable to rising sea levels, although only 1.1% of the population is in the 1-meter zone. Temperature changes are expected to be relatively modest, but, even so, can affect important food sources such as rice, maize, and fisheries.
5. **India.** Water shortages will affect agricultural production, especially in already-arid areas. Snow melt from the Himalayan glaciers could alternate between abnormally low flows in early summer and winter and very high flows during the monsoon, "posing the double risk of drought followed by flood." If monsoonal rains become increasingly erratic, "there will likely be serious food shortages in the regions that depend on them." If so, rich/poor and urban/rural gaps could widen further. The vulnerability of a large portion of India's population is likely to be worsened by climate change. A large-scale migration of Bangladeshis to India could produce major conflicts, and relations with Pakistan are likely to be further complicated by disputes over water.
6. **Pakistan.** In the next 20 years, climate change will stress the Pakistan state and exacerbate its current fragility. But climate threats "will almost certainly be dwarfed by other political, economic, and military factors in determining (Pakistan's) fate." If the Pakistani state collapses before 2030, it will not be because of climate change alone. But "climate change will contribute to domestic and regional competition, conflict, and hardship during the next 20 years."
7. **Bangladesh.** The 7th most populous country in the world [164 million people in 2010] is "extraordinarily vulnerable to the impacts of climate change, particularly rising sea levels." Bangladesh has already been ravaged by catastrophic floods in 1998, 2004,

and 2007, and floods are occurring more frequently. A 1-meter rise in sea level would submerge one-fifth of the country. “The disruptive possibilities of climate change, both internally and externally, may weaken the capacity of the Bangladeshi state in many ways. They may also strengthen its authoritarian tendencies.” (p.109) Complete failure of the state is very unlikely, but the combination of limited resources, simmering public discontent, and possible radicalization may accentuate the crisis of governance. Sea-level rise, severe storms, repeated floods, increased water salinity, and worsening water scarcity will affect the availability of food.

8. **Russia.** Geology, geography, and climate may make Russia not merely a survivor, but a beneficiary of environmental changes elsewhere experienced as deterioration. Rising global temperatures are likely to reduce stresses and constraints of life in the high northern latitudes, and should reduce heating costs. Rising sea level is unlikely to flood significant areas, and changes in temperature and rainfall may benefit agriculture on balance. Thawing could unlock “vast known reserves of oil, natural gas, and other natural resources.” But climate change will create stresses that affect Russia indirectly; the worst-case scenario of climate-induced violence would arise from conflict with China. An influx of southern immigrants due to climate change is likely to reignite violence in the North Caucasus (or Caspian) region.
9. **Central Asia.** The five former Soviet countries already face notable risks of destabilization. Probable areas of concern in order of likely magnitude: locally significant shortages of water, immigration/refugee flows from Afghanistan and China, food shortages from fluctuations in harvests or food prices, and an increased appetite for authoritarianism as a way to address problems of resource scarcity.
10. **European Union.** Although climate change poses “significant risks to vulnerable infrastructure and health,” the primary areas of concern are environmental migrants from neighboring regions, sea-level rise, and changes to the geopolitics of the Arctic. Threats to availability of water and food among Europe’s less-developed trading partners are a particular concern. “It seems certain that the politics of climate change will retain a prominent place in European public life.” Transatlantic climate politics appear likely to remain contentious. “The EU appears poised to sustain global leadership on the issue, possibly adding to the global sense that the US is to blame for accelerating climate change.” (p.149)
11. **Turkey.** Serious environmental stress in coming decades may lead to both conflict and external aggression, in addition to population movements. Rising temperatures will have their most adverse effect on the southeastern part of Turkey. Tourist sectors of Turkey will suffer from rising water levels. Increasing erosion has led to a substantial loss of topsoil, reducing agricultural output and raising food prices. A UNDP study estimates that 86% of Turkey’s total land area is vulnerable to desertification. Water will most likely become a scarce commodity, and illegal trade in water supplies may emerge.
12. **Persian Gulf.** The region is one of the world’s hottest, most water-starved environments, with water demand projected to double by 2025. All of the Gulf states have taken

dramatic steps to build desalinization plants. Despite these prudent steps, Persian Gulf regimes will remain vulnerable to fluctuations in global energy markets and “will face profound environmental stresses resulting from climate change in the coming decades.” Governments will continue to “publicly embrace green development policies at home while joining together with other states to forestall a global system that will limit emissions... They will also seek to avoid schemes that distribute their wealth to the less-developed world to pay for climate-related mitigation and adaptation efforts.” (p.173)

13. **Egypt.** Rapid population growth will increase demand for water and energy resources, at the same time that rising temperatures may reduce drinking water from the Nile Basin, which provides 95% of Egypt’s water. Concentration of population and economic production in the Nile Delta means that many Egyptians will likely suffer due to even a moderate rise in global sea level. One Egyptian environmental expert views Egypt as “the third most vulnerable country in the world to climate change, surpassed only by Bangladesh and Vietnam.” The World Bank concludes that climate change would result in “catastrophic consequences” for Egypt.
14. **The Maghreb.** Climate change will affect Morocco, Algeria, Tunisia, and Libya in profound ways, and these countries are “already characterized by exceedingly fragile environmental conditions.” The agriculture sector is precarious, with temperatures and dry days expected to rise, resulting in decreased yields of key crops. Coastal regions are at risk from sea-level rise and inundations, and accompanying salinization of coastal groundwater. This will have an impact on the tourism sector. The major domestic social impact from climate change will be accelerated and probably chaotic urbanization, as migrants leave stressed rural areas. Climate refugees from the Sahel and Sub-Saharan Africa will create further stress and civil conflict.
15. **West Africa I.** “By 2030 considerable parts of Nigeria may confront issues related to climate change, which could seriously affect agricultural production, water availability, and coastal environmental conditions.” Desertification in the north and erosion elsewhere are major concerns. A rise in sea level may pose serious risks to important parts of the country. In a worst-case scenario, climate change could contribute to state failure. Senegal faces the most widespread and adverse climate change problems, but its ability to cope surpasses that of Nigeria and Cote d’Ivoire.
16. **West Africa II.** Projected 2030 climate changes for Guinea, Liberia, and Sierra Leone are modest. Given the history of instability in the region, “climate change adds only a few drops of fuel to this tinderbox.”
17. **Southern Africa.** Much of what is probable in the next 20-30 years has already begun in many parts of the region: increasing temperature, more frequent and severe drought, and problems of freshwater availability. Climate change will likely lead to conflict over food, access to water, and economic opportunity. South Africa accounts for 80% of water use in Southern Africa, but only 10% of the total water resource.
18. **The Northern Andes.** Bolivia in 2030 will be in the worst position of the region’s countries in agricultural productivity. Ecuador will be in the worst position in the event

of a 1-meter rise in sea level. Glacier retreat is a critical issue not only in Bolivia and Ecuador, but in Peru and Colombia. All four countries are experiencing high or rising level of social conflict and political turbulence, making this region the most volatile part of Latin America. “The nature of political and civil society in these four countries leaves little room for optimism about effective responses to the challenges of climate change.” (p.256). However, there is substantial and growing variation in the capacity of subnational governments in each of these countries.

19. **Brazil.** The largest country in Latin America is taking steps toward a leadership position in global climate change negotiations. Brazil does face climate change risks, especially the likelihood of increasing internal migration from the Northeast to the Southeast, and from rural areas to major cities. There is potential for great political stability in the region, however, because of Paraguay’s vulnerability to climate change. There is also “widespread” but exaggerated anxiety in Brazil that the ecologically important Amazon region will be internationalized.

Some important conclusions by Moran (all on p.272):

- “climate change is likely to increase social inequality within countries at almost every level of development”;
- “it is also likely to heighten strains between urban and rural populations, a crucial fault line throughout the developing world, and one across which large-scale population movements are likely to be especially stressful”;
- “the critical path connecting climate change to social and political failure lies less through rising temperatures or rising sea level than through the changing distribution of freshwater”;
- “as public consciousness of climate change and its perils expands, so too will public awareness that the historical responsibility for these perils is not universally shared but lies at the feet of a handful of states”; China is now the largest producer of greenhouse gases, and Indonesia will soon outstrip all of the EU as a carbon emitter; India and Russia also rank high in generating greenhouse gases; “however, none of these nations is likely in the period that concerns us, to surpass the United States on a per capita basis.”

COMMENT

Through detailed socio-political analysis of individual nations—and regions within them—one can gain a far greater appreciation of the specific impacts of climate change in the decades ahead, and well-populated countries that are most at risk: Bangladesh, China, India, Vietnam, The Philippines, Turkey, Egypt, Nigeria, and South Africa. The only complaint with this book is that it invites curiosity about other countries, e.g. Canada (probably a net loser; see www.nrtee-trnee.ca), the U.S. (a net loser, especially in arid regions), Mexico (expecting increased temperature and decreased precipitation; a strong national climate change law was passed in April 2012), Japan and South Korea (presumably taking steps toward sustainability), and Australia (where many weird weather events have recently taken place).

World Energy Outlook 2012

International Energy Agency (Paris). Paris: IEA (dist. by OECD), Nov 2012, 668p, 150 euros (PDF E120) from www.iea.org or OECD. (www.worldenergyoutlook.org)

The quantity and quality of energy supply are central to our future. This annual report is, by far, the most extensive and authoritative survey of energy trends, which are projected to 2020 and 2035. Much press attention, at least in the US, has been given to the startling forecast that the US will become the world's largest oil producer by 2020 (see below). But there is much, much more to this important report that deserves attention.

Notably, a central theme of the IEA report involves four scenarios: **Current Policies** (business as usual baseline), **New Policies** (the central scenario, assuming recently-announced commitments cautiously adopted), **450 Scenario** (policies providing a 50% chance of limiting global increase in temperature to 2°C, and CO₂ at 450ppm), and **Efficient World Scenario** (all economically viable energy investments are made, which lowers growing demand for fossil fuel and boosts economic output.)

Many people worldwide applaud the transition to renewable sources of energy. So does the IEA, but, as indicated here, there is still a long way to go before renewables make a major impact. Conversely, many people also believe that we have reached or will soon reach the point of "peak oil," which will accelerate use of renewables. This wishful thinking is nowhere to be found in the hard-nosed IEA report, which views global oil demand rising through 2035, with any shortfalls made up by "unconventional oil" and rapid development of Iraq's extensive oil resources. Not good news for climate change, of course, but these are the sober realities ahead. "Wild cards" may appear (e.g., a US carbon tax, new technologies not on the horizon), but IEA does not consider them.

The quotations below are merely a small sampling of the many significant points that are made in this dense report.

1. GENERAL FINDINGS (*emphasis added*)

1. **US Developments.** "*Energy developments in the US are profound*" and their effect will be felt worldwide. "By around 2020, the US is projected to become the largest global oil producer (overtaking Saudi Arabia until the mid-2020s) and starts to see the impact of new fuel-efficiency measures in transport. The result is *a continued fall in US oil imports, to the extent that North America becomes a net oil exporter by 2030.*" (p.23) Even a few years ago, output of oil and gas had been widely assumed to be in inevitable decline. "*This energy renaissance has far-reaching consequences for energy markets, trade, and, potentially, even for energy security, geopolitics, and the global economy.*" (p.74)
2. **Sustainability.** "Taking all new developments and policies into account, *the world is still failing to put the global energy system onto a more sustainable path.*" (p.23) Even with the New Policies Scenario—our central scenario—"global energy demand grows

by more than one-third over the period to 2035.” Despite growth in low-carbon sources of energy, “fossil fuels remain dominant in the global energy mix, supported by subsidies that amounted to \$523 billion in 2011, up almost 30% on 2010 and six times more than subsidies to renewables.” (p.23)

3. **Emissions.** “Emissions in the New Policies Scenario correspond to a long-term average global temperature increase of 3.6°C.” (p.23)
4. **Efficiency.** “Energy efficiency is widely recognized as a key option...but current efforts fall well short of tapping its full economic potential.” (p.24) Even with New Policies in place, four-fifths of the potential in the buildings sector and more than half in industry still remain untapped.
5. **The 2°C Goal.** “The climate goal of limiting warming to 2°C is becoming more difficult and more costly with each year that passes.” (p.25) The 450 Scenario examines actions necessary to achieve this goal, finding that “almost four-fifths of the CO₂ emissions allowable by 2035 are already locked in by existing power plants, factories, buildings, etc.”
6. **Electricity Access.** “Despite progress in the past year, nearly 1.3 billion people remain without access to electricity and 2.6 billion do not have access to clean cooking facilities.” (p.29) Nearly \$1 trillion in investment is needed to achieve universal energy access by 2030, and abandon use of traditional biomass.
7. **“Thirstier” Energy.** Water is essential for energy production: for power generation, for extraction and processing of oil/gas/coal, for transport, and increasingly for crop irrigation to produce biofuels. “The projected rise in water consumption of 85% over the period to 2035 reflects a move towards more water-intensive power generation and expanding output of biofuels.” (p.29) In sum, “energy is becoming a thirstier resource,” and water is growing as a criterion for assessing the viability of energy projects. The vulnerability of the energy sector to water constraints is widespread, affecting, among others, shale gas development, power generation, and Canadian oil sands.
8. **Energy Prices.** Price remains an important determinant of energy trends, and “history has shown that energy prices are notoriously difficult to predict.” (p.38) It is unlikely that the future will follow any of the precise paths in the four IEA scenarios, which simply demonstrate how markets could evolve under certain conditions. (In the New Policies scenario, the average crude oil import price rises to \$120/barrel in 2020 and \$125/barrel in 2035. Under the Current Policies Scenario, higher prices are needed to balance supply with the faster growth in demand reaching \$145/barrel in 2035. In the 450 Scenario, lower oil demand means less need to develop costly oil and a decline to \$100/barrel by 2035).
9. **Iraqi Oil.** “Iraq makes the largest contribution by far to global oil supply growth.” (p.26) Its ambition to expand output after decades of conflict is not limited by the size of its resources or costs of production. Four chapters are devoted to the Iraq outlook for oil and gas (pp.385-498). Oil output is expected to rise from 3 million barrels/day in mid-

2012 to 6 mbd in 2020 and 8.3 mbd in 2035 (11 mbd in the high case; 5.3 mbd in the delayed case). Without this supply growth, oil prices would be almost \$15/barrel higher by 2035. Iraq stands to gain almost \$5 trillion from oil exports through 2035. In 2012, the Iraqi Ministry of Oil announced 143 billion barrels of proven reserves, and some 215 billion barrels of undiscovered resources. Exploration is expected to “add substantially to proven reserves over the coming decades.” (p.422)

10. **CCS Technology.** “The pace of development of carbon capture and storage technology remains highly uncertain. It could prove to be critical to the prospects for coal use in many regions.” (p.47) In the long term, it is also likely to be critical to prospects for natural gas and energy-intensive industries globally. The technology exists, “but only a handful of commercial-scale CCS projects are currently operating.”

2. THE FOUR SCENARIOS

1. **Current Policies Scenario.** The baseline, where government policies enacted or adopted by mid-2012 continue unchanged. Under this scenario, use of coal grows from 2,378 Mtoe in 2000 and 3,474 in 2010, to 4,417 in 2020 and 5,523 in 2035. Oil grows from 3,659 Mtoe in 2000 and 4,113 in 2010, to 4,541 in 2020 and 5,053 in 2035. CO₂ emissions rise from 30.2 Gt in 2010 to 44.1 in 2035. [NOTE: Clearly not acceptable.]
2. **New Policies Scenario.** Where existing policies are maintained, and recently-announced commitments and plans are implemented in a cautious manner. Under this “central” scenario, use of coal grows from 3,474 Mtoe in 2010 to 4,082 in 2020 and 4,218 in 2035. Oil grows from 4,113 in 2010, to 4,457 in 2020 and 4,656 in 2035. CO₂ emissions rise from 30.2 Gt in 2010 to 37.0 in 2035. [NOTE: Still not acceptable.]
3. **450 Scenario.** Rather than a projection based on past trends, a plausible energy path is described, consistent with actions having about a 50% chance of meeting the goal of limiting the global increase in average temperature to 2°C, which requires a limit of 450 ppm of carbon-dioxide equivalent in the atmosphere, now at about 390 ppm (some argue—strenuously—that a lower target is necessary; see Bill McKibbin’s www.350.org). In the 450 Scenario, coal grows slightly from 3,474 Mtoe in 2010 to 3,569 in 2020, and declines by a third to 2,337 in 2035. Oil also grows slightly from 4,113 in 2010 to 4,282 in 2020, declining to 3,682 in 2035. CO₂ emissions rise slightly from 30.2Gt in 2010 to 31.4 in 2020, and then decline to 22.1 in 2035. [NOTE: Far better than above, but still quite likely to be too little, too late, to forestall ruinous climate change.]
4. **Efficient World Scenario.** Explores the results of improving energy efficiency in every way that makes economic sense, involving necessary policies to eliminate market barriers. Four chapters are devoted to discussing efficiency (pp.267-384). Key steps include strengthening measurement and disclosure of energy efficiency to make gains more visible to consumers, regulations to prevent sale of inefficient technologies, and financing instruments. Realizing this scenario would boost cumulative economic output through 2035 by \$18 trillion. A chart on p.299 lists dozens of sub-sectors and technologies where improved efficiency is possible for industry, transport, and buildings.

Another chart on p.329 lists key policies by sector (e.g. stringent building codes, retrofits, retirement of inefficient industrial facilities, support for smart grids).

3. MAJOR SOURCES OF ENERGY

1. **Oil.** Even in the New Policies scenario, *“growth in oil consumption in emerging economies, particularly for transport in China, India, and the Middle East, more than outweighs reduced demand in the OECD, pushing oil use steadily higher.”* (p.26) Oil demand reaches 100 mbd in 2035, up from 87.4 mbd in 2011, and the average price rises to \$125/barrel in 2011 dollars by 2035. The transport sector now accounts for more than half of global oil consumption, and this share increases as the number of passenger cars doubles to 1.7 billion and the demand for road freight rises quickly (in part because fuel-economy standards for trucks are much less widespread). *“The net increase in global oil production is driven entirely by unconventional oil”* — light tight oil in the US and oil sands in Canada. (p.26)
2. **Natural Gas.** Global demand grows in all scenarios, but the outlook varies by regions. Low prices and abundant supply in the US enable gas to overtake oil around 2030 to become the largest fuel in the energy mix. China’s consumption will grow rapidly, from 130 billion cubic meters in 2011 to 545 bcm in 2035. Unconventional gas from hydrofracking accounts for nearly half the increase in global production to 2035, but there is uncertainty in many countries about the extent and quality of the resource base, and concerns about environmental impacts.
3. **Coal.** *“Coal has met nearly half of the rise in global energy demand over the last decade, growing faster even than total renewables.”* (p.27) Whether coal demand continues to rise strongly will depend on policies that favor lower-emissions energy sources, deployment of more efficient coal-burning technologies, and—especially in the longer term—CCS technology. Policy decisions carrying the most weight for the global coal balance will be in China and India, which account for almost three-quarters of projected non-OECD coal demand growth, whereas OECD coal use declines.
4. **Nuclear.** *“The anticipated role of nuclear power has been scaled back”* in the wake of the 2011 Fukushima accident. Japan and France seek to reduce nuclear power, while its competitiveness in the US and Canada is challenged by relatively cheap natural gas. Projections for growth in installed nuclear capacity are lower than in 2011. While nuclear output grows in absolute terms (driven by expanded generation in China, Korea, India, and Russia), *“its share in the global electricity mix falls slightly over time.”* (p.28)
5. **Renewables.** A steady expansion of hydropower and rapid expansion of wind and especially solar results in renewables will account for almost one-third of total electricity output by 2035. Consumption of biomass and biofuels grows four-fold. The rapid increase in renewables is underpinned by falling technology costs, rising fossil-fuel prices, carbon pricing, and especially by continued subsidies—from \$88 billion globally in 2011 to nearly \$240 billion in 2035.

Other chapter topics discuss electricity demand and supply, “emissions lock-in” (in that the average lifetime of energy infrastructure is long), oil production prospects under each scenario, water for energy and regional stress points, and measuring progress toward energy for all.

An Annex provides extensive tables for energy demand in various sectors and for energy sources through 2035 under each of the first three scenarios (for the world, US, OECD, US, Japan, EU, Russia, China, India, Africa, Latin America, and Middle East).

COMMENT

There is much that is worthwhile and important in these 668 pages of extensive IEA analysis, which include numerous charts and tables.

But several complaints should be aired:

1. No index is provided to enable quick access to specific topics scattered in the 668 pages.
2. The 450 Scenario and the Efficient World Scenario do not appear to be compared, nor is there any mention of how the two might be pursued together.
3. Only a single paragraph appears to be devoted to carbon capture and storage technology (CCS) to handle the anticipated increase in carbon emissions, and there is no mention of the role of endangered forests, oceans, and soils as carbon sinks.
4. Similarly, only a single paragraph is devoted to global geothermal electricity generation (p.230), expected to increase from 11 GW to 40 GW by 2035, but still a small share of renewables at that time. Testor et al. and Gore (see below) see far more promise.
5. At the least, a chapter on the world’s major energy companies would be helpful, but this topic seems to be taboo. For starters, see **Private Empire: ExxonMobil and American Power** by journalist Steve Coll (Penguin, May 2012, 685p, \$36), on the world’s largest energy giant, with operations in some 200 nations and territories.
6. The lack of considering potential “game-changing” wild cards (and not-so-wild cards), as regards both technology (e.g., small and widely-distributed nuclear reactors) and legislation (e.g., a carbon tax, especially in the US).
7. The 150 euro price will deter all but the largest organizations from purchase.

Global Energy Assessment: Toward a Sustainable Future, by the German Advisory Council on Global Change and the International Institute for Applied Systems Analysis (Cambridge University Press, Oct 2012, 1,882p, L75pb; www.globalenergyassessment.org), a huge analysis involving over 500 researchers, appears to offer even more than the IEA Outlook reviewed here. It emphasizes an integrated energy system strategy and options with multiple benefits, notably energy efficiency (the most cost-effective near-term option), renewables (which could be >90% of primary energy in some regions by 2050), and co-production (of synthetic transportation fuels, cooking fuels, and electricity with CCS). Similar to

the IEA Outlook, the GEA also advocates universal access to electricity and cleaner cooking fuels and stoves by 2030.

ALSO SEE three other very different energy overviews:

1. **Sustainable Energy: Choosing Among Options** (Second Edition) by Jefferson Testor and four others (MIT Press, Oct 2012, 1,019p, \$90) is a rather technical textbook, with 21 chapters on such topics as technical performance, project economic evaluation, energy systems, geothermal (the global resource base is large and well-distributed, and the technical potential is “vast”), ocean wave and tidal, energy management, synergistic complex systems, and all of the other usual energy sources.
2. **The Quest: Energy, Security, and the Making of the Modern World** by Daniel Yergin (Penguin, Sept 2011, 804p; GFB Book of the Month, Nov 2011), an engagingly-written overview that covers much if not all of the IEA topics: the new world of oil, the history of peak oil theory, the “shale gale” of unconventional gas and oil, climate and carbon, the potential for biofuel, and much more. But Yergin sees geothermal as “limited by geology and the availability of the right kind of ‘hot rocks’ underground.” (p.714)
3. **Our Choice: A Plan to Solve the Climate Crisis** by former Vice President Al Gore (Rodale, Nov 2009, 416p; GFB Book of the Month, April 2010), reporting on more than 30 “Solutions Summits” of leading experts convened by Gore, on such topics as the climate change threat, the potential of concentrated solar thermal power, biomass, geothermal power (potentially “the largest source of power in the US and world”), forests and soils as carbon sinks, depleted soils enhanced by biochar, limits of CCS, energy efficiency improvements, smart grids, and more. This book, which still has much to offer, provides the starkest contrast to the IEA analysis of what is desirable and feasible for addressing energy-related responses to climate change.

To conclude on a hopeful note, a recent article by Elizabeth Kolbert (*The New Yorker*, 10 Dec 2012, pp.29-30) reports on growing bi-partisan interest in a US **carbon tax**, which is now even supported by ExxonMobil. She cites Bob Inglis, a former Republican Congressman, who told the Associated Press that “*I think the impossible may be moving to the inevitable without ever passing through the probable.*” If so, as Kolbert notes, “it would have global significance”—surely as great as the recent upheaval in oil and gas supplies. And it would remind us, once again, of the need to be alert to a wide range of possibilities.

