



Wilton Park



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Conference report

Resources: trends and future challenges for states and regions- towards 2030

Monday 14 – Wednesday 16 January 2013 | WP1218



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Key points

“ Resource scarcity, as projected by the US National Intelligence Council’s *Global Trends 2030: Alternative Worlds*, will be national or regional, rather than global.”

- Resource security refers to the capacity to meet fundamental energy and material demands for the socio-economic development of a nation and the daily living conditions of its people. The objective is to ensure sufficient amounts, feasible prices, and stable and sustainable supplies. Its meaning should be expanded into a broader context, including three chains (resource supply, resource value and resource benefit), and three abilities (to control resources, to safeguard security, and to encourage core innovation).
- Resource scarcity, as projected by the US National Intelligence Council’s *Global Trends 2030: Alternative Worlds*, will be national or regional, rather than global. The inter-dependency between overall resources and the trade-offs between food, water and energy could impact within two decades. Fragile states in Africa and the Middle East are most at risk of food and water shortages. Emerging economies such as China and India are also vulnerable.
- Managing the psychological fear or perception of resource scarcity is as important as managing the resource.
- The probability of resource wars as a major form of intra- or interstate conflict in the foreseeable future is low. It is unlikely that resource insecurity will lead to large scale violence in more affluent parts of the world.
- The food-water-energy nexus will become crucial in the next decades. Water is indispensable for production of both food and energy, especially biomass. Energy is also necessary for pumping water. However, water (especially fresh water) is not only finite but also unevenly distributed on earth so there will be water stress at the global level and some tensions over water at the regional level.
- The impact of climate change will reduce the availability of food, water and energy, thus exacerbating resource scarcity. However, resource-caused interstate conflict is generally allocated a relatively low probability despite the fact that the demand for each will rise substantially, with 35% more food, 40% more water and 50% more energy required to support a global population of around 8.3 billion people.
- Although the probability of resource-incited inter-state conflict is low, there may be future flashpoints in some regions, particularly where there are other triggers. For example, in the East China Sea and the South China Sea, territorial disputes have been complicated not only by resources but also by regional geopolitics.

“ Managing the psychological fear or perception of resource scarcity is as important as managing the resource.”

“ China, with the world’s largest population, will attract more and more immigrants due to its economic growth and the labour deficit resulting from its ageing population.”

“ A global platform through which governments of resource-producing and resource-consuming countries can collaborate to ensure both supply and demand security.”

“ The development of producers’ cartels has rendered integrated global supply chains increasingly more vulnerable.”

- Population is one of the most important resources. World population will continue to grow dramatically, with increasingly ageing populations becoming a major challenge for some countries. Migration, either internally or across borders, will be a dominant trend in the future. China, with the world’s largest population, will attract more and more immigrants due to its economic growth and the labour deficit resulting from its ageing population.
- To meet the challenges of resource scarcity, the following measures could be considered:
 - Innovation, both technological and institutional.
 - Enhanced cooperation among states that could be achieved through the adaptation of existing rules, norms, principles and institutions.
 - A global platform through which governments of resource-producing and resource-consuming countries can collaborate to ensure both supply and demand security. This could prove mutually beneficial: the co-dependency and balance of supply and demand being in the interests of both economies leading to a win-win situation.
 - A new diplomacy. This would require the participation of multiple actors, including sovereign states, business, social entrepreneurs, non-governmental organisations, knowledge institutions, internet-based groups and individual citizens.
 - Responsible global supply chains that facilitate transformation of resources from resource-producers into finished products delivered to resource-customers.
 - Establish buffers for the storage of some resources such as food, oil and gas. This could reduce the risk of some emergencies in resource markets.
 - Improvements in the efficiency of resource usage in order to reduce waste.
 - To avoid future flashpoints caused by resource insecurity, states should consider de-linking resource issues from other concerns, particularly territorial disputes and geopolitical competition.

Resource nationalism

1. The distribution of resources among countries is very uneven. For instance, the three largest producers of some 19 resources such as crops, timber, fish and meat, metals, fossil fuels and fertilisers account for an average 56% of global production. China, the United States, Australia, the European Union, Brazil, Russia, India and Indonesia are the dominant actors in resource production. There are other countries that dominate production of one or two resources, such as Saudi Arabia (oil), Iran (oil and gas), Argentina (soybeans), Chile (copper), Peru (copper and zinc), Mongolia (copper and coal) and Mozambique (coal and gas).
2. With dominant shares of production in the world resource markets there has been an increase in intervention in resource production by some countries. The establishment of cartels for certain resources is symptomatic of this trend. For instance, major oil producing countries established the oil cartel- Organisation of the Petroleum Exporting Countries (OPEC) - in the 1960s, while major natural gas producers established a cartel-style organisation – the Gas Exporting Countries Forum (GECF). Some other resource producers are also considering the creation of a cartel –for example, a group for states who produce most of the world’s rice. The development of producers’ cartels has rendered integrated global supply chains increasingly more vulnerable.
3. In addition to cartels, another technique of governmental intervention is to employ export controls on certain resources. For example, China’s control of rare earth export.

“ An extreme weather event that was formerly expected to occur once in a 3000 year cycle is now likely to occur every 40 years.”

“ Relatively few regions are responsible for a significant proportion of the global calorie production...”

“ The population of people aged 50 years or older will increase from 1.4 to 3.1 billion by 2050.”

Climate change

4. The world's temperature is on course for a 4-6°C degree increase by the end of the century and hot summers may be 10+ degrees hotter than baseline. As a result, the frequency of extreme weather events will increase dramatically. An extreme weather event that was formerly expected to occur once in a 3000 year cycle is now likely to occur every 40 years. In addition, the impacted area will also increase significantly. What would previously have been a localised extreme heat event, covering some 2-3% of surface, is now regularly impacting 15-20% of global surface. Furthermore, recent “bad years” (eg 2011, 2012) show the spatial extent of climate events simultaneously impacting on multiple regions of the world.
5. The weather is influential on both arable and livestock, with some factors being crucial to production. Extremes of heat- especially if accompanied by drought- can reduce or abolish yields. Moreover, there exist the non-linear impacts of temperature on yield: with every degree day above 30 reducing maize yields by nearly 2% in drought conditions.
6. There is a growing likelihood of interruptions in food supply due to the influence of climate change on extreme weather. For instance, there will be significant increases in drought-related food production in China and other areas of Asia over the next decade or two.
7. Through the alteration of extremes, climate change is affecting global production with these impacts likely to accelerate in the next decades. Relatively few regions are responsible for a significant proportion of the global calorie production, so impacts on these areas will further undermine global food security. The frequency of extreme heat could result in an increased role for the northern/western areas (mid-West and EU-Russia) in global commodity production. Conversely, some areas (eg much of Sub-Saharan Africa) will become increasingly threatened by weather extremes resulting in a decline in production and interruptions to food supply chains.
8. Water security is threatened. The water system is vulnerable to climate change, which not only impacts on the volume and variability of river discharge and changes in the seasonal availability of water supply, but also alters rates of sedimentation.

Demographic futures

9. World population is growing significantly. By 2050, it will reach 8.1 billion with low fertility, 9.1 billion with instant replacement fertility, 9.3 billion with medium fertility, 10.6 billion with constant fertility, or 10.9 billion with high fertility.
10. The population of people aged 50 years or older will increase from 1.4 to 3.1 billion by 2050. Although recent years have seen a dramatic increase of young people in the Middle East and low-income countries, this trend will be moderated to an extent between 2015 and 2050. Whereas in 2012 only Japan and Germany have matured beyond a median age of 45 years, most European countries and South Korea will have entered the post-mature age category by 2030.
11. Future world population growth will be mainly in urban areas, reflected by the increase in the number of both mega-cities and their populations. Between 1970 and 2025, the number of mega-cities (cities with at least 10 million inhabitants) will have increased from 2 to 37. Their populations will increase from 40 million to 6.3 billion. This increased urbanisation could provide opportunities for better use of scarce resources in a sustainable manner.
12. The middle classes are poised to grow substantially in the majority of the developing world in terms of both absolute numbers and the percentage of the population that can claim middle-class status during the next 15-20 years. On the one hand, the emergence of the middle-class represents human success, but on the other it poses a huge challenge for resource accessibility and distribution.

“ Migration will become more globalised as both rich and developing countries suffer from workforce shortages.”

13. Migration is one of the major trends in demographic growth. According to the United Nations Population Division (UNDESA), there were 214 million international migrants in 2010, accounting for about 3% of the world’s population. This figure has not changed much over recent decades. In contrast, the number of internal migrants within the boundaries of their own countries was about 740 million, according to the United Nations Development programme (UNDP).
14. Migration will become more globalised as both rich and developing countries suffer from workforce shortages.
15. The pattern of global migration is changing although the trend of young people migrating is likely to continue. In Asia, South Korea, Japan, and China already have ageing populations and a declining work-force. In the future, more and more international immigrants will migrate to China. This will be particularly challenging as China does not have immigration laws to provide a framework for incoming populations.
16. The impact of climate change could also trigger large-scale internal displacement and regional migration by 2030.

Water

“ Agriculture consumes more than 70% of freshwater use.”

17. Water is unevenly distributed on Earth: some countries and regions are constantly exposed to severe restrictions in the water supply, while others face damage caused by excessive precipitation and flooding. In addition, only a small proportion of water (3%) can be regarded as fresh water and an even smaller proportion can be used easily due to its form as surface water (99% of liquid fresh water is ground water).
18. Water security is affected by a range of factors, including biophysical and social security, and the inter-dependency between them. There may be an abundance of water but it may not be accessible- a situation prevalent in many African countries. The impact of climate change may be amplified by the relationship between several countries in a region where there is dependency on a particular source. The demand for water is further driven by population growth and higher standards of living.
19. The United Nations Convention on Non-Navigational Uses of International Watercourses is one of the key international instruments designed to address shared water resources. It has established two key principles to guide the conduct of nations: "equitable and reasonable use" and "the obligation not to cause significant harm" to neighbours. However, it is for the countries concerned to identify the meaning of these terms with regard to their watersheds.
20. Agriculture consumes more than 70% of freshwater use. Globally, on average, water use efficiency in agriculture is only 10-30%. At the same time, crop yields per acre in the most productive parts of the world are often 10 times greater than those in many developing countries.
21. In the arid Americas, water scarcity shapes the landscape, constrains socioeconomic development, and determines ecosystem function. Western North America (US-Mexico border), North-east Brazil and the Central Andes (Chile and Argentina) are illustrative of this societal-ecosystem-hydro-climatic (SEH) interaction.

“ China’s increased demand for resources will continue to be driven by further urbanisation over the next two decades...”

China

22. In general, China’s resource security is under control. According to *The Security Index of Natural Resources in China*, a report by the Chinese Department of Natural Resources and Environment Security, China’s resource security index increased from 34.03% in 2000 to 51.32% in 2008. More specifically, the security indices in 2008 for water, food, energy, land, and mineral resources were 67.71%, 64.32%, 49.47%, 47.44%, and 27.68% respectively. However, some key resources such as oil and strategic minerals, arable land and fresh water have become increasingly insecure due to increased dependency on overseas supplies.
23. China’s resource security will continue to be complicated not only by the volatile prices of resources and climate change but also by on-going territorial disputes with some of its neighbours, the wider geopolitical situation in Asia and the pattern of its relations with resource-rich regions/countries.
24. China’s increased demand for resources will continue to be driven by further urbanisation over the next two decades, a strategy adopted at the latest 18th Chinese Communist Party Congress. China’s urban population surpassed its rural population by the end of 2011 and is expected to account for 65% of its total population by 2030.
25. In order to promote resource security, China has taken some active measures:
 - Reserving some resources. For example, on food security, since 2001 China has implemented a policy of rural farmland reservation, setting a bottom line for its arable land. However, this has had limited success because local governments lack the economic incentives for enforcement.
 - The adoption of policy measures on both supply and demand side to address the challenge of energy security. On the supply side, China has become a global leader in developing renewable energy sources, including wind and solar. On the demand side, the government has set concrete targets to lower energy intensity. In addition, China has begun to adjust its industrial structure, shifting the emphasis from some heavy industries, such as manufacturing and infrastructure building, in favour of less energy-intensive industry.
 - At the international level, China has adopted a “going-out” strategy which encourages its state-owned enterprises to proactively seek overseas resource supplies. This strategy has prompted suspicion from some Western countries.

Resource insecurity- future flash points

26. The volatility of resource prices is a problem for both resource consuming and producing countries with significant implications for global economic security in the long-term. Volatility increases risk margins and deters investment on the supply-side. As a result, even short-term but frequent price fluctuations could lead to higher prices and greater supply insecurity in the long-term.
27. Violent armed conflict and resource insecurity will largely occur in poorer countries, those where a ‘bad neighbourhood’ may spill over, and countries with a median age below 25 years. Three regions that meet all of these ‘conflict-prone’ criteria:
 - Large portions of Sub-Saharan Africa: from Senegal in the west to Somalia in the east, including Central Africa, the Great Lakes region and the Horn of Africa. This region has seen much instability in recent years including the Central Africa Republic, Mali, Guinea-Bissau, Nigeria, Cote d’Ivoire and the DRC.
 - Afghanistan/Pakistan: a zone of conflict and instability that could see little improvement in the future if current trends persist.

“ The volatility of resource prices is a problem for both resource consuming and producing countries”

“ Unequal distribution of resources has led to a wide gap in the living standards between millions of rich people and the billions of poor.”

- South Asia: where, perhaps more than any other region, growing resource constraints combined with increased environmental degradation may be a tipping point for societies already struggling to cope. This could lead to greater intra- or interstate conflict.

28. Unequal distribution of resources has led to a wide gap in the living standards between millions of rich people and the billions of poor. This inequality is a potential flash-point for conflict.

29. China- regional issues:

- South China and East China Seas. The economic and strategic gains of controlling the disputed islands in South and East China seas are linked to military use as well as oil, fisheries and other minerals that would be under the maritime jurisdiction of the nations possessing these small patches of land. China cannot afford to lose these vital resources to smaller neighbouring countries such as Japan, Vietnam or the Philippines.
- Water. China controls the “world’s water tower” - the Tibetan Plateau - where 12 rivers originate (the Indus, Sutlej, Ganges, Karnall, Sun, Atun, Brahmaputra, Salwen, Irawaddy, Mekong, Yangtse, Yellow) These rivers flow through 12 countries in Southeast and South Asia, affecting 60% of the world’s population. The disruptive potential of water scarcity in the region is extensive, with China’s plans to further develop hydropower in the upper streams of these rivers. Moreover, with adverse consequences of climate change leading to melting of glaciers, the situation is likely to worsen.
- Rare Earth Elements (REEs). China possesses and controls a large portion of this resource, impacting on large mining corporation in the US and India by initially selling raw materials at very low prices. Since 2010 China has drastically reduced its exports.

30. India- potential water disputes:

- The Indus Water treaty between India and Pakistan has stood for more than 50 years. Water availability in that period has prompted some arbitration in order to settle disputes resulting from, eg construction in India on rivers that thence flow to Pakistan. The Indo-Bangladesh accord on Farakka Barrage on the Ganges was signed in 1996, but its impact is not yet clear.

31. Water “hegemon”-related potential disputes in Africa and the Middle East

- The Nile River- dispute among Egypt, Sudan and some other African countries. Countries including Uganda, Sudan, Ethiopia and Kenya have complained of Egyptian domination of their water resources. Whilst Egypt, Sudan and Ethiopia reached an agreement in 2010 on how to manage the river through negotiations, there remains the possibility of disputes or conflict among these countries. Such disputes have become more likely with these countries’ unstable domestic politics.
- The Jordan River- disputes and conflict between Israel, Jordan and other countries in the Middle East.

“ China controls the “world’s water tower” - the Tibetan Plateau - where 12 rivers originate.”

Solutions

32. South-South cooperation. For instance, Brazil has been actively cooperating with African countries in areas such as science and technology and business. More specifically, in areas of scientific cooperation, some virtual international laboratories have been established. On technical cooperation, Brazil has set up projects and offices to facilitate transfer of technology to Africa. Business cooperation between the two include: licensing seed production of Embrapa’s varieties; partnership among Embrapa, Brazilian companies and local governments (eg Angola, Venezuela); electronic platforms such as the web site Brazil-Africa (Embrapa, FARA and Abimaq); market

opportunities between Brazilian and African agribusiness; the testing of tropical agricultural technologies in Africa.

33. North-South cooperation. Regions like North America, South America, Europe and Oceania have a higher proportion of arable land per person and will continue to be sources of agricultural output for other regions. In the future, a larger fraction of agricultural production will need to move through trade due to the mismatch between the world's population distribution by region and the distribution of arable land. During the period 1965-2010, there have been significant changes in food production, particularly in South America (mainly Brazil), and in Eastern Europe (mainly Russia). On the consumption side, it seems likely that Asia and the Middle East and Africa will continue to require increased imports to satisfy growing populations.
34. Inter-regional cooperation. In Central Asia, for example, there is cooperation on energy and food production among countries based on their own resource endowments. More specifically, Kyrgyzstan has enormous hydropower resource exporting electricity to Kazakhstan, China, Tajikistan and Uzbekistan. Kyrgyzstan also plays an effective support role in irrigation of lands under cotton, fodder, wheat, rice, fruits and vegetables in Uzbekistan and South Kazakhstan, by evening out the dry and wet year flows.
35. Public-private partnership. The Southern Agricultural Growth Corridor of Tanzania (SAGCOT)- this public-private partnership of global agriculture businesses, international development agencies, farmers' groups, and the Government of Tanzania, helps small-scale farmers gain access to modern inputs (including infrastructure, eg roads and railways). It also reduces the risks from climate change, integrating into the global market by linking farmers to modern supply chains and making agriculture a more profitable activity. The corridor has potential to feed the East Africa region and become a major agricultural exporter.

“...Kyrgyzstan has enormous hydropower resource exporting electricity to Kazakhstan, China, Tajikistan and Uzbekistan.”

A new model

36. Synergy model of trade and development. Specifically, creating an enabling environment in which an open and responsible trade system can be established. Such a trade system would be characterised by standards, resource governance and a supply-chain oriented approach. This would enable all parties to obtain long-term benefits. In addition, resource exports would provide a route out of aid-dependency for resource-producing countries in the developing world.

Technological innovations

37. Agricultural technology:
- Scientific advances or revolution on genomics (biology) and nanotechnology (physics and chemistry)
 - Improved farm management
 - Precision agriculture - characterised as mechanisation and automated activity - to decrease risk and mitigate the challenges of climatic changes
38. Energy and climate change related technology
- Technological developments have made the exploitation of unconventional oil and gas economically viable. For instance, with the emergence of shale gas, the US will not only have sufficient natural gas to meet its domestic needs but also the potential to generate global exports for decades to come. In addition, with advanced technology, US domestic oil production will be increased through the exploration of difficult-to-access oil deposits. This could lead to a substantial reduction in energy dependence on overseas supplies. Globally, the share of non-hydrocarbon energy (eg nuclear, wind and solar) in the total mix will reach 25% by 2050.

“ Technological developments have made the exploitation of unconventional oil and gas economically viable.

“ Artificial photosynthesis (AP) is an innovative approach to planetary renewable energy and carbon management in the long-term.”

“ The technological gap between developed and developing countries needs to be addressed.”

“ The growth of megacities challenge existing state structures and may gradually displace them.”

“ Greater transparency and accountability would lead to more equitable access to resources...”

- Carbon capture and storage can help solve the problems of CO₂ emissions caused by fossil fuel combustion.
- Artificial photosynthesis (AP) is an innovative approach to planetary renewable energy and carbon management in the long-term. It provides an alternative form of energy to both fossil fuels and biofuels. It also represents a means of stabilising atmospheric CO₂. The Global Artificial Photosynthesis (GAP) Project has the potential to become a valuable adjunct to, or even supplant, other bioenergy and biosequestration policy options by allowing researchers to refine and enhance the process of photosynthesis.
- Other technologies include geo-engineering, off-world water, graphene technology and 3D printing.

39. The technological gap between developed and developing countries needs to be addressed. Transfer of knowledge and technical capacity would do much to assist the latter in meeting resource challenges. Whilst intellectual property rights for innovations should be respected, this should not prevent the dissemination of technologies. Further joint research and development projects between developed and developing countries could be established.

Multiple, simultaneous crises: donor and NGO capacity to respond

40. The countries and regions most at risk from resource-related multiple, simultaneous crises are either party to territorial disputes (eg East and South China Sea , Sudan and South Sudan) or are highly dependent on resource exports (eg states in the Persian Gulf and North Africa). Regional crisis management mechanisms would go some way to address these risks, by increasing the capacity to handle crises and enabling more meaningful contributions by donors and NGOs.

State and citizen: a changing relationship?

41. States will need to consider dramatic changes to economic development models if they want to retain the role of main resource provider to citizens. Current pressure points and competing forces include: globalisation and social cohesion; costs of global governance; tensions between different resource allocation models; and alliances that transcend state boundaries.

42. The growth of megacities challenge existing state structures and may gradually displace them. This shift in power, along with the increasing emergence of “netizens” could assist to check irresponsible behaviours of states and open up the debate about resource management.

43. Citizens should be informed about the way in which the state manages global resource competition and the local impact. Greater transparency and accountability would lead to more equitable access to resources and could do much to maintain the legitimacy of the state.

Global trade in resources: ensuring freedom, efficiency and transparency

44. The global market is the best means to ensure the sustainability of resource availability, providing it is built on a normative framework including transparency, fairness and democratic principles. It should ensure the participation of all actors and establish a risk assessment system so as to create rapid response capability. Better information and enhanced cooperation among states would be needed to achieve this ideal global market.

New models of engagement: power dynamics in the context of balancing resources

“ A new type of global governance regime could be established to balance resource supply and demand among sovereign states”

“ Supporting the evolution and development of existing bodies is preferable to the creation of new institutions or agencies.”

45. A key question for the 21st century: how can states achieve effective and equitable global governance? The United Nations and non-governmental organisations can play a significant role but there are limitations. In contrast, nation states are still the dominant actors.
46. A new type of global governance regime could be established to balance resource supply and demand among sovereign states. This would require a revision of the UN system, in particular an expansion of the mandate of the Security Council (UNSC) to include non-traditional security issues, such as food security, energy security and climate change. It would benefit from greater NGO input to the resolution-making process.
47. NGOs, particularly special interest or lobby groups, play an active role in influencing governments' decisions on resource governance, for example on climate change. They often have in-depth knowledge of the subject. However, many of them lack the capacity and secure funding base necessary to ensure a sustainable and long-term input. They may also be seen to lack legitimacy in some circles.
48. The governance of resources at a global level could be strengthened by ensuring greater co-operation between the existing institutions, both governmental and non-governmental. Supporting the evolution and development of existing bodies is preferable to the creation of new institutions or agencies.

Winners and losers

49. What are the characteristics/attributes of “winners” and “losers” in terms of resources? Winners are endowed with resources, eg oil, gas and some precious minerals. They are self-sufficient and have stable societies allowing them to manage their resources strategically, ensuring supplies are resilient and secure and distributed in an equitable way. In stark contrast, losers are victims of the “Dutch disease” or the resource curse - the damaging effect on an economy as a result of the rapid exploitation and export of natural resources.
50. The barriers that prevent losers from becoming winners are multiple. They could include geographical factors, an absence of strong aspiration, or limited strategic ability to change status. There may also be counter-productive influences from winners who want to retain the status quo.
51. One remedy could be a non-zero sum approach to resource security. Individual states could take collaborative action to establish a regulatory system through resilient approaches. This system should be transparent. The tools to encourage losers to become winners should be “carrots” rather than “sticks”.

State responsiveness

52. Several measures could assist states to promote the flow of resource wealth to citizens in a fair and legitimate way:
 - Megacities could share information about challenges and solutions. Cooperation between mayors of these megacities would assist to generate top-down measures and improve the access of citizens to resources.
 - Integrate actors from multiple social/political levels into the policy-making process. This would create pressure for accountability from the grassroots.
 - Highlight the responsibility of civil servants to devise mechanisms to ensure sufficient resources. For example, introduce the model of a “traffic lights system” - especially for food and water. (This is currently used in the UK to show nutritional value on food packaging).

- Establish a social voting regime, in which a referendum could take place every 4 years on resource governance.

Redefining economic growth?

53. Gross Domestic Product (GDP) is broadly accepted as the indicator by which to evaluate the economic growth of countries. However, there are other factors that can provide insights into the potential for growth or otherwise:

- The nature of human behaviour. For example, the Fukushima disaster in 2011 prompted many countries to re-consider their reliance on nuclear energy.
- The potential to re-define a new economy-rather than a high-carbon economy, a new economy could be characterised as green and low-carbon.
- The role of the middle class in growing a country's economy. For instance, in China, the emergence of the middle class has stimulated change.
- Technological developments that enable more efficient growth.
- Balance within the economy between manufacture and non-manufacturing industry.

Interconnectivity: perceptions and actions for future resource security

“ ... at the international level, resource security is not addressed at, eg the UN Security Council...”

54. The inter-connection between resources such as oil, gas, food and fisheries require a systematic approach in order to develop policy and address their relative scarcity. However, at the international level, resource security is not addressed at, eg the UN Security Council and nationally, governments and the private sector have not collaborated efficiently to address scarcity.

“ Resource scarcity or crises should not be exaggerated.”

55. An understanding of the disconnect between the private and public sector could lead to more effective public-private sector partnerships in the future. This is challenging but could be assisted by an institutional approach with, eg regular expert meetings prompting international action to address problems such as rising food prices.

56. Resource scarcity or crises should not be exaggerated. Competition among states does not necessarily lead to conflict or war as long as they highlight the necessity for cooperation to ensure their resource security.

57. Platforms for resource producers and consumers could be established to allow collaborative decision-making on production and consumption. This will help to reduce the resource-related vulnerability faced by both producers and consumers.

58. Resources should be governed at multiple levels: global, regional, national and sub-national. Strong and effective leadership at different levels would improve the efficiency of resource governance.

“ “Future Studies” could be established at universities as a distinct field of study to promote and inform long-term strategic thinking...”

59. “Future Studies” could be established at universities as a distinct field of study to promote and inform long-term strategic thinking in governments and in the private sector, particularly with regard to resource security.

60. A “Global Integrated Security (GIS)” initiative for resource security could be developed. This would require all stakeholders to collaborate in responding to challenges; conduct timely resource evaluations and early forecasts and warnings at world and state levels; promote dialogue, discussions and policy consultations; and achieve robust information and knowledge sharing towards transparency in resource security.

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