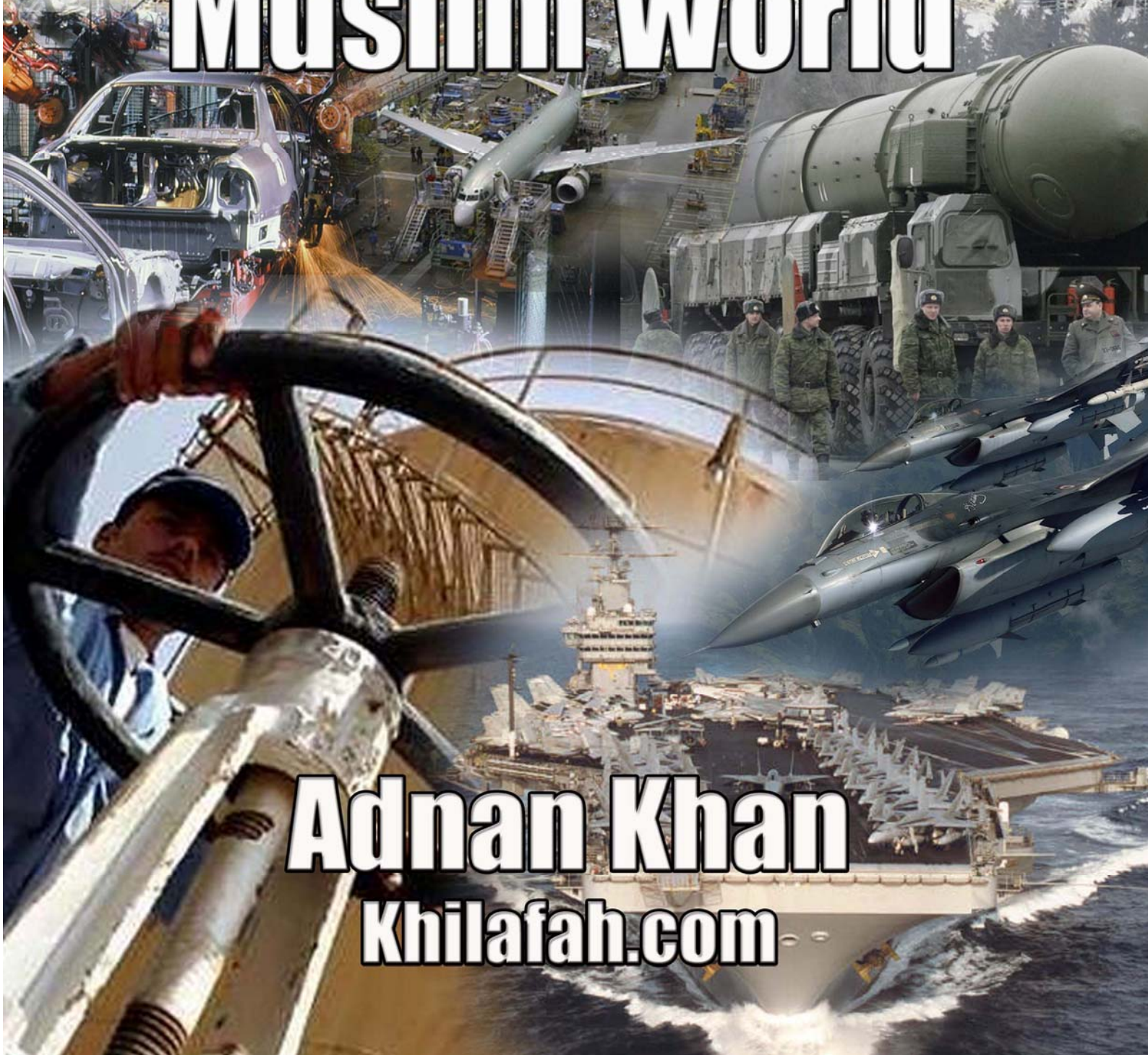


Constructing an Industrialised Muslim World



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"There are people (the Muslims) who control spacious territories teeming with manifest and hidden resources. They dominate the intersections of world routes. Their lands were the cradles of human civilizations and religions. These people have one faith, one language, one history and the same aspirations. No natural barriers can isolate these people from one another ... if, per chance, this nation were to be unified into one state; it would then take the fate of the world into its hands and would separate Europe from the rest of the world. Taking these considerations seriously, a foreign body should be planted in the heart of this nation to prevent the convergence of its wings in such a way that it could exhaust its powers in never-ending wars. It could also serve as a springboard for the West to gain its coveted objects."

British Prime Minister Henry Bannerman, 1906

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Introduction

Iran made history in February 2009 when it launched into orbit the Muslim world's first domestically constructed satellite. What made this development even more stunning is the fact that under sanctions and with a belligerent US continually spreading propaganda against Iran, it has managed to indigenously develop a space based programme.

Iran has managed to develop advanced ballistic missiles and now satellites and is the only Muslim country to have launched these with little external help.

Industrialisation can be defined as when an economy is geared around manufacturing and this then acts as a stimulus to other sectors of the economy. An example of this was the British Empire which made manufacturing central to its economy. The manufacturing of ships, ammunitions and mining propelled Britain into a global superpower with the ability to rapidly mobilise for war and allowed it to colonise the world. In times of peace such industries were used for civilian purposes.

This is the fundamental reason for any nation wanting to industrialise, having an independent manufacturing base makes a nation self-sufficient and become capable of opposing the leading states. By not industrialising a nation will not be politically and economically independent, it will be reliant on other nations for its defence and it will always be dependent on the will of other states, like the Islamic world is today.

If we look across the Muslim world there has in fact been some technological and military developments even though these nations have not industrialised. However the overall economic and industrial standing of the Muslim world is very far from where it can be and should be. The Muslim world today lags far behind the industrial nations of the world. Whilst the West went through industrialisation 150 years ago the Muslim world has remained largely unindustrialised and in many cases reliant on the developed world.

Many commentators and analysts across the world have portrayed the Muslim world to lack the necessary ingredients to develop. They cite the education systems across the Muslim world as still residing in the medieval era. They have argued that the Muslim world lacks the rationality that the West has taken towards enquiry and science as necessary prerequisites. Many liberal thinkers have even argued Islam is the obstacle holding the Muslim world back and that only through a reformation can salvation occur.

At the same time the Muslim rulers managed the economies of the Muslim world with little direction, they have relied upon short term policies and on the very few occasions due to impending war's have funded elements of industry, but even this was driven largely for nationalist reasons rather than for the long term benefit of the Ummah. The Muslim rulers in the Middle East have constantly argued they cannot regain Palestine due to the military might of Israel, Yasser Arafat argued on many occasions at Palestinian refugee camps that Israel's possession of nuclear weapons meant negotiations were the only means to tackle the Palestinian issue. Pervez Musharraf argued he had no choice but to support the US in its efforts in Afghanistan as Pakistan had no political power or a military deterrent, large enough and hence was too weak in the face of US demands.

The aim of the book is to assess the current status of the economies and position of the industries in the Muslim world. The claims by the Muslim rulers will be assessed as well as many of the assertions Western analysts have made about the prospects of industrialisation in the Muslim world. The reality and prospects of the Muslim world will be shown alongside the myths that unfortunately have become accepted as truths amongst Muslims. A general blueprint will then be outlined showing how the Khilafah could industrialise the Muslim lands and change the status of the Muslim world from its current malaise to one of a superpower.

Adnan Khan

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Economic Development

The subject of economics is centred on the fulfilments of people's needs and wants. In origin every economic system attempts to address the same issues, namely how to utilise the available resources in order to satisfy the needs of the people. Hence every economic system would define the individual and the needs that require satisfaction. **How such resources are allocated is where each economic system differs.** Hence Capitalism distributes resources, goods and services by leaving allocation to the market, where prices are set according to supply and demand. Whilst Socialism allocated resources centrally according to the principal '*each according to his ability, and each according to his needs.*' All economic systems have defined descriptions of ownership and how the interplay of supply and demand create prices and these definitions allow for the derivation of rules for buying, selling, investments, employment and company structures.

Economies are generally structured according to a nation's strengths, hence nations with ample energy resources should in all cases gear their economies around the extraction and refining of oil and gas. Nations with iron and coal resources would most likely be industrially based due to having such resources.

An example of this was the development of the British Empire. The British Empire discovered it had large deposits of Iron and coal spread across the isles. The empire then began mining and then shifting such minerals to factories for conversion to suitable material. This led to an industrial revolution, which led to the first System of rails and carriages and Britain became the world's super power due to its ability to harness its resources leading to the development of the nation.

Historically until the industrial revolution, the world's economies from ancient times were generally agricultural based. Nations and civilisation that were able to secure water resources and have arable land generally prospered. The Industrial revolution of the 18th century changed the economic landscape as for the first time manufacturing became central to economic independence and success. The inventions of railways, the tractor and mass production for the first time led to global production to increase on a huge scale as machines were able to do the work many individual men would have taken weeks to do. A manufacturing based economy meant a nation built its own factories which produced the goods, machines and essential technologies not relying on any external powers. Industry on its own was an important pillar of economic life during the 18th century. Historically industry was limited to manual labour in small factories. Then the British Empire began using steam to drive pistons and then eventually to generate rotary (motion) to move machines, which sparked the industrial revolution as mechanical factories started to gradually replace the manual ones. Production increased twenty fold and the mechanised factory became one of the pillars of economic life.

Industrialisation allowed for the first time in history the mass production of almost everything, this also led to mass consumption, that in turn led to the importance of advertising, brands, marketing and the rise of services and finance.

Throughout the 1960's and 1970's many of the worlds economies that had industrialised, moved production facilities abroad and concentrated domestically on the service industry. The

understanding being the actual production can be undertaken anywhere in the world, the idea's, research and development stages came to be seen as much more important and hence the global economy for long dominated by industry shifted towards services. The de-regulation drive led to the emergence of finance as the centre of the world economy and globalisation led to the financial markets, entertainment, tourism and marketing dominating the global economic scene.

Capitalisms Track Record

Two models of economic development have dominated the post WW2 world. Free market ideologues continue to cite the free market, IMF and World Bank (Washington Consensus) driven deregulated markets and growth strategies as success stories in Latin America and Africa. Whilst the rapid industrialisation of the tiger economies through high growth and export driven strategies are heralded as a distinctly Asian approach to development which needs replication across the world. Analysis of both liberal models shows they have been unsustainable and have left a number of nations in disarray.

Beginning in the 1980s, free markets were the solution to poverty and dominated development theory, policy and practice around the world. Latin America, Africa, Indonesia and the Asian Sub continent were the nations where the 'Washington consensus' implemented their free market dogma. Nations were required to reduce trade barriers, deregulate markets opening them to foreign competition, privatise the public sector, and reduce government spending significantly and the complete abolishment of government subsidies. It was argued markets and domestic sectors cannot be efficient until they were forced to compete globally, those that could not survive on their own deserved to fail.

Through the 1990's the model was given added impetus as globalisation became the buzz word of free market ideologues around the world. It was argued nations were more likely to prosper if they joined the global village; opening their economies and increasing imports in areas underdeveloped domestically.

Today such a model has very few success stories to be held up as benchmarks. The international organisations that dogmatically imposed them upon the masses have fallen from grace; whilst the Washington consensus has been unable to explain the numerous failures.

A total of \$129 billion poured into Russia with the IMF and the World Bank implementing a number of its development schemes. The Russian economy was opened to foreign investment and industry was sold to foreigners. In 1997 due to a loss of confidence in Russia, speculators began to withdraw their money and Russia was unable to defend itself as liberalisation required there to be no restrictions on capital flows. The crisis raised poverty from 2 million to 60 million, a 3,000% increase. UNICEF noted in its first comprehensive survey of social trends of the former USSR in January 1994 that 'shock therapy' resulted in 500,000 'extra' deaths per year.¹ Russia is a clear example that globalisation directly allowed the crisis to reach the peak it did.

Brazil and Mexico both defaulted on their loans throughout the 1990's and in the early 21st century when their dollar pegs became unsustainable and domestic companies found they were unable to compete with foreign competition.

The problem fundamentally is focusing development on growth strategies as they make a nation reliant on foreign investment and trade. This has never been a root to sustainable growth because fundamentally the country is extremely vulnerable to factors outside its control. Moreover, if one looks at the composition of GDP among Western economies, exports play a relatively insignificant role. In the US, the world's largest economy, exports represent less than 10% of GDP. Such a development strategy only leads to the development of a narrow aspect of the economy which foreign companies are interested in, this leaves a nation open to the economic conditions of other countries.

Tiger Economies

The 'tiger' economy was a term coined to describe South Korea, Singapore, Hong Kong, and Taiwan who underwent rapid growth and industrialisation in the 1960's and 1970's. It was considered a distinctly 'Asian' approach to economic development. The East Asian economies focused on development characteristics which Japan had initially pioneered and became a purely export driven economy. These countries and territories focused on developing goods for export to the industrialised West and domestic consumption was discouraged through government policies. At the same times the Asian tigers poured money into education and training in order to have the necessary skilled workforce who produced high end electronics. By 1997, Asia attracted almost half of total capital inflows to developing countries. The economies of Southeast Asia also maintained high interest rates attractive to foreign investors looking for high rates of return. As a result the region's economies received a large inflow of hot money and experienced a dramatic run-up in asset prices. At the same time, the regional economies of Thailand, Malaysia, Indonesia, the Philippines, Singapore, and South Korea experienced high growth rates, typically 8-12% GDP, in the late 1980s and early 1990s. This achievement was broadly acclaimed by economic institutions including the IMF and World Bank, as the Asian economic miracle. But then the story turned sour.

From 1985 to 1995, Thailand's economy grew at an average of 9% per year. In May 1997, the Thai baht was hit by massive speculative attacks as investors tried to cash in on their money and speculators ruthlessly sold the currency short (even in multiples of what currency was actually in circulation). The currency collapsed, this set off a domino affect where financiers lost confidence in the region and began moving their money out in large sums leading to the infamous Asian financial crisis. The only country in the region to largely survive the fall out was Malaysia as it was not under the control of the IMF's structural adjustment program and had placed restrictions on capital withdrawal from its country which meant speculators could not affect the country to the same extent. The rest of the region left their economies open hence they were unable to do anything when speculators withdrew their capital, thereby highlighting the problems of globalisation. This problem was aptly encapsulated by Economic expert Paul Krugman of Princeton University *"As long as capital flows freely, nations will be vulnerable to self-fulfilling speculative attacks, and policymakers will be forced to play the confidence game. And so we come to the question of whether capital should really be allowed to flow so freely."*²

Industrialisation: Past and Present

Britain

Britain was the first nation in the world to industrialise, in the 14th and 15th century Britain was a backward nation and until the 17th century imported most of its technology from Continental Europe. England in the 16th century was a poor country, lacking the wealth of Portugal and Spain and unlike the Spaniards and Portuguese, the English were neither missionaries nor colonists. The English were predominantly farmers and engaged in fishing. Due to the small nature of the English isles England was forced to make alliances and partnerships. However with Europe going through enlightenment and England's union with Scotland in 1707, the English went out in the oceans as many European colonialists were doing, Britain however had nothing to exchange due to the nature of the British Isles and the drive to seek wealth lead to the development of Britain's navy, it also lead to its conquering of the oceans, the development of its economy via its colonies, in this way it funded its heavy industry and manufacturing base.

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Britain was very successful at drawing on most of the accessible world for raw materials and markets. It was colonial territorial ambition under the guise of commercial interests that dictated the growth of the early British Empire. Britain's economic and industrial development is rooted in the maritime policies of the English monarch, King Henry VII, who reigned from 1485 to 1509.

King Henry VIII established the modern English merchant marine system, which greatly expanded English shipbuilding and seafaring. The merchant marine also supplied the basis for the mercantile institutions that would play a crucial role in England and, after 1707,

British imperial ventures, included the Massachusetts Bay Company and the British East India Company. Henry's financial reforms made the English Exchequer solvent, which helped to underwrite the development of the Merchant Marine. Henry also ordered construction of the first English dry dock, at Portsmouth, and made improvements to England's small navy. Additionally, Henry sponsored the voyages of the Italian mariner John Cabot in 1496 and 1497 that established England's first overseas colony - a fishing settlement - in Newfoundland, which Cabot claimed on behalf of Henry.

British colonial policy was always driven by Britain's trading interests. While settler economies developed the infrastructure to support development, all tropical African territories found themselves exploited only as raw-material suppliers. British policies based on comparative advantage left many developing economies dangerously reliant on a single cash crop, which others exported to Britain or to overseas British settlements. The reliance upon the manipulation of conflict between ethnic, religious and racial identities, in order to keep subject populations from

uniting against the occupying power (divide and rule strategy) left a legacy of partition and inter-communal difficulties.

Britain's expansion abroad played a key role in its industrialisation as territorial expansion led to the domestic industry to flourish. The importation of goods from British colonies and the exportation of these goods all over the world meant Britain's internal infrastructure was developed to aid the nation's colonial ambitions. Roads were built connecting London to every other centre of population, and canals were excavated to connect inland waterways so those goods could move farther faster. Commerce drove the expansion of the shipbuilding industry, provided tens of thousands of jobs for labourers on the London docks, and spawned wholesale and retail trade everywhere. Commerce was so important to the British economy that British economist Adam Smith described Britain as '*a nation of shopkeepers.*'³ King Henry thus established the munitions based Royal Navy that was able to hold off the Spanish Armada in 1588, and his innovations provided the seed of future colonialism.

Britain's manufacturing base was possible due to the Midlands with large coal fields and thick forests, which were also home to large deposits of metal ores, which were used as fuel to power the furnaces that produced iron. Britain was successful at building the machines that powered production and ultimately the rails and engines that powered distribution.

The basis of the British superiority was founded in the age of mercantilism, this was an economic theory that stressed maximising trade inside the empire, and trying to weaken rival empires. British Empire first took shape in the early 17th century, with the English settlement of the eastern colonies of North America, which would later become the original United States, as well as Canada's Maritime provinces, and the colonisation of the smaller islands of the Caribbean such as Trinidad and Tobago, the Bahamas, the Leeward Islands, Barbados, and Jamaica. These sugar plantation islands, where slavery became the basis of the economy, were part of Britain's most important and successful colonies. The American colonies also utilized slave labor in the farming of tobacco, cotton, and rice in the south. Britain's American empire was slowly expanded by war and colonization. Victory over the French during the Seven Years' War gave Britain control over almost all of North America.

Once industrialised Britain worked on cornering the world's cotton market. The availability of cheap raw cotton from Egypt and America, the invention of new machines that enabled workers to spin more thread and weave more cloth and the protection provided to industry by the state in the form of infant industry protection. England became the world's primary supplier of cotton cloth. The invention by British engineers of the spinning jenny, the flying shuttle (device on which cloth is woven) and the rotary steam engine consolidated Britain's position as the greatest power in the world. By 1830 Britain produced half of Europe's iron and cotton, 75% of its coal, and nearly all of its steam engines. The English supplied the technological expertise for engineering in other countries, and they planned the railway systems for nearly all of Europe.

By late 1900 Britain, with 2% of the world's population, produced 54% of the world's manufactured products.⁴ The rise of free trade merely reflected Britain's economic position in the world and was not with any true philosophical conviction. Despite the earlier loss of 13 of Britain's North American colonies, the final defeat in Europe of Napoleonic France in 1815 left Britain the most successful international power. While the Industrial Revolution at home gave her an unrivalled economic leadership, the Royal Navy dominated the seas. The distraction of rival powers by European matters enabled Britain to pursue a phase of expansion of her economic and political influence through free trade and strategic preeminence. With the use of industrial promotion strategies Britain when it reached its pinnacle in 1800 was navigating the seas in search of riches around the globe. This programme of aggressive colonisation entrenched Britain's position in the world and changed battles from being fought for territories to offshore markets. It was this colonial war machine that drove a large chunk of Britain's scientific research, innovation, new ways of organising labour and military strategy. The liberal values which are trumpeted as the source of Britain's development arrived after achieving global domination. For Britain to succeed and remain competitive in the international arena, they needed access to foreign markets in a highly competitive world, and for this reason Free trade was espoused supplemented with a large military.

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USA

The economic development of the United States has its roots in the settlements European colonialists created in the 16th and 17th centuries. The American colonies progressed from being colonial to a small independent farming economy, which in 1776 became the United States of America. In 232 years since then the United States has grown into a \$14 trillion integrated, industrialised economy that manufactures 28% of the world's output.⁵ The resultant affect of independence from Britain was that the North American continent became one large unified market, where a supportive political and legal system developed. Vast areas of highly productive farmlands and vast natural resources could now be used, extracted and developed for the benefit of America rather than its colonial masters. While government involvement in the economy has been a consistent theme, the extent of that involvement generally has increased over time.

It was colonial settlements from Europe that achieved much of the early prosperity from trapping and trading in furs. Throughout the colonies, people lived primarily on small farms and were self-sufficient. As the colonies grew, this led to the establishment of supportive industries. A variety of specialised sawmills and gristmills were developed as well as shipyards to build fishing fleets and, in time, trading vessels, this also led to the eventual development of small iron forges. By the 18th century, regional patterns of development had become clear: the New England colonies relied on

ship-building and sailing to generate wealth; plantations (many using slave labour) in Maryland, Virginia, and the Carolinas grew tobacco, rice, and indigo; and the middle colonies of New York, Pennsylvania, New Jersey, and Delaware shipped general crops and furs.

By 1770, the North American colonies were economically and politically prospering to the detriment of the largely agrarian South and South-west America. Disputes developed with England over taxation as the settler population hoped for a modification of English taxes and regulations that would satisfy their demand for more self-government. This mounting quarrel with the English government led to all-out war and eventual independence for the colonies.

The US constitution, adopted in 1787 and in effect to this day, was in reality an economic charter; it established that the entire nation stretching then from Maine to Georgia, from the Atlantic Ocean to the Mississippi Valley was a unified, or common, market.⁶ Alexander Hamilton, one of the nation's Founding Fathers and its first secretary of the treasury, established the original economic development strategy in which economic growth would be nurtured through diversified shipping, manufacturing, and banking and the federal government would nurture infant industries by providing subsidies and imposing protective tariffs on imports.

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Central to America's economic development was the concept of Manifest Destiny the belief that the United States was destined, even divinely ordained, to expand across the North American continent, from the Atlantic seaboard to the Pacific Ocean. The eagerness to expand westward that led to an

The civil war sealed the destiny of the nation and its economic system. The armament needs of the civil war laid the groundwork for the modern US industrial economy. War needs had enormously stimulated manufacturing, speeding an economic process based on the exploitation of iron, steam, and electric power, as well as the forward march of science and invention. The massive armament needs of WW2 pulled the US out of the great depression and turned them into a superpower.

Indian removal policy that stripped the native peoples of their land. Such colonialism resulted in a huge decline in the indigenous American Indian population through war, conflict and massacre, with some tribal communities shrinking by 80-90% within a generation. Over a half-century, up to 40 million American bison, or buffalo, were slaughtered for skins and meat and to ease the railways' spread. The loss of the buffalo, a primary resource for the plains Indians, was an existential blow to many native cultures. A series of U.S. military incursions into Florida led Spain to cede it and other Gulf Coast territory in 1819. The United States annexed the Republic of Texas in 1845 Mexico and in the 1848 much of the present-day American Southwest.

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laid the groundwork for the modern US industrial economy. War needs had enormously stimulated manufacturing, speeding an economic process based on the exploitation of iron, steam, and electric power, as well as the forward march of science and invention. The massive armament needs of WW2 pulled the US out of the great depression and turned them into a superpower. Britain was considerably weakened with the war needs of WW2 and aside from taking a \$31.4 billion loan from the US under the Lend-Lease Act in 1941⁷, Britain managed to bring the US into the war with the Atlantic Charter which was issued as a joint declaration by Winston Churchill and Franklin Roosevelt in August 1941. Both nations agreed that defeating Germany had priority over defeating Japan. US entry into WW2 in December 1941 propelled them into a superpower. US industrial production increased massively to meet the needs of war, as the US produced 47% of the war's munitions by 1944.⁸ The US made huge leaps in nuclear weapons, radar, proximity fuses, jet engines, V-2 rockets, and data processing analogue devices (primitive computers). This was alongside enormous advances in aircraft, submarine, and tank design.

Germany

Medieval Germany, lying on the open Northern European Plain, was divided into hundreds of contending kingdoms, principalities, dukedoms, bishoprics and free cities since the formation of the Roman Empire. Over a thousand years various kings and rulers attempted to unify the German states without success. As a result the German people engaged in many internal wars and conflicts amongst each other. The Peace of Westphalia (1648) ended religious warfare among the German states, but the empire was de facto divided into numerous independent principalities. From 1740 onwards, the dualism between the Austrian Habsburg Monarchy and the Kingdom of Prussia dominated German history. In 1806, the Empire was overrun and dissolved as a result of the Napoleonic Wars – a regular feature in German-Franco relations.

Otto Van Bismarck oversaw German unification which set the nation on the path to industrial supremacy. Beginning in 1871, Germany began establishing several colonies outside of Europe. Bismarck managed to achieve unification of the German lands which many had attempted for nearly a thousand years. Such unification meant German resources and minerals could all follow one unified policy and for once Germany could be domestically developed without facing any secessionist calls.

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Germany's early industrial development was based on an alliance of industrial business leaders with the Prussian aristocracy. Large sums of money were poured into technological development and Germany made a number of new technological inventions and took a lead in the sciences as German industry enthusiastically adopted new scientific techniques. German innovation included the invention of the internal combustion engine in 1876, the electric train in 1879, the telephone network was also introduced in Berlin in 1881 and four wheel cars were patented by Daimler and Benz. Such innovations allowed production to increase dramatically in the textile, coal and steel

industries. By 1900 Germany rivalled the more-established British economy as Europe's largest. However a large chunk of German industrialisation was achieved by territorial colonisation which needed a strong military and industry. The nation industrialised by rapidly organising the use of its minerals to develop a powerful navy in order to defend its colonial territories, for these reasons Bismarck's launched three wars in quick succession against Denmark, Austria and France. The result was the foundation of a German empire under Prussian leadership in 1871.

Bismarck directed the economy towards the production of coal and steel, machines and machine tools, chemicals, electronic equipment, ships, and later, motor vehicles. Coal production in Germany reached the highest in the world and by 1862 a massive network of roads and railway lines connected all German cities. In order to industrialise Bismarck provided ample protection to industry such as restrictions on imports and tariffs in order to protect German manufacturers. Krupps had the exclusive right to build the German navy and made a 60% profit on every piece of steel plate sold. By 1900 the Prussian regional railway was the world's largest employer, whilst Siemens and AEG controlled half of all electronics production. The new German empire overtook Britain in advanced sectors such as chemicals and by 1914 Germany was the largest economy in the world after the US.

While these policies gradually stabilized the economy, they also encouraged the concentration of industries into large conglomerates that were protected from foreign competition by the government. The organisation of business, labour and agricultural associations in partnership with the government produced an 'organised capitalism,' much more regulated than Britain and the US. Such direction resulted in an economic boom which led to the expansion of German industry, especially the railroads, and the emergence of many small, private companies which would become global corporations in the future.

Germany's rapid development placed it in direct conflict with Britain and by 1900 Germany matched the military prowess of Britain and competed with it in the colonisation of the world. Germany took full advantage of Serbia's assassination of the heir to the Austria-Hungary Empire. Germany invaded France, broke its alliance with Russia and began invading Eastern Russia. Germany didn't stop there and continued the invasion of Europe and when its military machine went into Belgium, Britain mobilised for war and WW1 had begun.

The Treaty of Versailles in 1919 officially ended World War I between the Allied and Associated Powers and the German Empire. After six months of negotiations, Germany was forced to accept full responsibility for causing the war and, under the terms of agreement would make reparations to certain members of the Allies. Germany would also lose certain amount of its own territory to a number of surrounding countries, being stripped of all its overseas and African colonies, and its ability to make war again was limited by restrictions on the size of its military. The German military machine was critical to expansionist Germany and the treaty imposed numerous restrictions after the war to ensure Germany never became a threat again.

Germany for a thousand years was marred in internal wars and struggles and once again the German economy was in a dire state. The economic situation of Germany during the first five post-war years was greatly affected by such conditions. Germany could not meet reparation requirements; France

invaded the industrial centre of the Ruhr in 1923, seizing control of all its coal deposits. The German government encouraged the workers to resist passively, and it printed vast amounts of devalued money to pay them causing massive hyperinflation. The resulting hyperinflation wiped out the savings, pensions, insurance, and other forms of fixed income of most middle-class and working class Germans.

It was in such circumstances Hitler emerged, a rightwing fascist who believed Germany to be a great state. Hitler managed to unify the German masses on his vision, that Germany is a great state, and therefore needs a strong economy in order to achieve her potential, which arguably Hitler perceived, as a world power. The vision of a thousand-year Reich managed to capture the imagination of a large section of the German public, which motivated hundreds of thousands of them to work towards the aims of Nazism.

Hitler's managed to win Germany's business magnates to his vision and have them bankroll his campaign to reach Office and then to contribute to his vision of making Germany a great empire again. When Hitler reached Office many saw Hitler's economic vision would create wealth and investment and could potentially reap rewards, particularly in an economy which had until then experienced little investment, growth and had a bleak outlook.

Germany's new found revival was driven by two plans which once again placed Germany on the brink of shifting the global balance of power. The New Plan initiated in 1934 placed economic management of this new direction to respected banker Hjalmar Schacht. Under his guidance a new plan was pioneered to address the needs of the heavy industry, deal with Germany's Foreign Exchange crisis and attempt to distance Germany from foreign entanglements in its economy. The plan involved the development of numerous public works programs, most notably the construction of *autobahns* (highways) to attempt to alleviate unemployment. Schacht negotiated several trade agreements with countries in South America, and South and East Europe, ensuring that Germany would continue to receive raw materials from those countries. The plan solved Germany's post war economic collapse.

In 1936 the four-year Plan was introduced by Hermann Göring with the aim of making Germany prepared for war within four years with the priority placed upon rearmament and self sufficiency. The plan pioneered synthetic energy production, increased automobile production; initiated numerous building and architectural projects; and further developed the Autobahn system. The plan also emphasized building up the nation's military defenses preparing Germany for its expansionist aims.

On the two occasions Germany embarked on making a war economy its vital issue it quickly became a world power, the rapid rise of Nazi Germany was only halted through the mobilisation of the world's powers through WW2.

USSR

In November 1917, the Bolshevik leader Vladimir Lenin led his revolutionaries in a revolt against the ineffective Provisional Government. The revolution ended Russia's short-lived provisional

government with a communist one. The Congress of Soviets made up of deputies from local soviets from across Russia and was led by the Bolsheviks with Lenin as their leader since 1903.

The communists inherited an outdated economy; agriculture still resembled that of medieval Europe, with peasants bound to village communes using outdated farming methods. The USSR's rural agrarian economy struggled to produce enough food to feed the cities. Further hampering food production was Russia's lack of modern infrastructure or transport. Russia still lacked the ability to effectively transport food across cities. During WWI, this became a massive problem as haphazard conscription removed skilled workers from the railways and food-related industries, effectively aggravating poor harvests and causing famine.

Beginning in 1928, the Soviet economy was directed by a series of five-year plans. Soviet planners developed various plans to stabilise the agricultural and financial situation of the country, followed by two further 5 year plans which allowed them to industrialise and achieve a virtually self sufficient economy.

The basic aim of the 5 year plans was to harness all economic activity to the systematic development of heavy industry, thereby transforming the Soviet Union from a primitive agrarian country into a leading industrial and military power. Carrying the plan out, the Stalin government poured resources into the production of coal, iron, steel, railway equipment, and machine tools. Whole new cities, such as Magnitogorsk in the Urals, were built with enthusiastic participation of young workers and intellectuals. This ambitious plan fostered a sense of mission and helped mobilize support for the regime. Industry was long concentrated after 1928 on the production of capital goods through metallurgy, machine manufacture, and chemical industry. This emphasis was based on the perceived necessity for rapid industrialisation and modernisation of the Soviet Union.

The armament industry was the most successful aspect of the 5-year plans. The Soviet Union managed to develop Naval ship building, artillery and small arms industries. The need to establish an economic base for a modern armaments industry reinforced claims of industrialisation. The fact the Soviet Union may be attacked encouraged rapid development of an industrial capacity, which would sustain a modern armaments industry.

The development of armaments, agriculture machinery along with motor industries requires the strengthening and establishing a wide range of back up industries supplying raw materials and components. For Soviet Russia its iron and steel industry was the key to this. By 1933 iron and steel consumed 18% of expenditure and this enabled the construction of vast modern facilities based on US design. In the 1920's most of the machines or modes of production were largely imported but with a self sufficient plan this all changed. An engineering revolution took place and engineering construction complexes sprung up. Izhora in the Urals was one such giant industrial complex that

The communists inherited an outdated economy; agriculture still resembled that of medieval Europe, with peasants bound to village communes using outdated farming methods. The USSR's rural agrarian economy struggled to produce enough food to feed the cities. Further hampering food production was Russia's lack of modern infrastructure or transport. Russia still lacked the ability to effectively transport food across cities.

produced most of the equipment for the 1.5 million ton iron and steel works on a yearly basis. The second 5-year plan brought turbines, boilers and plants for electricity generation, alongside excavators and concrete mixes.

After WW2 the global balance of power had completely shifted, Britain was considerably weakened after the war and the US saw Russian participation as crucial to shape the post war world to the detriment of Britain. The wartime alliance however was based on aversion to a common enemy, not

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on an ideological consensus. Victory removed the mutual enemy and opened the coalition to strains between the Soviet Union and both Britain and the US.

The Soviet Union emerged from World War II as one of the world's major powers, a position maintained for four decades through its hegemony in Eastern Europe, military strength, aid to developing countries and scientific research especially into space technology and weaponry. The Soviet Union's growing influence abroad in the post-war years helped lead to a Communist system of states in Eastern Europe united by military and economic agreements. It overtook the British Empire as a global superpower, both in a military sense and its ability to expand its influence beyond its borders.

Japan

Much of Japanese history is composed of internal struggles that consumed Japan as it attempted to create a centralised and unified state. Its history of internal strife is a result of the terrain and short supply of arable land, which made struggles over land rights and food supply both bloody and inevitable.

In 1853 in the infamous black ship incident US Navy Commodore Matthew Perry famously demanded that Japan open its doors to foreign trade. The Japanese faced the prospect of either being colonised like their neighbours or industrialising in order to negotiate with the West on an equal footing. This confrontation triggered the Meiji Restoration of 1868, when a radical group of young samurai launched a coup against the Tokugawa shogun and restored the emperor as the formal national leader, igniting a rapid process of re-centralisation and modernisation of Japan's economic, political and military systems.

The Meiji State undertook a huge programme of industrialisation creating model factories and developing infrastructure. With the absence of private sector entrepreneurial initiatives, the Japanese state established state owned model factories in industries such as shipbuilding, mining, textiles (cotton, wool and silk) and military industries. Most of these were privatised in the 1870's and 1880's however state involvement didn't stop there. The merchant marine industry along with the shipbuilding industry received between 50% - 90% of all state subsidies. The world's first steel mill (the state Yawata Iron works) was established by the Japanese government in 1901.

To facilitate the transfer of technology Japan hired many foreign technical advisors; their number peaked at 527 in 1875 and fell to 155 by 1885 showing a rapid absorption of knowledge on the part of the Japanese. This resulted in the Ministry of education being set up 1871 and by 1900 Japan had a 100% literary ratio.⁹ The Meiji State adopted and imported from the West what it regarded as necessary for industrial development. French law influenced its criminal law and its commercial and civil law was largely German, and the navy British. The central Bank was moulded on the Belgian one and the overall banking system was on the American. The universities were also based on the US model.

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Japan by the turn of the 20th century had managed to develop its industries, however the rapid growth of the economy had made Japan painfully aware of its limited natural resources, since as industry grew it required ever-increasing amounts of raw materials such as oil, iron, coal and rubber, among others, as well as food to feed Japan's booming population, which doubled from 30 million to 60 million from 1868 to 1926. Demand very quickly outpaced Japan's domestic production, and Japanese policymakers, who increasingly were military leaders, were keenly aware that the very existence of a modernising Japan depended on imports and trade routes that were vulnerable to numerous threats.

In the 1930's Japan began a territorial expansion programme to solve the shortage of raw materials. It conquered Manchuria and surged deep into China to exploit labour and resources. Yet the situation with China quickly deteriorated and war broke out while tensions with the West were coming to a boil. The United States, concerned about its Pacific territories gave Japan an ultimatum to abandon its territorial acquisitions or face an oil embargo (at the time, the United States provided about 80% of Japan's oil). Japan could either capitulate or lay claim to the vast resources of Southeast Asia. The latter option involved striking the Dutch and British, both US allies, and thus engaging in war with the United States. The Japanese made a gamble and pre-emptively attacked Pearl Harbour and as a result were then on the receiving end of US nuclear bombs.

The United States, Japan's opponents in the war, occupied Japan militarily and controlled economic policy from 1945 to 1952. Japan was completely subordinate to the US until 1952. The supreme commander of the allied powers (SCAP) who in each case was an American subservient to Washington imposed a number of conditions on Japan, under the guise of democratisation

While the American occupation initially aimed to radically reshape Japanese society and culture such that it could never again serve as a platform for militarism, this goal had to be altered drastically with the rise of the Iron Curtain. The Truman administration had planned for Japan to be de-industrialised such that they would no longer have the heavy industry to serve any future war-machine. But the Allies quickly realised that in order to confront the threat of expansionist Communism, they needed Japan to be model example of a flourishing economy. This involved the help of some of the wartime business elite.

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In 1952 Japan regained its sovereignty and the U.S. occupation of Japan ended. Japanese post war industrial policy concentrated on promoting and developing petrochemicals, steel, automobiles, shipping and semi-conductors. The Japanese government encouraged private investment in such key sectors and protected them from foreign competition. In Japanese industrial development, there were three main elements: the first was the development of a highly competitive manufacturing sector. The second was the deliberate restructuring of Industry toward higher value-added, high productivity industries. The third element was aggressive domestic and international business strategies.

Central to the development of Japan has been the role of Ministry of International Trade and Industry (MITI). MITI was responsible for the regulation of production and the distribution of goods and services. It became the “steward” of the Japanese economy, developing plans concerning the structure of Japanese industry, controlling Japan’s foreign trade; ensuring the smooth flow of goods in the national economy; promoting the development of manufacturing, mining, and distribution industries; and supervising the procurement of a reliable supply of raw materials and energy resources.

China

China for the first time in its history is a world power. Although China has a history of over 5000 years, much of this is of internal wars and struggles in order to unify the homeland. China’s economy throughout history was based on farming that used ancient methods, and much of the agricultural activity was performed at a subsistence level. By the 19th century when the worlds leading powers had industrialised China still had an underdeveloped agricultural economy.

When Japan invaded the Chinese mainland in 1932 China was in no position to defend itself, by not industrialising its neighbour, which was a small island, managed to subdue a nation which was over 20 times its size. It was only WW2 and the intervention of the US that brought an end to Japanese occupation.

In 1949 the communists managed to defeat the Chinese nationalists and took power. Its leaders defined its long term goals of transforming China into a modern, powerful, socialist nation. In economic terms these objectives meant industrialisation, the production of modern military equipment and the improvement of living standards. As the years passed, the communist leadership continued to subscribe to such goals. The economic policies developed to achieve such goals were altered on many occasions in response to major changes in the economy, internal politics and international developments.

A distinction emerged between Chinese communist leaders who felt that the socialist goals of income equalisation should take priority over material progress and those who believed industrialisation and economic development were prerequisites in achieving a successful socialist order. An important characteristic in the development of economic policies and the underlying economic models was that each new policy period, while differing significantly from its predecessor, nonetheless retained most of the existing economic organisation. Thus the form of the economic model and the policies that expressed it at any given point in Chinese history reflected both the current policy emphasis and a structural foundation built up during the earlier periods.

The communist adopted a series of five year plans to ensure its original objectives would be met and before the end of the first five-year plan, the growing imbalance between industrial and agricultural growth, dissatisfaction with inefficiency, and lack of flexibility in the decision-making process convinced the nation's leaders particularly Mao Zedong that the highly centralized, industry-biased Soviet model was not appropriate for China. In 1957 the government adopted measures to shift a great deal of the authority for economic decision making to the provincial-level, county, and local administrations. In 1958 the second five-year plan (1958-62), which was intended to continue the policies of the first plan, was abandoned. In its place the leadership adopted an approach that relied on spontaneous heroic efforts by the entire population to produce a dramatic "great leap" in production for all sectors of the economy at once.

However the excessive strain on equipment and workers, the effects of the agricultural crisis, the lack of economic coordination, and, in the 1960s, the withdrawal of Soviet assistance caused industrial output to plummet by 38% in 1961 and by a further 16% in 1962. With agriculture lagging so far behind industrial development from 1961 economic support was given to this sector. Major imports of advanced foreign machinery, which had come to an abrupt halt with the withdrawal of Soviet assistance starting in 1960, were initiated with Japan and West European countries.

China's current development began in 1978 and has been due to military considerations dominating the development of science and technology. This can be traced back to the Mao era. Mao stated his objective of forming a 'militarization' complex above all other needs. This 'militarization' formed the basis of Deng Xao Ping policy. Deng's aim was to diversify the economy in order China's industrial base could contribute not just to national defence but also economic growth and civilian prosperity. Deng's famous 16 character guidance in early 1980's makes this clear '*integrating military and civilian production; but making sure to balance the military requirements; maintaining military capability; using the civilian economy to serve military modernization.*'¹⁰ Prior to this the Soviet-style centrally planned economy, was utilized but achieved limited results. Deng then

utilized a more market-oriented economy, particularly in the Special Economic Zones located in the Guangdong, Fujian, and Hainan. The results most definitely have been spectacular; China radically changed its economy moving from producing low quality simple exports to sophisticated high technology goods. The country has changed from an inward backward economy to a global exporting machine. Total exports have grown tenfold; 1990 – 2003 was \$436 billion.¹¹ Today its exports exceed \$1 trillion and is the largest in the world after the US and Germany.

Since 1978, China has been reforming its economy from a Soviet-style centrally planned economy to a more market-oriented economy but within the political framework, provided by the Communist Party of China. This system has been called "Socialism with Chinese characteristics" and is one type of mixed economy. These reforms started since 1978 has helped lift millions of people out of poverty, bringing the poverty rate down from 53% of population in 1981 to 8% by 2001.

The execution of China's foreign policy represents an important evolution from Beijing's narrow and reactive approach to global affairs in the past. China is abandoning its long-held victim mentality of 150 years of shame and humiliation and adopting instead a great power mentality (*daguo xintai*). The natural extension of this is the increasing role of China in global issues.

With the abandoning of the victim mentality and the adoption of a great power mentality China is increasingly seeing itself more akin to the world's major powers. This represents a shift from the 1990's and China is now openly speaking about the need to share global responsibilities and this is the lens through which China's strategists view the world.

Conclusions

Today the blueprint to industrialise is clear, whilst Britain and the US may have taken nearly 100 years to industrialise, nations such as Japan and Germany industrialised much quicker. There are a number of common characteristics that were present amongst all the nations that industrialised, these include:

1. Industrialisation took place interwoven with political aims, whilst today industrialisation is seen as an economic discipline, political ambitions shape a nations industrial drive.
2. Colonialism drove the need to industrialise, the need to occupy other peoples and nations and maintain occupation as well as open new markets was a central feature that drove industrialisation.
3. Military industries and the war economy was central to industrialisation. The need to have a deterrent and offensive capability drove technological innovation which is central to industry.
4. Global ambitions and shifting the global balance of power was central to most nations pursuing industrialisation.

Economic Myths

There has always been great pressure on developing countries from the developed world and international institutes such as the World Bank to adopt a set of ‘good policies’ and ‘good institutions’ in order to foster economic development. According to this agenda ‘good’ policies are those prescribed by the developed world as democracy and the adoption of free trade and markets removing all barriers to trade such as tariffs and quotas. What follows are a selection of common misconceptions with regards economic development:

1. Democracy is a prerequisite for development

In almost all studies of development, democracy is considered a prerequisite for progress, be it economic or technological and scientific advancement. Mancur Olsen (University of Maryland) the world renowned economist presented in his award winning book ‘*Power and Prosperity*’ (2000) that democracies generally develop and progress relative to other systems of governance. Olson argued that under anarchy there is an incentive to only steal and destroy, whilst a dictator has an incentive to encourage a degree of economic success, since he will expect to be in power long enough to take a share of it. In democracies he observes that the protection of ones citizens and property lead to greater prosperity as leaders could be removed at the ballot box. Olson saw in the move to democracy the seeds of civilization, paving the way for prosperity, which improves incentives for good government by more closely aligning it with the wishes of the population. Other research has even made democracy a precondition for economic success. Evan Rodrik political science expert at the University of Illinois argued that “*democracy as the ‘meta institution’ helps build other institutions and democracy is the only appropriate institutional conditionally for success.*”¹² Even though there is no universally accepted definition of democracy there are two principles that any definition of democracy is required to have. The first principle is that all members of the society have equal access to power and the second that all members enjoy universally recognised freedoms and liberties.¹³

A cursory glance at the nations who continue to advocate such a view and who continue to intervene around the world in the name of democracy illustrates such an argument holds no weight. In fact much of the developed world developed through anti-democratic polices and there is an argument that the absence of democracy aids development. When voting was first introduced in the West it was confined to a very small minority of land and property-owning men with an unequal number of votes apportioned according to a scale based on property, educational achievement and age. In the US, black males were only given voting rights in the Voting Rights Act of 1965 after the civil rights movement. Although they were permitted to vote in 1870 by the fifteenth amendment to the constitution which would not deny vote to anyone on account of race and colour, Southern sates were disfranchised through the use of poll tax and property conditions by central government.

Introduction of Democracy (Years when universal suffrage was achieved)

New Zealand	1907
Denmark	1915
Sweden	1918
UK	1928
France	1946
Germany	1946
Italy	1946
Belgium	1948
USA	1965

France by 1830 only gave voting rights to those above the age of 30 who paid 300 francs in direct taxes, which was around 0.02% of the population of 32 million. In 1848 male suffrage became universal and it was only during WW2 that France allowed women to vote, well after it industrialised. Japan achieved universal suffrage after reaching its military pinnacle and even then it was a condition imposed on it by the US to distribute power away from the original regime. The US saw it fit to give Japan full voting rights by 1952 but felt another 13 years were needed to give the same rights to its own citizens!

In 1800 which is considered the peak of Britain's colonial superiority only 3% of Britain's population had the right to vote. Only voters who owned sizable areas of land in a patchwork of districts created during medieval times could elect members to the House of Commons. This system denied the vote to merchants, manufacturers, and skilled labourers who did not own land. Regions that had been prosperous hundreds of years earlier were overrepresented in Parliament while many new urban centres had no representation at all. Some parliamentary seats were virtually owned by individuals. By 1867 13% of the population could vote. It would take until 1928 (another 61 years) before men and women were given equal voting rights. Democracy most certainly came after development and played no role in the rise of Britain.

By 1867 13% of the population could vote. It would take until 1928 (another 61 years) before men and women were given equal voting rights. Democracy most certainly came after development and played no role in the rise of Britain.

The developing world today has given its population more voting rights compared to when the developed nations were going through the same stages. For these reasons democracy causing economic development should be viewed with caution before buying into economic orthodoxy. China, Russia (formerly the USSR) and Germany clearly prove democracy is not a prerequisite for economic development and is decisive proof that much can be achieved without democracy. Russia and China have achieved rapid progress in the last decade through state intervention across the economy. Western liberal democracy has played no role in the recent progress. So the question needs to be asked: is there any relationship between democracy and economic development?

Economic development is a set of policies to industrialise a nation so it can feed its population and create an environment where their interests can be achieved. This requires a consistent set of policies which takes the whole nation in one direction otherwise they will be contradictory. Britain's initial stimulus came from abandoning the church and the adoption of liberal values, which unified the nation. The ability of the aristocracy to inherit property and land and through this influence the direction of colonialism drove forward the nation. The Soviet Union received its stimulus from the failings of the Tsar and was then propelled by being unified with Communism and with successive leaders deriving economic policies from the communist ideology. The US unified and moved forward after freeing itself from Britain's stranglehold over life and liberty and Japan received its wake up call when it realised how far behind the developed world it was and so pursued a war economy to develop. China is the only nation whose development is not entirely ideological however it has developed initially based upon unification on a 'great nation' status. Germany was similar, even utilising racism for its development.

Democracy has played virtually no role in developing an economy hence none of the nations mentioned bothered with a mandate from its people. The link between democracy and economic development at best is tenuous. The nations that advocate democracy actually became democratic at the end of their rise and the Chinese model shows democracy is not needed for economic success.

2. Globalisation is the epoch of free trade and essential for economic development in the 21st century

The first time the word *globalisation* was used was in describing the activities of the large American companies in the mid-1990s. The end of the cold war put the US in a conundrum; the arms race with the USSR resulted in financial circles pouring money into the US resulting in an expensive dollar which in turn made the climate for US multi-nationals to export their goods virtually impossible. US Companies found it too expensive to maintain a competitive position overseas when it was costing them so much making the products at home.

Hence cheaper foreign markets had to be found. The setting up of production facilities in a foreign country making use of the cheap labour, with very little labour laws and outright abuse was termed globalisation.

The first nation to be given the globalisation treatment was Russia and what was left of it after the collapse of the USSR. The fall of communism in 1990 and the break-up of the Soviet Union represented a wonderful opportunity for capitalist institutes to transform a huge centralist economy to one that was market orientated. A total of \$129 billion poured into Russia with the IMF and the World Bank implementing a number of its development schemes. The Russian economy was opened to foreign investment and industry was sold to foreigners leaving the country vulnerable to swings in world prices. In 1997, due to a loss on confidence in Russia, speculators began to withdraw their money and Russia was unable to defend itself as liberalisation required there to be no restrictions on capital flows.

Globalisation today in reality is the superpower pushing for various policies that imply free trade which is in fact a continuation of mercantilist processes seen throughout history. The US broke away from British colonial rule in 1776, recognising the unfairness and harshness in Imperial Britain's policies. However, the US has now taken on that role and is doing the same things that the British once did to others. Shortly after the War of 1812 that was fought to defeat British mercantilist trade practices, US statesman Henry Clay pointed to the necessity of the United States developing a defensive capability by quoting a British leader, "*[N]ations knew, as well as [ourselves], what we meant by "free trade" was nothing more nor less than, by means of the great advantage we enjoyed, to get a monopoly of all their markets for our manufactures, and to prevent them, one and all, from ever becoming manufacturing nations.*"¹⁴

The Reagan and Thatcher era in particular, saw free trade pushed to most parts of the globe under the guise of globalisation. Almost demonising anything that was state owned, and encouraging the privatisation of anything that was owned by the public, using military intervention if needed. Structural adjustment policies were used to open up economies of poorer countries so that big businesses from the rich countries could own or access many resources cheaply.

Globalisation has a track record of failure. In perhaps the most comprehensive study of poverty to date, Scorecard on Globalization 1980-2000, Mark Weisbrot, Dean Baker and other researchers at the Centre for Economic and Policy Research documented that economic growth and rates of improvement in life expectancy, child mortality, education levels and literacy all have declined in the era of globalization (1980-2000) compared to the years 1960-1980. From 1960-1980 many countries maintained protectionist policies to insulate their economies from the international market to nurture their domestic industries and allow them to become competitive. Those policies are the same ones on which US economic prosperity was built.

3. Japan and the Asian tiger economies developed due to free markets

The 'tiger' economy was a term coined to describe South Korea, Singapore, Hong Kong, and Taiwan who underwent rapid growth and industrialisation in the 1960's and 1970's. The four 'Tigers' share a range of characteristics with other Asian economies, such as China and Japan, and pioneered what has come to be seen as a particularly "Asian" approach to economic development, that of an export driven economy. These countries and territories focused on developing goods for export to the industrialised West and domestic consumption was discouraged through government policies such as high tariffs.

A closer look at the development of such nations shows their development was a largely centrally driven affair with huge government subsidies and protectionist policies to achieve development.

Japan developed from policies which are the complete opposite to free markets and globalisation. The Japanese government wanted key sectors to develop and protected them from foreign competition. The government retained the right to allocate foreign exchange, and by this it was able to restrict inward investment, to manage the acquisition of foreign technology by Japanese firms and to influence the composition of foreign trade. The export bank of Japan and Japan development bank were setup to become the main vehicles for expanding the flow of finance to government targeted industries.

Central to the development of Japan has been the role of Ministry of International Trade and Industry (MITI) which was a ministerial department. This central government department regulated production and the distribution of goods and services. It developed plans concerning the structure of Japanese industry, controlling Japan's foreign trade; ensuring the smooth flow of goods in the national economy; promoting the development of manufacturing, mining, and distribution industries; and supervising the procurement of a reliable supply of raw materials and energy resources. Hence Japanese development was centrally driven and not left to the free market to allocate resources.

South Korea pursued a similar strategy of central government intervention. In 1961 the first of many 5 year plans were initiated by central government, as only it rather than the free market had the capacity or resources to direct such drastic change in a short time. The economy was dominated by a group of large private conglomerates, known as Chaebol, and was also supported by a significant number of public corporations in such areas as iron and steel, utilities, communications, fertilisers, chemicals, and other heavy industries. The government guided private industry through a

series of export and production targets utilising the control of credit, informal means of pressure and persuasion, and traditional monetary and fiscal policies.

Central government by 1965 extended government control over business by nationalising banks and merging the agricultural cooperative movement with the agricultural bank. The governments direct control over all institutional credit further extended central governments command over the business community. The Economic Planning Board created in 1961, headed by a deputy prime minister allocated resources, directed the flow of credit, and formulated all of South Korea's economic plans.

In the case of South Korea and Japan, government intervention played an important role in their development and is seen as the backbone to progress. Taiwan, Singapore and Hong Kong followed similar strategies and this clearly shows orthodox capitalism has not been followed but rather government intervention has steered the Asian tigers into the positions they are in today. The tiger economies are fundamentally consumer led where exports are the driving engine for the economy.

4. The Industrialised nations developed due to the adoption of free trade and markets

Britain is regarded as the fountain of laissez-faire doctrine and the only country to have practised free trade. Britain is regarded as the only nation to have developed with little or no state intervention; however this cannot be further from the truth - Britain was the first country to establish infant industry protection. This is where obstacles are placed upon foreign competition to ensure domestic companies develop with no competitors.

The 1721 reform of the mercantile law was summed up by Brisco, an economic historian in 1907: *“manufactures had to be protected at home from foreign finished products; free exportation of finished articles had to be secured; and where possible, encouragement had to be given by bounty and allowance.”*¹⁵ This meant import duties on raw materials were lowered, duties on foreign manufactures goods were significantly raised. Specifically, Britain banned the imports of superior goods from some of its colonies if they happened to threaten British industries.

The next big change came in 1846 with the repeal of the Corn Laws, which were import tariffs ostensibly designed to protect British farmers and landowners against competition from cheap foreign grain imports. But this was intended to halt the move to industrialization on the continent by enlarging the export market for British agriculture. British technological lead that enabled the shift to a free trade regime had been achieved behind high and long lasting tariff barriers. The overall liberalisation of the British economy was a highly controlled affair overseen by the state and not achieved through a laissez-faire approach.

With the use of industrial promotion strategies, Britain, when it reached its pinnacle in 1800, was navigating the seas in search of riches around the globe. This programme of aggressive colonisation entrenched Britain's position in the world and changed battles from being fought for territories to offshore markets. It was this colonial war machine that drove a large chunk of Britain's scientific research, innovation, new ways of organising labour and military strategy. The liberal values which are trumpeted as the source of Britain's development arrived after achieving global domination. It

was only after Britain achieved global supremacy that it championed free trade and this was to gain access to foreign markets. Free markets most certainly came after development rather than being the catalyst that launched the British Empire.

US development also occurred in similar fashion. It wasn't until after WW2 that the US began to liberalise trade and the reasons for this was outlined by Dr Joon Change, an expert in economic history at Cambridge *'it was only after WW2 that the USA – with its industrial supremacy unchallenged - finally liberalized its trade and started championing the cause of free trade.'*¹⁶

Once Western countries establish industrial dominance behind protectionist walls, they tend to advocate free trade in order to kick away the ladder from the followers and consolidate their dominance as was certainly the case for Britain in the mid 19th century which led the liberalisation drive in Europe. The United States followed a similar path a hundred years later.

Conclusions

There are a number of myths that surround economic development such as the people of the Muslim world are not educated, industrialisation takes decades and most of the Islamic lands are in the third world so it would be impossible to develop. The Soviet Union is the best example of a nation that industrialised overcoming all such prejudices. The Communists implemented a 5 year plan starting in 1928, in order to build a heavy industrial base without waiting years for capital accumulation through the expansion of a consumer industry and without reliance on external financing. The five year plan was a list of economic goals that was designed to strengthen the USSR's economy. This ambitious plan fostered a sense of mission and helped mobilize support for the regime. The USSR at the time was in a much worse situation then, for example, Pakistan is in today.

What also needs to be accepted is that all the Superpowers for the last four centuries concentrated on manufacturing which ensured they became self-sufficient, not having to rely on any external nation. They all developed defence industries to be able to defend their nations and deter those who had designs on them. Hence Britain was the first to develop a naval marine industry and conquered the seas in the 18th century; Germany shifted the balance of power on the eve of WW1 by industrialising, developing the first fighter planes and building most of Eastern Europe's railways. The US achieved world power status by developing the first nuclear bomb, its contribution in WW2 was what halted almost certain German victory. The USSR's shift from agriculture to manufacturing is what made it compete with the US and today Chinese development is firmly rooted in manufacturing. The point here being without industry one cannot become self-sufficient, without industry one cannot defend itself and without industry one will always be at the mercy of foreign powers.

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The shift of the industrialised world throughout the 1960's and 1970's from manufacturing to services where by they concentrated on 'hyper' finance, with the factory replaced by financial services as the largest employer, has compounded a problem which the global credit crunch crisis has exposed. The outsourcing of industry and manufacturing and the reduction of this sector's role in driving the economies of the West has meant the only measures available to get out of the credit crunch is to use interest rates and print more money in the hope people can spend their way out of a recession. The problem here is it was such policies that caused the crisis.

What one can also see is all superpowers had a vision for their people. All the people worked for the vision and sacrificed for it, enabling the mobilisation of a nation's architecture and resources for the achievement of that vision. As an example, post World War I Russia rapidly industrialised and this was achieved through the unification of the Russian masses on a vision of an equal society under Communism, and therefore needs a strong economy in order to achieve her potential. The vision of a society free from the oppression of the Tsars managed to capture the imagination of a large section of the Russian public, which motivated hundreds of thousands of them to work towards the aim of the USSR's rise to superpower status.

We also see that the Messenger صلى الله عليه وسلم after establishing Islam in Medina developed an economic plan that would cater for the needs of the people alongside its defence. He began work straight away in securing its borders, signing treaties with neighbouring tribes, securing friendly status and securing trade routes. He also conducted expeditions to ward off plans by the Quraish. At the death of the Messenger صلى الله عليه وسلم in 632 the whole of the Arabian Peninsula was under Islamic authority. Within a hundred years the Persian Empire had fallen.

This shows us for any nation to prosper it needs a consistent manner of dealing with all the problems its people face such as economic development, wealth creation and distribution, social harmony, criminal justice etc. For the nation to consistently answer such problems the people need to believe the basis of the nation otherwise they will never work for its aims. The basis also needs to be able to provide solutions to the nations problems otherwise doubts would exist on its suitability as a vision. Hence we see many of the Sahabah (ra) sacrificed much wealth in the aims of the Islamic state, a similar situation occurred when the sons of America worked for aims of the founding fathers.

Why has the Muslim world failed to Develop?

The Muslim world has bewildered many experts who have researched the potential of the Islamic lands. Many have questioned how it is even possible that a people who are so rich and so plentiful in resources came to be so poor in reality. Many have an unfortunate tendency to compare the development of the West and conclude that the absence of liberal values will always act as an obstacle to industrial development in the Muslim world. There are a number of factors that have hindered development in the Muslim world, many of them originate from outside the Muslim world.

1. Colonialism – Much of this current situation in the Muslim lands stems from the colonial era and is summed up best by David Fromkin, Professor and expert on Economic History at the University of Chicago: *"Massive amounts of the wealth of the old Ottoman Empire were now claimed by the victors. But one must remember that the Islamic empire had tried for centuries to conquer Christian Europe and the power brokers deciding the fate of those defeated people were naturally determined that these countries should never be able to organize and threaten Western interests again. With centuries of mercantilist experience, Britain and France created small, unstable states whose rulers needed their support to stay in power. The development and trade of these states were controlled and they were meant never again to be a threat to the West. These external powers then made contracts with their puppets to buy Arab resources cheaply, making the feudal elite enormously wealthy while leaving most citizens in poverty."* Throughout the 18th century European nations competed with each other in conquering territories, enslaving the host population and stripping the conquered people of their mineral resources. In November 1917 when the Bolsheviks seized power in Russia, Lenin's communists discovered amongst the documents of the czarist foreign ministry a secret document that outlined plans to carve up the Ottoman Empire after the war (WW1) and the distribution of its constituent parts to the victorious allies. The details were worked out in February 1916 before the beginning of the war. The Sykes-Picot Agreement was a secret understanding between the governments of Britain and France defining their respective spheres of post-World War I influence and control in the Middle East. The region was carved up and given boundaries, dividing the people in the region who had lived as one nation for over 1000 years. Historian Mehran Kamrava outlined the geopolitics at the time, *"It is here that geo-political boundaries clash violently with demographic realities, constructing a number of societal problems, many of which have not been resolved to this*

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day. In some cases this was due to historical ignorance, but in others it was a deliberate choice to weaken the occupied people. France divided Lebanon and Syria against religious demographics in this very fashion to guard against anti-French resistance rallied under Sunni Muslim solidarity. The British created Transjordan from the western portion of Palestine and gave it an entirely separate government under the Hashemites. The national boundaries created during this time visibly outline those still seen today, and are the source of much conflict due to mistakes made in their drawing.”¹⁷ The effect of such colonialism has meant that although the colonial nations eventually physically departed from such lands their influence has remained and the colonised nations remain linked to the nations that enslaved them. It remains in the interests of the West even today to ensure the colonized nations do not develop and gain independence.

2. During the colonial era most of the colonial nations made use of elements from the conquered territories to deal with the day-to-day running of colonies. In the post WW2 era although many of the conquered territories were given so called independence, an architecture that was nurtured over a generation was left in place ensuring the colonised nations remain linked to their masters. To maintain superiority, control and influence over the region, the West placed corrupt leaders into positions of power and supported the overthrow of those that were not seen as favourable. This has also served to keep the host populations at bay, in return for militarisation, power and personal wealth for the elite. The struggle to control access to important resources such as oil has even led to competition between the West. The links between the British and the house of Saud are no secret, it was the British Empire that brought the Saud family into power and provided them with the arms and technical help to dismember from the Khilafah. The Saud’s close work with the British empire at the time was repaid through giving Trans-Jordan to King Abdullah and Iraq to King Faisal. Similarly the US brought Gamal Abdul Nasser to power overthrowing the pro-British King Farook, during the same period in Operation Ajax both Britain and the US collaborated in bringing the Shah to power overthrowing the democratically elected Mohammed Mossadeq. In Iraq Miles Copeland, a veteran CIA operative, through a number of his publications exposed the coups the US initiated which include bringing Saddam Hussain’s Baath party to power. In the Far East for long the US provided military assistance to the Suharto regime. Such foreign interference which continues today has meant Western agents abandoned the nation’s interest and because rulers were never independent this stifled the prospect of any industrial development that would have benefited the nation. On the few occasions where a Western inspired coup turned its back on the West it was very quickly on the receiving end of a counter coup – as the Shah of Iran found in 1979.

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Such interference continues today and continues to act as an obstacle to any development in the Muslim world. A recent case of this was the Anglo-America plans to bring Benezir Bhutto to power in 2008. In order to replace General Musharraf dozens of meetings took

place in the UK and Dubai between former US and UK ambassadors in order to agree the terms of her return. Sir Mark Lyall Grant former British ambassador to Pakistan led the negotiations and confirmed the meetings that took place between the Bhutto faction, the Musharraf faction and representatives of the US.¹⁸ Zardari confirmed the deal in September 2009.¹⁹ It is such agent rulers that have been a disaster for the Muslim world and will ensure no independent development will ever occur.

3. The IMF and World Bank through their structural adjustment polices and many other highly questionable polices in countries such as Pakistan, Turkey, Indonesia, Bangladesh and Egypt have ensured such nations never develop the necessary fundamental industry to even start an industrial revolution. Both Bretton Woods institutes prescribed policies of concentrating on exports and focusing on repaying the loans borrowed. In the nations that comprise of the Middle East and North Africa 14% of regional export earnings go to debt service. In Lebanon, debt service accounts for 47% of the government's budget. Jordan, Morocco, Tunisia and Turkey all spend more on debt service than they do on education; all spend twice as much on debt service than they do on health care. Sudan and Yemen are among the 41 countries identified as Heavily Indebted Poor Countries (HIPC). Pakistan continues reeling with external debts of over \$50 billion. The loans and development advice provided has only caused more structural problems to the economies of the Muslim world and this has severely stunted any development, the loans in reality are the obstacle to development. The Brooking institute confirmed in a report *"The United States has viewed all multilateral organisations including the World Bank, as instruments of foreign policy to be used in support of specific US aims and objectives...US views regarding how the world economy should be organised, how resources should be allocated and how investment decisions should be reached were enshrined in the Charter and the operational policies of the bank."*²⁰

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4. The Muslim rulers and many who have positions in the governments across the Muslim world have been unable to develop anything in the realm of policy. This has resulted in no consistent basis form which policies could be derived giving the nation direction. As a result many of the Muslim economies are full of contradictions and the economy as a whole fails to move in a unified direction. Examples of this include:
 - Pakistan continues to import Coal even though it has the world's largest Coal field and the world's largest Coal reserves after the US.
 - Iran is flush with huge oil reserves and Gas, but due to a refinery shortage it imports gasoline and diesel to keeps its cars and trucks rolling.

- Pakistan is the worlds 14th largest agricultural producer; however 52 million people live in poverty.
 - Saudi Arabia has been endowed with mineral wealth which is a prerequisite for industrialisation. Saudi Arabia has not only failed to develop but 20% of its population live under the poverty line.
5. The absence of any structured way of generating wealth and distributing wealth has created a situation where everyone in the Muslim world needs to fend for themselves and attempt to make the best out of a chaotic situation. This has compounded the problem further as many resort to bribery, stealing and fraud to make ends meet. This situation has allowed a minority in most of the Muslims lands to live in comfort and luxury at the expense of the rest of society. This situation means many of the elites refuse to invest in capital intensive industries and would rather place their wealth in the West and in the global financial markets.
 6. Many of the Muslim economies are not built on their strengths. Many of the African nations have been forced to concentrate on single commodities rather than build their economies upon minerals and resources they have in abundance. Nigeria and Egypt have neglected their agricultural potential in order to build a service based economy. In the Middle East the abundance of fossil fuel has not translated into the development of industry, in fact countries such as Saudi Arabia and the Gulf states are so focused towards oil this has stopped the development of other sectors which would have created millions of jobs. Pakistan and Bangladesh's strengths lay in their agricultural landscape and mineral resources however recent government have geared the economies around foreign direct investment (FDI) and telecoms. Whilst the Western world is dominated by the service sector this has been after industrialising. By not structuring the Muslim economies around their strengths such resources have been squandered and on most occasions have been at the centre of Western interests.
 7. The removal of Islam as a comprehensive system thorough the Islamic system of governance – the Khilafah in 1924 has stunted development. This is because Islam was the trajectory that drove development in the Muslim lands. After the death of the Messenger صلى الله عليه وسلم the expansion of the Islamic lands resulted in many economic, political and social problems not previously confronted by the Messenger صلى الله عليه وسلم. The expansion of the *Khilafah* into new lands brought it into contact with foreign cultures, customs, languages, traditions and political structures. These included Greek, Persian, Roman, Berber, Asian and Assyrian. This created internal challenges of distribution and production of wealth, rights of minorities, administration of an expanding ruling apparatus, judiciary, appointment of local governors and accountability. Such issues were tackled through the process of Ijtihad, leading to the development of some of the most accomplished scholars in Islamic history. Islam itself drove many developments, the need to find the Qibla for the five daily prayers led to developments in the compass. Islam acted as a comprehensive basis which continuously solved all problems Muslim encountered. It was in this scenario that many prematurely reasoned that all issues had been addressed, this

Industrial Development in the Muslim world

Any industrial policy needs to take into account the current level of industrialisation in the Muslim world. Whilst most of the Muslim world has little in the way of industrial development some nations have managed to achieve some success. What follows is an analysis of four of the Muslim world's most industrialised nations and those who have prospects for rapid industrialisation. The Gulf States and Saudi Arabia were excluded as although they are rich in mineral resources they lack the military industries and both Indonesia and Malaysia have been excluded due to their geographical challenges, full profiles of Iran, Pakistan, Turkey and Egypt can be found in the appendix.

Turkey

Turkey is the Muslim world's largest economy, it has been able to develop an advanced economy which has led to the development of a consumer industry allowing many in Turkey to live a standard of living generally not available across the Muslim world. Turkey's strength is its location, this has led to the development of ports, pipelines and oil refineries. Turkey refines much of the oil that passes through its ports. With the oil refinery shortfall across the world Turkish refineries will only grow in importance.

In the last decade Turkey's economy has shifted from being predominantly agrarian to becoming service based. Turkey's industrial base remains relatively small due to the nation's focus on services.

At the same time Turkey has developed the foundations of an industrial base and is amongst the world's largest producer of key mineral resources. However due to a lack of overall direction for the economy this has not translated into the expansion of Turkey's industrial base and the development of heavy industry. Turkey has expanded into the consumer industry and is a world leader in TV's and the production of automobiles.

Manufacturing in Turkey is dominated by textiles and clothing. Turkey has found high tariffs and trade barriers as well as subsidies in the industrialised world a big obstacle to increasing exports to the West.

Turkey's basic industry is well developed and uses the latest technology; however this should have resulted in Turkey being an industrially developed nation having a wide variety of industrial machinery and electronics coming off its production line. But its concentration on consumer items and services has stifled the possibilities of becoming an industrial power.

GDP	\$800b
Population	71m
Workforce	23m
Exports	\$121b
	Germany (11%), UK (8%), Italy (7%), France (5%) & Russia (4%)
Imports	\$204b
	Russia (13%), Germany (10%), China (7%), Italy (5%) & US (4%)
National debt	\$161b
Govt budget	
Revenue	\$164b
Expenses	\$176b

Turkey has been very successful in developing an arms industry to supply its armed forces, however its biggest challenge is its small technological base. Turkey's defence industry is relatively small, and lacks efficiency and quality in the design and production of weapons systems. It has long relied on purchases or co-operation with foreign partners. However, the industry is growing due to the continued boost by the Under Secretariat for Defence Industries through the preferential awarding of procurement contracts to foreign companies.

Turkey is the world's fourth-largest arms importer. The volume of Turkey's imports is unlikely to change in the near future despite the evolving political picture. Exports remain relatively insignificant due to the state of its defence industry – it is the world's 28th largest exporter. However, the move to boost local design and production is likely to increase exports over time as Turkey develops competitive products.

Due to this Turkey continues to rely on foreign technology and expertise as it has found it easier and cheaper to buy from abroad rather than rely on domestic suppliers. Turkish arms manufacturers' most ambitious undertaking has been a consortium with United States firms to produce the F-16 fighter aircraft. Under this arrangement, airframes for the F-16s are produced in a factory at Mürted Air Base near Ankara by TÜSAS (Türk Uçak Sanayi Sirketi) Aerospace Industries, with 51% ownership by Turkish interests, 42% by General Dynamics, and 7% by General Electric. The engine plant near Eskisehir is a joint venture with General Electric.

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Unlike the other leading Muslim nations Turkey has not pursued nuclear, chemical or biological weapons programmes. Turkey's position on weapons of mass destruction (WMD) is: "Turkey does not possess WMD and does not intend to have them in the future. Turkey adheres to all major international treaties, arrangements and regimes regarding non-proliferation of those weapons and their delivery means, and actively participates and supports all efforts pertaining to non-proliferation in the NATO."²¹ This doctrine has stifled the development of missiles, nuclear weapons and all the related industry that would have allowed Turkey to have become an independent self sufficient military power.

Conclusions

Turkey's economic strength lies in its agricultural landscape, diverse minerals and strategic location. By not focussing on such advantages Turkey has accumulated external debts of \$277 billion, primarily from the World Bank. The Turkish economy is today driven by services. Its industry is built upon textiles, which will never allow it to industrialise. Its military industry has been developed through cooperation with foreign companies, nations and organisations, this makes Turkey dependent upon foreign parts, components, technical skills which translates into Turkey

needing to participate with other nations politically in global issues rather than having an independent policy.

Turkey has utilised its strategic location straddling Europe and Asia and the oil rich black sea area and the sea lanes of the Mediterranean. It has constructed state of the art iron and steel mills and oil refineries, bringing much wealth to the economy. This makes Turkey well placed to provide the raw materials necessary for its industry. Turkish industry is not dominated by high tech equipment or heavy industry but by consumer electronics and textiles. The concentration on electronics has meant Turkey's industrial base remains relatively small and has led to foreign cooperation for the development of Turkey's military industry.

Turkey's economy has the capacity to expand as well as for its industrial base to grow, Turkey has many of the advantages that even the industrialised world lacked during their development. Turkey is well placed to become the Khilafah and would emerge on the world scene with much strength if such a course was taken. Becoming the Khilafah would also give Turkey the necessary direction which it currently lacks and as its history has shown, when Turkey is the Khilafah it became the world's leading nation. Turkish attempts at EU integration has merely replaced highly questionable World Bank policies with the EU. Joining the EU will only move Turkey further away from its strengths. Turkey needs to move into heavy industrial and military development rather than only focusing on electronics and textiles for its domestic market. Reunification with the wider Muslim world gives Turkey the necessary direction to industrialise.

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Egypt

The Egyptian economy with a population of 76 million produces less than Israel who has a population of only 7 million. Egypt has suffered from massive mismanagement for the last few decades. Its agricultural sector from international standards is very inefficient considering the Nile Delta presents a unique agricultural landscape in a region dominated by the desert.

Egypt has suffered disastrously under IMF and World Bank reforms, Egypt was forced to cut food subsidies and restructure the economy towards services and primarily tourism. The Egyptian economy and the manner it is structured is its biggest problem as it is not geared towards Egypt's natural strengths of agriculture and manufacturing.

According to the World Bank and Ministry of Economic Development 40% of the Egyptian population, some 30.8 million people, live in poverty. Egypt's economy has been ruined largely by its own self-destructive policies. Egypt's economy today is run for Mubarak and his cronies which has kept the economy in perpetual ruins, government bureaucracy is legendary for its inefficiency and schools churn out youth into a non-existent job market and a miniscule private sector.

Egypt established the basis for an industrial base under Nasser, when Egypt was the centre of the struggle between the USSR and the US, this led to much technology and heavy machinery to be transferred to Egypt. After the collapse of the USSR the US has continued to support Egypt militarily. Egypt's largest manufacturing industries are textiles and food processing. Both industries are the most protected in the world and for these reasons Egypt has been unable to generate sufficient revenue for its populace.

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The Egyptian army, air force and navy now field a wide range of the most sophisticated Western arms. Egypt continues to be a major recipient of US foreign military aid, which it uses to acquire largely US made military equipment as part of its bid to modernise its armed forces. The latest acquisition of M1-A1 Abrams tanks is example

GDP	\$186b
Population	76m
Workforce	24m
Exports	\$33b
	US (9%), Italy (9%), Spain (7%) and Syria (5%)
Imports	\$56b
	US (11%), China (9%), Italy (6%), Germany (6%) & Saudi (%)
National debt	\$159b
Govt budget	
Revenue	\$40b
Expenses	\$51b

of the ongoing importance of this relationship. Egypt boasts what is for the region extensive manufacture of military equipment, however, it still has no armaments design industry to speak of: its defence industry remains largely dependent on co-production deals, again, primarily with the US. Egypt's military expenditure is likely to remain constant providing Egypt remains in Washington's favour, and providing the US does not re-prioritise substantially its defence subsidisation within the region.

Egypt suffers from low productivity and a lack of adequate funding. Egypt's largest customer during the 1980's, Iraq, has been removed from the market place as a result of the US invasion. Egyptian military products also face increased competition with many nations now developing the same arms of higher quality. A more assertive Russia is offering highly advanced weapons at bargain prices. The Gulf Arab states, a traditional focus of Egyptian marketing efforts, have the money and interest in procuring advanced US military systems believing their military superiority will provide an effective deterrence and their purchase will provide a political insurance policy for continuing US security involvement.

Egypt is believed to possess chemical weapons, it gave up its nuclear programme after the 1967 six day war with Israel. This has resulted in some development in missiles, the pursuance of weapons of mass destruction would have created the necessary impetus for development in this area and created the necessary back up industries. Egypt has focussed on a strong army and providing arms for its troops. Whilst this may fulfil any immediate threat to the nation, such a narrow view on security has stifled the wider development which would have allowed Egypt to have been on the cutting edge of technological development.

Conclusions

For any type of industrial revolution to occur in Egypt the wider economy would need to be re-orientated from services and tourism towards the nation's strengths, which are agriculture and Egypt's location. Egypt has historically had very few policies that would have given the nation direction. The Egyptian government and parliament in reality is one man Hosni Mubarak, who has shown on more than one occasion his lack of leadership.

For Mubarak to maintain his grip on power, like the wider Muslim world such rulers rely on the support of the military. This is achieved through providing the necessary funds and equipment to arm the military. To protect itself from its own people and to achieve some development Egypt became a military base for the US in North Africa, where the US would provide it with the necessary arms and funds. Such support has also meant implementing a wide range of Western Capitalist solutions to the economy such as privatisation, the removal of food subsidies and the opening of the economy to foreign companies. This has resulted in Egypt producing much industrial output in the form of fighter jets, tanks and arms. Whilst quantitatively Egypt has the largest inventory of military equipment in Africa and the Middle East, it lacks self sufficiency and quality.

Due to its security arrangement with the US, Egypt produces through licence for the US and a number of other countries around the world. Such a method of industrial and economic development means there is little transfer of skills that would have led to a labour force that could

diversify the nation's industrial base making Egypt independent. In essence the Egyptian economy cannot cater for its people and at the same time its industrial infrastructure does not benefit its people through employment or economic growth – all of this is due fundamentally to the lack of direction of the Egyptian nation.

The Egyptian economy needs direction and the adoption of Islam as a comprehensive system of governance would allow it to reach its potential. Egypt is also well placed geographically to reunify with the Muslim world and its strategic location means Egypt can become the Khilafah and become a leading nation.

Iran

Iran has made some exceptional industrial developments but like the wider Muslim world lacks the overall direction needed for an advanced economy, for this reason certain sectors are very advanced compared to the rest of the economy. Iran's economy until recently was geared towards oil and gas production to such an extent that it was difficult for any other sector to develop. The service sector now generates the equivalent wealth for Iran as the manufacturing sector, this is areas such as education, communication and banking, they have developed significantly over the last 20 years. However Iran lacks the diversification needed for an economy that would create wealth in a variety of sectors and create employment.

Iran has a large public sector, with an estimated 60% of the economy directly controlled and centrally planned by the state. A unique feature of Iran's economy is the large size of the religious foundations, or Bonyads, whose combined budgets are said to make up as much as half that of the central government. A combination of price controls and subsidies, particularly on food and energy, have led to widespread corruption and stifled development.

The industrial sector - including mining, manufacturing and construction contributes 42% of Iran's GDP and employs 31% of the labour force. Mineral products, notably petroleum, dominate Iran's exports revenues (80%), but mining employs less than 1% of the country's labour force

Iran's basic industries remain narrowly focused towards steel, petrochemicals, and copper. This has led to some developments in other areas such as automobile manufacturing, construction material, textiles (mainly woven carpets, for which Iran has traditionally been famous), food processing and pharmaceuticals. Iran biggest problem is inefficiency with some industries still using developments made in the 1960's

GDP	\$382b
Population	70m
Workforce	28m
Exports	\$106b
	China 14.8%, Japan 14.2%, Turkey 7.3%, Italy 6.4%
Imports	\$67b
	China 14.3%, Germany 9.7%, UAE 9.2%, South Korea 5.8%
National debt	\$21b
Govt budget	
Revenue	\$104b
Expenses	\$101b

No clear policy was formulated for the industrial sector after the Islamic revolution in 1979. Subsequently, industrial output dropped by 34% in the first year alone. The manufacturing industries' poor performance still continues today with many factories still operating at only 30% of their capacity. This has led to a massive exodus of industrial owners and a resulting shortage of managerial skills. Today Iran lacks strong technical expertise, and the absence of a well-developed industrial and research infrastructure has inhibited Iran from indigenously developing and manufacturing advanced armaments.

At the same time Iran has managed to master some industrial sectors such as the automobile industry. Iran has 13 public and privately owned automakers, of which two - Iran Khodro and Saipa - account for 94% of the total domestic production. Iran Khodro, which produced the most prevalent car brand in the country - the *Paykan*, which has been replaced in 2005 by the *Samand* -, was still the largest with 61% of the market in 2001, while Saipa contributed 33% of Iran's total production in the same year. The other car manufacturers, such as the Bahman Group, Kerman Motors, Kish Khodro, Raniran, Traktorsazi, Shahab Khodro, and others together produced only 6%. These automakers produce a wide range of automobiles including motorbikes, passenger cars, vans, mini trucks, medium sized trucks, heavy duty trucks, minibuses, large size buses and other heavy automobiles used in commercial and private activities in the country. Iran ranked the world's 16th biggest automaker in 2006 and has a fleet of 7 million cars, which translates to almost one car per ten persons in the country (including trucks and buses). Iran's car exports are projected to reach \$1 billion by the end of 2009.

Iran however suffers from a massive contradiction in its energy sector which generates most of the nation's wealth. Iran produces 4.4 million barrels of oil per day (bpd) making it the world's 4th largest producer, consuming only 1.6 million, the rest is all exported. Iran produces 5.5% of the world's oil but only refines 2.1% of it. This shortfall of refined products is met by importing from the Gulf States, Singapore, India and China. Iran has amongst the world's largest oil reserves but spends over \$3.5 billion in energy imports every year.

Iran's biggest industrial challenge is its poor infrastructure which is inadequate to meet the needs of the nation and acts as an obstacle for further development. This is primarily because the national network of transportation, cities, and housing stock are still rooted in the development that occurred during the period of the shah.

Iran's armament strategy, coupled with its actual infrastructure capabilities, has created an armament situation with several contradictions. The indigenous capacity to produce lower technology weaponry has advanced, however Iran is still import-dependent for advanced technology systems and their maintenance, Iran still has a long-way to go before actually obtaining an internal capability for these systems.

Iran's air defence is also weak, its aircrafts are mainly second generation with the rest of the world constructing fourth generation jets. Iran's air defence forces are the weakest link in the overall defence posture of the country. This situation will remain until the modernisation of Iran's aircrafts occur where the numbers of such aircraft increase and the training of its pilots and depth of its repair parts inventory improve. The majority of the inventory of the replacements to its aging US

manufactured fighters and fighter-bombers is a mix of Russian and Chinese aircraft. Iran remains vulnerable to attack from the air due to the poor state of its air defences.

Iran got around this problem by building up its strategic missiles. Iran's strategic weapons development program is its top military priority; by all indications, the portion of the budget devoted to this program remains substantial despite the fact that severe financial pressures have forced major cuts elsewhere. Iran's effort will continue to be focused on building the infrastructure needed to produce nuclear weapons, the production of biological weapons and the acquisition or production of missiles and strike aircraft to deliver them.

Iran's missile inventory includes The Shahab-1 and Shahab-2 short range ballistic missiles. Variants of the Scud design, these two missiles have a range of roughly 185 miles and 435 miles respectively. The Shahab-3 medium-range ballistic missile has long been the mainstay of Iran's longer-range missile program. Rooted in Soviet Scud technology, which is based upon Nazi V-2 technology, the Shahab-3 is a single-stage liquid-fuelled missile with a range of 1000 miles.

The most significant ballistic missile in Iran's program is the Sajji-1 medium-range ballistic missile. Though it bears considerable resemblance to the Shahab-3, the Sajji-1 purportedly incorporates two stages and solid fuel — both of which are significant steps in Iran's missile program. Iran claims that it has a range of 1,200 miles and significantly improved accuracy. This missile has been successfully tested on three occasions.

Iran defence industry has the capability to supply its own armed forces, and many other armed groups, with significant amount of diverse military hardware. Iran's capability can also be seen from the type of weapons being used by Hizbullah during its conflict's with Israel. Since 1992, Iran has produced its own tanks, armoured personnel carriers, missiles, a submarine, and a fighter plane.

After the Islamic revolution, developments in military technology were carried out with the technical support of Russia, China, and North Korea; building upon the foundations established by western contractors. Iranian reliance on these countries has rapidly decreased over the last decade in most sectors as Iran sought to gain total independence; a major exception however, is the aerospace sector, where Iran is still dependent on external help. Iran has, at present, reverse engineered existing foreign hardware, adapted it to its own requirements and then mass produced the finished product.

Iran possesses the world's third largest oil reserves and the world's largest gas reserves after Russia. Iran has more than enough energy resources to power an industrialisation drive within its own domestic borders and beyond. Iran also borders the Persian Gulf which possesses the world's largest gas field — with such a magnitude of strengths Iran should be a world power. However foreign

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interference has meant Iran has been unable to develop indigenously. Under the Shah the US provided military equipment to Iran, but this has stifled indigenous development. Iran is, however strategically placed to reunify with the wider Muslim world and has more than enough energy to industrialise domestically and expand this to others.

Pakistan

Like much of the Muslim world Pakistan has a disjointed economy which is almost contradictory. Most economies are characterized by an emphasis towards a particular sector of the economy – usually using this sector as a stimulus for the remaining part of the economy, however more than half of Pakistan’s economy is service based but most of Pakistan’s 48 million labour forces are employed in the agricultural sector. This means the minority employed in the service sector contribute more to the economy than the vast bulk of the population.

The exploitation of energy resources has been slow due to conflicting priorities as a result the necessary investment has never materialised. Pakistan consumes 374 000 bpd of oil, but they produces only 70 000 bpd. The need to import oil has contributed to Pakistan's trade deficits and shortages of foreign exchange. As a result 40% of Pakistan’s populace do not even receive electricity.

GDP	\$160b
Population	172m
Workforce	50m
Exports	\$20b
	US (22%), UAE (8%), UK (6%), China (5.4%)
Imports	\$30b
	China (14%), Saudi (10%), UAE (8%), Japan (6.5%) & US(5.3%)
National debt	\$55b
Govt budget	
Revenue	\$27b
Expenses	\$35b

The manufacturing sector which would add the most value to Pakistan is dominated by low level production of Cotton textile and apparel manufacturing, these accounts for 66% of all exports.

Pakistan has a large dependence on foreign aid, external borrowing, economic aid and IMF and World Bank lending. This has led to Pakistan to accumulate \$54 billion in debt, its highest in history. Pakistan’s debt situation means it is unable to pursue an independent policy for Pakistan and lenders insist income intensive policies should be pursued at the expense of domestic development. In the fiscal year 2007-2008 Pakistan’s budget was at \$19.8 billion with expenditures of \$25 billion.

Baluchistan is the least industrialised province of Pakistan. It accounts for a mere 2.7% of the country’s industrial assets and 2% Pakistan’s output. However Baluchistan has Pakistan’s substantial mineral, oil and gas reserves which have not been exploited to their full capacity. The province has significant quantities of copper, chromite and iron, and pockets of antimony and zinc and gold.

At the same time Pakistan has only one steel and iron mill to convert its substantial natural and mineral resources. Pakistani industry aside from its textile production is heavily geared towards its

military aims. Whilst this fulfils the nations security from an economic perspective the Pakistani populace has not seen any economic benefits to wider economy.

Due to India on its border Pakistan has made rapid progress in its military industry. Pakistan has acquired and mastered the uranium enrichment process which has had the knock on effect of creating a large ballistic missiles programme. Pakistan is also using much more capable centrifuge technology which means its nuclear programme although years behind some of the worlds powers still acts as a strong deterrent.

Pakistan has an unnecessary reliance on the US, who have actually stifled the development in Pakistan's military. In return for military aid the Pakistan regime whether Musharraf or Zardari have relied on US technology.

Pakistan at the same time has successfully developed the fourth generation fighter jet JF-17 with China, it has also developed the Agosta submarines with France. It has also developed the K-8 Karakorum advance training aircraft, space technology, AWACS, Al Khalid tank and the F-22P frigates with Chinese help.

Pakistan's technological base although small can be expanded very quickly with the right policies. Pakistan has made strides into the Space industry and can use its ballistic missile technology to expand further. Pakistan's biggest challenge is to develop a military industrial complex which turns Pakistan's economy into a supply line creating jobs and wealth for all. As Pakistan has been able to develop weapons of mass destruction and this has had the knock on effect on the development of delivery systems as a result Pakistan today fields an array of missiles and is not far from developing intercontinental ballistic missiles. Pakistan advancements however have not had any wider benefits for the economy through new technology, infrastructure development and employment.

Pakistan has managed to develop the foundations of a military base; its economy suffers from a number of structural problems because it has not been constructed upon its strengths and due to rulers who have relied on short term gains rather than make the long term decision that would have developed a modern economy. Pakistan is well suited to become the Khilafah due to its military base, the aims of Islam would turn Pakistan into a strong industrial economy fit to reunify with the Muslim world and to challenge the leading states who have designs upon the Islamic lands.

These four nations have many characteristics like the wider Muslim world where they can complement each other. Egypt, Bangladesh and Pakistan can feed the whole Khilafah, Iran and the Middle East can provide the necessary energy and along with Turkey the refinery technology. Pakistan, Kazakhstan and Indonesia can provide the raw materials necessary for industry, whilst Egypt along with the wider Middle East with its rich cultural heritage has the population with the Arabic language, which is a prerequisite of understanding legislative Islam.

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The Muslim World's Raw Potential

Since the destruction of the Khilafah the Muslim rulers have always contended the Islamic lands lack the necessary minerals to develop. The Western world has always contended that as long as the Islamic world held onto Islam they would never see the progress the West has achieved. A cursory glance at the Islamic lands shows and proves that the Islamic world has more than the necessary ingredients to industrialise and develop.

The Muslim world possesses most of the world's key regions, minerals, waterways and strategic areas, reunification would give rise to immense opportunities.

The Muslim world collectively has:

- 74% of the World's oil reserves, more than the rest of the world combined
- Pumps out 42% of the world's Oil
- Has 54% of the world's Gas reserves
- Pumps 30% of the world's Gas
- Have \$1 trillion in Gold reserves
- 4.7 million standing army
- 1.5 billion of the world's population

Middle East

- Saudi Arabia possesses the Ghawar oil field, which is considered the world's largest oil field. Spread over 170 square miles this oil field amongst the many Saudi possess makes Saudi the world's largest oil producer (12.6%) as well as possessing the world's largest oil reserves – 264 billion barrels, 21% of global oil reserves.
- Iran possesses the South Pars North Dome field located in the Persian Gulf, which is the world's largest gas field, shared between Iran and Qatar. This has allowed Iran to possess the world's largest proven natural gas reserves after Russia of 948 trillion cubic feet (Tcf), 15% of the world's proven reserves. Iran's gas reserves represent the equivalent of 170 billion barrels of oil.
- After Iran, Qatar, Saudi Arabia and UAE hold the world's largest Gas reserves
- Bahrain operates the world's largest aluminium smelter with annual production of 525,000 metric tons. Aluminium smelting is the process of extracting aluminium from its oxide alumina.

- Kuwait the small city state single handily posses 10% of the worlds oil reserves.
- Saudi Arabia is the world's largest producer of Camel Milk and Iran is the world's largest producer of Pistachios and Berries.
- 40% of the world's oil passes through the Straits of Hormuz waterway that straddles between the Gulf of Oman in the southeast and the Persian Gulf in the southwest. This fact alone makes it the most important waterway in the world.
- The Shoaiba power and desalination plant is an oil-fired Combined Cycle Gas Turbine (CCGT) power and desalination complex in Saudi Arabia on the coast of Red Sea, about 75 miles south of Jeddah. It is the world's largest fossil fuel power plant, and the world's third largest integrated water and power plant.
- The Abu Dhabi investment authority is the worlds largest sovereign wealth fund (SWF), with assets of over \$875 billion.

Central Asia

- The Muruntau Gold Mine, about 400 kilometres northwest of Tashkent in the Qizilqum Desert, is the worlds largest open pit gold mine – this has made Uzbekistan the worlds 9th largest Gold producer.
- Tajikistan's state-owned Talco is one of the biggest aluminium plants in the world
- Kazakhstan is the world's largest Uranium producer after Australia and posses the world's largest uranium reserves after Australia. Kazakhstan single handily posses 20% of the worlds Uranium.
- Turkmenistan's Kara Kum desert has the world's third largest deposits of sulphur. Deposits include potassium, chloride, sodium and sulphate salt.
- Turkmenistan claims to posses 20.42 trillion cubic meters (tcm) of Gas reserves which would make them the 4th largest in the world.

Africa

- The Suez Canal is considered one of the world's most important waterways as it links Asian markets to the Mediterranean and Europe. 7.5% of global sea trade transits the canal.
- Egyptian agriculture takes place in some 6 million acres of fertile soil in the Nile Valley and Delta, It has made Egypt amongst the worlds largest agricultural producers and is the worlds largest producer of dates, second largest producer of geese meat and the worlds third largest producer of buffalo and camel meat.
- Sudan is the worlds largest producer of camel meat

- Morocco is the world's largest producer of Phosphates after the US and China, phosphate is an inorganic chemical, and a salt of phosphoric acid. Inorganic phosphates are mined to obtain phosphorus for use in agriculture and industry
- Niger is the world's 4th largest producer of Uranium and has some of the world's largest deposits.
- Guinea possesses the world's largest reserves of bauxite - it possesses 33% of the world's reserves. Bauxite is the most important aluminium ore, used for metallurgical, abrasive, cement, chemical and refractory purposes.
- Sierra Leone has the world's largest deposits of rutile, a titanium ore used as paint pigment and welding rod coatings
- Nigeria is the world's largest producer of Cassava, citrus fruit, peas, Karite nuts, melonseed, taro and yams.

South Asia

- In 2006, the US Geological Survey found Afghanistan possessed undiscovered energy resources, amounting to 36.5 trillion cubic feet of natural gas.²²
- The Ainak copper mine in Afghanistan is amongst the largest copper mines in the world.
- Afghanistan has the world's largest Opium production capabilities, opium has huge medicinal use, which if used correctly will make Afghanistan home to many medical breakthroughs. India today is the world's largest legal producer of opium. India produces over half the opium utilized by the world's pharmaceutical industries to produce codeine, morphine, narcotine, thebaine, papaverine and other medical products.²³
- The Indian Ocean carries nearly 20% of the world's trade and possesses 40% of the world's offshore oil production, making it one of the world's major sea routes.
- Punjab is Pakistan's most fertile province which has the world's largest salt range housing the world's largest deposit of pure salt.
- Baluchistan – Pakistan's largest province is home to the world's fifth largest reserves of copper and over 20 million ounces of untapped Gold reserves in the Chaghi area and the Rekodiq mine.
- Pakistan has the world's largest coal reserves after the US. The Thar coal field in Sindh is the world's largest coal field. Thar coal has the world's largest lignite deposits spread over more than 9,000 km². It comprises around 175 billion tonnes of coal which is the equivalent of 618 billion barrels of crude oil.

- Pakistan has an estimated 25.1 trillion cubic feet (tcf) of proven gas reserves. This has led to Pakistan having the highest number of compressed natural gas (CNG)-run vehicles in the world leaving Brazil and Argentina behind in the race as largest user of natural gas vehicles.
- Pakistan's irrigated land area of 182,300 km² makes it the world's 4th largest with regards agricultural land use, more than the whole of Europe combined.
- Pakistan is watered by the Indus river, one of the largest irrigation systems in the world. It also has the Tarbela Dam on the Indus River, which is the world's largest earth-filled dam.
- Pakistan is the world's largest producer of ghee (Clarified Butter), the 2nd largest producer of chickpeas, buffalo meat and milk, the 3rd largest producer of Okra vegetables, the 4th largest producer of apricot, cotton, goat's milk and mangos and the 5th largest producer of onion and sugar cane.
- Bangladesh is the world's largest producer of goat milk

Far East

- Indonesia is the world's largest coal exporter after Australia
- Indonesia is the world's 4th largest fisheries producer, the world's 4th largest producer of fresh fruit and the world's largest producer of tropical fresh fruit.
- Indonesia is the world's largest producer of cinnamon, coconuts, cloves, nutmeg, maze and cardamoms
- Indonesia is also the world's largest producer of tin, mining 114 000 tons a year.
- Qatar, Indonesia and Malaysia are the world's largest exporters of Liquefied Natural Gas (LNG)
- Brunei is fourth-largest producer of liquefied natural gas in the world. Brunei Liquefied Natural Gas (BLNG) plant, built in 1972 is the world's largest LNG plant
- Malaysia is the world's largest exporter of natural rubber and palm oil and the world's largest producer of duck meat

Eastern Europe

- Turkey is the world's largest producer of hazelnut, fig, apricot, cherry, quince and pomegranate.
- Turkey is also the world's largest producer of baron
- Kosovo has the world's fifth-largest proven reserves of lignite, a type of coal.

	Population	Military Manpower (Including Reserves)	Military Expenditure \$bn
Jordan	6,198,677	3,371,706	2.4
Syria	19,747,586	10,218,242	5.3
Yemen	23,013,376	9,932,593	3.7
Saudi	28,146,656	14,928,539	54.6
Lebanon	3,971,941	2,229,474	1.2
Kuwait	2,596,799	1,601,065	7.42
Oman	3,311,640	1,429,296	6.9
Iran	65,875,224	39,815,026	19
Morocco	34,343,220	18,233,410	6.25
Algeria	33,769,668	19,327,735	7.3
Tunisia	10,383,577	5,905,068	1.0
Sudan	40,218,456	18,961,029	2.4
Libya	6,173,579	3,293,184	2.9
Egypt	81,713,520	41,654,185	13.7
Pakistan	170 m	1.5 m	5.0
Bangladesh	162 m	137,000	0.8
Turkey	71,892,808	39,645,893	45.2
Indonesia	230 m	716,000	1.3
Malaysia	28 m	110,000	1.69

The Khilafah's Industrialisation Policy

Industrial Vision

In order for the Khilafah to industrialise it will need to focus on the following policies:

1. The Khilafah on its emergence will need to secure all its energy resources; this includes energy wells, reservoirs and existing infrastructure.
2. The Khilafah will need to take control of its raw materials and expand its mineral processing infrastructure which is critical for industry. At the same time the Khilafah will need to develop a policy of technology and skills transfer by the existing foreign companies present in the Muslim lands.
3. The Khilafah will need to restructure the Muslim world's economies by transferring them from being agriculture and Banking driven to be industrial lead.
4. The Khilafah will need to construct iron and steel mills which are necessary for heavy industry and oil refineries which is essential for energy generation
5. The Khilafah will need to expand its military industries – this will act as a deterrent and lead to the innovation of technologies.
6. The Khilafah will need to develop its domestic infrastructure such as transport, railways, water supply, national grids and telecoms, all essential for the development of the domestic economy.
7. The Khilafah will need to finance a new education programme in order to increase the literacy rates across the Muslim world and develop the necessary skills needed for industrialisation, during this period of transition those skills absent in the Muslim lands will need to be procured from abroad.

Allah سبحانه وتعالى through a number of Quranic ayah's outlined the aims of the Khilafah state. Internally Allah سبحانه وتعالى obliged the implementation of the Shari'ah rules of Islam, whilst externally dawah and the propagation of Islam is the aim. Islam obliged the Ameer to take care of the affairs of the Ummah as he would be held accountable.

The Messenger of Allah صلى الله عليه وسلم said **"Each one of you is a Shepard and will be held accountable for his flock."** [Bukhari]

Throughout numerous ayah's of the Qur'an Allah سبحانه وتعالى obliged the Ummah to propagate Islam to the wider world, take mankind from the darkness to the light while in other verses Allah سبحانه وتعالى characterised the Muslim Ummah as the best Ummah due to having such characteristics.

الرَّ كِتَابٌ أَنْزَلْنَاهُ إِلَيْكَ لِتُخْرِجَ النَّاسَ مِنَ الظُّلُمَاتِ إِلَى النُّورِ بِإِذْنِ رَبِّهِمْ إِلَى صِرَاطٍ الْعَزِيزِ
الْحَمِيدِ

"Alif. Lam. Ra. This is a book which we have revealed to you, [O Muhammad], that you might bring mankind out of darkness into the light by the permission of their Lord - to the path of the Exalted in Might, the Praiseworthy." [Ibrahim, 14:1]

The propagation of Islam is achieved through projecting an image of strength globally, so that those who have designs on the Ummah should consider the existence of its deterrent force so powerful as to render success in an attack too doubtful to be worthwhile. Also Allah سبحانه وتعالى mentioned in the *Qur'an*.

وَأَعِدُّوا لَهُمْ مَا اسْتَطَعْتُمْ مِنْ قُوَّةٍ وَمِنْ رِبَاطِ الْخَيْلِ تُرْهِبُونَ بِهِ عَدُوَّ اللَّهِ وَعَدُوَّكُمْ وَآخَرِينَ مِنْ دُونِهِمْ لَا تَعْلَمُونَهُمُ اللَّهُ يَعْلَمُهُمْ وَمَا تُنْفِقُوا مِنْ شَيْءٍ فِي سَبِيلِ اللَّهِ يُوَفَّ إِلَيْكُمْ وَأَنْتُمْ لَا تُظْلَمُونَ

"And prepare against them what force you can and horses tied at the frontier, to frighten thereby the enemy of Allah and your enemy and others besides them, whom you do not know (but) Allah knows them; and whatever thing you will spend in Allah's way, it will be paid back to you fully and you shall not be dealt with unjustly." [Al-Anfal: 60]

All of this makes it essential for the Khilafah to field an advanced military and have a strong manufacturing base which not only acts as a deterrent but generates economic activity.

History: Islamic industrial development

Islamic economic history is steeped in industrial development. The dominance of the desert and scant water resources in the Middle East drove an agricultural led industrialisation. The early industrial use of tidal power, wind power and petroleum led to the earliest large factory complexes (*tiraz*). Water came to be an important commodity due to the climatic conditions and this created the motive to make the best use of the few rivers and streams that straddled the Middle East.

Muslim engineers perfected the use of watermills and invented horizontal-wheeled and vertical-wheeled water mills. This led to the emergence of a variety of industrial mills including gristmills, hullers, paper mills, sawmills, ship mills, stamp mills, steel mills, sugar mills, tide mills, and windmills. By the 11th century, every province throughout the Islamic world had these industrial mills in operation, from al-Andalus and North Africa to the Middle East and Central Asia. Muslim engineer's perfected water turbines and made an earth shattering break through in the 12th century. Al-Jazari through his works managed to invent the crankshaft, and created rotary motion through the use of rods and cylinders. He was the first to incorporate it into a machine. The British Empire used this understanding and utilized steam and then coal to drive pistons and then eventually to generate rotary (motion) to move machines. This eventually led to the development of automobiles due primarily to the development of the combustion engine; this is where the burning of fuel in an engine acts on the pistons causing the movement of the solid parts, eventually moving the automobile.

As many lands came under the fold of the Islamic civilisation, urbanisation led to a number of developments. The Arabian Desert had scant water springs making most of the region uninhabitable; this was overcome by Muslim engineers developing canals from the Euphrates and Tigris. The swamps around Baghdad were drained, freeing the city of Malaria. Muslim engineers perfected the waterwheel and constructed elaborate underground water channels called *qanats*. This led to the development of advanced domestic water systems with sewers, public baths, drinking fountains, piped drinking water supplies and widespread private and public toilets and bathing facilities.

Such advances made it possible for many industrial tasks that were previously driven by manual labour in the ancient Islamic world to be mechanized and be driven by machines instead. This shows Islam is not at odds with science as presented by some. Historically Islam was the catalyst that drove Muslim interest in science

Industrial development has 3 common characteristics:

1. To industrialise, raw materials and minerals are necessary. It is primarily heavy industry that will convert minerals into useful materials. The need to extract and refine the right minerals from crude oil, coal and iron leads to the development of refineries and heavy industries.

2. The refineries, complexes and plants are then needed that convert raw materials into steel and cement as well as materials that will be turned into finished products. It is this stage where technology is developed and historically has been driven by the military industries.
3. Technical knowledge is then needed with regards to the processes to achieve this. For this the Western world invests billions into research and development to ensure they remain on the cutting edge of technological development.

There is a fourth issue and probably the most important that allows all of the above to occur - namely the motive. Industrialisation requires the masses to contribute extensively to the process, it needs to be funded and may require great sacrifice to kick start the process. Colonialism and superiority is what drove the British Empire to industrialise, whilst civil war and independence led to US industrialisation, whilst the aims of communism allowed the Soviet Union to become a super power.

The Muslim world attempted socialism in the 1950's, aside from a few large projects, the Islamic world has remained where it was prior to the experiment. The export led strategies of South East Asia were attempted in Indonesia, the Sub Continent and many of the African nations and further indebted these nations causing much misery and poverty. Today the Muslim economies are largely commodity and service based without hardly any established industry. We see that whilst the Western Capitalist world has predominantly service based economies; this was achieved after the establishment of an industrial base.

The Muslim world today does not lack the mineral resources necessary to industrialise, in fact the Muslim world has been blessed with large reserves of some of the world's most important minerals. The Muslim world today possesses 74% of the world's oil reserves, more than the rest of the world combined, it pumps out 42% of the world's oil, has 54% of the world's natural gas reserves, pumps 30% of the world's gas and possesses the world's largest oil and gas fields.

The Muslim lands in no way lack the raw materials necessary to industrialise. Across the Muslim world there has been some industrial development however the lack of direction for the Muslim economies has resulted in very little in the way of industrial development relative to the raw materials.

Today the path to industrialise is not monopolised by the West, in the last 100 years a number of nations have been able to industrialise very rapidly due to the blueprint to industrialise being available for all. It took Britain nearly 100 years to industrialise, it took Germany and the US nearly 60 years to industrialise. It took Japan nearly 50 years, whilst today China has managed to industrialise in less than 30 years, India is still industrialising.

The Muslim world today does not lack the mineral resources necessary to industrialise, in fact the Muslim world has been blessed with large reserves of some of the world's most important minerals. The Muslim world today possesses 74% of the world's oil reserves, more than the rest of the world combined, it pumps out 42% of the world's oil, has 54% of the world's natural gas reserves, pumps 30% of the world's gas and possesses the world's largest oil and gas field.

The Islamic world can very easily catch up with the technological developments of the developed world by making better use of the resources present in the Islamic lands. All so called obstacles can actually be overcome through a policy of reunification. Unity amongst the Ummah globally is something Islam has obliged through many verses of the Qur'an.

Mineral Processing

For any nation to industrialise, it needs significant reserves of basic minerals that will be used for construction and infrastructure development. The beginning point for any development is the harnessing of raw minerals into useful material. At the same time reserves of energy resources are necessary such as coal, uranium, oil or gas to cope with the demands of heavy industry. Whilst developed nations such as Germany and Japan lacked the energy resources for development this was overcome by territorial expansion, the future Khilafah faces no such problems.

The Muslim world needs to take control of its own minerals and the industries that extract, process and refine them, so as to eliminate reliance on foreign nations. This would be a key objective for industry as raw materials are essential for many industries to function. The Muslim world has no shortage of mineral and energy resources Pakistan has considerable natural resources such as gas, whilst Iran and the Middle East are rich in oil reserves. As the state grows, by integrating other Muslim countries it will encompass many other countries, which have similar and additional resources. It makes sense to develop internal industries that are capable of extracting and processing these resources so as not to be reliant on foreign expertise.

Most of these resources are currently processed through foreign companies or in joint ventures with foreign companies. There are only a handful of companies in the Muslim world that extract and refine raw materials. Foreign companies in much of the Muslim world are given a share in the resource they extract, and no efforts are made to transfer the skills and technology so the Muslim world becomes self sufficient in this activity. There are many state owned petroleum companies across the Muslim world with the necessary expertise in extracting, refining and the sale of minerals, such companies should be at the centre of the Khilafah's attempt to become self sufficient in mineral extraction and refining.

In order to become self-sufficient in mineral processing a number of steps need to be undertaken. Through the integration of the various Muslim nations the lack of resources in one region can be fulfilled by another region that has significant reserves. All resources which the Khilafah does not have in its lands should be imported from countries that do not have any designs on the Islamic lands. This is a policy currently being pursued by China. However most of the Muslim lands are full of mineral resources only some acute minerals may need to be imported.

The state will also need to develop a policy for foreign companies that are present in the Muslim lands. What needs to be understood in regards to them is where exactly the problem lies with them in terms of being in the Muslim world. Their existence has been a problem as they are given a complete free hand in mining the resources and on many occasions given a share in the resource as payment. Also many of the Muslim rulers ensure they personally benefit financially which acts as a

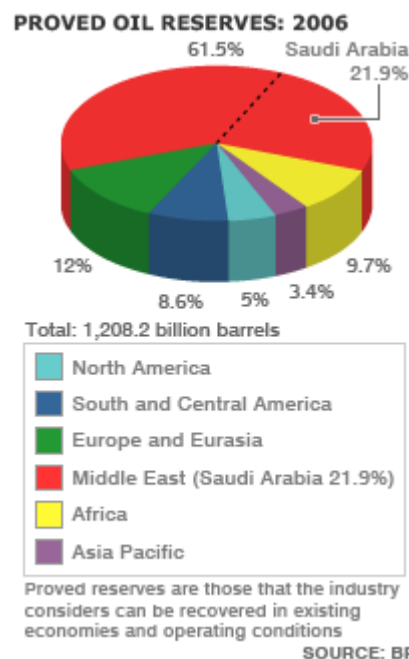
barrier for the nation actually benefiting from the resource. The biggest problem is the fact that such companies do not transfer skills or technology to the country they work in. Such companies should be made to sign agreements in order to transfer technologies to the Khilafah.

Energy

Power generation is critical in any industrialisation programme. Whilst most of the Muslim lands have ample sources for power generation, the electricity infrastructure is underdeveloped and outdated. The Muslim world is characterised with centralised power grids where there is a huge dependency on power production through larger but fewer power-plants.

Despite current supply shortages of oil around the world, the importance of the Middle East, will not reduce. In fact it will become the most crucial area in the world. This is because 61% of the world's oil reserves are in the Middle East. "Proved" oil reserves are those quantities of oil that geological information indicates can be with reasonable certainty recovered in the future from known reservoirs. Of the trillion barrels currently estimated only 39% are outside the Middle East. Today, 61% of global oil reserves are in the hands of Middle Eastern regimes: Saudi Arabia (22%), Iraq (11%), Iran (8%), UAE (9%), Kuwait (9%), and Libya (2%).

Currently of the 11 million barrels per day (bpd) the US imports 3 million barrels per day are from the Middle East. But in the years to come dependence on the Middle East is projected to increase by leaps and bounds. This is because the reserves outside of the Middle East are being depleted at a much faster rate than those in the region. The overall reserves-to-production ratio - an indicator of how long proven reserves would last at current production rates - outside of the Middle East is about 15 years comparing to roughly 80 years in the Middle East. It is for this reason that George Bush said in April 2007, US dependence on overseas oil is a "foreign tax on the American people."



This is one of the most volatile regions in the world; and its importance will only grow stronger. The US is currently very worried about political developments in this region. A return of the Khilafah as predicted by several think tanks can potentially cripple America's economy, at a time where its political leverage is at its weakest since the end of the cold war.

In order to meet future electricity needs the Islamic lands should consider a decentralised energy infrastructure, as this would be the quickest route to solve the electricity problem in the Muslim world. A decentralised infrastructure is where local power generation is the priority, through numerous

In order to meet future electricity needs the Islamic lands should consider a decentralised energy infrastructure, as this would be an ideal method of construction. A decentralised infrastructure is where local power generation is the priority, through numerous small scale power-plants, as opposed to a centralised grid where a nation is dependent on power production through larger but fewer power-plants.

small scale power-plants, as opposed to a centralised grid where a nation is dependent on power production through larger but fewer power-plants. The long term political unity with the Muslim world means expanding grid networks will be more difficult, expensive and inefficient if expanded from power stations positioned at long distances from demand. Local power generation through a decentralised grid re-enforces regional and local grids – facilitating continuation of power in one region if another was to lose power. The Middle East is generally characterised with populations centring in a handful of cities, whilst in the subcontinent the populations are distributed with a larger percentage residents in rural areas rather than urban areas. A decentralised energy infrastructure will help prevent the formation of ‘mega-cities’ and large urban conurbations seen throughout the Muslim world. Local grids will be a key element in providing power for existing areas that do not have power and without the need for power to be sent over long distances, the larger power-plants can be used to ensure a secure supply for the heavy industrial complexes and sensitive installations.

Manufacturing

The Islamic world needs to transfer from primarily service based economies and single commodity economies to manufacturing based economies. This process is termed industrialisation, this will make the Islamic lands self sufficient and stimulate the wider economy. The development of the manufacturing sector has historically been through the expansion of military industries, this act as a deterrent and leads to innovation of technologies.

A cursory glance across the Muslim world shows that the current Muslim nations fall into two camps, there are those nations which already have the characteristics of an industrial base, which are the minority of nations and then there is the majority of the Muslim world that lack much industry. This can be overcome through expanding manufacturing with the nations that have some industrial base and then linking the nations that do not have any industry with specific types of industry to the nations which have an industrial advantage.

What is currently lacking in the Muslim world is any direction or planning in the economic sphere, For example creating industry will have a profound affect on Pakistan’s economy by giving it a huge stimulus. Industrialists refuse to start any large scale projects due to the threat of nationalisation and seizing of property and because the economy lacks any stimulation and investment, it has become dependent on textiles.

The creation of heavy industry and its supportive industries will bring with it a massive injection of investment from the state and from industrialists. The State will oversee the creation and conversion of many factories which brings opportunities not heralded before. This will be coupled with private investment from entrepreneurs keen to capitalize on the returns that will be generated. This policy will create jobs for those previously unemployed. Some training may need financing, this skills shortage could be solved by expatriate Pakistani’s and experts from across the Muslim world. The Muslim world is not short of a skilled workforce.

The creation of jobs will naturally increase consumption as people will possess greater amounts of income. This in turn will increase demand for goods from the general masses. Such an increase in

aggregate demand will push the development of other sectors of the economy such as the manufactured goods sector, the consumer goods sector and also demand for luxuries. This demand will push people to supply these goods further creating more jobs and more wealth in the economy.

Military Industries

As the Khilafah will be built upon Islam its essential the strength of Islam is projected globally, so those who have designs on Khilafah consider the existence of its deterrent force so powerful as to render success in an attack too doubtful to be worthwhile

A defence industry is critical for ones global standing as it deters any foreign aggressor who may have designs on a nation. For this reason all of the world's powers have developed defence industries in order to achieve such an aim. A nations defence capabilities also gives them global projection, as the US doctrine which is based around full spectrum domination. As the Khilafah will be built upon Islam its essential the strength of Islam is projected globally, so those who have designs on Khilafah consider the existence of its deterrent force so powerful as to render success in an attack too doubtful to be worthwhile

The military industry is also important because it is the heart of technological innovation. Common items such as the internet, plasma TV, Radio, personal computers and aeroplanes were all developed in military industries. As the Khilafah will represent Islam it will need to project its strength through technological progress.

Expanding a defence industry also creates jobs and wealth. This is because the defence industry will all be broken down into a supply chain that will turn most of the Khilafah into an assembly line for a manufacturing complex. This will bring jobs, contracts and money into every area of the Khilafah and at the same time contribute to the overall aim of projecting an image of strength and deterrence.

Military technology is always generally ahead of other industries because military technology is at the higher end of the technology ladder. Such technologies filter down to those industries considered the lower end of the technology ladder such as consumer industries which produce items such as fridges, air conditioners, automobiles and goods. This means a military industry can always be converted to meet consumer needs, whilst in times of war it can be quickly mobilised to meet the needs of war. The US was able to in a matter of months mobilise for WW2 due to this.

The development of the Khilafah's military industries would require the development of heavy industry such as steel and iron, coal etc as well as arms manufacturing and weapons systems. The main features of such a policy should centre on the following:

- In order to industrialise a forum specifically geared to gaining the support and cooperation of the industrialists should be set up. The main aim of this initiative is to provide incentives, both economic and political, for the industrialists to develop particular types of factories and businesses geared around heavy industry and the needs of an industrial economy.

This was the same policy the Japanese used after US occupation ended in 1952, Japan brought together its best businessmen and entrepreneurs in order to counter the threat of communism which by then had reached North Korea. As a result Japanese leaders lifted the restrictions on share-ownership allowing the formation of the large conglomerates that had dominated the Japanese economy ever since. These groups, known as keiretsu, were often direct descendents from the pre-war zaibatsu, as is the case with three of the 'Big Six' – Mitsui, Mitsubishi and Sumitomo. Key industrialists worked for the aims of the state as they could see the wealth that could be made. The US military began buying supplies from Japan, creating enormous demand for Japanese goods. The process of industrialization itself accelerated growth, many workers moved from low-productivity farming and textile production into modern industries. Hence in conjunction with entrepreneurs the production of higher-demand, higher-value goods, such as machinery, gradually replaced lower-demand items, such as textiles. By 1970 much of Japan's industrial output consisted of products that had not even existed in the Japanese market 20 years earlier, such as colour televisions, petrochemicals, and air conditioners.

- **The Khilafah will need to begin a Space programme** - Space research and exploration is an essential instrument for the defence of life on Earth in the modern age. Being the measure for technological progress, the key to existing in a modern society, essential for developing an economy based on knowledge and the central attraction for scientific and qualified human resources. The US has long made it clear that it wishes to expand its military capabilities and have weapons in space and therefore also be dominant in this fourth military arena. This new "ultimate high ground" would provide further superior military capabilities. The US competed with the Soviet Union for nearly 50 years for superiority in space and it has stifled the transfer of space technology to its allies. When China used a ballistic missile to destroy one of its aging weather satellites 500 miles above the earth in January 2007, this sent shockwaves across the world as China achieved this feat all on its own. The first paragraph of the US's new national space policy clearly states *'In this new century, those who effectively utilize space will enjoy added prosperity and security and will hold a substantial advantage over those who do not.'* Pakistan and Iran have the most advanced space programmes amongst the Muslim world; however these are currently restricted to satellites for communication purposes and for their missile programmes. Nigeria, Egypt, Indonesia, Turkey, Algeria, Malaysia, Tunisia, Bangladesh and many of the former Soviet Republics all have basic space agencies conducting the early stages of atmosphere research and possible satellite launches. Developing a coherent space policy will have the effect of placing the Khilafah at the cutting edge of technological innovation as space technology is very advanced relative to other technologies. With it the Khilafah can bring together from amongst its people the best engineers, technicians, physicists and strategists. Practically this means both Pakistan and Iran would take a lead in the development of more powerful rockets. It took the US and China 50 years to reach the threshold they are at today; this technology should be pursued to close the gap between the Muslim lands and the worlds powers.
- **The Khilafah should aim to develop military satellites** - This will aid the Khilafah in areas ranging from reconnaissance to guided weapons systems. Satellites are widely used to

- **The Khilafah needs to expand defence production** - Currently Pakistan is the only country that has anything close to the foundations of a military industry, It has three defence producing facilities which have allowed it to develop the foundations of a defence industry the remainder of the Muslim world has achieved some development in individual areas. The Khilafah will need to build upon this by expanding and building upon such foundations. The Khilafah will need to expand production by building further facilities and move into the area of sophisticated and high tech military equipment. The equipment and technology that is needed for the defence of the Muslim lands should be given priority over other items. The creation of Research Institutes as well as further production facilities will need to be built which could be undertaken as joint ventures with overseas partners if need be. Countries such as China, Germany and France are examples of past cooperation with some of the more developed Muslim countries. Defence production when broken down are numerous heavy production facilities that will turn much of the Khilafah into a production line creating millions of jobs and stimulating the wider economy.
- **The Khilafah needs to develop a plan for the development of high tech weapons systems** - Pakistan and China are already actively involved in the joint ventures of several projects to enhance each others' military needs, including JF-17 Thunder fighter aircraft, K-8 Karakorum advance training aircraft, space technology, AWACS, Al Khalid tank and missiles as well as F-22P frigates and Chinese-made J-10 fighters. Iran at the same time due to its location has extensive relations with Russia which has allowed it to procure sophisticated technology. Through unifying the current High tech weapons across the Islamic lands, this will at the same time have huge impact on the wider economy; this is due to the development of components and technology which can then be used in consumer industries. High tech weapons also represent a huge export market which currently is worth \$1.3 trillion.
- **The Khilafah will need to intervene in key sectors of the economy** – This is to ensure key such sectors are given the initial stimulus to develop and to see the projects to their end. The

development of an energy sector, military industries, refineries, complexes and infrastructure require large investments and operational oversight to ensure such sectors mature and can contribute to the aims Islam has laid down for the Khilafah. Free market solutions to economic development have proven to be a failure and both China and Russia have shown that central government intervention ensures economic and industrial development. Russia's resurgence, China's rapid emergence, Germany's two attempts at shifting the global balance of power, US economic development on the American mainland and British industrialisation – all would have not have been possible without massive government intervention across the economy.

Political vision

The fundamental reason the Muslim world today remains unindustrialised is due to the lack of political vision. The Muslim rulers have resigned themselves to becoming markets for the West through becoming raw material and energy providers or sweat shops. The concepts of free trade and free markets have always been a ploy by the industrialised world to stall industrialisation in other countries and turn them into a factory for western consumption. When some political will has been present development has occurred in the Muslim world, Egypt developed a nuclear program in the 1950's however it gave up its programme after the 1967 defeat to Israel. Pakistan after sanctions and embargoes and international pressure still pursued a nuclear programme.

For a newly emergent Khilafah a key policy would be to unite its people upon its political vision. Once this is achieved people will inevitably work to achieve the aims of the plan, this will then be presented to the remaining Muslim lands and once they can perceive its direction they will move to enact it. One of the biggest problems in the Muslim lands is the lack of any direction that could improve living standards. The Khilafah will need to find its most skilled people and get them to enact this vision which will give confidence to the masses. The means to enact this vision in reality means developing the military capability to defend itself and repel any invaders and potential threats. This thinking will inevitably lead to the development of technology that does not exist in the Muslim world, in order to bring the military on par with the modern global standard. To do this one must industrialise. To industrialise you need to have the technical expertise and raw materials which is where a strategy needs to be developed.

An example of this is what happened to the USSR; whilst the Socialism proved to be incorrect it nevertheless gave its people direction to make gains. The Communists implemented a 5 year plan beginning in 1928, in order to build a heavy industrial base without waiting years for capital accumulation through the expansion of a consumer industry and without reliance on external financing. The Five-Year Plan was a list of economic goals that was designed to strengthen the USSR's economy between 1928 and 1932, making the nation both militarily and industrially self-sufficient. The 5 year plan was to harness all economic activity to the systematic development of heavy industry, thereby transforming the Soviet Union from a primitive agrarian country into a leading industrial and military power. Carrying the plan out, the Stalin government poured resources into the production of coal, iron, steel, railway equipment, and machine tools. Whole new cities, such as Magnitogorsk in the Urals, were built with enthusiastic participation of young

workers and intellectuals. This ambitious plan fostered a sense of mission and helped mobilize support for the regime.

All this shows before any discussion on resources and how they will be converted into useful material, the political will is needed which will then give a nation direction. There is only one common denominator between the Muslim world and that is Islam.

The Khilafah will need to identify machinery and equipment that is required and source this from friendly countries. Through reunification the Muslim world can utilise each others resources. Pakistan currently has light and heavy manufacturing infrastructure. This includes machinery for sugar and cement plants, boilers, road rollers, harvesting machinery, ginning machinery etc. The Heavy Mechanical Complex has the facilities to produce light, medium and heavy iron and steel castings. These industries amongst others can be utilized to develop the supply industry for necessary machinery and equipment required for the raw materials industry, as well as other industries.

Pursuing a policy of industrialisation will have a huge stimulus on the economy. What is currently lacking in the Muslim world is any direction or planning in the economic sphere. The majority of the economies are lacking any stimulation and investments and are too dependent on oil and gas exports.

The creation of an advanced defence industry will bring with it a massive injection of investment. This will be coupled with private investment from entrepreneurs keen to capitalize on the returns that will be generated. The first tangible effect that must be understood is that such a policy will create jobs for those previously unemployed. The state may have to finance some training, but the Muslim world is not short of a skilled workforce.

The creation of jobs will naturally increase consumption as people will possess greater amounts of disposable income. This in turn will increase demand for goods from the general masses. Such an increase in aggregate demand will push the development of other sectors of the economy such as the manufactured goods sector, the consumer goods sector and also demand for some luxuries. This demand will push people to supply these goods further creating more jobs and more wealth in the economy.

Challenges

Achieving industrialisation is no small task, the Muslim world lags decades behind the world's powers in terms of scientific and technological development. In many key areas the Muslim world are light years behind the rest of the world. Pakistan managed to enrich uranium to weapons grade level in the late 1990's, the Western world began the development of nuclear weapons in the 1940's and by the 1960's all the world's key players mastered the enrichment process. The Muslim world has no weapons systems to talk about and much of the individual development that has been achieved has been in joint ventures and in collaboration with the West.

What has been presented is a set of general policies the Khilafah could pursue. There are however a number challenges the current Muslim nations face which the Khilafah will inherit. At the same time there are a number of policies that have become entrenched in the Muslim world which will require the Khilafah great effort to undo the damage that has been caused. There are also a number of areas that require re-evaluation and a strategy needs to be developed to overcome such challenges, these include:

- **Currently much of the Islamic world has an unnecessary reliance on the US for its security needs.** Saudi Arabia is dependent on US military assistance for its security needs The United States Military Training Mission (USMTM) to Saudi Arabia is a Security Assistance Organization (SAO) which manages and is primarily funded by Foreign Military Sales (FMS) between the United States Government and the Kingdom of Saudi Arabia. The country's oil exports go through the shipping lanes of the Persian Gulf and are also protected by the US Fifth Fleet. Egypt has been the largest recipient of US military aid after Israel. General Anthony Zinni the former Commandant of the US Central Command (CENTCOM) once said, *“Egypt is the most important country in my area of responsibility because of the access it gives me to the region.”* US relations with the Gulf States which include Kuwait, Bahrain the UAE and Qatar rest on oil and security concerns. To facilitate this relationship of dependency the US has exploited the nuclear conflict with Iran and this has enabled America to retain bases and its destroyer ships active in the region with the aim of protecting the Gulf States from the alleged threat of Iran.

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US announcements of providing nuclear technology to the Middle East is another attempt at bringing the region under its security umbrella and in effect containing any possibility of an independent nuclear programme ever taking shape in the region. Strategic Forecasting the private intelligence agency outlined such a policy: *The greater the role the United States takes in building up and sustaining an ally's military force, as well as the more prominent and overt the US military's role in defensive scenarios and war plans, the greater the American influence will be in its allies' individual and collective defence. That influence can translate into significant US input in the structure, posture and disposition within an alliance. This can include orienting regional militaries to less critical, but manpower- or resource-intensive mission areas, while allowing Washington to focus on maintaining capabilities it considers more suited to its own interests and capabilities. This also ensures that Washington maintains control over strategic or decisive capabilities.*²⁴

The US in reality needs the Muslim world in order to secure its own strategic interests and ensure no-one else shares in the sea lanes and the mineral resources present in much of the Islamic lands. The US has stifled industrial and defence development through the provision of US aid. Pakistan has been offered billions in aid for supporting US aims. However it is

the US that needs Pakistan and is dependent on its cooperation. Pakistan acts as a supply line for the US in Afghanistan as 75% of all supplies for the US forces in Afghanistan flow through or over Pakistan, including 40% of all fuel. Apart from the Afghan war, regional tensions involving the US with Iran, Russia and Central Asia are likely to accentuate in the near term, which in turn will only increase US dependence on Pakistan.

By placing the security needs of the Muslim world in the hands of the US by the Muslim rulers the US has been able to curtail the independence of the Muslim world and make it dependent upon its provision of weapons. The Khilafah as a matter of policy has to remove the US from the Muslim lands and bring to an end all the foreign controlled military bases present in the Islamic lands. The US has been forced to leave a number of nations in central Asia and will need to be expelled from the Muslim lands.

- **The Khilafah needs to move away from the US area of influence.** There are a number of practical and political ramifications for this. The US plan for the Middle East rests on creating problems which require US mediation in solving them; this allows the US to justify its presence in the region and secures the regions black gold at the same time. The US plan for the sub-continent centres on developing a strong India to act as a counter weight to China leaving Pakistan trailing. For these reasons India has been showered with military technology, nuclear technology, aid, trade deals and possible United Nations Security Council status. Pakistan needs to move away from the US area of influence and stop being used as a lackey. This is achievable as many nations in the region are resentful of America's colonialist hegemony. Within the region, Russia and China are opposed to America's military presence in Afghanistan and have repeatedly voiced concerns. The US itself is bleeding from two wars and drowning in a sea of debt.

The only way around such a reality is for the Khilafah to develop its own foreign policy for the world; such a policy will entail independence from the US. The Khilafah will then need to frustrate US plans in the Islamic lands. In both Iraq and Afghanistan US plans have been frustrated by a number of powers including Iran. Such a policy ensures the US does not increase its grip of the Muslim world, giving the Khilafah enough time to develop and then challenge US supremacy around the world.

- **Education** – The Muslim world is near the top of the list when it comes to illiteracy, the lack of investment in education has led to a situation where many of the technical skills needed for industrialisation are either imported from abroad or citizens bring such skills back from abroad, in this way the education system in the Muslim world will never develop. The education systems of the Muslim world are not even fully equipped to produce graduates with the skills and expertise necessary to compete in a world where knowledge is essential to making progress. For this reason unemployment remains high and many enter the civil service in the hope of making ends meet. Research and development is generally undertaken by foreign companies and very little of the skills gained are transferred to the Muslim world. The World Bank in its 2008 development report into education in the Muslim world concluded that the current architecture for education in the Muslim world is just not fit for the needs of the 21st century.²⁵

There are no short-cut to solving this problem, because the basis of what is needed to establish an education programme has never been undertaken in the Muslim world. The Khilafah will need to develop a curriculum which can be the blueprint for all education institutes in the Islamic lands. It should be remembered that Britain the birth place of the industrial revolution by 1800 did not have a formal education process, schoolmasters were expected or required to be in holy orders, prior to the 19th century, there were very few schools. Most of those that existed were run by the church, for the church, stressing religious education. It was the needs of industrialisation that forced the education system to fulfill the needs of the industrial revolution - a literate labour force.

- **International debts** – Many of the Muslim countries owe debts to international institutes which continue to consume the bulk of government expenditure. Whilst the Muslim world is full of mineral resources many leaders squandered such natural wealth and took loans to fund their own regimes. Their lack of policies for development has meant future generations are due to repay such loans, this reality on its own has meant the West has a say and influence over economic policy in the Muslim world. The important issue to understand is such wealth went into the personal accounts of the rulers in the Muslim world and the Muslim Ummah saw nothing in terms of infrastructure development or economic development. The Khilafah will inherit such debts and has a number of options open to them with regards the debts. As such debts are used as a political tool to handcuff the Third world. The Khilafah should also view the issue politically and not merely from an economic perspective and organise a whole economy to pay back such debts.

The Muslim world in reality never needed such loans. The Muslim lands are full of natural resources which would have generated billions for the government. By being bankrupt with any vision for their states the corrupt rulers continued to take loan after loan as they had no other sources of revenue to carry out the very basic of government functions.

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As the Khilafah is a Sovereign state it will independently decide on how such debts will be repaid (if they are at all). All IMF and World Bank as well as foreign free market influence will be deconstructed and removed. No foreign institutes are allowed to organise the Khilafah's economy or define for it the means to repay it. If repayment is taken as the policy the original sums will only be repaid, without the interest and the corrupt rulers who took out the loans will contribute to such repayments. Pakistan's coals reserves which are the equivalent of over 600 billion barrels of oil could pay of its debt 12 times over. Indonesia is amongst the world's largest exporter of coal, fresh fruit, tin and liquefied natural gas, the export earnings on their own could pay of their debts. Turkey's agricultural revenue from its agrarian exports is more than ample to pay of their debts. Such minerals when sold on the

international markets would have brought in more than enough currency to repay the debt. It is in reality the bankruptcy of the Muslim rulers that has handcuffed future generations.

- **Reunification** – Islam obliges a unified Khilafah state, the current 53 Muslim states constructed less than 100 years ago are no more than artificial borders created by the departing colonialists. Whilst on the surface this may appear to be an impossible task in reality the Muslim world is ripe for such change. The European Union project proves unification between a number of states is not a relic of the past in fact European nations managed to achieve monetary union within 50 years. In the Muslim world the concept of Ummah still remains within the Muslim masses and the traitor rulers will find the call to reunify will be much stronger than the nations call to remain independent. The Islamic economic system when implemented across the existing borders will bring much needed prosperity. The Islamic model of economic development creates a stable economy and economic growth as Islamic economic development is built upon the real economy through the production of goods and services. By removing the role of dubious financial asset markets in the economy, there remains the real economy where trade, investment, salaries and wealth is generated and circulated. This creates the much needed stability absent in free market economies as speculation has been effectively removed. The larger the union the more prosperous the Islamic lands will be.

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Conclusions

Many challenges lay ahead in order for the Muslim world to develop and progress, at the same times there are many obstacles that stand in the way. Whilst many from the East and the West continue to study and research why the Muslim world has not developed their conclusions continue to fall into the category of adopting Western secularism as the starting point, such a narrative itself is another obstacle, an intellectual obstacle standing in the way of development. There are a number of fundamental issues that need to be overcome in order for the Muslim world to develop:

- Industrialisation is no small task, it requires the collective efforts of all of society through innovation, government support and policy. The current manufacturing industries of the Muslim world lag decades behind the developed world, many lack the necessary infrastructure and have economies geared around services. This makes all attempts at industrialising very challenging.
- At the same time the Muslim world has two advantages that even many of the industrialised world on the eve of their development lacked. The Muslim world possesses all the necessary resources to kick start an industrial revolution. The Muslim world possesses the necessary energy resources and the minerals necessary for heavy industry. At the same time the Ummah numbers 1.5 billion personnel with over 50% of this under the age of 25.
- Both Germany and Japan lacked the necessary mineral resources for their development and they overcame this through territorial expansion. Britain lacked the population for industrialisation and this was overcome through colonising foreign territories and enslaving the indigenous population to work on the fields, mines and plantations of the British Empire. The Muslim world has no such problems as its population and resources are its strengths.
- The argument that the Muslim world is weak and cannot develop is propagated by the West and their agent rulers in the Muslim world who have long abandoned their own people for power and prestige. Their lack of political will has ensured the resources present in the Muslim lands are squandered leaving millions reeling in poverty.
- Islam took the desert Arabs from the deserts of the Middle East to the far reaches of the planet. It was Islam that drove developments in science, physics, industry and economics. This made the Muslims a potent force and resulted in Islam removing all of the obstacles that stood in its way when traders, travellers, scholars and experts carried Islam across the world. All this shows that before any discussion on resources and how they will be converted into useful material can take place, the will is needed which will then give direction to a people and this all comes from a vision. Islam offers such a vision to Muslims globally as it makes the Islamic belief the central pillar for the people and makes dawah to the world its mission. It also at the same time provides solutions to the issues society will face. Hence only the full implementation of Islam offers the Muslim world any salvation.

- Many of the challenges the Muslim world face can be overcome through reunification of the 53 Muslim lands.
- US attempts at curtailing and containing the Muslim world can only be overcome through one assured strategy that will almost certainly ward off the US and at the same time turn the Muslim world into a global power. Islam obliges only one state for the whole Ummah and this means reunification with the Muslim world is compulsory. With most of the Muslim world living under dictators in severe poverty unification is not a difficult task to achieve, however it does face challenges. Aside from Western agents who will want to hold onto their positions the challenge to a large extent will be the ability of the Khilafah to quickly expand and join the nations together through linking their governance, judiciary, administration and economies. The Soviet Union achieved such a feat in the past by building the Communist camp, The Khilafah will possess a very powerful motivation which will easily make different nations become part of the union and that is Islam itself. Through industrialisation the Khilafah will have the ability to develop the different economies so the daily life of the Ummah improves.

Industrialisation requires the mobilisation of the Ummah and the consolidation of the Ummah's mineral resources. This is only possible with a state and this is why Islam made it obligatory for the Ummah to have one leader – the Khaleefah. The Messenger ﷺ was the first leader of the Ummah, he clearly showed the method of appointing a leader, his duties, his obligations and what is required from the Ummah towards their leaders. When he ﷺ passed away the Sahabah took over the leadership of the Ummah, implemented Islam, consolidated the conquests and ensured the Khilafah's wealth was distributed across the Islamic lands.

Thereafter the Umayyad's with ambition and skill took Islam to Europe and the Far East. The Abbasids after them made the Khilafah the centre of the world, thinkers from all backgrounds were welcomed to the Islamic lands to taste Islam and its achievements.

When the Political will was present the Ummah overcome all challenges and obstacles and excelled in science and technology. Islam through the Khilafah was the trajectory that drove an agricultural revolution and many industrial developments in the Muslim lands. Only a return to Islam and the reestablishment of the Khilafah, that utilises the Ummah's resources, can effective industrialisation take place. Once achieved the Ummah will then fulfil her destiny of carrying Islam to the world and raising the banner of the deen globally.

Appendix: Country Profiles

Turkey

Turkey is the Muslims worlds' largest economy and the world's 16th largest economy. It has grown into an \$800 billion economy and seen spectacular growth after an economic crisis in 2001 brought the economy to its knees. Today Turkey is considered part of the elite G20 group and seen as a developed nation.

Turkey's economy in the last decade has moved from being driven by agriculture to the development of a large service sector driven by finance. At the same time Turkey is characterised with a large Agricultural sector employing 29% of the labour force.

Turkey is self sufficient in agriculture and as a result it is amongst the world's largest agricultural producers and a world leader in many items. Turkey is the world's largest producer of many everyday goods, its is the world's largest producer of:

hazelnut, cherry, fig, apricot, quince and pomegranate;
second largest producer of watermelon, cucumber and chickpeas;
third largest producer of tomato, eggplant, green pepper, lentil and pistachios;
fourth largest producer of onion and olives;
fifth largest producer of sugar beet;
sixth largest producer of tobacco, tea and apples;
seventh largest producer of cotton and barley;
eighth largest producer of almond;
ninth largest producer of wheat, rye and grapefruits,
tenth largest producer of lemons.²⁶

Turkey's industrial sector is dominated by the production of textiles and clothing and of late has become a world leader in the field of construction. Turkey's economy is fundamentally characterised by its large service sector which is driven by banking, transport, tourism and communications. The service sector generates 63% of Turkey's wealth.

Resources

Geologically complex, Turkey possesses some of the richest and most diverse mineral deposits in the world numbering 4,400. Today, 53 minerals are produced in the Turkish mining sector, with 85% of production belonging to state-owned enterprises that dominate the production of mineral fuels and metallic ore. The 15% that belongs to the private sector is concentrated in industrial minerals. Turkey is the world's largest producer of boron, chromite, marble, barites, magnesite, pumice, feldspar, celestite, and emery. Two-thirds of global boron reserves and 40% of global

marble reserves are located in Turkey at the same time Turkey provides 80% of the world demand of emery. These are essential minerals for cement, construction and the building of infrastructure.

Turkey has a wide variety of minerals but its most important mineral resource is coal, it also has natural gas deposits in Eastern Thrace and petroleum fields in South Eastern Anatolia. Turkey is the world's largest producer of boron ore in the world, and has a number of other small but important mineral deposits. These include chromium and high-grade magnetite and it also amongst the world's largest producers of antimony, asbestos, bauxite, iron, lead, mercury, pyrite, sulfur, and zinc. Such diversity of mineral resources places Turkey in a good position to provide the necessary raw materials for its industry

Industry

The foundations of Turkey's industry were laid in the late 1930's with the establishment of the first integrated steel mill in Karabuk. Turkey today has 3 integrated steel mills:

KDCI (Karabuk, Black Sea region) the recently privatized plant
Erdemir, Ereğli, Black Sea region, and
Isdemir, İskenderun, East Mediterranean region

During the 1980's several private electric arc furnaces (lower capacity mini-mills that produce steel from iron-bearing scrap) were established. Today, there are 17 electric arc furnaces (EAFs). The total steel production capacity of these 20 plants is 19.9 million tons, of which over 70% comes from EAFs. Turkey is the world's 11th largest steel producer in the world.

Turkey's largest industrial sector is petroleum refining. Turkey has very limited energy resources, but because of its strategic location between Europe and Asia and between oil consumers and oil producers, it is crossed by several major oil and gas pipelines. Turkey's geographical location makes it a natural trans shipment route between the major oil producing areas in the Middle East, Central Asia, and the Caucasus on the one hand, and consumer markets in Europe on the other. Oil is shipped via super tankers through the Bosphorus, the narrow strait that connects the Black Sea to the Mediterranean Sea. Botas, a joint Turkish-Iraqi venture with its headquarters in Ankara, created a system of oil pipelines running from Iraq to Turkey, thus bypassing the Persian Gulf.

Turkey has six oil refineries four of these operated by the state:

- İzmit (226,440 barrels per day capacity)
- Aliaga (226,440 barrels per day)
- Kirikkale (113,220 barrels per day), and
- Batman (22,015 barrels per day)

Whilst the private refineries are:

- ATAS, 100,000 barrels per day, and is 51% owned by Exxon Mobil, with participation by Shell (27%), BP Amoco (17%), and the Marmara Petrol (5%).

- A small 6,000-barrels-per-day refinery in the southeast of Turkey, built in 1970 by the Texas oil engineering firm Baker-Howe.

Manufacturing

Turkey's textile industry dominates the manufacturing sector, both clothing and textiles make up 16.3% of total industrial capacity followed by:

oil refinery (14.5%),
food (10.6%),
chemicals (10.3%),
iron and steel (8.9%),
automotive (6.3%), and
machinery (5.8%).

Textiles and clothing also constitutes the largest share of Turkey's exports (19%), followed by automotive (18%), iron and steel (13%).

Turkey has managed to develop an advanced ship building industry and is ranked 4th in the world (behind China, South Korea and Japan) in terms of the number of ordered ships, and also 4th in the world (behind Italy, USA and Canada) in terms of the number of ordered mega yachts.

Turkey's industrial base has allowed a number of consumer industry developments especially in the fields of electronics and automobiles. Today Turkey's Vestel Electronics is the largest TV producer in Europe, accounting for a quarter of all TV sets manufactured and sold on the continent. The EU market share of Turkish companies in consumer electronics has increased significantly following the Customs Union agreement signed between the EU and Turkey: in colour TVs from 5% in 1995 to more than 50% in 2005, in digital devices from 3% to 15%.

Turkey also has a large and growing automotive industry, which produced 1,024,987 motor vehicles in 2006, making it the 6th largest automotive producer in Europe; behind Germany (5,819,614), France (3,174,260), Spain (2,770,435), the UK (1,648,388), and Italy (1,211,594), respectively. With a cluster of car-makers and parts suppliers, the Turkish automotive sector, the 17th largest producer of passenger cars in the world has become an integral part of the global network of production bases and now exports over \$14 billion worth of motor vehicles and components.

Military industries

Turkey's defence industry consists of over 200 firms, many wholly or partly owned by the state with an annual turnover of between \$3 and \$4 billion. There are over 1,000 Turkish sub-contractors with the number growing every day due to intensive state efforts to involve small and medium sized enterprises in the industry. Over 50,000 people are employed by the defence industry. Despite efforts to build a domestic arms industry, Turkey remains the world's fourth-largest importer of arms but the world's 28th largest arms exporter.

Turkey's membership of NATO has meant that its defence industry has concentrated on supplying arms to its army for NATO missions. The Turkish Armed Forces is the second largest standing armed force in NATO, after the US Armed Forces, with a combined strength of 1,043,550 uniformed personnel serving in its five branches.

In 1998, Turkey announced a program of modernisation worth \$160 billion over a twenty year period in various projects including tanks, fighter jets, helicopters, submarines, warships and assault rifles. Turkey is also a Level 3 contributor to the Joint Strike Fighter (JSF) program, contributing to the development of the next generation fighter jets spearheaded by the US.

Today there are over 200 companies in the defence industry. State-owned Mechanical and Chemical Industry Corporation (MKEK), a giant of the sector, contributes to the economy with 750 types of civilian products. Exporting to 40 countries, MKEK also meets 84% of weapon and ammunition needs of TSK with 250 types of military products.

Turkish military industries today produce:

- Land and air vehicles
- Sea vehicles,
- Rockets-missiles
- Electronic military software and informatics
- Pedestal-mounted stinger and 9600 frequency-hopping radio,
- 122 mm Multiple Launch Rocket System
- Interceptor boats
- Simulator and Electronic Warfare Test and Training Pitch
- Cobra Armoured Personnel Carrier Vehicle.

Egypt

The Egyptian economy has historically since ancient times been largely agricultural due to the Nile River Delta to the North of the country. Although Egypt has expanded the role of industry this today continues to be centrally driven. Since the 1950's the government has developed the petroleum, services, and construction sectors, largely at the expense of agriculture.

Egypt's economy has gone through significant challenges in the post war period. Its wars with Israel have had considerable strain on the economy. IMF and world bank polices have turned Egypt into a net importer of food after a history of being the worlds breadbasket.

Today Egypt has an economy worth \$168 billion, almost entirely driven by agriculture, media, petroleum exports and tourism. Its services industry constitutes 49% of the economy.

Mineral resources

The discovery of Crude oil and natural gas have led to petroleum products to dominate Egypt's mineral industry, petroleum and petroleum products are Egypt's top export commodity. Among

non-fuel minerals, phosphate rock (around the Red Sea, along the Nile, and in the Western Desert) and iron ore are the most important in terms of value and ore grade.

Egypt's first commercial quantities of oil were discovered in 1908. Large oil fields were discovered in the Sinai Peninsula, the Gulf of Suez, the Western Desert, and the Eastern Desert. The Abu Rudeis and Ra's Sudr oil fields in the Sinai, captured by Israel in 1967, were returned to Egyptian control in November 1975, and the remaining Sinai oil fields reverted to Egyptian control by the end of April 1982. Egypt's main mining activity revolves around the extraction of crude oil. The country is not a major producer of oil, and its reserves are small by regional standards. Egypt's proven crude oil reserves are estimated to be 4.1 billion barrels.

Egypt today has 9 oil refineries producing 710,000 barrels per day of crude oil. Egypt is encouraging oil exploration, but natural gas is becoming the focus of the country's oil and gas industries. Egypt substantial reserves of gas are exported to many countries. In 2002, two multi-billion dollar liquefied natural gas projects designed to export gas to Europe were underway. A large natural gas field off the Mediterranean coast of the Egyptian city Damietta was discovered in 2002, with the field's reserves estimated at 530–1,060 billion cubic feet. Natural gas reserves in the country are estimated at 55 trillion cubic feet (Tcf).

Egypt has a developed energy market based on coal, oil, natural gas, and hydro power. Substantial coal deposits are in the north-east Sinai, and are mined at the rate of about 600,000 tonnes per year. Egypt has take advantage of its location by constructing oil refineries as a large chunk of the world's oil passes through the Suez Canal. Egypt is Africa's largest producer of refined oil goods producing 35 million tons of refined goods annually.

Egypt's Nile Delta which links the river Nile with the Mediterranean also makes the nation an agricultural powerhouse. Water an essential requirement for agriculture for long made Egypt a net exporter of agrarian products, however the adoption of some highly questionable 'free market' polices and a host of trade barriers globally have had an adverse impact on Egypt.

Industry

Egypt after WW2 was much further advanced industrially than any other Arab country. Under Nasser's so called Socialist administration, the government coordinated industrial expansion and the establishment of an industrial base.

The 1952 Revolution launched a number of pioneering heavy industry projects such as iron and steel, mining, petroleum, chemical, spinning and weaving and food industries. Today textiles, foodstuffs, beverages, furniture, mining, chemicals and metallurgy are what make up Egypt's manufacturing sector.

Egyptian companies produce a wide range of goods. Textiles and food processing account for the largest share of Egypt's manufacturing revenue. The termination of public sector monopolies over the production of automobiles in 1991 has led to an influx of modern technology leading to considerable growth in the car assembly sector.

Egypt is the most important manufacturer of weapons and military components among the Arab countries. State-owned enterprises, under control of the Armament Authority headed by a major general, are the main domestic producers of Egypt's defence systems. The Armament Authority is responsible for selecting, developing, and procuring military systems. Acting on behalf of the military's branches, the authority assigned production to domestic factories or outsourced to external suppliers.

As early as 1949, Egypt unveiled plans to develop its own aircraft and armaments industry with the industrial base that emerged during World War II when British and American forces placed orders for equipment. Egypt entered into a number of joint venture projects to produce European-designed aircraft. The most successful of these led to the Jumhuriya basic flight trainer, of which about 200 were eventually made. In 1962 Egypt undertook a major program with the help of West German technicians to design and build a supersonic jet fighter, but the government terminated the project because of financial strains caused by the 1967 Six day war with Israel. In a separate program assisted by West German scientists and technicians, the air force built prototypes of three SSM designs. These designs, however, were never put into operational use.

During the 1970s and 1980s, Egypt expanded and diversified its production of arms to achieve partial self-sufficiency and to develop an export market in the Middle East and Africa. In addition to manufacturing small arms and ammunition, Egypt had begun producing and assembling more advanced weapons systems through licensing and joint venture agreements with companies based in the US and Western Europe. Egyptian technicians and scientists developed several indigenous weapons systems.

The National Organization for Military Production within the Ministry of Military Production supervises a number of manufacturing plants, which were usually named after their location. These plants are:

- Abu Zaabal Company for Engineering Industries, which produced artillery pieces and barrels
- Abu Zaabal Tank Repair Factory, which overhauled and repaired tanks and would eventually become the producer of Egypt's main battle tank
- Al Maadi Company for Engineering Industries, which produced light weapons, including the Egyptian version of the Soviet AK-47 assault rifle
- Hulwan Company for Machine Tools, which produced mortars and rocket launchers
- Hulwan Company for Engineering Industries, which produced metal parts for ammunition, shells, bombs, and rockets
- Heliopolis Company for Chemical Industries, which produced artillery ordnance, bombs, and missile warheads
- Banha Company for Electronic Industries, which produced communications devices.

As of 1990, Egypt does not manufacture its own aircraft, but it assembled Tucano primary trainers from Brazil, Chengyang fighters from China, and Alpha Jet trainers designed in France and West Germany. Egyptian technicians had also reverse engineered and modified two Soviet SAM's, the

Ayn as Saqr (a version of the SA-7) and the Tayir as Sabah (a version of the SA-2). Egyptian shipyards had produced eight fast attack naval craft fitted with British armaments and electronics.

The only armoured vehicle in production was the Fahd four-wheeled APC.

Today Egypt's industrial base allows it to manufacture:

- small calibre and heavy ammunition
- mortars
- mines
- grenades and other explosives
- antitank rockets
- rocket motors,
- radars and electronic equipment
- smoke and pyrotechnic devices
- rifles
- pistols (Beretta licensee) and machine guns
- jet trainer aircraft (Alpha and Tucano)
- armoured personnel carriers
- Alpha jet engines
- field and aircraft communications equipment
- Gazelle helicopters and engines
- Gyroscopes
- weapon sights
- binoculars
- periscopes
- tanks,
- Multiple Launch Rocket Systems
- artillery pieces.

Iran

Iran's economy is dominated by the export of oil and gas. With an economy worth \$382 billion both oil and gas constitute annual revenues of \$85 billion for the government. Iran has \$80 billion in foreign exchange reserves due to its export of oil and gas, 60% of the economy is in the public sector and centrally driven by government.

Iran was traditionally an agricultural society, under the shah a rapid programme of modernization and his attempts to break up the traditional system which empowered land owners throughout the 1970's, Iran transformed into an industrial society and today industry represents 44% of the economy.

Iran's population has more than doubled since the 1970's, today 70% of the population is under the age of 30. In a traditionally rural and agrarian country, agricultural production has fallen consistently since the 1960s. By the late 1990s, Iran was a major food importer, and economic hardship in the countryside had driven vast numbers of people to migrate to the largest cities, Iran's oil reserves however remain the lifeblood of the economy.

Mineral resources

The Ministry of Industries and Mines of Iran (Ministry of Mines and Metals before 1990) currently has the sole authority to conduct and supervise exploration and exploitation of mines through issuing licenses. Since the 1980's the exploitation rights of big mines and some smaller ones have been issues private enterprises and cooperatives.

Iran has been blessed with oil and gas, at the same time it also has extensive and varied mineral resources. Iran is among the top ten countries in the world in terms of diversity of minerals, aside from its extensive oil and gas resources Iran is also the third-largest producer of gypsum. Iran's mineral industry is dominated by coal, metallic minerals, sand and gravel, chemical minerals and salt. Iran produces iron ore, copper, lead, zinc, chromium, barite, salt, molybdenum, strontium, silica, uranium, and gold. The mines at Sar Cheshmeh in Kerman Province contain the world's second largest lode of copper ore (5% of the world's total).

Iran has 3125 operating mines, 2747 of these are operated by private companies. Iran extracted 217.5 million tons from its mines in 2007.

Iran's mining industry is dominated by the refining of both oil and gas, resources Iran has ample reserves of. Iran has an estimated 136.2 billion barrels of proven oil reserves, around 10% of the world's total proven petroleum. Iran has 40 producing fields, 27 onshore and 13 offshore, with the majority of crude oil reserves located in the south-western Khuzestan region near the Iraqi border. Iran's oil resources are set to become even more important as Iran is the only nation in the world not to have pumped more than 50% of its proven reserves.

Iran has proven natural gas reserves of 948 trillion cubic feet (Tcf), 15% of the worlds proven reserves, second only to Russia. Most of Iran's natural gas is located in the South Pars North Dome field located in the Persian Gulf. It is the world's largest gas field, shared between Iran and Qatar. Iran's gas reserves represent the equivalent of 170 billion barrels of oil.

Industry

Iran's principal mining industries are oil refining, petrochemicals, steel, and copper. Today there are nine refineries with a potential refining capacity of over one million barrels per day. In late 1980, Iraqi bombing forced the closure of the Abadan refinery, (for long the world's largest oil refinery).

The country's major manufactured products are:

Petrochemicals (with a fertilizer plant in Shiraz),
Steel (with mills in Esfahan and Khuzestan), and
Copper products

Other important manufactures include:

- Automobiles (with production crossing the 1 million mark in 2005),
- Home and electric appliances (television sets, refrigerators, washing machines, and many other consumer items),
- Telecommunications equipment,
- Cement,
- Industrial machinery (Iran has the largest operational stock of industrial robots in West Asia),
- Paper,
- Rubber products,
- Agricultural products and
- Processed foods (including refined sugar and vegetable oil),
- Leather products and
- pharmaceuticals.

In 2006, 55 pharmaceutical companies in Iran produced more than 96% of medicines on the market worth \$1.2 billion annually

Iran's military industry has taken great strides in the past 25 years. Subsequent to the end of the eight-year Iran-Iraqi conflict that decimated Iran's military capability, Iran has been in a gradual armament and military infrastructure rebuilding process. Given the political isolation Iran faces and the multitude of threats from a US presence in the region Iran has embarked on a substantial rearmament program.

Iran's military industry was born under the last Shah of Iran, Mohammad Reza Pahlavi through an import substitution strategy which is the attempt to reduce foreign dependency through local production. Iran has learnt to produce, assemble, repair and maintain military equipment. Beginning in the mid-1970's, Iran signed co-production agreements for licensed manufacture of aircraft, helicopters, surface-to-air missiles, and computer and electro-optic equipment.

Iran's industrial base was developed through four state-owned organisations:

- The Military Industries Organization (MIO) was the main control centre,
- The Iran Aircraft Industries (IAI) focused on fighters
- Iran Helicopter Industries (IHI) on helicopters,
- Iran Electronics Industry (IEI) on defence electronics.

All military factories were placed under the Military Industries Organization (MIO) of the Ministry of War. Over a period of fifteen years, military plants produced small arms ammunition, batteries, tires, copper products, explosives, and mortar rounds and fuses. They also produced rifles and machine guns under West German license. In addition, helicopters, jeeps, trucks, and trailers were assembled from imported kits.

Iran was on its way to manufacturing rocket launchers, rockets, gun barrels, and grenades, when the Islamic Revolution halted all military activities. The MIO, plagued by the upheavals of the time, was unable to operate without foreign specialists and technicians. By 1981 it had lost much of its management ability and control over its industrial facilities. By 1990, there were over 240 factories and some 12,000 privately owned smaller concerns producing armaments, employing nearly 45,000 people.

In 1977, the Iranian Defence Industries Organization began to work on missiles jointly with Israel in Project Flower and requested a joint missile development program with the US which was rejected. In 1979, the country took the first step into manufacturing by reverse engineering Soviet RPG-7, BM21, and SAM-7 missiles.

After the Islamic revolution and the start of the Iran–Iraq War, economic sanctions and an international arms embargo led by the US coupled with a high demand for military hardware forced Iran to rely on its domestic arms industry for repair and spare parts. The Islamic Revolutionary Guards Corps was put in charge of re-organising the domestic military industry. Under their command Iran's military industry was dramatically expanded, and with the Ministry of Defence pouring capital into the missile industry, Iran soon had an arsenal of missiles.

Post Revolution

The Gulf War made it clear that a major modernization of both the armed forces and the defence industrial base was needed. It became apparent that during the period of time in which Iran was rebuilding her own defence industrial base to produce weaponry needed for the Iran-Iraq war, her neighbours were arming with much more advanced technology systems, mostly purchased from the West. Iran's air and naval forces were obsolete by comparison. Iran became committed to a strategy of defence self-sufficiency as an urgent national requirement. The objective of total self-sufficiency remains today. The benefits of self-sufficiency also include significant savings in hard currency.

Iran is one of a few nations that is trying to achieve a totally self-sufficient armaments capability. Iran has declared self-sufficiency in several critical areas. Besides small arms and artillery, these include armour, and selected naval systems. In May 1998, an official announced that Iran was self-sufficient in the production of armoured equipment, achieved by "acquiring sophisticated technology in related fields." In late 1997, Iran's navy chief declared that the country was "full self-proficient" in "sea-warfare technology." The Iranian Navy is "manufacturing its own equipment and other essential items through the work of domestic experts and the naval research centre."

Iran has also worked to become self-sufficient in the production of spare parts for weapon systems. In early 1999, the acting commander of the ground forces announced that Iran is now producing 14,000 various kinds of aircraft parts. The domestic manufacture of spare military parts has saved the equivalent of 30 billion rials in hard currency. Iran is also producing the clear majority of parts needed by its armed forces, an Iranian armed forces official announced in early 1997. The following year, the army's aviation wing produced 90% of its spare parts requirements. In 1999, Iran's Minister of Defence stated that Iran's defence industrial base is now capable of producing the "fundamental hardware" needed by Iran.

Iran's aircraft industries have managed to indigenously develop second and third generation aircrafts. Iran has also been successful in developing unmanned aerial drones, the Mohajer series of unmanned aerial vehicles is built completely by Iran and operated by Iran and Hezbollah. The Mohajer is primarily used to spy on military installations, enemy positions and is capable of guiding laser-guided munitions to their targets.

Iran's most successful military development has been in the realm of missiles. In 1991 Iran announced the first domestic production of ballistic missiles. Iran's inability to modernise its airpower has meant its air defence is weak, due to this Iran built up its strategic missile forces as a cost effective way of countering the stronger air forces of its neighbours in order to compensate for its weakness in this area.

The Iranian leadership has stated that it operates several thousand short and medium range mobile ballistic missiles, including the Shahab-3/3B with a range of up to 2,100 kilometers, which is the mainstay of Iran's strategic deterrent. The Iranian military industry started the missile development program in earnest during Iran's long and costly war with Iraq. At times, throughout the war Iran found that it could not strike certain Iraqi facilities or targets with its own forces. This resulted in an ambitious missile development programme that is still continuing. Today, Iran is developing space launch vehicles and sophisticated medium-range ballistic missiles. Iran's ballistic missiles possess the capability to deliver a variety of conventional high explosive and sub-munition.

Iran is believed to have a current inventory of 25 to 100 Shahab-3 missiles which have a range of 2100 km and are capable of being armed with conventional high explosive, submunition, chemical, biological, radiological dispersion and potentially nuclear warheads. A Shahab-4 with a range of 2000 km and a payload of 1000 kg is believed to be under development. Iran has stated the Shahab-3 is the last of its war missiles and the Shahab-4 is being developed to give the country the capability of launching communications and surveillance satellites. A Shahab-5, an intercontinental ballistic missile with a 10,000 km range, is also believed to be under development.

Overall, Iran's defence industrial base includes industries providing:

- aircraft servicing and manufacture
- the production of mini-submarines
- missiles
- vehicles
- mortars
- artillery
- small arms
- mines
- multiple rocket launchers, and
- ammunition.

Pakistan

Pakistan currently has a population of 172 million, the 6th largest in the world, with GDP of \$160 billion, which is equivalent to the GDP of both Israel and Singapore who have populations of 7 and 4.6 million respectively. The population of Lahore itself is 8 million

Pakistan's economy like the remainder of the Muslim world has shifted from being primarily agricultural and industrial to services. Today Pakistan's economy is primarily service based, driven by the real estate, the stock market and Foreign Direct Investment (FDI) at the same time most of Pakistan's 48 million labour force is in the agricultural sector.

Over the last decade the Pakistani economy has seen growth never witnessed in its history, however the economic policies that allowed such growth have now run out of steam and have proven to have been unsustainable, for these reasons 72% of the population live on less than \$2 a day.

Mineral resources

Pakistan has an immense variety of minerals and natural resources. Large deposits of gypsum, limestone, chromite, iron ore, rock salt, silver, gold, precious stones, gems, marble, copper, coal, graphite, sulphur, fire clay and silica are found in abundance across Pakistan. Punjab is Pakistan's most fertile province which has the world's largest salt range housing the world's largest deposit of pure salt.

Baluchistan province is a mineral rich area having substantial mineral, oil and gas reserves which have not been exploited to their full capacity or fully explored. The province has significant quantities of copper, chromite and iron, and antimony and zinc. It also has substantial gold in the far west. Natural gas was discovered near Sui in 1952. Baluchistan has world's fifth largest reserves of copper and over 20 million ounces of untapped Gold reserves in the Chaghi area and the Rekodiq mine.

Pakistan has no shortage of coal and gas. Pakistan has been blessed with the world's largest coal reserves after the US. The Thar coal field in Sindh is the world's largest coal field. Thar coal has one of the world's largest lignite deposits, spread over more than 9, 000 sq. km. It comprises around 185 billion tonnes of coal which is the equivalent of 618 billion barrels of crude oil; this would meet country's fuel requirements for centuries.

Pakistan has an estimated 25.1 trillion cubic feet (tcf) of proven gas reserves. This has led to Pakistan having the highest number of compressed natural gas (CNG)-run vehicles in the world leaving Brazil and Argentina behind in the race as for the largest user of natural gas vehicles.

Mining

Pakistan has a patchwork of mineral extracting companies of which some are jointly owned by foreign companies. Through the 1980s, the development of mining was discouraged by the absence of venture capital and limited demand for many minerals from domestic industries. The slow development of mining was due in part to the remoteness of the areas where most minerals are found, which adds greatly to the costs of exploration, production, and transportation.

Currently Pakistan allows foreign companies to bid for contracts to mine in Pakistan. Due to logistical differences and profitability many projects are well behind schedule. As a result the discovery of the world's seventh largest copper reserves and large deposits of gold in the Rekodiq mining area of Balochistan has not received the attention it deserves. The Rekodiq mining area has proven reserves of two billion tons of copper and 20 million ounces of gold. The value of the deposits is over \$20 billion,²⁷ which would generate thousands of jobs and contribute billions annually to the national economy with all the supportive work. Pakistan has also been extremely slow in developing the World's fifth largest reserves of gold and copper in the Chaghi area on the Afghan border.²⁸

Pakistan has five refineries, with total refining capacity of 270,000 bpd. The largest of the refineries is the Pak-Arab Refinery Complex (PARCO), which became operational in 2000, with 95,000 bpd of refining capacity

Industry

At the time of Pakistan's independence, Pakistan had virtually no manufacturing industry except for one large cement factory, a textile unit and a few odd manufacturing plants. Large-scale manufacturing began in the early 1950s with the imposition of quantitative controls on imports, which at that time consisted predominantly of manufactured consumer goods. Due to its location, investment in energy production, development of port facilities and improvement of infrastructure all occurred in Karachi. As a result the fields of manufacturing, textiles, chemicals and pharmaceuticals helped convert Sindh into an industrialised region. Cement, automobiles, steel and most of Pakistan's other industrial output are today still produced in the factories of Karachi, Hyderabad and Sukkur in Sind.

Currently Pakistan has only one mill which refines raw steel and iron. Pakistan Steel Mills (PSM) is the nation's only steel mill, which opened in 1981 after 7 years of construction. The mammoth facility is spread over an area of 30 square miles located in Sindh at Bin Qasim. It was created with the technical help of V/o Tyaz Promexport of the USSR and today produces 1 million tons of steel a year.

Pakistan's industry is currently composed of ten fertilizer plants, six state-owned and four private, with a total annual production capacity of 4.6 million tons. There are 21 cement plants, four state-owned and 17 private, with an annual production capacity of 19.2 million tons. Pakistan also has eight public holding companies that dominate Pakistani industry.

Pakistan's manufacturing sector is dominated by the production of Cotton textile and apparel manufacturing, this accounts for 66% of exports.

Military industry

The development of Pakistan's military industry has been driven by the prospects of war with India, the Indian numerical superiority in troops and conventional arms has led to many stunning developments which places Pakistan militarily above the rest of the Muslim world. Pakistan's military industries are centred around 3 military industrial complexes:

- **Heavy Industries Taxila (HIT)** is a combination of multiple industries that has grown into a large military complex since 1980.
- **Precision Engineering Complex (PEC)** produces for the global commercial aviation industry
- The **Pakistan Aeronautical Complex** the world's 3rd largest assembly plant

Pakistan began with virtually no military production capability, and as a result of joint projects with China and France has made rapid progress in some of the most crucial fields in order to become self sufficient. Pakistan is self sufficient in such areas as aircraft overhaul, tank and helicopters. Pakistan however has made a number of stunning individual developments:

- Pakistan's is the first Muslim nation to develop a nuclear weapons development program. Based primarily, on highly-enriched uranium (HEU), Pakistan is believed to possess 30 to 50 nuclear warheads with thousands of centrifuges in operation. Pakistan has continued its pursuit of expanded uranium-enrichment capabilities and currently has 3 Nuclear reactors and two pressurised water reactors. A further two reactors are currently under production. Whilst Pakistan procured elements of the necessary technology from other states the development of such weapons of mass destruction means Pakistan has an indigenous programme, an atomic bomb requires enriched uranium, and to enrich uranium, machines called centrifuges are required – rapidly spinning tubes that are used to separate and concentrate isotopes in gasified uranium. Spinning at several thousand revolutions per minute, they rest on superb bearings, in perfect balance, in a vacuum, linked by pipes to thousands of other spinning units. When the process works, the gas ends up in a solid form, but any minute defect, and the product is decisively marred. The same is true of the other equipment required: tools, magnets, exotic steel, vacuum pumps, ball bearings and instruments of all kinds, all must be perfect. Pakistan has mastered this all
- Pakistan has developed an advanced tactical ballistic missile programme. The National Development Complex (NDC) was created by the Pakistan Atomic Energy Commission and includes a missile factory that builds nuclear-armed long-range and medium-range missiles for the Pakistan Army. Missile components from these various facilities are brought to the NDC for final integration. Pakistan has mastered the process of developing missiles and is currently in the process of deploying Intermediate range Ballistic missiles (IRBM). This does mean that Pakistan is just years away from developing intercontinental ballistic missiles (ICBM's)

- Pakistan has managed to develop a basic space programme by the creation of the 'Space and Upper Atmosphere Research Commission (SUPARCO). At present Pakistan has launched two satellites Badr-1 and Badr-B with PAKSTAT an orbital satellite currently in development.

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