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MASTER OF DEFENCE STUDIES RESEARCH PROJECT

**THE IMPACT OF PEAK OIL ON  
INTERNATIONAL STABILITY AND SECURITY**

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26 April/avril 2010

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## ABSTRACT

A new, but generally underestimated emerging threat to international security and stability is the menace posed by the approaching onset of peak oil. Rising demand from the ascending powers of China and India will clash with the imminent reality of declining oil supply. The friction created by the intersection of increasing demand and diminishing supply can threaten international security and stability and will manifest in three distinct ways. First, the scarcity of oil will drive competition between the industrialized oil importing states of the world as they seek to sustain their economies and meet the expectations of their populations. This competition will become more heated as access to energy reserves becomes more difficult in an environment defined by scarcity. The peaking of global oil production might also threaten the economic security of nations. The onset of peak oil will initiate a rapid increase in the price of oil that could spark a global recession, as was seen after the twin oil crises of the 1970s. Economic turmoil can cause social and political upheaval, which could lead to extremism or even war as desperation spawns radical solutions to a country's problems. Finally, the peaking of global oil production can create havoc in the oil producing nations of the world. The rapid rise in oil prices can contribute to rebellion and civil war in developing countries with oil reserves as the population seeks a more equitable distribution of the country's national treasure. Furthermore, instability can develop as a nation's oil reserves start to peak. Such an event can lead oil producers to seek out self-serving, and potentially dangerous solutions to securing the oil revenues upon which they have come to depend.

## INTRODUCTION

### THE OIL WEAPON

The year 1973 marked the end of a golden era for the United States. The prosperity that had defined the three decades since the Second World War came to an abrupt halt and was replaced by a sense of fear and uncertainty that spread throughout the entire country.<sup>1</sup> The weapon that brought one of the world's two superpowers to its knees was unique to the Middle East – the oil weapon. The Organization of Arab Petroleum Exporting Countries (OAPEC) initiated an oil embargo against the United States in response to the decision to re-supply the Israeli military during the October Arab-Israeli War.<sup>2</sup> The oil weapon targeted the United States where the country was weakest, by targeting the petroleum needed to fuel America's industry, the transportation sector, and the everyday needs of her people.<sup>3</sup>

The OAPEC cut to oil production drastically increased the price of oil traded on the international market, creating a ripple effect that resonated throughout the global economy. The oil embargo prompted energy costs to skyrocket around the world, wreaking havoc on the world's economies. The most striking example of the spiralling cost of energy occurred on January 1, 1974 when OPEC raised the price of oil from \$4.31

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<sup>1</sup>Richard Heinberg, *The Party's Over: Oil, War and the Fate of Industrial Societies* (Gabriola Island: New Society Publishers, 2003), 72.

<sup>2</sup>Daniel Yergin, *The Prize: The Epic Quest for Oil, Money & Power* (Toronto: Free Press, 1991), 615.

<sup>3</sup> *Ibid.*, 588.

to \$10.11 per barrel of oil, a staggering 135 percent in one day.<sup>4</sup> By the time the energy crisis reached its conclusion, the price of crude oil had quadrupled.<sup>5</sup> Despite the intervention of targeted governments, the oil shock sent the industrialized nations into a deep recession. In the case of the United States, a 6 percent decrease in Gross National Product was observed between 1973 and 1975.<sup>6</sup> The overall loss suffered by the OECD countries from this recession was calculated at \$350 billion in 1975 dollars, equal to \$1.1 trillion dollars in 2003.<sup>7</sup>

It would only be five years before the next oil shock would once again shake the foundations of the global economy. The 1979 oil shock, precipitated by the Iranian revolution, cost the OECD nations \$700 billion in 2003 dollars.<sup>8</sup> The combined result of the 1970s oil crises was a tenfold increase in the price of oil from \$3.35 in January 1970 to \$32.50 by the end of the 1970s.<sup>9</sup> In addition to setting the conditions for continuing economic stagnation that would last until the mid 1980s, this second oil shock sent a very clear message to the industrialized world: the energy crisis of 1973 was not a unique

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<sup>4</sup>David Hammes and Douglas Wills, "Black Gold: The End of Bretton Woods and the Oil-Price Shocks of the 1970s," *The Independent Review* IX, no. 4 (Spring 2005): 501; [http://hk3my5sa3k.search.serialssolutions.com/directLink?&atitle=Black%20Gold%3A%20The%20End%20of%20Bretton%20Woods%20and%20the%20Oil%20Price%20Shocks%20of%20the%201970s&author=David%20Hammes%3B%20Douglas%20Wills&issn=10861653&title=The%20Independent%20Review&volume=9&issue=4&date=20050401&spage=501&id=doi:&sid=ProQ\\_ss&genre=article&lang=en](http://hk3my5sa3k.search.serialssolutions.com/directLink?&atitle=Black%20Gold%3A%20The%20End%20of%20Bretton%20Woods%20and%20the%20Oil%20Price%20Shocks%20of%20the%201970s&author=David%20Hammes%3B%20Douglas%20Wills&issn=10861653&title=The%20Independent%20Review&volume=9&issue=4&date=20050401&spage=501&id=doi:&sid=ProQ_ss&genre=article&lang=en); Internet; accessed 11 April 2010.

<sup>5</sup>Yergin, *The Prize* . . . , 625.

<sup>6</sup> *Ibid.*, 635.

<sup>7</sup> Robert Hirsch, Roger Bezdek and Robert Wendling, *Peaking of World Oil Production: Impacts, Mitigation, & Risk Management*, Report Prepared for the United States Department of Energy (Washington: Science Applications International Corporation, 2005); 29; [http://www.netl.doe.gov/publications/others/pdf/Oil\\_Peaking\\_NETL.pdf](http://www.netl.doe.gov/publications/others/pdf/Oil_Peaking_NETL.pdf); Internet; accessed 21 April 2010.

<sup>8</sup> *Ibid.*, 29.

<sup>9</sup> Hammes and Wills, *Black Gold* . . . , 501.

event; it could play out time and again. As long as the industrialized nations of the world were dependant upon Middle Eastern oil, their economies would continue to subsist at the whim of oil exporters.

Notwithstanding the short duration of the supply disruptions, these shocks cost the global economy trillions of dollars, countless jobs, and raised the spectre of a persistent threat to energy security. If these politically motivated oil shocks had such a profound effect on the global economy, what then would happen if the threat to global oil supply did not stem from the machinations of oil supplying states or cartels, a situation that could be resolved by diplomatic, military or financial means, but was instead borne out of the geological reality that oil is a finite resource? What impact would a permanent reduction in oil supply have on the global economy when it was so easily thrown into chaos from the temporary reductions of the 1970s?

### **PEAK OIL DEBATE: A SURVEY**

The concept that global oil production will, in the not so distant future, cease to be sufficient to meet growing global demand is a subject that is increasingly being debated between geologists, governmental energy administrations and the oil companies. The principal debate concerning the future supply of oil is centred on the theory of peak oil. The theory of peak oil states that the rate of global oil production will increase to the point where half of the world's recoverable oil has been extracted, and then it will plateau at the peak, and then commence an irreversible decline. This literature survey summarizes the key arguments that define the peak oil debate as a potential threat to

global oil supply. This study presumes that a permanent reduction in global oil supply is on the horizon.

The founder of the peak oil theory, Dr. Marion Hubbert King, initiated the debate on peak oil in 1956 when he demonstrated that crude oil production would reach its maximum rate of production in the lower 48 American States between 1966 and 1972.<sup>10</sup> While his predictions were quickly dismissed by economists, oil companies and even the United States Geological Survey (USGS), it was later observed that the peak of U.S. oil production occurred in 1970.<sup>11</sup>

From here, Dr. Hubbert employed the same methodology to calculate the date of global peak oil production. His model was relatively simple; he compared the rate of global oil consumption with known reserves, and then made some modest ‘educated guesses’ about future rates of consumption. Hubbert predicted that global oil production would peak between 1990 and 2000; a prediction that we know now is incorrect.<sup>12</sup> Although unsuccessful in predicting the date for the ‘peaking’ of global oil production, he had established a scientific methodology that Colin Campbell and Jean Laherrere would use to advance the work he started.

In 1989, Colin J. Campbell and Jean H. Laherrere re-opened the debate on the global decline of conventional oil in their article “*The End of Cheap Oil*” published in *Scientific American*. One of the key contributions these scientists added to the peak oil

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<sup>10</sup>Heinberg, *The Party's Over . . .*, 88.

<sup>11</sup>James Howard Kunstler, *The Long Emergency: Surviving the Converging Catastrophes of the Twenty-First Century* (New York: Atlantic Monthly Press, 2005), 42-43.

<sup>12</sup>Marrion King Hubbert, *Nuclear Energy and the Fossil Fuels*, Report Prepared for the American Petroleum Institute (Houston: Shell Development Company, 1956), 22;  
<http://www.hubbertpeak.com/hubbert/1956/1956.pdf>; Internet; accessed 21 April 2010.



debate focuses on the suspect methods employed by both energy companies and countries in reporting their petroleum reserves. Campbell and Laherrere argue that reporting of petroleum reserves is an inexact science, which is why petroleum engineers allocate a probability rating to estimated reserves. Both companies and countries use this ambiguity to their advantage by estimating their reserves as liberally or as conservatively as they choose. A company might be tempted to report that their reserves are exceptionally large, even if the probability of the estimate is actually low to raise stock value. The member nations of OPEC may have an even greater reason to exaggerate their reserves given that export quotas are directly tied to the size of their reserves. Campbell and Laherrere illustrate this point by stating that in the latter half of the 1980s over half of the OPEC nations increased their reserve estimates by “colossal amounts, ranging from 42 to 197 percent.”<sup>13</sup>

The scrutiny that Campbell and Laherrere cast upon the reporting of estimated reserves highlights the challenge that Hubbert and other geologists face in attempting to predict the size of global oil reserves. Notwithstanding the difficulty, Campbell and Laherrere conducted a detailed study of the oil producing areas of the world and assessed that 1,000 billion barrels of conventional oil remained. This figure prompted them to predict that peak oil would occur by 2010.<sup>14</sup> While many other geologists hold this pessimistic view, a few scientists believe that the situation is not as dire as the advocates of peak oil advocate.

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<sup>13</sup>Colin J. Campbell and Jean H. Laherrere, "The End of Cheap Oil," *Scientific American* 278, no. 3 (March 1998): 3-4; <http://search.ebscohost.com/login.aspx?direct=true&db=syh&AN=281672&site=ehost-live>; Internet; accessed 21 April 2010.

<sup>14</sup>*Ibid.*, 5-6.

In addition to the position adopted by the proponents of the peak oil debate, counter views to the theory can add a broader understanding to degree of threat posed by a scarcity of energy resources. Critics of the peak oil theory focus on several key arguments. First and foremost, critics make the argument that known reserves are not finite, but rather constantly grow as new reserves are discovered.<sup>15</sup> While it is true that new reserves are being discovered very year, Colin Campbell and Jean Laherrere identify the fact that the rate of discovery of new oil fields in the world peaked in the early 1960s, and that new discoveries continue to be insufficient to meet demand. To highlight this point Campbell and Laherrere argue that during the 1990s, oil companies pumped three times more oil than they discovered.<sup>16</sup>

A second argument put forward by the critics of the peak oil theory suggests that oil companies are consistently getting better at exploiting resources by employing the latest technology to extract more oil from existing and depleted reserves.<sup>17</sup> While advanced extraction techniques will play an important role in increasing the yield of oil reservoirs, these efforts will merely delay the date of production decline. Moreover, oil companies have already factored in advanced extraction techniques when estimating their reserves.<sup>18</sup> Also, the cost of extracting the 'dregs' of oil in a reservoir gets increasingly expensive towards the end, and ultimately becomes an economic equation reflected in the

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<sup>15</sup>Heinberg, *The Party's Over . . .*, 108.

<sup>16</sup>Campbell and Laherrere, *The End of Cheap Oil*, 5.

<sup>17</sup>Heinberg, *The Party's Over . . .*, 109.

<sup>18</sup>Campbell and Laherrere, *The End of Cheap Oil*, 7.

ratio of energy return on energy invested.<sup>19</sup> An oil well will be exploited only so long as it is profitable to do so; therefore, it is likely that some oil will be left in the reservoir as it will be too expensive to extract to the last drop.

The third principal argument aimed to discredit the peak oil theory is centered on the notion that in the past an alternative was always found when a resource grew scarce. The critics of the peak oil theory argue that the need for a substitute will spark innovation and provide a solution. There are few people engaged in this debate that would deny the fact that alternative fuel sources will play a role in mitigating the impact of a decrease in global oil supply.<sup>20</sup> In fact, the purpose of Marion King Hubbert's dissertation in 1956 was not to focus on the drawdown of fossil fuel reserves, but rather to expound the benefits of nuclear power. Notwithstanding Hubbert's support of nuclear energy, Robert Hirsch, author of the report "*Peaking of World Oil Production: Impacts, Mitigation and Risk Management*" counters Hubbert's underlying assertion that nuclear power will be the panacea to peak oil. Nuclear energy produces electricity, which is not yet a replacement for liquid fuels, particularly in the transportation sector.

In the mid 1990s the United States Geological Survey (USGS) embarked on the most comprehensive analysis to date to determine the size of global oil and natural gas reserves, an effort that would span five years and involve over 40 geoscientists. The findings of the study by the USGS prompted the Energy Information Administration (EIA) to follow through with the *Report on Long term World Oil Energy Supply* in 2000.

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<sup>19</sup>Heinberg, *The Party's Over* . . . , 109.

<sup>20</sup>*Ibid.*, 111.

This report was the first analysis of the world's long-term oil supply since that published by Dr. Marion King Hubbert in 1974.<sup>21</sup>

The EIA asserted that their analysis of the data from the USGS study remained true to the principles espoused by Dr. Hubbert, but that their study benefited from several advantages that his did not. First, the EIA had the benefit of an additional twenty years of exploration and production history. Secondly, they had geologically derived estimates of the world's conventional technically recoverable crude oil resource base compared to the scanty information and assumptions that Hubbert was forced to rely on for the basis of his calculations.<sup>22</sup>

One important aspect of the EIA's analysis that deviates from Hubbert's model is the shape of the down slope production curve after peak oil. While Hubbert assumed that the declining production curve would be a mirror image of the inclining production, the EIA asserts that the down slope will be steeper, arguing that demand would continue to be high despite diminishing supplies.<sup>23</sup> The implication of the EIA's assumption of the shape of the down slope production curve is that the onset of peak oil would be much later than if Hubbert's curve were used. The EIA was later criticized by Dr. Robert Hirsch for altering the shape of the curve, which essentially pushes the date for peak oil into the future, trivializing the urgency of the problem.<sup>24</sup>

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<sup>21</sup>John Wood, Gary Long and David Morehouse, "Long Term World Oil Supply Scenarios: The World is neither as Bleak Or as Rosy as some Assert," Energy Information Agency: 2; [http://www.eia.doe.gov/pub/oil\\_gas/petroleum/feature\\_articles/2004/worldoilsupply/oilsupply04.html](http://www.eia.doe.gov/pub/oil_gas/petroleum/feature_articles/2004/worldoilsupply/oilsupply04.html); Internet accessed 21 April 2010.

<sup>22</sup>*Ibid.*, 3.

<sup>23</sup>*Ibid.*, 3.

<sup>24</sup>Hirsch, Bezdek and Wendling, *Peaking of World Oil Production . . .*, 69.

The other significant contribution added to the debate by the EIA is the assertion that a single prediction could not capture the level of uncertainty that surrounds the prediction for the timing of peak oil. To this end, the study presents twelve scenarios that would capture the widest range of probable outcomes. Unlike other studies, the USGS takes the demand side of the equation into account.<sup>25</sup> Most significantly, different projections for Chinese and Indian demand for oil could rapidly advance or delay the timing the occurrence of peak oil.

The theme that emerges from studying the 2000 EIA report on Long-Term Oil Supply is that ample time remains to manage this crisis. The ‘median’ prediction of the 12 possible scenarios places the advent of peak oil in 2037, significantly later than that determined by other geologists, many of whom place the date for peak oil about 20 years earlier. A report commissioned five years later by the US Department of Energy entitled “*Peaking of World Oil Production: Impacts, Mitigation, and Risk Management*,” refuted the optimism professed by the EIAs report. The report argued that the data used by the EIA supports a peak oil date of 2016, not 2037.<sup>26</sup>

This report, published in February 2005 by Dr. Robert Hirsch and a team of geoscientists, would add a new sense of urgency to the problem of peak oil. Hirsch’s report focused on the reasons why the peaking of global oil production is such a unique and important challenge, as well as identifying ways to mitigate the impending oil crisis. The report asserts that any mitigating action to diminish the impact of peak oil must be substantial to be effective, and will cost trillions of dollars. In attempting to identify

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<sup>25</sup>Wood, Long and Morehouse, *Long Term World Oil Supply Scenarios* . . . ,4.

<sup>26</sup>Hirsch, Bezdek and Wendling, *Peaking of World Oil Production* . . . ,69.

options for mitigation, Hirsch narrows potential mitigating actions to five; increased fuel efficiency in transportation, the use of heavy oil/oil sands, coal liquefaction, enhanced oil recovery and gas-to-liquids. While other alternative fuel sources were considered, they were eliminated either because the technology did not exist or was not yet commercially viable. Although nuclear power, wind and photovoltaic's produce electric power, they were not considered to be options for mitigation because they were not 'near-term' substitutes for fuel in transportation equipment that currently requires liquid fuel.<sup>27</sup>

Hirsch asserts that the key to successful mitigation of peak oil lies in the amount of time allocated for mitigating measures to take effect. Each of the five mitigating actions will require a significant amount of lead time to become established and then to produce or save significant quantities of liquid fuels to have an impact on the global energy market. The overall result of the analysis is that if mitigation does not occur until oil production peaks, then the world will suffer a considerable liquid fuel shortage for over two decades. The only hope for minimizing the impact of peak oil would require that mitigating action be commenced 20 years prior to the peaking of oil production.<sup>28</sup> This analysis is cause for some concern given that the majority of predictions for the timing of peak oil indicate it is already upon us, or soon will be. The implication of this reasoning is that the world has already passed the point where it can significantly mitigate the effects of the peaking of global oil production.<sup>29</sup>

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<sup>27</sup> *Ibid.*, 54-55.

<sup>28</sup> *Ibid.*, 59.

<sup>29</sup> Thilo Kunzemann, "Energy Future: A Significant Period of Discomfort," Allianz Knowledge Partnersite, [http://knowledge.allianz.com/en/globalissues/safety\\_security/energy\\_security/hirsch\\_peak\\_oil\\_production.html](http://knowledge.allianz.com/en/globalissues/safety_security/energy_security/hirsch_peak_oil_production.html); Internet; accessed 21 April 2010.

The question that now presents itself lies in the intersection between two narratives, namely the destabilizing effects of past oil crises and the looming threat of peak oil. Given the economic and social upheaval that resulted from the twin oil crises of the 1970s, both temporary and politically motivated, the upheaval and dislocation that would arise from an energy crisis triggered by a permanent decline in oil supply would dwarf energy crises of the past. The magnitude of the threat posed to the welfare of nations could foment instability and threaten international security. How could a permanent reduction in global oil supply, a clear threat to the economic security of nations, menace global peace and security? *The advent of peak oil will threaten international stability and security in three ways: by fostering state competition over scarce energy resources, by weakening the economies of the world and sowing the seeds of internal instability, and by the damaging effects that peak oil will have on the oil producing nations of the world.*

Competition between major powers will increase as they seek to secure the scarce resources needed to ensure their continued survival. Ultimately, there will not be enough oil to meet the needs of all consumer nations; there will be winners and losers in the international competition for energy resources. This competition presents the threat of a new Cold War, or even conflict between states as they vie for control of dwindling oil reserves. Furthermore, the effect that such a massive energy crisis would have on the global economic system will be destabilizing. An economic downturn instigated by the peaking of world oil production will be of such magnitude that it will threaten not only the economic security, but could also create social and political instability within states. Internal instability can lead to the overthrow of governments, or result in national leaders

going to extreme lengths to stay in power, including leading their nations to war. The onset of peak oil can also threaten the security of oil producing states. Energy exporters can be threatened by rebellion from a discontented population seeking access to the benefits of the nation's resources. Peak oil can also foster competition between oil producers as reservoirs start to run dry, as well as proliferating the use of nuclear power, which carries its own threats to international security.



## CHAPTER ONE: STATE COMPETITION

A key threat to international security and stability could stem from growing tension between the oil importing nations of the world as they scramble to secure contracts with energy exporting nations for what is to become increasingly scarce resources. The idea that petroleum is simply another commodity for sale is increasingly becoming an outdated notion. Instead, the concept of oil as a 'strategic' asset has become more popular. Countries have fought over oil in the past and will continue to do so in the future.

The notion that a commodity takes on the status of strategic asset, while not a new concept, was heightened after the twin oil crises of the 1970s. Vincent Cable, a professor of Economics from the University of Glasgow who served as the Chief Economist for the Shell Corporation argues that a commodity is strategic where a country has a high level of dependence on only a few sources of supply and the disruption of the supply of this commodity can have a profound impact on a nation's economy. Strategic commodities such as technology, raw materials, food and fuel are those that if disrupted, would present a threat not only to a nation's economic security, but also to its social and political stability.<sup>30</sup>

This concept raises some important deductions concerning the future security environment defined by a scarcity of energy resources. Given how critical oil has

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<sup>30</sup>Vincent Cable, "What is International Economic Security?" *International Affairs* 71, no. 2 (April 1995): 313;  
<http://proquest.umi.com/pqdweb?did=4584505&Fmt=7&clientId=1711&RQT=309&VName=PQD>;  
Internet; accessed 21 April 2010.

become to the industrialized economies of the world and its impact on the day-to-day welfare of its citizens, governments will go to great lengths to secure economic security. To achieve this economic security, governments will increasingly have to take more drastic measures to secure access to this increasingly scarce strategic asset to assure their continued security and internal stability. The stage is set for potential flashpoints between the powerful oil importing countries in the world as they compete for what is destined to become a diminishing asset of increasing strategic importance. While the struggle between states over the control of natural resources is not a new occurrence, such strife is only destined to increase in an environment of scarcity.

The most recognizable example of a major power flexing its muscle to ensure energy security is the 2003 U.S. led invasion of Iraq. While the primary justification for this invasion was focused on countering the threat posed by Iraqi weapons of mass destruction (WMDs), it was later discovered that Iraq had no such weapons. Furthermore, a study by two non-profit journalism organizations asserted that the Bush administration had used the pretence of the Iraqi threat solely to galvanize public opinion in favour of an invasion.<sup>31</sup> If not for WMDs, why did the United States invade Iraq? One of the leading theories centres on American energy security; in other words, the United States invaded Iraq to remove Saddam Hussein, install a pro-Western government and gain unfettered access to massive Iraqi oil reserves. Perhaps the highest ranking official to publically support the ‘invasion for oil’ theory was the former Federal Reserve Board Chairman Alan Greenspan. Greenspan stated in his book *The Age of Turbulence*

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<sup>31</sup>Lawrence Jackson, "Study: Bush Led U.S. to War on False Pretenses," MSNBC, 23 January 2008; <http://www.msnbc.msn.com/id/22794451/>; Internet; accessed 21 April 2010.

that he was “saddened that it is politically inconvenient to acknowledge what everyone knows: that the Iraq war is largely about oil.”<sup>32</sup>

In order to appreciate fully the merits of this theory one must take a closer look at the composition of the Bush administration. The White House was essentially led by former oil industry executives: the President, Vice President and National Security Advisor.<sup>33</sup> The administration’s focus on energy security became clear in May 2001 with the release of a National Energy Policy by Vice President Cheney. This document emphasised the need for the United States to focus on petroleum security, highlighting the fact that American oil production had decreased 39 percent from its peak in 1970, and that American reliance on foreign oil would increase to approximately two-thirds of its demand by 2020. This concern was further emphasized by President Bush in 2001 when he warned that dependence on foreign crude oil put U.S. national energy security in the hands of foreign nations, arguing that some of them did not share America’s interests.<sup>34</sup> While one can not categorically assert that the American invasion of Iraq was about oil, it can be said that United States now has greater access to Iraqi oil reserves than they did prior to the war. It is also important to note the sheer size of the oil reserves in Iraq, now assessed to be the largest proven reserves in the world at 350 billion barrels, even

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<sup>32</sup>John Foster, "Peak Oil and Energy Imperialism," *Monthly Review* 60, no. 3 (July/August 2008): 17; <http://proquest.umi.com/pqdweb?did=1524284321&Fmt=7&clientId=1711&RQT=309&VName=PQD>; Internet; accessed 21 April, 2010.

<sup>33</sup>Heinberg, *The Party's Over* . . . , 86.

<sup>34</sup>Foster, *Peak Oil and Energy Imperialism*, 15-16.

eclipsing Saudi Arabia's 264 billion barrels of proven reserves.<sup>35</sup> By replacing an antagonistic anti-American dictator with a pro-Western Iraqi government, President Bush was able to enhance American energy security, whether one is inclined to believe that this goal was his agenda or not.<sup>36</sup>

The threat to international security and stability can be threatened by one-sided conflicts between powerful and weak nations in the struggle for energy security. However, a far more dangerous prospect exists when rivalry and conflict develops between two powerful nations competing for scarce energy resources. The most heated competition will likely develop between the established industrial powers of the European Union and the United States, and the rising powers of China and India. The established powers will seek to maintain the position of advantage they have enjoyed in international trade and global influence since the end of the Second World War, while the rising powers of China and India may seek to take what they see as their rightful places at the top of the international pecking order. In the past decade, these new upstart countries have risen in sufficient prominence and economic power to challenge the established economic order and compete for global energy resources.<sup>37</sup>

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<sup>35</sup>Sonia Verma, "Iraq could have the Largest Reserves in the World," The Times, 20 May 2008; [http://business.timesonline.co.uk/tol/business/industry\\_sectors/natural\\_resources/article3964957.ece](http://business.timesonline.co.uk/tol/business/industry_sectors/natural_resources/article3964957.ece); Internet; accessed 21 April 2010.

<sup>36</sup>Energy Information Agency, "Iraq Country Analysis Brief," Energy Information Agency, <http://www.eia.doe.gov/emeu/cabs/Iraq/Oil.html>; Internet accessed 21 April 2010.

<sup>37</sup> Micheal Klare, *Rising Powers, Shrinking Planet: The New Geopolitics of Energy* (New York: Metropolitan Books, 2008), 63.

## RISE OF CHINA AND INDIA

Prior to the early nineteenth century China and India were the two most powerful economies in the world. Together they comprised more than one-third of the world's GDP. Slowly but certainly, China and India's economic power began to deteriorate in relation to the growing economic strength of Western Europe in the nineteenth and early twentieth centuries and the United States since World War II. This trend of relative decline has started to reverse within the past three decades as America's share of world GDP has declined while both China and India's respective shares of global GDP have risen, matched by their rising populations. It is assessed that China will soon overtake the United States as the world's largest economy, and that by 2020 China and India will have restored their historical positions of economic strength, together accounting for more than one-third of global GDP.<sup>38</sup>

For China and India, this scenario may seem entirely just given that the contemporary pattern of global energy consumption is highly uneven. These emerging powers are very cognizant of the energy imbalance with the established economies of the world. Li notes that 18 percent of the world population consumes approximately one half of the world's energy, while their two countries combined represent 37 percent of the world population but consume less than one fifth of the world's energy.<sup>39</sup> Given this energy imbalance, emerging economies may feel entirely justified in taking a piece of the

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<sup>38</sup> Minqui Li, "Peak Oil, the Rise of China and India, and the Global Energy Crisis," *Journal of Contemporary Asia* 37, no. 4 (November 2007): 451; <http://proquest.umi.com/pqdweb?did=1380456531&Fmt=7&clientId=1711&RQT=309&VName=PQD>; Internet; accessed 21 April 2010.

<sup>39</sup> *Ibid.*, 451.

'energy pie' proportionate to their swelling populations. On the other hand, the established industrialized economies will likely seek to maintain the status quo, retaining their access to energy markets so they can continue to maintain the high standard of living and position of privilege they have grown accustomed to.

## **CHINA AND INDIA: EXPECTATIONS**

The exploding economies of these two rising powers has led to a profound change in the expectations of their massive populations. The success of modernization and economic development has led to a swelling middle class in both countries. This relatively new class of citizens are eager to spend money on consumer goods to enjoy a quality of life that was previously well out of reach. While the ownership of private automobiles was once the exclusive privilege of the elite in both China and India, it has now become normal for middle-class families to own a car.<sup>40</sup> In China, the speed of this advance has been astounding. Ownership of passenger vehicles grew by a factor of 11 between 1990 and 2004 in China.<sup>41</sup> This newfound demand for appliances and automobiles is among the major factors driving China's rapidly rising demand for energy resources. This demand is showing no signs of slowing as a growing number of China's massive population join the already considerable ranks of middle class consumers. India's demand for automobiles is no less impressive as China's. It is predicted that

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<sup>40</sup>Klare, *Rising Powers, Shrinking Planet* . . . , 69.

<sup>41</sup>Enrique Palazuelos and Clara García, "China's Energy Transition: Features and Drivers," *Post-Communist Economies* 20, no. 4 (December 2008): 474; <http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=35498764&site=ehost-live>; Internet; accessed 21 April 2010.

India's vehicle fleet will grow by a factor of ten between 2006 and 2030, from 11 million to 115 million vehicles.<sup>42</sup> As with China, this massive expansion of personal vehicles in India will serve to define the nation's demand for petroleum in the coming years.

The projections for the massive increases in Indian energy demand are startling, and will undoubtedly put significant pressure on the international energy market. The U.S. Department of Energy believes that India's net energy consumption will increase by an estimated 2.8 percent annually between 2004 and 2030, nearly three times the rate of the United States and seven times the rate for Europe. Critically, petroleum use is projected to increase by 76 percent during that period from 2.5 to 4.4 million barrels per day.<sup>43</sup> Also, the gap between Indian domestic crude production and imports widens with every passing year. While production has levelled off at approximately 11 million tons per year, crude imports reached 90 million tons in 2003-2004.<sup>44</sup> This oil deficiency has forced India onto the same path as China; they aggressively seek out foreign reserves to meet an ever increasing demand.

It is assessed that by 2030, Chinese domestic reserves will provide only one-quarter of the country's anticipated requirement. Furthermore, the International Energy Agency (IEA) predicts that China's lack of domestic energy reserves will present it with formidable challenge requiring an estimated investment of \$3.7 trillion over the next twenty-five years. To put the scope of the problem facing China in perspective, the

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<sup>42</sup>Klare, *Rising Powers, Shrinking Planet* . . . , 80.

<sup>43</sup>*Ibid.*, 80.

<sup>44</sup>V. S. Arunachalam, Rahul Tongia and Anshu Bharadwaj, "India's Quest for Energy Security," *Canadian Foreign Policy* 13, no. 2 (2006): 98; <http://search.ebscohost.com/login.aspx?direct=true&db=ijh&AN=57.7827&site=ehost-live>; Internet; accessed 21 April 2010.

additional energy needed to satisfy China's projected demand in 2030 - an additional 86 quadrillion BTUs - is equivalent to Europe's entire energy consumption in 2007, "representing the combined output of every power plant, refinery, reactor, hydroelectric dam, natural gas field, and wind farm in Britain, France Germany, Italy Spain and a dozen other countries."<sup>45</sup> It is this massive Chinese demand for energy that will serve to drive the increase in global demand for petroleum over the next twenty years. If peak oil is approaching as rapidly as the majority of geologists assert, where will China find the energy to fuel the equivalent of another Europe? The IEA has warned that the rapid increase in petroleum demand from China and India will place a significant amount of strain on the world energy market, warning that a global 'supply-side crunch' is possible in the coming years ahead.<sup>46</sup>

## **CHINA AND INDIA: COMPETITION AND COOPERATION**

Given insufficient domestic petroleum reserves to meet demand, China and India compete aggressively for energy opportunities on the international market. Former Indian petroleum minister Mani Shankar Aiyar raised concern over this situation. He asserts that "almost everywhere in the world where an Indian goes in quest of energy, chances are that he will run into a Chinese engaged in the same hunt."<sup>47</sup> On several

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<sup>45</sup>Klare, *Rising Powers, Shrinking Planet* . . . , 72.

<sup>46</sup>International Energy Agency, "World Energy Outlook 2007: China and India Insights," [http://www.iea.org/textbase/nppdf/free/2007/weo\\_2007.pdf](http://www.iea.org/textbase/nppdf/free/2007/weo_2007.pdf); Internet; accessed 21 April 2010.

<sup>47</sup>Martin Walker, "India's Path to Greatness," *The Wilson Quarterly* 30, no. 3 (Summer 2006): 5; <http://proquest.umi.com/pqdweb?did=1088880511&Fmt=7&clientId=1711&RQT=309&VName=PQD>; Internet; accessed 21 April 2010.



occasions, Indian firms on the verge of securing foreign energy assets were blindsided by a Chinese competitor that stepped in at the last moment to make a bigger offer. The cutthroat nature of the relationship between these two countries was revealed in August 2005 when an Indian energy company lost out to a Chinese company in a high-stakes bidding war for Petro-Kazakhstan, a Canadian firm with large oil and gas fields in Kazakhstan.<sup>48</sup> The growing antagonism between these two powerful neighbours harboured the potential to escalate the nature of the competition on a more dangerous trajectory.

Recognizing the costs associated with sustained bidding wars and the danger associated with an increase in tension between the two countries, India and China embarked on a path of cooperation. Starting in 2005, Indian energy officials began to meet with Chinese counterparts to cooperate in the hunt for overseas energy assets as well as development of major infrastructure projects such as oil and natural gas pipelines. Following a five-day visit to Beijing in 2005, Talmiz Ahmad, a senior official of India's Ministry of Petroleum and Natural Gas stated that he viewed the relationship as a long term strategic relationship where Indian and Chinese firms would submit joint offers in the purchase of energy assets. This concept was cemented in January 2006 when Chinese and Indian officials signed a pact of mutual cooperation that agreed that each country's energy firms would inform the other's prior to preparing a bid for an overseas oil or gas reserve.<sup>49</sup>

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<sup>48</sup> Klare, *Rising Powers, Shrinking Planet* . . . , 83.

<sup>49</sup> *Ibid.*, 83.

The possibility of the two most populous powers in the world forging a strategic partnership has implications that extend well beyond the realm of economics. Alliances such as this partnership have already formed in Central Asia to counter American influence in the region. The most important of these alliances is the Shanghai Cooperation Organisation, a mutual-security organization consisting of China, Russia, Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan.<sup>50</sup> The strengthening ties between China and India will serve as another counter-balance to American influence in the region.

The United States is well aware of the threat posed by an alliance between China and India. The National Intelligence Council (NIC), the centre for long-term strategic thinking in the U.S. intelligence community, warned of the danger posed by the needs of these two powers as they attempt to establish 'energy security' in their countries. Their key concern is that "China and India's perceived need to secure access to energy supplies will propel these countries to become more global rather than just regional powers..."<sup>51</sup> To this end, the NIC argues that China will continue to reinforce its military power through the development and acquisition of modern weapons and that it will surpass Russia as the second largest defence spender over the next twenty years, developing into a first-rate military power.

The advent of peak oil will not only increase the price of oil, but will also make the acquisition of large quantities of oil difficult when supply fails to meet demand. The

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<sup>50</sup> Nader Elhefnawy, "The Impending Oil Shock," *Survival* 50, no. 2 (April/May 2008): 15; <http://proquest.umi.com/pqdweb?did=1473243111&Fmt=7&clientId=1711&RQT=309&VName=PQD>; Internet; accessed 21 April 2010.

<sup>51</sup> National Intelligence Council, "Mapping the Global Future," [http://www.dni.gov/nic/NIC\\_globaltrend2020\\_s2.html](http://www.dni.gov/nic/NIC_globaltrend2020_s2.html); Internet; accessed 21 April 2010.

NIC assesses that both China and India will use their political and military influence to ensure their growing energy demand is met. This assessment asserts that “China and India, which lack adequate domestic energy resources, will have to ensure continued access to outside suppliers; thus, the need for energy will be a major factor in shaping their foreign and defence policies, including expanding naval power.”<sup>52</sup> They may use strong arm tactics to force favourable trade arrangements with oil producing nations to ensure their energy requirements are met at the expense of other, less influential consumers. The potential for these two powerful countries to use whatever influence they have at their disposal to secure their energy requirements, including the threat or use of military force can inherently make the world a more dangerous place. Their willingness to resort to military power will most likely increase as the effects of peak oil are realized and the sale of oil becomes less of a financial transaction and more of a strategic one.

The willingness of China or India to resort to military power in the pursuit of energy security in a peak oil market may manifest in the maritime domain. The potential for conflict between states exists where the boundaries of two or more country Exclusive Economic Zones overlap and the resources in the seabed are contested. Such is the case in the resource rich Spratley Islands in the South China Sea which are contested between China, the Philippines, Malaysia, Brunei, and Vietnam. Currently, the depth of water makes the exploitation of reserves in the South China Sea prohibitively expensive which allows the five countries to remain content with the status quo for the moment.<sup>53</sup> This

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<sup>52</sup>*Ibid.*

form of détente may break down as advent of peak oil approaches and the price of oil increases to the point where the extraction of these reserves becomes economically desirable. China in particular will have grown in sufficient military strength to project power into the Spratley Islands and make a claim by force if so desired. In considering the question of where China will get enough energy to power the equivalent of another Europe, the quest for energy security could take it into the South China Sea. Such a move would put it on a collision course for conflict with the other states claiming rights to the islands.

While the potential exists for China to flex her military might in pursuit of energy security, it is not the only great power that has demonstrated its willingness to use its influence to further its energy security agenda. Similar to China's interest in the natural resources in the South China Sea; the United States looks to its own regional sphere of influence to meet future energy requirements. Specifically, the U.S. focused its attention towards the oil rich states of Latin America - Venezuela, Ecuador and Bolivia - to help meet its future energy needs. The U.S. was frustrated to find her designs in those countries blocked by 'resource nationalism.' Venezuela's democratically elected president, Hugo Chavez, is a source of significant aggravation for the United States. He became even more problematic for the U.S. after his comments in 2005 openly stating that he would use his oil card to "play with toughness against the toughest country in the World, The United States."<sup>54</sup>

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<sup>53</sup>Mark Valencia, *China and the South China Sea Disputes* (New York: Oxford University Press, 1995), 11.

<sup>54</sup>Justin Blum, "Chavez Pushes Petro-Diplomacy," Washington Post, 22 November 2005; [http://www.washingtonpost.com/wp-dyn/content/article/2005/11/21/AR2005112101800\\_2.html](http://www.washingtonpost.com/wp-dyn/content/article/2005/11/21/AR2005112101800_2.html); Internet; accessed 21 April 2010.

This defiance against the will of an energy hungry United States has led U.S. Southern Command to arrive at the conclusion that the policies of Venezuela, Bolivia and Ecuador presented a clear threat to U.S. energy security, a threat that has already prompted American attempts to overthrow Hugo Chavez.<sup>55</sup> As is the case with China in the South China Sea, the extent that the United States will go to secure energy security vis-à-vis her uncooperative neighbours in Latin America remains to be seen. That being said, as the prospect of peak oil approaches, the United States may become more desperate in the face of diminishing oil supplies and the direct threat that peak oil would have on her economic strength, and political stability. In an environment of energy scarcity, the United States may be inclined to pursue a more direct involvement in Latin America to gain access to the oil supplies there.

### **COMPETITION: THE UNITED STATES AND CHINA**

While the possibility of competition and conflict exists as the powerful nations in the world manoeuvre to secure their energy security against weaker opponents, a more dangerous situation exists where the spheres of influence of powerful nations overlap. This overlap creates the conditions for competition and potentially conflict between great powers. The aggressive path that China and India have taken in pursuit of energy resources abroad will pit these emerging powers against the might of the United States and its allies. The NIC states that China's growing energy requirements will increase its activist role in global affairs, reaching into the Middle East, Africa, Latin America and

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<sup>55</sup>Foster, *Peak Oil and Energy Imperialism*, 27-28.

Eurasia.<sup>56</sup> Some of these areas, particularly the Middle East and Latin America will bring China well into America's sphere of influence, potentially increasing the ante and the level of competition between these two powers.

How states will likely compete for oil once the world oil production has peaked can already be seen. In Africa, access to key oil reserves is a battle currently being fought between the United States and China. China's first major foray into securing African oil was realised in 1996 when it acquired a major stake in Sudanese oil production. To secure the deal, China followed protocol directly from the American playbook, providing Sudan with modern weapons that she could use to quell a rebel insurgency in the south of the country.<sup>57</sup> The competition between the United States and China did not truly take hold in Africa until both countries began to woo Nigeria for its abundant petroleum reserves. The fact that Nigeria would be the centre of competition in Africa should be of little surprise – it is Africa's leading oil producer and in 2006 was America's fifth largest source of oil imports. Any disruption of Nigerian oil supply could be a considerable blow to American energy security. America's strategic interest in Africa, which in part is due to her abundant resources, has led the United States to stand up Africa Command and increase the number of bases and operations in the continent. As a pointed reminder of Africa's strategic importance to the United States, the U.S. is aiming to secure 20 percent of its imported petroleum from Africa in 2010, increasing to 25 percent by 2015.<sup>58</sup>

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<sup>56</sup>National Intelligence Council, *Mapping the Global Future*, accessed 21 April 2010.

<sup>57</sup>Klare, *Rising Powers, Shrinking Planet* . . . , 212.

<sup>58</sup>Foster, *Peak Oil and Energy Imperialism*, 28.

America's strategic interest in Africa has led to direct competition with China over the acquisition of key resources in the area. This competition is evolving to the point where both countries view the other's influence not only in economic terms, but as a strategic competitor in the region. This competition between China and the U.S. has prompted both countries to provide Nigeria with offerings of economic and medical assistance, as well as modern weapons as enticements. This aggressive manoeuvring between these two powers in Africa has reached a level of belligerence that has led one U.S. Congressman to describe the relationship as a nothing short of a Cold War dynamic.<sup>59</sup>

The critical question that must be addressed is to what extent will this new 'Cold War' escalate? Although the major industrialized powers have previously engaged in conflicts over resources, as seen by the U.S. invasion of Iraq and the Russian incursion into Chechnya, these interventions were always against a much weaker adversary. Michael Klare articulates the true danger competition for scarce resources could produce. He notes that "[A]s the desire for ever-scarcer energy supplies builds, the potential to slide across this threshold into armed conflict and possible Great Power confrontation poses one of the greatest dangers facing the planet today."<sup>60</sup>

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<sup>59</sup>Klare, *Rising Powers, Shrinking Planet* . . . , 213-214.

<sup>60</sup> *Ibid.*, 210.

## CHAPTER SUMMARY

The rapid ascent of China and India, and their clamouring thirst for petroleum will serve as the catalyst for increasing global demand over the foreseeable future. With ever increasing demand for petroleum is the growing spectre of supply side constraints, a concern initially voiced in 1956 by Marion King Hubbert, and one that is rapidly gaining traction with geologists and oil companies alike. This scenario of rising demand and diminishing supply will serve as a catalyst for the powerful oil importing nations of the world to exercise their political and military influence on weaker states to gain access to petroleum reserves and assure energy security. Military action and the threat of its use by the powerful nations of the world to secure their own interests in an environment of energy scarcity will inherently make the world a less secure place. Of more concern is the scenario where the spheres of influence of two powerful nations overlap in their pursuit of energy security, creating competition between them and escalating the potential for great power conflict over increasingly scarce resources. While the exact nature of this competition between the powerful nations of the world is yet to be seen, the importance of oil to the economies of these great nations is such that there is very little in the spectrum of conflict that can be discounted outright. While the nature of the competition may remain within the arena of diplomacy, it could escalate into isolated conflict through proxy wars or even direct armed conflict as the great powers become more desperate for energy resources. The prospect of conflict over energy resources in an environment of scarcity, either as a limited conflict, or a broader more deadly one between two powerful nations will unquestionably serve to threaten international security and stability.



## CHAPTER TWO: THE GLOBAL ECONOMY

The traditional notion of national security, defined in the context of the degree by which a nation's citizenry was kept safe from foreign aggression, is one that is becoming increasingly outdated. This time-honoured focus of national security against foreign attack was a product of the threat that presented itself throughout the twentieth century. During this period, the world experienced two World Wars that caused massive devastation and a Cold War that threatened nuclear annihilation. Each conflict manifested rivalry between states. It is for this reason that the notion of national security was tied to a state's ability to defend its people from foreign aggression.

The end of the Cold War ushered in a new era where the threat of direct state on state conflict became less likely. This absence was supplanted in importance by new breeds of asymmetric threats stemming from the growing complexities of a fragmented, post-Cold War world. This new reality forced a shift of strategy within the Western world from being fixed solely on the military threat posed by the Soviet Union to one focused on the diverse array of threats stemming from an increasingly complex and dangerous world. The fact that these new threats became increasingly important after the end of the Cold War is not to say that they did not previously exist, just that they were overshadowed by the much greater threat of nuclear war.

The threats posed by this new world order are becoming more fully appreciated, as highlighted in a recent review of CIA priorities which focuses on the 'grey areas' of national security. These new priorities range from narcotics to trade in arms, economic

espionage, international crime and the politically motivated disruption of oil supplies.<sup>61</sup> While this list of CIA priorities is not exhaustive, it does serve to highlight the diversity of threats and the need to look for interrelationships between developing threats to see where the greatest threats lie. While not directly listed within the CIA priorities, one of the greatest new threats to the industrialised nations of the world is the threat against their economic security by the peaking of world oil production. Such an event will cause such a significant amount of damage to the global economy that it will inherently also threaten the national security and stability of all nations connected to the global economy.

The concept that a nation's security was interconnected with the health of her economy is not new. Alexander Hamilton, best known for the submission of his "Report on Manufactures" to Congress December 5, 1791, captured the essence of this important relationship. It was here that he professed the idea that the wealth and security of a nation was dependant upon the strength of her industry, and that conversely if a state was unable to provide for its populous then the state as a whole would suffer.<sup>62</sup> The underlying message in Hamilton's writings was that the wealth and economic security of a nation are crucial to its strength and continued viability.

The ideas that Hamilton put forward in 1791, linking the concepts of national security with economic and social security, have continued to gain traction, particularly after the oil crises of 1973 and 1979. Mark Herander, a professor of Economics at the University of Florida asserts that national security is "the absence of acute threats to a minimally acceptable level of basic values deemed essential by society." Herander then

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<sup>61</sup>Cable, *What is International Economic Security?*, 306.

<sup>62</sup>Edward Mead Earle, ed., *Makers of Modern Strategy: Military Thought from Machiavelli to Hitler* (Pinceton: Princeton University Press, 1973), 131.

makes the argument that if economic prosperity and the maintenance of a certain standard of living are qualities that people value then anything that would threaten this economic welfare would also constitute a threat to national security.<sup>63</sup> The implications of this line of reasoning are important. If the economic security of a nation can be adversely affected by the disruption of supply of a strategic asset by an outside nation, then the targeted country's national security could be threatened. A nation assessing that its national security was threatened by the disruption of a strategic asset might be inclined to respond with force. What begins as an economic problem could end with a military solution.

The threat of constricted oil supply would have a grave economic impact on the global economy, but more pointedly it would have a destabilizing effect on the security of oil-importing nations. This destabilizing effect will not be uniform across the oil importing nations of the global economy, as some countries are more dependant on foreign oil than others. Japan is a prime example of an economy highly dependant on oil imports. The economic effects that would likely accompany the oil shock created by the peaking of global oil production include; the onset of global recession, the decline of globalization, and the potential collapse of the global economic system. The decay of global economic security borne from the effects of peak oil could threaten international security in two distinct ways. It could decrease the internal political and social stability of states affected by the energy crisis, and by the reorganization of world and regional economic and military balances of power.

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<sup>63</sup>Mark Herander, "International Trade Relations, Trade Policy, and National Security: The Role of Economic Analysis," *Royal Military College of Canada: Economics of National Security DM 549* (1993), 91, 112.

## GLOBAL RECESSION

In examining global economic growth rates during the second half of the twentieth century, it is relevant to note that they fell below 2 percent only three times. These three global economic recessions transpired in the mid-1970s, early 1980s and the early 1990s. Each of these correspond to incidents that triggered sharp increases in the price of oil, specifically the 1973-74 OPEC oil embargo, the 1979 Iranian revolution, and the 1991 Iraqi invasion of Kuwait.

These recessions, induced by rapid increases in energy prices, reflect the degree that the world's economies are dependant upon oil to function. The utter dependency of the industrialised world, combined with a permanent reduction in the rate of production of oil to the international market will likely result in a situation where the mix of existing fuel sources and new materials will prove inadequate to satisfy global demand.<sup>64</sup> This combination of events could lead to a global recession, where global economic growth rates could plummet to below 3 percent per year, similar to the periods of economic stagnation that defined the 1980s and 1990s.<sup>65</sup> The United States, whose economic development has been shaped by the abundant availability of cheap oil, will be particularly hard hit. The decade following peak oil may resemble the period after the oil embargo of 1973-73, at an economic cost that could be measured in trillions of dollars.<sup>66</sup> While any projected recession might challenge economies the world over, it could

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<sup>64</sup>Klare, *Rising Powers, Shrinking Planet* . . . , 240.

<sup>65</sup>Li, *Peak Oil, the Rise of China and India* . . . , 463.

<sup>66</sup>Hirsch, Bezdek and Wendling, *Peaking of World Oil Production* . . . , 64.

present a significant economic hardship for those countries not possessing sufficient domestic energy supplies to meet their own demands.<sup>67</sup>

Once global oil production peaks rising prices will not be the only factor that will define the energy trade; price volatility will also take hold. As the peak of world oil production draws near and prices rise, excess production capacity will disappear. This scarcity means that even minor disruptions in supply will create price volatility as the markets attempt to react to the pressures of supply and demand. Furthermore, countries will attempt to mitigate the effects of volatility by drawing from their strategic reserves, further diminishing them and compounding the problem.<sup>68</sup> Ultimately, the countries that will be most prone to economic dislocation from a global recession sparked by the advent of peak oil will be those states that are most heavily dependant upon foreign oil. While all oil importing countries would suffer in a recession initiated by the rapid rise in the price of oil, there are some countries that will be particularly vulnerable and it is these countries that pose the greatest risk for instability.

## **TRANSPORTATION**

Oil is fundamental to the transportation network that allows global trade to occur. A contraction in supply and the resultant increase in price of oil will affect the entire economy as the price of transporting goods also increases. A scarcity of oil will drive up the relative price of every traded good, from raw materials to manufactured goods to

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<sup>67</sup>Klare, *Rising Powers, Shrinking Planet* . . . , 240.

<sup>68</sup>Hirsch, Bezdek and Wendling, *Peaking of World Oil Production* . . . , 61.

food. Thus the world will not only suffer from an economic slowdown, but the relative cost of all goods would increase as the marginal cost of shipping rises in concert with the price of oil.<sup>69</sup>

The rise of globalization was predicated upon the availability of cheap oil. The central idea behind globalization was that countries could exploit their own competitive advantage in the manufacture and production of goods and ship them around the world. This system depends on a low marginal cost of transportation, facilitated by the use of bulk container ships that could transport large amounts of goods around the world inexpensively. As the price of oil increases so too will the marginal cost of transportation.<sup>70</sup> The increase in transportation costs may diminish the competitive advantage that countries enjoy in the production of goods, which has the potential effect of leading to a decrease in international trade. The increase in transportation costs due to the rapid ascent of the price of oil in an environment of scarcity may result in ‘reverse-globalization.’ Consumers may seek to save money by buying locally, thus reducing the distance that goods need to travel and the associated transportation costs of buying foreign goods. Perhaps North American consumers will discover that it no longer makes sense to import fruit from South America, or toys from China.

Advocates for purchasing locally argue that a decrease in global transportation will result in the release of fewer greenhouse gases, rejuvenate local economies, and result in people eating fresher, locally produced food. However, such a transition will not occur without significant economic disruption. First and foremost, the economies of the

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<sup>69</sup>Klare, *Rising Powers, Shrinking Planet* . . . , 240.

<sup>70</sup>Heinberg, *The Party's Over* . . . , 174.

world have changed to meet the realities of globalization – countries have abandoned the production of goods that could be produced at a lower price elsewhere in the international market. For example, there are no shoe companies in the United States that would be capable of meeting domestic demand should foreign supply drop off.<sup>71</sup> The increased cost of globalization will increase the relative price of all goods. Consumers will not have the same degree of purchasing power that they now enjoy; it is one of the many benefits of cheap oil and globalization. The implication of a relative increase in the cost of all goods is that people will not be able to buy all the goods that they could in the past.<sup>72</sup> Consumers will have to spend a greater percentage of their disposable income on essentials; there will be less money left over to spend on non-essential items. Ultimately, people will have less than they had before the peaking of oil production which could be seen by many as a direct threat to their quality of life. For some, this shift in quality of life may be severe enough to create political and social instability within their country; the effects of which will be explored in detail later in this chapter.

## **THE GLOBAL FINANCIAL SYSTEM**

While the prospect of a decreasing supply of oil, the corresponding increase in its price, the probability of a global economic recession, and the increasing relative cost of consumer goods may seem grim enough, the stakes are higher yet. The current global financial system was designed during a period of “continued economic growth that was

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<sup>71</sup>*Ibid.*, 174-175.

<sup>72</sup>Kunstler, *The Long Emergency* . . . , 256-257.

both inevitable and desirable.”<sup>73</sup> Thus the notion of continued growth became embodied in the design of the modern financial system, a characteristic that must perpetuate if the financial system is to remain viable.

The concept of economic growth starts with the method by which nations create money. The financial systems of all nations create money through the provision of loans. Therefore, the majority of all money in the financial system also symbolizes debt. Given that debt incurs interest, where does the money come from to pay back the interest on these loans? The money needed to pay the interest on such loans comes from debt incurred somewhere else in the financial network of the global economy. If no new loans are made, then at some point in this massive financial network, someone will not be able to pay the interest on their outstanding loans. Thus, the need for growth has become an integral and necessary part of the global economic system. Such continued ‘growth’ of the global economy will become increasingly difficult to foster given that less net energy will be available to power the economy. While this concept may seem fundamental, the implications are important: “With less net energy available, less work can be done.”<sup>74</sup> Therefore, given that there will be less energy available post-peak, there will be less economic productivity and less growth.

The overall implications of a failure of the global economic system are as significant as they are unpredictable. While the exact repercussions are impossible to fathom, one can be assured that should such an event occur the economic, social and

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<sup>73</sup>Heinberg, *The Party's Over* . . . , 170.

<sup>74</sup>Ibid., 169-170.



political stability of all countries tied to the global financial system would be seriously affected.

The threat posed by the economic dislocation fostered by the onset of peak oil will manifest in two distinct ways. First, economic turmoil can lead to internal instability within a country which may cause ruling governments to fall and extremism to take hold. Conversely, a government seeking to maintain power may resort to extreme measures to do so, potentially leading a country to war to placate an irate population. Secondly, instability in the global economy can re-orient regional balances of power, as state power realigns according to the degree of energy security a nation enjoys.

## **SOCIAL AND POLITICAL INSTABILITY**

The idea purported by Alexander Hamilton that economic security is essential to maintaining political and social security within a country remains as valid today as it did in 1791. A government that is unable to provide economic security for its population can quickly lose credibility and influence. Moreover, it would allow the conditions for social and political instability to take root within the country. The degradation of a country's wealth and specifically the quality of life enjoyed by the citizenry can create internal turmoil, spelling the end of a governing party in a democratic system, or providing incentive for rebellion against a dictatorship.<sup>75</sup>

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<sup>75</sup>David Deese, "Energy: Economics, Politics, and Security," *International Security* 4, no. 3 (Winter, 1979-1980): 146; <http://www.jstor.org/stable/2626698>; Internet accessed 21 April 2010.

In extreme cases, social unrest can develop into revolution which can further degrade the security and stability of the nation. One example is the fall of the German Weimar Republic in 1923. While the economic crisis that precipitated the fall of the Republic was not caused by a shortage of oil, it still serves to demonstrate the impact that a lack of economic security can have on the political and social security of a nation. After four years of struggling under the reparations of the Treaty of Versailles, Germany's economy finally collapsed. By autumn 1923, inflation was so severe that the German mark was literally not worth the paper it was printed on and workers required wheelbarrows to take home their weekly earnings. Inflation wreaked havoc on the poor and those people living on fixed incomes; these unfortunates watched their lifetime savings disappear.<sup>76</sup> This economic collapse created the perfect conditions for revolution. The Weimar republic soon fell to Hitler's Nazi party, sending Germany onto a trajectory that led the world to war.

The economic collapse of Germany's Weimar Republic offers an extreme example of how a lack of economic security can threaten a nation's social and political stability. The economic effects of the 1970s twin oil crises also created social disruption, particularly in the United States, albeit not to the same extent as what was witnessed in 1923 Germany. The 1973 oil crisis sparked a rapid increase in the price of oil which spurred fear and uncertainty amongst nations and individual consumers alike, which quickly became a self-fulfilling prophesy. Oil companies and consumers frantically sought additional supplies of oil, not only for immediate use but also to stockpile for an increasingly uncertain future. The impact on the average consumer was profound. In the

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<sup>76</sup>Marshall Dill, *Germany: A Modern History* (Ann Arbor: The University of Michigan Press, 1970), 293-294.

United States, the embargo instigated a 40 percent increase in the price of gasoline in a matter of months and shortages forced the Federal Energy Office to institute gasoline rationing which led to the infamous ‘gas lines’ that would define this era in American history. The United States was not alone in its privation. The governments of Japan and Germany also had to take direct intervention in their economies to prevent the failure of entire sectors of industry and to avert mass riots.<sup>77</sup>

Fortunately, the social and political consequences of the twin oil crises were relatively minor and did not present a threat to international security and stability. However, the permanent peaking of global oil production will have a significantly more profound impact on the global economy than the temporary oil supply disruptions of 1973 and 1979. While it is impossible to predict the degree of social and political turmoil that peak oil will ignite, it can be deduced that the more dependent a nation is on foreign oil, the more severe will the economic impact and the resultant political and social unrest be.

While social and political unrest can result in extremism and regime change, it can also lead a country to war. Dr. Gregory Hess and Dr. Athanasios Orphanides, both from the Department of Economics at the University of Kansas examined the relationship between periods of recession and the incidence of discretionary wars; wars where a country’s leader has the choice of whether or not to engage in. Their study found that the incidence of war was significantly higher in those years when a faltering economy occurred at the same time as an election. Using data from the United States, Dr. Hess and Dr. Orphanides demonstrated that if the economy was doing poorly but it was not an

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<sup>77</sup>Yergin, *The Prize* . . . , 615-617.

election year, then the likelihood of the U.S. going to war was 30 percent. Similarly, if it was an election year but the economy was doing well, then the likelihood of going to war was also 30 percent. On the other hand, if both were factors then the likelihood of war doubled to 60 percent. Furthermore, this relationship between weak economic performance and the increased incidence of war was only observed in democracies; the authors argued that democratic leaders might be more inclined to engage in 'avoidable' wars to bolster their appeal for re-election.<sup>78</sup>

The implications of this study are profound when considering a future security environment defined by a scarcity of energy resources. The negative economic effects associated with the peaking of oil production and the corresponding increase in the price of oil may create significant economic pain for many countries. This economic dislocation will increase the chance of political and social unrest within a country, thereby putting pressure on the leaders of a nation to do something. The option of a country going to war may be attractive for two reasons: to redirect the attention of the voting public from their economic situation, and potentially to gain access to energy resources held by a prospective enemy. Whichever the result, the internal political and social unrest in countries around the world will present a threat to global security and stability.

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<sup>78</sup>Gregory D. Hess and Athanasios Orphanides, "War Politics: An Economic, Rational-Voter Framework," *The American Economic Review* 85, no. 4 (September 1995): 14; <http://proquest.umi.com/pqdweb?did=8634081&Fmt=7&clientId=1711&RQT=309&VName=PQD>; Internet; accessed 21 April 2010.

## REGIONAL BALANCE OF POWER

The second way that international security and stability may be affected by the economic fallout of peak oil is through the shifting balance of power that could occur as the relative power of states shifts according to their degree of access to energy supplies. The United States is able to exercise a significant amount of influence around the globe by having key allies to represent their interests in the diverse regions of the world. If one of these key allies were to suffer severe economic disruption, then a region's balance of power could conceivably shift.<sup>79</sup> A country suffering an economic collapse will necessarily have less money to spend on defence, and would most likely be preoccupied by internal strife and disorder.<sup>80</sup> This situation would leave a country weaker than it was before, potentially providing regional enemies the opportunity they were waiting for to change the balance of power in the region.

A nation's continued strength in a post-peak oil world may well be determined by access to petroleum. A country that has sufficient energy resources to support its economic and military needs will grow in relative power against those that do not. This rebalancing of the world order along the lines of energy haves and have nots may prove dangerous as declining powers seek to maintain their influence and power. This chaotic rebalancing of the world order will certainly have casualties and will ultimately make the world less safe.

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<sup>79</sup>Deese, *Energy: Economics, Politics, and Security*, 148.

<sup>80</sup>Cable, *What is International Economic Security?*, 307.

## CHAPTER SUMMARY

While the degree of economic dislocation arising from a permanent reduction in the production of oil is unknown, it is clear from observing past oil disruptions that the negative economic effects will be significant and lasting. Whether peak oil will force the world into a prolonged global recession, or even result in the demise of the global financial system, the economic dislocation associated with either scenario will result in a painful period of transition for every nation connected to the global economic system. Such a profound economic upheaval will have a drastic effect on international stability and security as the established world order is thrown into chaos. The economic dislocation arising from the onset of peak oil could create a significant amount of social and political upheaval in countries around the globe. This internal turmoil might result in the rise of extremism, or could even lead a country to war in an attempt to distract its populace from the state of their economy, and gain access to an opponent's resources.

Furthermore, the peaking of global oil production may also serve to rebalance the world economic order. This rebalancing of the international pecking order will likely shift the balance of power in some regions of the globe. Previously powerful states might be brought down by the misfortune of not having sufficient energy resources to meet their economic and military needs, which could allow potential competitors to seize the advantage and become the dominant power in the region. While the economic implications stemming from the advent of peak oil remain unknown, the energy crises of the past point to the likelihood of a prolonged and deep recession that will be so profound that it will create social and political disorder and shift the global balance of power, ultimately making the world less secure.

### **CHAPTER THREE: CHALLENGES FACING OIL PRODUCING NATIONS**

The arrival of peak oil will unquestionably provide a boon for the majority of the oil producing nations of the world. The major oil producers will enjoy higher profits and increased political leverage with those countries that seek to buy their oil.<sup>81</sup> While a future defined by resource scarcity might appear to be a great windfall for those countries blessed with an abundance of energy resources, they will also have their share of challenges. There are several potential hurdles that oil producing nations may have to face in an environment of growing resource scarcity. The first is the phenomenon of the ‘resource curse’ where a resource-rich country can suffer from economic stagnation and potentially even civil war. Secondly, resource-rich countries desperate to maintain prestige and oil revenues may find themselves in competition with other oil producing nations as they vie for remaining resources in an attempt to secure the economic security of their nations. Finally, oil producing nations will eventually be faced with the prospect of choosing either to keep their oil for themselves, or to sell it on the international market for significant profit. This dilemma could lead to an increased demand for nuclear energy, the proliferation of which can pose its own threat to international security and stability.

#### **RESOURCE CURSE**

The notion that a country, newly blessed with the discovery of natural resources, could actually become worse off than before is not a new concept. The concept has gained enough traction to earn it the infamous title of ‘resource curse.’ This phenomenon

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<sup>81</sup>Elhefnawy, *The Impending Oil Shock*, 7.

was even observed among the powerful member countries of OPEC, half of whom were poorer in 2005 than 30 years previously. While many of these countries benefited from rapid economic growth in the 1970s, many suffered debt, unemployment and economies in decline in the decades that followed. One reason why this 'curse' takes hold is the fact that a country with significant commodity exports will see the value of their currency increase. Buyers of the commodity will need to purchase in that country's currency, thus driving up the demand for that currency, and its valuation. The net effect is that other exports, such as agricultural or manufactured products will be less competitive because of the high currency valuation, which in the end is responsible for economic decline in that country.<sup>82</sup> Unfortunately, the oil curse goes beyond simply being responsible for economic decline; it can also contribute to conflict and civil war, particularly amongst less developed, resource rich countries.

Paul Collier and Anke Hoeffler are renowned economists who have written extensively on the factors that contribute to civil wars. They found that countries heavily dependent upon commodity exports accounting for at least one quarter of their national income were four times more likely to have a risk of conflict than those without primary commodity exports.<sup>83</sup> The pressures that lead to civil war in resource-rich countries will only increase when global oil demand begins to outpace supply. The rapid increase in the

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<sup>82</sup>Michael L. Ross, "Blood Barrels," *Foreign Affairs* 87, no. 3 (May/June 2008): 2; [http://proquest.umi.com/pqdweb?did=1483499441&Fmt=7&clientId=1711&RQT=309&VName=PQD](http://proquest.umi.com/pqdweb?did=1483499441&Fmt=7&clientId=1711&RQT=309&VName=PQD;); Internet; accessed 21 April 2010.

<sup>83</sup>Collier, Hoeffler and Rohner, "Beyond Greed and Grievance: Feasibility and Civil War," *Oxford Economic Papers* 61, no. 1 (January 2009): 13; <http://proquest.umi.com/pqdweb?did=1606852011&Fmt=7&clientId=1711&RQT=309&VName=PQD>; Internet; accessed 21 April 2010.



price of oil after the onset of peak oil could make these precious resources even more hotly contested in these poor, resource-rich countries and ignite conflict.

Civil war takes root primarily in the poor regions of the world when the incentive for potential gains outweighs the risk to the individual.<sup>84</sup> It is for this reason that one third of the world's civil wars occur in oil producing states.<sup>85</sup> It is also in these countries, blessed with natural riches, where people see the immense disparity between the rich and themselves, the poor. The poor might be offered options through rebellion that otherwise would not exist for them, making them easy targets for rebel recruitment where promises of potential wealth might draw them in.

Paul Collier and Anke Hoeffler have deduced three principle ways that a commodity rich country may slip into civil war. First, a country rich in commodities can provide rebels with opportunities to make enough money to fuel their insurgency. There are many ways they can do so, such as stealing the commodity, kidnapping and ransoming foreign oil company workers or even extortion. Secondly, civil war may be instigated by rebels funded by companies seeking favourable 'rent' agreements over the extraction of resources in the country once the rebels take over. Thirdly, internal strife can take root in a country where a government, rich from the sale of commodities, has no need to tax its citizens and thus even less of a reason to listen to them. Such governments are less accountable to their populations, which in turn increases the grievances the

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<sup>84</sup>Paul Collier and Anke Hoeffler, "On Economic Causes of Civil War," *Oxford Economic Papers* 50, no. 4 (October 1998): 563; <http://proquest.umi.com/pqdweb?did=35213392&Fmt=7&clientId=1711&ROQ=309&VName=POD>; Internet; accessed 21 April 2010.

<sup>85</sup>Ross, *Blood Barrels*, 2.

population may have against the state, inciting them to join rebellion.<sup>86</sup> The pattern of civil war appears to follow several common factors. Most likely countries for rebellion are those 'blessed' with the discovery of natural resources but have not yet employed their wealth to benefit the entire population.

The prospect of rising oil prices is more likely to increase conflict in these countries. For those countries deriving a significant portion of their revenue from oil exports, increased oil prices can exacerbate the factors that would lead to civil war in a country. If the incentive for a population to join a rebellion is based on a financial incentive, then the widening divide between the rich and poor within a country may provide the incentive for those on the fringe of rebelling to do so. Furthermore, in a world of increasing energy scarcity, oil companies and countries desperate to secure new reserves may focus their efforts on undermining weak governments with whom these powerful consumers do not yet have agreements in order to make inroads. As previously mentioned, tension already exists between the United States and China in securing oil resources in Africa. Therefore the next step in the conflict could very well be a proxy war between these powers - with one backing the government and the other the rebels - in a desperate bid to control the oil reserves in the country. Lastly, a drastic increase in oil revenues will further reduce the importance of the population, solidifying the government's autonomy from the people and widening the grievances of the population as oil money is diverted into the foreign bank accounts of the elite instead of towards meeting the basic needs of the people.

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<sup>86</sup>Collier, Hoeffler and Rohner, *Beyond Greed and Grievance* . . . ,13.

The pattern of the 'resource curse' is well documented in Africa, where the oil rich countries of the continent - Nigeria, Gabon, the Sudan, the Congo, Equatorial Africa and Chad - all share the same legacy of bloody coups, military rule and corruption. The conditions that exist in countries embroiled in civil war make it impossible for viable economic development, further deepening the misery of the population. The dislocation caused by resource-driven civil wars in Africa has caused millions to perish from hunger and disease.<sup>87</sup> The effects that the resource curse has on states that become embroiled in internal conflict is richly illustrated in three contemporary examples: the Republic of Congo, Nigeria and the Sudan.

The Republic of Congo represents the embodiment of a country ruined by resources. The Congo, one of most resource endowed countries in the world, currently houses a handful of foreign armies and a myriad of rebel groups vying for control of extensive deposits of minerals and tracks of timber in the country.<sup>88</sup> Typical of countries that succumb to the resource curse, oil became the Congo's main export and the major contributor to government revenues. In 1997 and 1998, the Republic of Congo erupted in civil war which hindered her attempts at economic reform.<sup>89</sup> Notwithstanding that the Congo is the fourth largest oil exporter in Africa; it continues to hold a debt of an estimated \$6.4 billion dollars.<sup>90</sup> Burdened by this debt, the government of the Congo is

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<sup>87</sup>William K. Tabb, "Resource Wars," *Monthly Review* 58, no. 8 (January 2007): 34; <http://proquest.umi.com/pqdweb?did=1190705101&Fmt=7&clientId=1711&RQT=309&VName=PQD>; Internet; accessed 21 April 2010.

<sup>88</sup>*Ibid.*, 34.

<sup>89</sup>The Central Intelligence Agency, "CIA - the World Fact book - Republic of the Congo," <https://www.cia.gov/library/publications/the-world-factbook/geos/cf.html>; Internet; accessed 21 April 2010.

struggling to revitalize its economy and address the poverty of its citizens.<sup>91</sup> The fact that the Congo continues to draw a significant amount of revenue from the export of oil, the continued poverty of her citizens and a history of civil war makes the prospect of a return to internal conflict a real threat. The global peaking of oil production and the corresponding spike in oil prices may be enough to incite rebellion in the Congo once again.

Another African country that could be a potential flashpoint for a resource-driven civil war is Nigeria. Similar to the Republic of the Congo, the Nigerian economy is over-reliant on oil profits. In addition, the substantial revenue the Nigerian government earned from oil rents was wasted through corruption and mismanagement.<sup>92</sup> Another source of concern is Nigeria's history of conflict with neighbouring countries over oil reserves, most notably the maritime border disputes with Equatorial Guinea and Sao Tome over undersea oil reserves in the Gulf of Guinea. Furthermore, Nigeria continues to clash with Cameroon over ownership of the Bakassi Peninsula.<sup>93</sup> Nigeria's rampant corruption and waste of oil revenues could also serve to make it a candidate for rebellion. The advent of peak oil and the rapid increase in oil rents may only serve to increase the frustration of Nigeria's poor population with government waste and corruption.

The third country for consideration as an example of a potential flashpoint for internal conflict over energy resources is the Sudan. Since its independence from the

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<sup>90</sup>Tabb, *Resource Wars*, 34.

<sup>91</sup>The Central Intelligence Agency, *CIA - the World Fact book - Republic of the Congo*.

<sup>92</sup>The Central Intelligence Agency, "CIA - the World Fact book - Nigeria," <https://www.cia.gov/library/publications/the-world-factbook/geos/ni.html>; Internet; accessed 21 April 2010.

<sup>93</sup> Klare and Volman, *Africa's Troubled Oil Producers*, 228.

United Kingdom in 1956 Sudan has engaged in two prolonged civil wars. The first commenced one year before independence in 1955, lasting until 1972, the second commenced in 1983 and ended in 2002. These civil wars were a result of the economic and political control of the southern Sudanese by the Muslim majority in the north. While Sudan's GDP is growing because of extensive oil exports to China and India, the vast majority of Sudanese are not benefiting from the country's oil wealth and remain below the poverty line.<sup>94</sup> While a cease-fire currently exists between the Sudanese government and the Sudan People's Liberation Army, several issues remain to be resolved before a lasting peace can be found. Critically, one issue is the distribution of oil revenues.<sup>95</sup> As observed with the examples of the Congo and Nigeria, the Sudan may be vulnerable to the threat of internal conflict. Similar to the first two examples, the majority of the country is extremely poor – potentially providing a rebellion with a ready supply of recruits. Of great concern is the history of internal conflict in Sudan, combined with the fact that the distribution of oil revenues remains as an item for resolution between the government and the People's Liberation Army. A rapid increase in the price of oil sparked by the onset of peak oil may re-ignite the tension between the two parties and launch the country back into civil war.

While the Congo, Nigeria, and Sudan each have some of the characteristics that Paul Collier and Anke Hoeffler identify as risk-indicators for a resource-driven civil war, such an outcome can not be predicted with certainty. Notwithstanding, these three

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<sup>94</sup>The Central Intelligence Agency, "CIA - the World Fact book - Sudan," <https://www.cia.gov/library/publications/the-world-factbook/geos/su.html>; Internet; accessed 21 April 2010.

<sup>95</sup>Klare and Volman, *Africa's Troubled Oil Producers*, 229.

countries are but a handful of many that could fall victim to the resource curse and suffer internal conflict in the struggle for control of the country's resources. It may be a cruel twist of fate that the majority of newly energy rich countries are undemocratic, poor, and completely ill prepared to manage properly the windfall they have just received.<sup>96</sup> The temptation for corruption by the elite in these countries may be difficult to resist which could in turn increase the divide between the rich and the poor, and initiate the cycle of civil war.

### **COMPETITION BETWEEN OIL PRODUCING COUNTRIES**

As disconcerting as the prospect of peak oil may be to the industrialized oil importing nations of the world, it is also of grave concern to the oil producing countries. The countries that depend on the export of oil to sustain their economies will likely watch with trepidation as their oil reserves deplete year after year, while new discoveries continue to become more elusive. A country dependant on oil profits that realizes it has reached its own peak in production would have good reason to be concerned. The implication of an oil producing country reaching its peak in production is that it will never again produce more oil than its current rate, and that the primary source of its revenue would start to decline. Admittedly, the remaining oil that such a country would still possess would be extremely valuable, and would be of significant strategic importance. The way in which an oil producing country leverages its resources after the advent of peak oil will likely determine the degree of security and stability it will enjoy in the future. A shrewd oil producer will preserve the sale of its national treasure to those

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<sup>96</sup> Ross, *Blood Barrels*, 4.

importing countries that share its best interests and can assure its continued security and stability.

Ironically, one of the threats to the security of an oil producing nation might be the machinations of another oil exporter as they compete to control remaining oil reserves. One point of contention that could prompt conflict between oil producing states is the fact that oil reservoirs do not recognize international boundaries. To mitigate this reality, countries that share access to oil reservoirs will generally all contribute to the production costs, and consequently all enjoy the profits. However, this relationship is bound by a certain amount of trust. If one country was unscrupulous, it could take advantage of its neighbouring partners by altering its accounts and not declaring all of the oil it produced. An even more devious plan for countries desperate to increase their oil production would be to use advanced 'slant drilling' techniques to siphon oil from a neighbouring country's reservoir.<sup>97</sup> Both these examples represent the theft of oil from one producer by another, an action that would arguably threaten the economic security of the targeted state. This scenario would hold especially true in the post-peak oil environment where oil was a key strategic asset that an exporting state could use to secure its future security and stability.

In 1990, Saddam Hussein made the argument that Kuwait posed a threat to Iraq's economic security by the action of slant drilling into his country's giant Rumalia oil field. In addition to the Iraqi complaint of oil theft, Saddam Hussein was furious with Kuwait's decision to exceed its OPEC quota, essentially flooding the market with oil and driving

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<sup>97</sup>R. Howard, "Peak Oil and Strategic Resource Wars," *The Futurist* 43, no. 5 (September/October 2009): 21; <http://proquest.umi.com/pqdweb?did=1822785101&Fmt=7&clientId=1711&RQT=309&VName=PQD>; Internet; accessed 21 April 2010.

down the price of oil. Hussein was counting on higher oil revenues to rebuild an economy shattered by eight years of war with Iran.<sup>98</sup> Essentially, Saddam Hussein justified the invasion of Kuwait as retaliation for Kuwait's actions against Iraqi economic security. Unfortunately for Saddam Hussein, his attempts to justify the invasion of Kuwait fell on deaf ears and Iraq was quickly expelled from Kuwait by American-led coalition forces in 1991.

If there was one thing that the oil producing nations of the Middle East could learn from America's response to the Iraqi invasion of Kuwait, it was the degree of importance the U.S. places on the stability of the Middle East. Given this reality, it is unlikely that oil producing nations will resort to open conflict again with as little provocation as was seen in 1990. Notwithstanding the potential of U.S. intervention to impose peace in the Persian Gulf, a situation of instability could materialize if the benefit of invading a neighbour outweighed the risk.

One scenario where the cost-benefit analysis could lead to confrontation between oil producing nations would occur if one oil producing nation were to 'peak' earlier than a rival. The leader of such a state may be concerned with the long-term strategic vulnerability of his country, and may decide that it would be in the country's best interest to eliminate a potential rival while the country was still wealthy from oil exports and still had the means to fuel its war machine.<sup>99</sup> The potential that an oil producer on the verge of decline could use force to neutralize a rival prior to its own decline would unquestionably make the region less secure. This scenario could be exacerbated by the

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<sup>98</sup>Joe Stork and Ann Lesch, "Background to the Crisis; Why War?" Middle East Report, no. 167 (1990): 13; <http://www.jstor.org/stable/pdfplus/3012998.pdf>; Internet; accessed 21 April 2010.

<sup>99</sup>Howard, *Peak Oil and Strategic Resource Wars*, 21.



intervention of the great powers of the world as they seek to secure their lines of oil supply, potentially widening the conflict into a regional or even global conflict. A conflict that drew in the world's great powers would unquestionably threaten global international security and stability.

## **NUCLEAR PROLIFERATION**

Oil producing nations faced with the prospect of the peaking of national oil production will be presented with a dilemma; do they keep the oil that they produce for themselves, or do they sell it for a very high profit? A complicating factor for the oil exporting nations of the world is that they are generally insatiable oil consumers as well. These countries fall victim to their own success, whereby the ready supply of oil ultimately makes them less efficient in energy use. Oil exporting states are inefficient for two reasons. Firstly, as developing nations they tend to use outdated and less energy efficient machinery than the oil importing industrialized nations of the world. On average, these countries use more than double the amount of oil to produce one unit of output compared to their developed counterparts.<sup>100</sup> The second reason why oil producing states are so inefficient is that their large supplies of oil allow governments to subsidize domestic energy use, which ultimately fosters inefficiency.<sup>101</sup> If the price of oil in a country is artificially low, then there will be little incentive for consumers to become energy efficient.

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<sup>100</sup>Hirsch, Bezdek and Wendling, *Peaking of World Oil Production* . . . , 30.

<sup>101</sup>Elhefnawy, *The Impending Oil Shock*, 7.

It is this trend of inefficiency that that has taken root in Iran and has set it on the path to an energy crisis. Iran's rate of oil exports is declining at the astonishing rate of 10-12 percent per year. This significant decline in the exportation of oil has manifested because of three factors: an increase in domestic energy demand, a high rate of oil reserve depletion, and a lack of investment growth. These factors have resulted in Iran's inability to meet its OPEC oil export quota with indications that Iranian oil exports will continue to fall to an export rate of zero by 2014-2015.<sup>102</sup>

This trend has forced a change of perspective on Iran's claims for the necessity of nuclear power to ensure its future energy security. Given that Iran's revenues from the export of oil provided 64 percent of state revenue in 2004, it becomes clear that the country is most likely sincere in its stated intent of preserving its oil export capacity to the largest extent possible. To this end, Iran has stated her intent to build nuclear reactors to meet domestic energy demand, thereby preserving her valuable oil reserves for export. Without the extensive rents gained from the export of Iranian oil, state revenues will dry up, potentially making the ruling Islamic regime vulnerable to internal unrest and rebellion.<sup>103</sup>

The threat posed by an oil exporting country's desire to maintain oil export revenues, as is the case with Iran, is that they will seek to make up for the shortfall by meeting domestic demand with nuclear energy. While nuclear energy may play an important role in an era defined by the scarcity of fossil fuels, the widespread use of this

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<sup>102</sup>Foster, *Peak Oil and Energy Imperialism*, 27.

<sup>103</sup>Roger Stern, "The Iranian Petroleum Crisis and United States National Security," Proceedings of the National Academy of Sciences of the United States of America 104, no. 1 (January 2007): 377; <http://proquest.umi.com/pqdweb?did=1189313691&Fmt=7&clientId=1711&RQT=309&VName=PQD>; Internet; accessed 21 April 2010.

form of nuclear energy poses its own risks that must be weighed when considering the impact on international security and stability.

France is the leading nuclear energy consumer in the world, attaining 77 percent of its electricity through nuclear power. If the rest of the world were to follow the path that France has taken, it would require an additional 2,000 nuclear reactors.<sup>104</sup> The sheer magnitude of nuclear power needed to make up the shortfall for fossil fuels raises several potential threats to international security, specifically the potential for a Chernobyl-style meltdown and the increased potential for the proliferation of nuclear material and weapons.<sup>105</sup>

The threat of an accident such the 1986 accident at Chernobyl would pose a significant peril to the affected nation and neighbouring states.<sup>106</sup> Such an accident would not only threaten the health and welfare of the population, but might also have a detrimental affect on public acceptance of nuclear power around the world.<sup>107</sup> The exact hazard that such an accident could pose to international security and stability would likely depend on where it had occurred. The potential for heightened tension between states is only likely to exist if nuclear fallout from one country were to threaten another. While such an event would not likely result in conflict on its own, it could serve as a catalyst for an aggrieved nation to address another unresolved dispute.

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<sup>104</sup>Elhefnawy, *The Impending Oil Shock*, 17.

<sup>105</sup>P. Joskow and J. Parsons, "The Economic Future of Nuclear Power," *Daedalus* 138, no. 4 (Fall 2009): 15;  
<http://proquest.umi.com/pqdweb?did=1884053861&Fmt=7&clientId=1711&RQT=309&VName=PQD>;  
Internet; accessed 21 April 2010.

<sup>106</sup>Elhefnawy, *The Impending Oil Shock*, 17.

<sup>107</sup>Joskow and Parsons, *The Economic Future of Nuclear Power*, 54.

The second threat to international security and stability from an increased use of nuclear power is in the threat posed by the proliferation of nuclear material and weapons. The widespread use of nuclear energy could make the diversion of nuclear waste more difficult to track and secure.<sup>108</sup> The threat of spent nuclear materials falling into the hands of terrorists would be elevated in an environment of widespread nuclear energy use. Such terrorists would then be able to create a very dangerous weapon - the dirty bomb. The use of such a weapon would generate an unparalleled amount of fear and instability in a targeted country.

While the expanded use of nuclear energy will not necessarily be restricted to the oil producing countries of the world, it is likely that nuclear power will play a particularly important role for these countries as they seek to minimize domestic petroleum use. A second reason why oil producers may be more likely to depend on nuclear power is that they will be able to afford it. Such countries have sufficient capital from oil revenues to embark on the massive undertaking of building and operating nuclear power plants. The end result is that the oil producing nations of the world are likely candidates for embarking on the path of nuclear power, and must therefore be prepared to manage the potential threats to security that comes with the use of this form of energy.

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<sup>108</sup>*Ibid.*, 54-55.

## CHAPTER SUMMARY

The oil importing nations of the world will not be the sole victims of the peaking of global oil supply. Although oil producing states will benefit from increased revenues as a result of the rapid increase in the price of oil, they will also have to contend with three key challenges that could serve to decrease their overall security and stability. The first of these challenges is the possibility that an oil exporting nation could suffer from the 'resource curse.' The resource curse can manifest itself in two ways, the first being economic stagnation of a country's export industries as the valuation of the nations currency rises due to the sale of oil. The second way that the resource curse can affect the country is by the instigation of civil war. The incidence for rebellion in resource rich countries is higher primarily owing to the massive divide between the rich and the poor.

The second challenge to the security of an oil producing state in a post oil-peak world is the threat of competition with other oil producing nations in the region, as countries aim to ensure their future security, either by eliminating a potential rival or by making a play for rival's oil reserves. The final challenge to the security and stability of an oil producing country is the threat of nuclear proliferation. Oil producing states that generate the majority of their revenues from oil will seek to protect that source of income and will seek alternative methods of meeting domestic energy demand. This scenario may lead some states, such as Iran, to exploit the use of nuclear energy. The potential for the widespread use of nuclear energy poses two distinct problems to international security and stability. The potential for a nuclear accident such as that Chernobyl in 1986 or the

increased potential for nuclear materials to fall into the hands of terrorist organizations  
unfortunately highlights the dark side of nuclear energy.

## CONCLUSION

The modern global economy is so dependant on oil that it has been called “the lifeblood of our civilization.”<sup>109</sup> Because oil is used in every aspect of the economy, from industry to manufacturing, agriculture, and land and maritime shipping, a disruption in the supply of this strategic asset could cripple a nation’s economy. The results of a prolonged disruption of a nations oil supply would be so severe that it could transcend the realm of economic effects to threaten a nation’s security. The relationship between a nation’s economic well being and her security was recognized as early as 1791 by Alexander Hamilton. Hamilton asserted that a threat to a nation’s wealth could threaten national security by increasing social unrest and political instability. The relationship that Hamilton identified between a country’s economic well-being and its security became relevant two centuries later during the 1973 and 1979 oil shocks. The twin oil shocks of the 1970s showed the industrialized nations of the world how vulnerable they were to disruptions of foreign oil and raised the spectre of energy security. These oil shocks also reinforced an understanding of the intimate relationship between energy and economic security with national security.

While the security of the oil importing nations of the world was threatened by a critical shortfall in the supply of oil during the 1973 and 1979 oil crises, both were temporary and politically driven. Notwithstanding the fact that these supply disruptions each lasted for only about one year, they cost trillions of dollars and wreaked havoc on the economies of the industrialized nations. Considering the significant dislocation created by these energy shortages, an energy crisis instigated by a permanent reduction in

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<sup>109</sup>Hirsch, Bezdek and Wendling, *Peaking of World Oil Production* . . . , 8.

the supply of oil has the potential to be significantly more destructive. The advent of peak oil and the permanent reduction in the global production of oil will have such a colossal impact on the nations of the world that it could foster internal turmoil within nations. Political and social instability within a nation can produce effects capable of spilling over its borders and threatening international security and stability.

The peaking of world oil production can threaten international security and stability in three distinct ways. First, international stability and security could be threatened by an increase in tension between the powerful nations of the world as they take measures to secure their energy security. Secondly, international security and stability could be threatened by a massive recession sparked by the dramatic increase in the price of oil stemming from the onset of peak oil. Lastly, the advent of peak oil can create instability in oil producing nations, inciting civil war, conflict with rival producers or through the proliferation of nuclear energy.

A competition between the powerful nations of the world over increasingly scarce resources can imperil international stability and security. The rise of the Chinese and Indian economies has driven demand for oil in the last twenty years and is now pitting these emerging powers against the traditional players in the international energy market, the countries of the OECD. More specifically China's quest for energy resources has brought it into America's sphere of interest in several regions where these two powerful nations contest for access to valuable energy reserves, most notably in the Caspian Sea Basin and in Africa. China could become a formidable opponent to the United States as both seek to secure the energy resources they need to satisfy the expectations of their citizens and the ambitions of their governments. While the exact outcome from this



increase in competition for oil resources is difficult to determine, a competition for scarce resources between these powerful states could serve to diminish international security and stability. The threat could manifest itself through a build up of tension leading to a new Cold War, or even by the onset of conflict. While the scale of such a potential conflict is impossible to know, it could develop into either a localized proxy war, or in the worst case, manifest in a direct competition between these powerful states. Conflict of any scale could threaten international security and stability.

The interrelationship between a nation's security and the soundness of its economic system is explicit. The economic well-being of a country's citizens is an important aspect in ensuring that the country is stable and free of internal strife. When the expectations of the population are not being met, a country's population may seek government or regime change. Financial hardship would be extremely likely in a post-peak oil era. Each of the major recessions in recent history was preceded by a significant increase in the price of oil, from the OAPEC embargo of 1973, the Iranian Revolution of 1979, and the 1990 Iraqi invasion of Kuwait. The peaking of global oil production will force the international energy market to follow the precepts of supply and demand. A reduction in the supply of oil will increase demand and therefore the price of oil just as it did with each of the preceding supply interruptions. A reduction in supply of a commodity, such as was the case in the twin oil crises of the 1970s, will cause the price of this commodity to skyrocket. In his report the *Peaking of World Oil Production*, Robert Hirsch argues that the rapid increase in the price of oil and the economic shock it will have on the global economy will make mitigation after the onset of peak oil difficult. The advent of peak oil and the rapid rise in the price of oil could create severe economic

dislocation and a severe global recession, the magnitude of which could easily outstrip that of any of the oil crises that have preceded it. The global economic recession caused by rapidly increasing oil prices could deepen as the cost of transporting goods becomes more expensive. Furthermore, a prolonged recession defined by a reduction in global economic output can threaten the survival of the global financial system which requires continued growth to remain viable. While it is impossible to predict the effect that peak oil will have on the global economy, one can deduce from looking at past energy crises it will be significant and destabilizing. The destabilizing effect of a massive global recession can foster political and social instability within nations which can spill over boundaries and disrupt international security and stability.

A global energy scarcity stemming from the peaking of oil production will not only affect the industrialized oil importing nations of the world, it can also have a destabilizing effect on oil producing nations. While rapidly rising oil prices could be a boon for many of the oil producing nations of the world, it could result in catastrophe for others. The distribution of wealth gained from oil exports in some countries is highly uneven, especially in those countries where the elite garner the benefits of the country's resources while the rest of the population suffers in poverty. As noted by Paul Collier & Anke Hoeffler, the disparity between the 'haves and the have nots' creates the incentive for rebellion and civil war. This phenomenon is only destined to worsen when the price of oil rises and the divide between the rich and the poor also increases. Another threat that could present itself in an environment of energy scarcity is the potential for conflict between rival oil producing nations. Belligerent oil producers could seek to secure their future security by making a play for a rival's reserves, or by attacking a rival from a

position of strength before their own resources run out. Finally, oil producers facing the prospect of dwindling oil exports and diminishing revenues may seek to meet internal energy demand through the use of nuclear power. The threat posed by the expanded use of nuclear energy lies in the potential for accidents as well as the increased likelihood of nuclear materials falling into the hands of terrorists.

Overall, the peaking of global oil production has the potential to threaten the economic security and internal stability of nations across the globe. The potential dangers that can arise from the onset of peak oil are not inconsequential; the possibility exists for the instigation of a new cold war, the onset of civil war, and even conflict between states. Notwithstanding the danger that the peaking of the world's oil supply presents to global peace and security, this threat has yet to breach either popular consciousness or political debate. Given the significant lead time required to mitigate the effects of peak oil, combined with projections that indicate that peak oil is either upon us or soon will be, and the fact that this issue is not yet on any political agenda makes for a disconcerting combination. Ultimately, the world may only become aware that it has reached the state of peak oil once the event has already happened, leaving nations wholly unprepared to face the threats that this event will have on international security and stability.

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