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Chapter 2

Overview of Global Megatrends – Key Trends and Takeaways¹

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In an increasingly complex and uncertain global environment, it is ever more critical to develop a good understanding of long-term strategic trends. It is not surprising, therefore, that various governments, international organizations and private actors today devote substantial resources to developing their foresight capacities. Despite their obvious limitations these studies generally offer a useful framework for discussing and planning for alternative futures. This chapter offers a brief cursory overview of global trends identified in various studies – including the *Global Trends 2030* report of the U.S. National Intelligence Council; its EU equivalent drafted in the framework of the ESPAS project (European Strategy and Policy Analysis System); and the World Economic Forum Global Risk report. Relevant scholarly works and notable non-governmental reports by private sector corporations and civil society groups are also taken into consideration. While by no means intended to be a comprehensive discussion of global trends, this chapter sets the scene for the following chapters on the impact of global trends on critical global flows in 2030. The six different megatrends in this section were selected by because of their relevance in the context of discussing the future of critical global flows in 2030:

¹ This chapter draws on Patryk Pawlak and Erik Brattberg, ‘Equipping the EU for Future Security Challenges Through Strategic Planning’, UI Occasional Paper No 20, (Swedish Institute of International Affairs, Stockholm, June 2013).

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Trend 1: ‘G-Zero World’ - The changing distribution of global power

Trend 1: ‘G-Zero World’ - Changing distribution of global power [Geopolitics]

Trend 2: ‘Liquid World’ - Diffusion of state power to transnational actors [Global power diffusion]

Trend 3: ‘More Human Power’ - Global technological diffusion: creating a level playfield? [Technology]

Trend 4: ‘Shrinking World’ - Growing population and resource scarcity [Demography, Sustainability]

Trend 5: ‘Global Awakening’ - Empowerment of individuals and social vulnerabilities [Demography]

Trend 6: ‘Extreme World’ - Climate Change and Environmental Degradation [Environment & Sustainability]

The distribution of global power is undergoing a ‘megashift.’ Whether in terms of GDP, military spending, or R&D investments, by 2030 significant portions of global power will have shifted from the West to the ‘Rest’, especially to countries like China, India or Brazil – but also ‘middle powers’ such as Indonesia, Turkey, and South Africa.³ Although power is a notoriously hard concept to measure, the U.S. National Intelligence Council’s power index, which uses four traditional power variables (i.e. economic, demographic, military, and technology), unambiguously predicts that the global power shift is underway. The NIC’s assessment is that China will be more powerful than Europe by 2015-2020 and the United States by 2030. Likewise, India will surpass both the EU (in the mid-2030s) and the United States (in the mid-2040s). Regardless of the accuracy of these specific projections, the big picture is crystal clear: global power is increasingly evaporating in the West and moving Eastward – and it is doing so rather quickly.

At the same time, the NIC Global Trends 2030 report also points out that the global power shift will not be as rapid if one also takes into account a broader set of factors such as health, education and governance indicators – areas where industrialized nations will remain superior. Furthermore, it should be noted that this global power shift does not denote an absolute shift but a relative one. For example, Western countries will remain far wealthier per capita than the rising powers in the East far beyond 2030. Finally, the impact of globalization, and the extremely high level of economic interdependence that comes with it, suggests that the world is hardly a zero-sum game since rising powers in the East and South will also remain heavily dependent on the West for their own economic growth.

³ According to Goldman Sachs, the ‘Next Eleven’ consists of Bangladesh, Egypt, Indonesia, Iran, Mexico, Nigeria, Pakistan, The Philippines, South Korea, Turkey, and Vietnam. See “Beyond the BRICs: A Look at the Next 11” (Goldman Sachs, April 2007).

In transition: globalization's center of gravity

Economic power shifts are perhaps the easiest to spot. While the 2008 financial crisis exacerbated the ongoing shift from the West to the East and South, it is important to note that even prior to the crisis many emerging economies already had significantly higher growth rates than the West. Although growth rates in several emerging economies are currently showing signs of slowing down somewhat, the overall trend will persist over the next two decades, though perhaps not at the same pace as seen during recent years. Asia's share of global exports is expected to nearly double by 2030 to 39%. In particular, China's economy is expected to bypass that of the United States during the next decade. Even if China's growth rate slows down, it will still surpass the United States as the world's largest economy by 2030. China is also projected to have twice the share of global trade as the United States, and will be the world's largest creditor.⁴ But China will not be unrivalled at the top. India is expected to begin to catch up or even be on par with China by 2030 in some economic terms.⁵ Both China and India are projected by the World Bank to maintain high growth rates by 2030, combined with high R&D expenditures.⁶ This could lead to a tripling of India's GDP per capita by 2030. But other middle powers are also growing in relevance. Consulting firm PWC estimates that the 'E7,' comprised of the four BRICs plus Indonesia, Mexico and Turkey, will surpass the G7 in economic performance already by 2017. By 2030, the gap between the traditional economies and the new up-comers will be even greater as emerging markets will account for an even bigger share of global economic growth.⁷ The World Bank estimates that 'by 2025, global economic growth will predominantly be generated in emerging economies.'⁸ The figure below shows how the fastest growth rates will predominantly occur in Southeast and East Asia and Sub-Saharan Africa.

⁴ "China 2030: Building a Modern, Harmonious, And Creative Society" (The World Bank, Washington, DC, 2013), p.7.

⁵ *Global Trends 2030*, (National Intelligence Council, 2012), p.15

⁶ Charles, Wolf Jr., et al. "China and India, 2025: A Comparative Assessment," (Rand Corporation, 2011); 2013 R&D Magazine Global Funding Forecast, available online: <http://www.rdmag.com/digital-editions/2012/12/2013-r-d-magazine-global-funding-forecast>

⁷ "World in 2050: The BRICs and beyond: prospects, challenges and opportunities," *PWC Economics*, January 2013.

⁸ "Global Development Horizons 2011: Multipolarity: The New Global Economy" (The World Bank, Washington, DC, 2011).

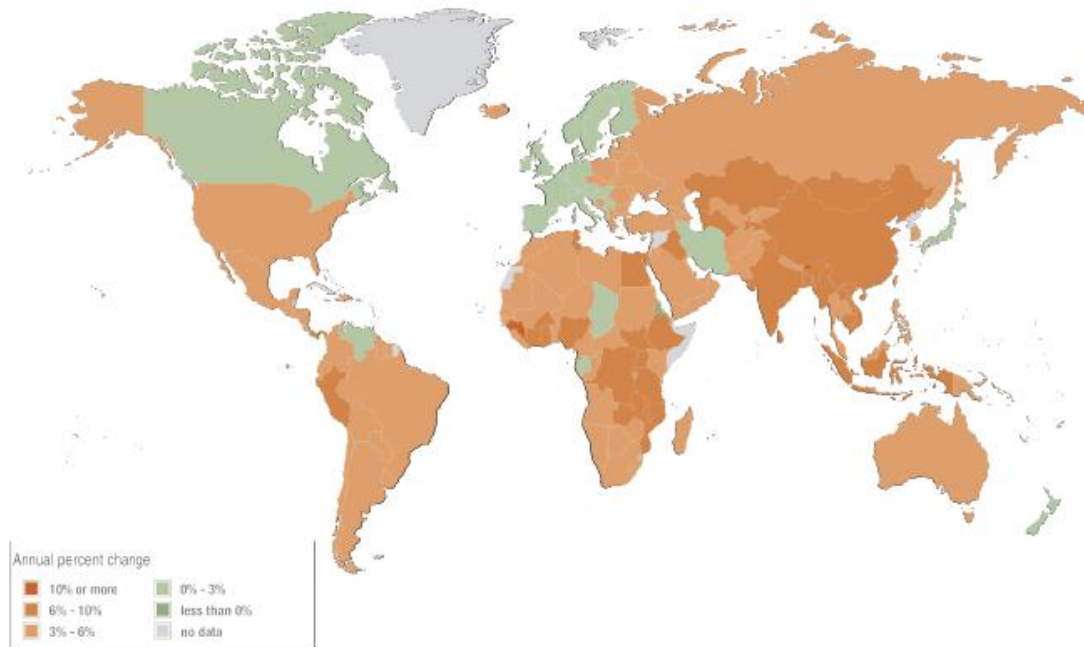
Figure 1.

Real GDP Growth 2017

IMF Data Mapper®

Real GDP growth (2017)

Source: World Economic Outlook (October 2012)



But growth in countries like China and India and in other emerging economies cannot be taken for granted. Many of these countries still face massive internal challenges on multiple fronts – for instance in the governance sector. So while the overall trend points toward a global economic power shift, such a development is also contingent on the successful implementation of needed reforms in many of these states. Both China and India also face a realistic risk of ending up in a ‘middle income trap.’ As China increasingly seeks to move beyond an export-led growth to a domestic consumption-led one, it might also become more prone to economic nationalism and protectionism, which in turn can undermine its global competitiveness, causing other countries to replace China as a cheap destination for manufacturing. Furthermore, technological advancements and the potential for lower energy costs could prompt a return of manufacturing to developed countries (for example, both the shale gas revolution in North American and advances in 3D printing technology could be drivers of such a development).⁹ Yet, even with gradually slower growth rates, the major trend towards the rise of China as a major global economic superpower is not expected to alter course significantly. The only thing that could possibly offset this trend would be a major disruption within China (e.g. widespread domestic political instability) bringing growth to a halt. Such a scenario, while certainly a possibility, remains distant and especially hard to predict.

⁹ "China-US Cooperation: Key to the Global Future" (Atlantic Council, Washington, DC, 2013).

Moreover, while China might surpass the United States in terms of economic strength, it will still have a long way to go before it is the global dominant player in research and innovation. Although China emerged as the second largest aggregate R&D spender in 2010, the United States still spends about a third of the global total. Moreover, Chinese R&D expenditure as a percentage of GDP (1.97%) remains significantly lower than that of the United States (2.7%). Still, China is on track to surpass the EU around 2020 in terms of R&D spending. But while the Chinese government is increasing its spending, Chinese companies are still trailing behind their Western competitors. In 2013, there were 527 companies in the EU and 658 companies in the United States with R&D investment above €22.6 million, while the equivalent number for China and India was merely 93 and 22, respectively.¹⁰ That said, the share of Chinese R&D companies among the top 1000 global innovation companies is steadily rising.¹¹ R&D spending aside, a major question mark is whether China will successfully establish a truly competitive market environment with strong intellectual property rights in promotion of higher innovation.¹² Another challenge is that the actual quality of Chinese R&D outputs still tends to be significantly below that of North America, Europe and Japan. Growing economic performance among emerging countries may also translate into more political influence over the global economy. While the ‘next eleven’ (or N-11) countries¹³ may not be powerful enough by themselves to exert global influence, when acting together they can still have significant clout, possibly even surpassing Europe and Japan in global influence. It is questionable, however, whether such a disparate group could, in fact, work in concert. Nonetheless, emerging powers are showing increasing signs of growing assertiveness on the international stage.

Together, these developments will pave the way for a far more multipolar world order in which there is no longer one dominating superpower but rather a group of major global powers. This shift in global power distribution has been interpreted as either a move towards ‘no one’s world’¹⁴ or a ‘polycentric world’¹⁵ in which no single country will be in a hegemonic position. With the evolving global environment, the concepts that laid the foundations for the ‘liberal international order’ are increasingly becoming subject to renegotiation, including debates over values, sovereignty issues, global responsibility, and international institutional arrangements.¹⁶ International organizations such as the United Nations and the Bretton Woods institutions will probably have to be reformed to remain relevant. Some experts even believe that the two most dominant states – the United States and China – will be forced to strike some kind of ‘grand bargain’ in which they would work out their differences within the context of a rules-based international order.¹⁷ We have already witnessed the gradual replacement of the previous G7

¹⁰ The 2013 EU Industrial R&D Investment Scoreboard.

¹¹ Barry Jaruzelski et al. "The Global Innovation 1000: Navigating the Digital Future," *Strategy + Business*, Booz & Co, Issue 73, Winter 2013, p.38.

¹² "China 2030: Building a Modern, Harmonious, And Creative Society" (The World Bank, Washington, DC, 2013).

¹³ These are Bangladesh, Egypt, Indonesia, Iran, Mexico, Nigeria, Pakistan, the Philippines, Turkey, South Korea and Vietnam. The term was originally coined by Goldman Sachs economist Jim O’Neill.

¹⁴ Charles A. Kupchan, *No One’s World: the West, the Rising Rest and the Coming Global Turn* (New York: Oxford University Press, 2012).

¹⁵ ESPAS Report "Global Trends 2030 - Citizens in an Interconnected and Polycentric World" (European Union Institute for Security Studies, Paris, 2010).

¹⁶ Steven Weber and Bruce, Jentleson, *The End of Arrogance* (Harvard University Press, 2010).

¹⁷ John G. Ikenberry, *Liberal Leviathan: The Origins, Crisis, and Transformation of the American World Order* (Princeton University Press, 2011.)

‘dynasty’ with the significantly broader G20 arrangement. The trend towards a ‘G-Zero’ world, characterized by a more diverse composition of global power, will certainly continue in the coming decade.¹⁸ As a result, current international institutions and global governance mechanisms will either have to evolve or else may risk falling into irrelevance. It is already clear that many of the rising powers do not share the same basic assumptions about how the world should be organized.

Maintaining free and open ‘global commons’¹⁹

In a world of diffuse global power, one critically important factor is whether ‘global common goods’ will continue to be provided for by the international system. One particularly vital such ‘global public good’ is the global ‘maritime commons.’ As both global trade and competition over resources grow,²⁰ the importance of maritime security grows as well. The maritime commons faces an uncertain future. First, the on-going diffusion of global maritime power stemming from the ‘rise of the rest’ could alter the geostrategic maritime balance. New and rising powers are challenging existing rules of the game and are pressing for a ‘re-territorialization’ of the seas as well as a revision of existing maritime legal norms. In this emerging global maritime context, developments in faraway maritime regions will increasingly reverberate throughout the world, and national rivalries and resource competition may gradually encroach on the international freedom of navigation. China’s recent claim over the air defense zone (ADIZ) in the South China Sea should therefore be viewed against this background.

Second, other maritime threats are also lurking on the horizon. Global maritime flows are increasingly connected to criminal activities (e.g. human smuggling, drug trafficking, and pirates) and, in some cases, terror-related activities (e.g. WMD proliferation, hijacking, terrorist attacks). Ungoverned maritime spaces along major sea lanes already pose a major threat as a refuge for armed maritime groups, especially pirates, and a safe-haven for illicit activities. Piracy remains a considerable threat to maritime trade in various regions, including the Gulf of Aden, the Strait of Malacca and the Gulf of Guinea. Piracy has also proven to be a global and adaptable phenomenon in recent years that has sought to exploit weaknesses in the international security architecture wherever they arise. This means that localized action often does not suffice to address the wider challenge, as pirate activities shift in line with international attention.

Until now, the U.S. Navy has taken the lead responsibility to provide for security of maritime supplies across the oceans – a task it inherited from Britain after World War II. This role is less certain as we look towards 2030. Faced with economic pressures at home and rising and resurging powers abroad, the United States has adopted a bleak reading of its military and economic capabilities. As a result, Washington is gradually withdrawing from long-term overseas commitments that were characteristic of the post-Cold War era, and moving slowly towards a more modest vision of commanding access to the global commons and securing

¹⁸ Ian Bremmer, *Every Nation for Itself: What Happens When No One Leads the World* (Portfolio, 2012).

¹⁹ This part draws on the report *The Maritime Dimension of CSDP: Geostrategic Maritime Challenges and their Implications for the European Union* (European Parliament, Brussels, 2013).

²⁰ The flows of goods, mainly from Asia to Western markets are intensifying, as are the flows of raw materials and strategic resources to the sites of production. For example, maritime commerce today represents 90% of world trade and some 60% of petroleum exports.

attendant global flows.²¹ This may cause friction with emerging powers mistrustful of U.S. policies. China, Russia, India and Brazil are all in the process of developing their own naval capabilities to project power beyond their own territorial waters. At the same time, the development of new anti-access and area-denial (A2/AD) capabilities has raised questions about the future viability of large surface fleets, further blunting the conventional superiority of the U.S. Navy and potentially posing a raft of localized threats to the freedom of navigation.

Of course, a decline of Western naval power does not have to be a challenge to the global maritime security environment. On the contrary, if employed to strengthen international regimes it has the potential to reinforce the security and safety of international shipping. However, paired with growing geopolitical competition in especially the Asia-Pacific and Indian Ocean regions, the global shift in maritime power harbors some potential for conflict and confrontation; whether in terms of low-intensity conflicts and proxy wars between middling powers or, less likely, great power confrontation. By raising the costs of any future maritime confrontation, this diffusion of maritime power away from the West may strengthen the ability of new and rising powers to challenge the existing legal order over territorial claims and exclusive economic zones.

The changing global distribution of military power

Military power is also shifting, although somewhat less rapidly than economic power. Today, Chinese spending on defense is second only to that of the United States. This gap is expected to shrink further over the next decade. According to the U.S. Defense Department's Annual Report to Congress on China, the People's Liberation Army 'is on track to achieve its goal of building a modern, regionally-focused military by 2020.'²² The quality of Chinese military capabilities is also improving. One reliable estimate suggests that the quality of the Chinese military in 2030 will be on par with European nations, albeit behind the United States. In particular, China is investing in improving its naval capabilities, which are seen by Beijing as crucial for projecting power in the Asia-Pacific region and protecting vital Chinese security interests. China has also already surpassed the UK as a world's fifth largest arms exporter in terms of volume. But aside from China, India's military power will soon also rival those of European states such as the UK.²³ For example, India plans to have 30 submarines by 2030, although this goal can prove tough to reach.²⁴ Asia as a whole is already outspending Europe on defense.²⁵ At the same time, Russia is also investing heavily in building up and modernizing its defense sector, although this upgrade will depend on the sustainability of the Russian economy.

²¹ The 2010 US National Security Strategy (NSS) defined the "Safeguarding the Global Commons" as one of the "Key Global Challenges" that require the attention of both the United States but also the international community as a whole. In a similar vein, the 2010 U.S. Quadrennial Defense Review (QDR), the 2011 US National Military Strategy (NMS) and most recently the 2012 review "Sustaining U.S. Global Leadership" (SUSGL) have all highlighted the growing importance of the Global Commons.

²² "Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2011," U.S. Department of Defense, Washington, DC, 2011. Of course, this also depends on the future development of US defense spending under sequestration and budget cuts.

²³ "From R&D Investment to fighting power, 25 years later," *McKinsey on Government*, Spring 2010, p.72.

²⁴ "India Responds to China Navy," *The Diplomat*, August 23, 2010.

²⁵ Sam Perlo-Freeman et al. "Trends In World Military Expenditure 2012," *SIPRI Fact Sheet* (SIPRI, Stockholm, 2013).

Meanwhile, while many countries are investing heavily in their militaries, the general trend in Europe and North America is one of shrinking defense budgets. Since the end of the Cold War, European NATO countries' defense spending has fallen by close to 20% even though their combined GDP has risen by nearly 55%. It is also a fact that military spending among European countries has steadily declined from around 2% of GDP in the year 2000 to 1.74% in 2009, despite ongoing operations in Afghanistan. As of 2013, the United States accounted for 73% of all NATO defense spending. Only 4 out of 28 NATO member states (Britain, Greece, Estonia and the United States) fulfilled the alliance requirement to spend 2% or more of national GDP on defense. Despite pledges to increase spending – most recently at the September 2014 summit in Wales – planned and ongoing cuts in defense budgets are projected to be substantial and widespread, affecting the capabilities of many countries.

Small but growing potential for regional tension and conflict

Although most studies tend to agree that conflict between major powers is unlikely, simply because too much is at stake, the changes in the global distribution of power nevertheless heighten the level of uncertainty and the risk of miscalculation. Hence, the possibility of great power conflict cannot be entirely dismissed in the future. Nor can the risk for increased regional tension, especially in East Asia and the South Chinese Sea where border and maritime disputes between China and its neighboring states are already a reality and in Europe where Russia's invasion and annexation of Crimea and support to rebels in Eastern Ukraine has raised concerns about the durability of the post-Cold War security order in Europe. While economic interdependence and globalization have significantly reduced the likelihood of conflict between great powers, history has shown that this alone is not a sufficient condition to prevent conflict from breaking out. In fact, power transitions have historically been rather tumultuous moments in time.²⁶ As economic nationalism and protectionism fester, seemingly peripheral incidents and localized disputes will also have the potential to escalate into broader conflicts. However, the huge costs attached to any such conflict and the low probability of an outright victory will continue to act as a strong deterrent.

While any direct confrontation between the United States and China therefore appears unlikely, this does not preclude the possibility of clashes between middling powers, proxy wars, or low-intensity and covert conflicts. With both China and the United States vying for allies around the Asia-Pacific region, this might also encourage brinkmanship behavior by smaller states eager to exploit the backing of one of the great powers to bolster their own territorial claims (who, except North Korea, would expect Chinese support for territorial claims/and who are China's allies in Asia). Similarly, great powers might attempt to use proxies in order to change the strategic balance in certain regions, while avoiding direct confrontation.

Clashes between rising powers can therefore not be excluded within the foreseeable future. For example, China's attempts to widen its influence in the Indian Ocean puts it starkly at odds with a rising India and have fueled competitive dynamics. As China becomes increasingly dependent on natural resources, its presence is being felt in regions beyond the Asia-Pacific, such as Central

²⁶ Charles A. Kupchan, *Power Transitions: The Peaceful Change of International Order* (United Nations University Press, 2001).

Asia, Africa, the Middle East and Latin America. And as the sea ice continues to melt in the Arctic, China will also have a growing stake in the region's shipping and resources. At some point, China may even feel the need to expand its military presence in the Arctic to protect security of supply should it grow increasingly dependent on the region's resources and shipping routes for its economy.²⁷

Besides China, Russia is also on a worrisome path at the moment. Although it is still much too difficult to predict where this country will be in 2030 – or even in 2020 – the current trajectory is one towards more authoritarianism at home and aggressiveness abroad, especially in the post-Soviet space. Unresolved border issues in Europe's periphery, combined with Moscow's neo-imperialist tendencies, do not bode well for regional stability in the next decade. Moreover, Russia's preference to use both direct military force (as in Georgia 2008) and hybrid warfare tactics (as in Crimea in 2014) raises new concerns about its potential to destabilize other countries it views as part of its traditional sphere of influence. Ultimately, Russia seems to have little desire to be part of a Western-led security order. Instead, it actively seeks to undermine NATO and Western unity and to bolster its own great power status. To what extent Russia will be successful in challenging Western power remains to be seen. While Moscow has made attempts to solidify its relationship with Beijing, including signing a landmark deal with supply China with gas, the China-Russia relationship is far from certain as we look towards 2030.

Although relative power certainly is diffusing it does not necessarily mean global power is shifting from the West to the "Rest" in a clear-cut way. The term multipolar world implies the existence of coherent "poles" that can be identified. However, while the West remains a fairly coherent group of nations with political, military and economic structures firmly in place, there is no such "Eastern" equivalent. While China and other emerging powers will certainly continue to grow in importance, they are yet to form a coherence bloc challenging the West. Given the enormous differences among each other, it is therefore quite unlikely that we will see such different poles in place in 2030.

Trend 2: 'Liquid World' - Diffusion of state power to transnational actors

Non-state actors, particularly national and transnational civil society networks and private corporations, will increasingly have a significantly larger imprint on global policies. Enabled by the spread of communication technologies, the influence of these 'micro-powers'²⁸ will in some cases even exceed that of many traditional states, possibly even giving rise to new forms of governance.²⁹ The weakening of the traditional state's grip and the rising imprint of networked non-state actors produces a two-fold consequence: it democratizes international politics by

²⁷ Russia has already taken steps towards boosting its military presence in the Arctic and is likely to continue on a similar path. Still, most experts do not foresee rising geopolitical tensions in the Arctic anytime in the near future, especially since regional cooperation frameworks (such as the Arctic Council) are already in place to help manage disputes.

²⁸ Moises Naim, *The End of Power: From Boardrooms to Battlefields and Churches to States, Why Being In Charge Isn't What It Used to Be*, (Basic Books, 2013).

²⁹ ESPAS Report "Global Trends 2030 - Citizens in an Interconnected and Polycentric World," (European Union Institute for Security Studies, Paris, 2010), p.19.

bringing in voices previously silenced, but potentially also facilitates the operations of transnational criminal networks and terrorist groups.

New mega-companies in the global economy

The growing role of corporations in the global economy is already apparent, and is likely to be a defining feature over the next two decades. In 2009, 44 of the 100 largest economic entities were corporations.³⁰ The annual revenue of one single company, Wal-Mart Stores, surpassed the GDP of 174 countries. If Wal-Mart were a country, it would be the 22nd largest economy in the world. Other multinational corporations such as Apple and Google also have an annual turnover surpassing the GDP of several smaller states. While the role of multinational corporations (MNCs) is predicted to increase further, the make-up of the world's largest corporations will also change drastically. In particular, more companies from developing nations will be among the top global economic entities in 2030.³¹ The McKinsey Global Institute estimates that by 2025 nearly half of the Fortune 500 companies will be from the developing world – up from 5% in 1990 and 17% in 2010. The report also points out that out of the 5,000 new large companies, 40% will be based in China. To further illustrate this, in 2010, there were 8,000 companies with \$1 billion or more in revenue. In 2025, this number will have nearly doubled to 15,000 companies – the bulk of which will come from emerging states. McKinsey further predicts that this shift will “be profound because large companies have an outsized impact on their home economies and even on the global economy through their role in trade flows.”³² This geographic rebalancing of global companies will have major implications for economic competitiveness, including the race for resources and talented workforces, standard setting, innovation, and economic growth. In a more general sense, the growing influence of MNCs will also fundamentally transform societies, both in the developed and developing world. We are likely to see more interdependence between corporations, governments and their citizens. From a policy perspective, this means that strengthening relationships among these actors and partnering to address joint challenges will be a key imperative.

The rise of megacities

Another aspect of diminishing state power stems from within states themselves, and has to do with the growing role of cities as major players in the global economy – especially so-called ‘megacities.’³³ As we look towards 2030, the relative importance of global megacities is projected to grow. Global population and urbanization patterns aid this trend. In 2010, for the first time in history, more than half of the world's population (3.3 billion people) lived in urban

³⁰ See "Corporate Clout: The Influence of the World's Largest 100 Economic Entities," Strategy Dynamics Global Limited. Available online: <http://www.globaltrends.com/images/stories/corporate%20clout%20the%20worlds%20100%20largest%20economic%20entities.pdf>

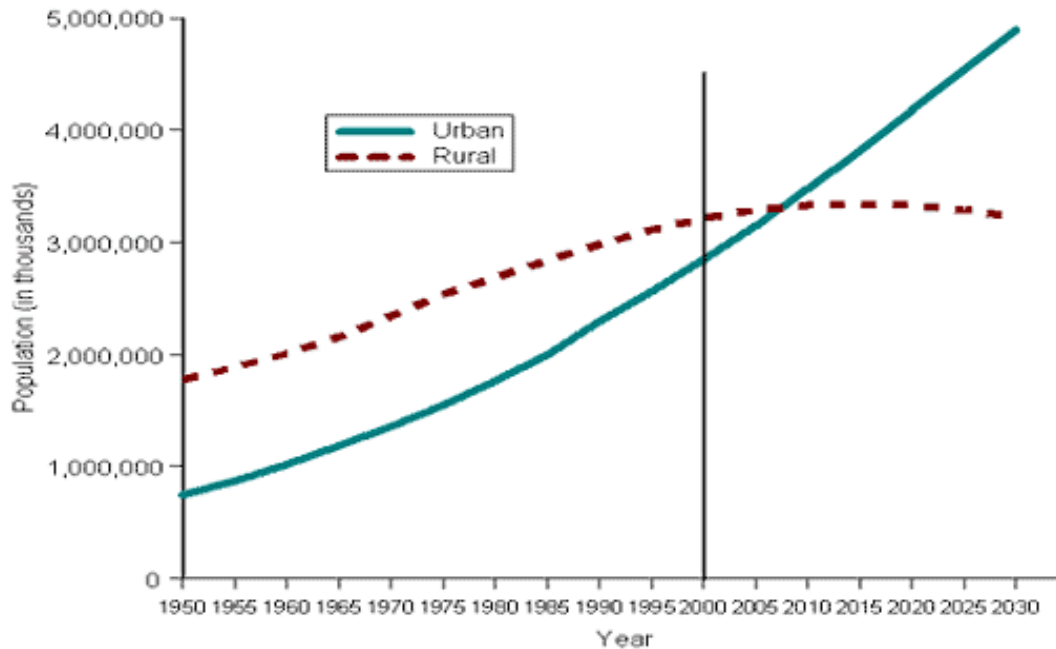
³¹ See "The Universe of the Largest Transnational Corporations" (United Nations, New York and Geneva, 2007).

³² Dobbs, Richard, et al., "Urban World: The shifting global business landscape" (McKinsey Global Institute, 2013).

³³ See Beaverstock, J.V., Faulconbridge, J.R. and Hoyer, M., "Globalization and the City," in A. Leyshon, R. Lee, L. McDowell and P. Sunley, eds., *The SAGE Handbook of Economic Geography* (SAGE, London, 2011); M. Castells, *The Urban Question* (Arnold, London, 1977); Lévy, J. *L'Europe, une géographie*, Hachette, (Paris; Sassen, 1997), *The Global City* (Princeton University, Princeton, 1991); Taylor, P. J., *World City Network: A Global Urban Analysis* (Routledge, London, 2004).

areas. The UN expects this number to reach five billion, or 60% of the world's total population in 2030 (see graph below).

Figure 2. Global population growth and urbanization rate in 2030



Source:

<http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK%3A20149913~menuPK%3A34457~pagePK%3A64003015~piPK%3A64003012~theSitePK%3A4607,00.html>

Although the growth in the number of cities with one million of more inhabitants will slow over the coming decade, the general trend towards increased urbanization will persist well into and beyond 2030.³⁴ By 2050, it is predicted that 6.3 billion people out of a global population of 9 billion will dwell in cities, which would be about ten times the size of the total world population in 1950. The bulk of this population growth will take place in cities located in developing nations. This trend will help lift millions out of poverty around the world. In both Asia and Africa, a majority of citizens are expected to live in urban areas by 2030. As a result, the rise of a global 'consuming class' by 2030 means that the developing world will increasingly serve as engines of global GDP growth. It is expected that the developing world will spend \$20 trillion by 2025.

The evolving make-up of the global economy means that some of the most important global cities will be in the global South and East by 2025. According to the McKinsey Global Institute, one in three developed cities will no longer be among the 600 most powerful ones in the world. Concurrently, 136 new cities in the developing world (mostly from China and to a lesser extent

³⁴ United Nations, Department of Economic and Social Affairs, Population Division, *World Urbanization Prospects, the 2011 Revision* (United Nations, New York, 2011).

India) will be added to this list.³⁵ The relative importance of cities is also projected to grow over the coming two decades, driving economic growth across the world.³⁶ A separate study conducted by PWC finds that while the top five cities in 2025 will remain European and North American, South American cities Sao Paulo, Mexico City, and Buenos Aires will all make it to the top 10 list. Other emerging market cities that will advance significantly by 2025 include Shanghai, Beijing, Mumbai, and Istanbul. Meanwhile, several cities in the West will fall down the list.³⁷

This increased role of cities in the global economy puts additional demands on international governance structures. In many ways, global ‘alpha cities’ such as London and New York are already more interlinked and interdependent than, for instance, London and Manchester or New York and Denver.³⁸ This trend of deepening connections among major nodes in the global economy is likely to prevail. The world’s ‘megacities’ are already increasingly linked to one another through various financial and commercial flows. Author Parag Khanna argues that megacities will increasingly bypass national governance structures in setting up their own ad hoc city-to-city alliances. Embryos of such networks between global cities already exists, including the World Cities Summits,³⁹ City Mayors network,⁴⁰ or the C40 Cities network. Another type of city cooperation that is going to be more common is direct city-to-city agreements going beyond existing sister city partnerships. One example is the agreement signed between Chicago and Mexico City in 2013 to promote joint initiatives on trade, innovation, education and competitiveness.⁴¹ As we look towards 2030, we are likely to see more of these types of developments as individual cities become major players on the international stage, alongside but occasionally also apart from their own nation-states.

Of course, this is not to say that the world will evolve into some kind of modern version of the medieval city state system – as some scholars have suggested.⁴² On the contrary, when it comes to global governance and security issues in particular, the traditional interstate system is still responsible for providing the majority of core public goods that cities depend on. While still a distant possibility, the prospect of rising megacities declaring themselves independent from their nation-state must therefore be considered extremely low, at least during the coming decade. Still, as cities seek to set policies that fit with their local needs – such as on immigration issues – this might increasingly create a discrepancy between cities and the surrounding nation-state. How cities will interact with national governments will therefore be a key issue in the future in developed and developing states alike. Another related governance issue relates to the growth of metropolitan regions, which can spill over across multiple political jurisdictions. In this case,

³⁵ Dobbs, Richard, et al., "Urban World: The shifting global business landscape" (McKinsey Global Institute, 2013), p.1.

³⁶ Ibid. p.7.

³⁷ "Which are the largest city economies in the world and how might this change by 2025?" UK Economic Outlook November 2009, (Pricewaterhouse Coopers), 2009.

³⁸ See, for instance, Loughborough University’s ‘global connectivity ranking’. Available at: <http://www.lboro.ac.uk/gawc/world2012t.html>.

³⁹ See www.worldcitiessummit.com.

⁴⁰ See <http://www.citymayors.com/>.

⁴¹ Amy Liu and Ryan Donahue, "Chicago and Mexico City Cut New Kind of Trade Deal," *The Avenue blog* (Brookings Institution, Washington, DC, 2013).

⁴² Parag Khanna, *How to Run the World* (Random House, 2011).

creating new metro-regions, sometimes even extending between two or more national borders, may become more frequent phenomena.⁴³ Within the EU, for example, there are already some burgeoning cooperation frameworks between bordering cities in different countries.⁴⁴

Empowerment of transnational groups

Increasingly, non-state transnational groups will play a bigger role in shaping both national and international policies. The past few decades have witnessed a proliferation in non-governmental organizations. This process has been driven in part by technology and in part by globalization.⁴⁵ The Yearbook of International Organizations estimates that the number of international NGOs have risen from 6,000 in 1990 to more than 65,000 in 2013. More people than ever before are involved individually and collectively to address various societal challenges. This is the case in developed and developing countries alike. As illustrated during the Arab Spring, informal networks of people, enabled by the use of information technology and social media, can play a significant role in their countries. A word of caution, however: recent developments such as the Arab spring but also the 2014 crisis in Ukraine suggest that governments (especially authoritarian ones) are also increasingly becoming anxious about citizens' public opinions facilitated by the internet. Governments from China to Egypt to Turkey have taken active steps to limit popular social media such as Facebook or Twitter.

Within the NGO community, the mission of many groups is also changing. Rather than merely being opponents to the government sector, many non-profit organizations are today involved in a wide range of different activities ranging from watchdog and advocacy to capacity building and providing services, to mention a few examples. NGOs are increasingly organized as loose networks, while partnerships with governments and the private sector is becoming the norm rather than an exception. Another trend is that NGOs are progressively granted a stronger voice and a seat at the table at major multilateral fora, including the G20 and the UN.⁴⁶ This fusion of government, business and civil society is giving rise to new forms of interactions that blur the traditional roles of these diverse actors, creating a shared space in which all can operate. This development could possibly also give rise to hybrid organizations embodying several aspects of different types of organizations.⁴⁷ At the same time, it is important to also note that the ability of NGOs to function effectively is also being hampered in many parts of the world, as authoritarian governments seek to impose limits on their freedoms.

Enabling the dark forces of globalization

A global environment that is characterized by a failure of international cooperation and growing regional conflicts will also enable transnational criminal groups to thrive. Terrorism, which was the central focus of security officials in the decade following the September 11 attacks, will

⁴³ According to the NIC *Global Trends 2030* report, there will be at least 40 such mega-regions in 2030.

⁴⁴ See

<http://www.espon.eu/export/sites/default/Documents/Projects/TargetedAnalyses/METROBORDER/METROBORDER - Final Report - 29 DEC 2010.pdf>.

⁴⁵ "The Future Role of Civil Society" (World Economic Forum, Geneva, 2013).

⁴⁶ Ibid. p.7.

⁴⁷ Ibid. p.10.

continue to pose a threat over the coming decade and beyond. Non-state actors will be able to exploit the opportunities provided by globalization in the forms of easy access to transport and communications as well as the vulnerabilities open societies provide. Moreover, mounting state fragility in some parts of the world may also provide a vital breeding ground for forms of violent extremism.

Weakening state power can also promote ‘criminal or illegal networks exercising economic and even territorial control.’⁴⁸ When combined with domestic violence and civil strife, weak governments, particularly in Africa and the Middle East, are a major cause for concern. While terrorism will certainly remain a concern, transnational criminal networks and low-intensity conflicts such as urban violence will increasingly pose serious security challenges. This is particularly the case in countries with weak governance combined with poverty, unemployment and large youth populations. Transnational crime will be a growing priority – one that will often be related to other challenges such as illegal immigration, piracy, and even terrorism. Already, illicit drug trade from West Africa has been documented to benefit terrorist groups operating in the Sahel. These kinds of social vulnerabilities enhance the risk for civil strife ‘and thus reinforce the ‘state fragility-conflict’ cycle’ and lead to state fragmentation.⁴⁹

Furthermore, arms trafficking and CBRN proliferation – particularly when combined with transnational crime – will pose a worrisome challenge in the coming decades. While the threat from Islamic terrorism is generally predicted to be less severe by 2030, the widespread availability of new lethal and disruptive technologies means that the focus of terrorist attacks might shift from causing mass casualties to inflicting widespread economic and financial disruption. At the same time, the Global Trends 2030 report clearly downplays the risk of nuclear terrorism.

Trend 3: ‘More Human Power’ – Will global technological diffusion create a level playfield?

Increasingly, relationships between individuals, consumers and companies, and between citizens and the state, will be redefined by rising ‘hyper-connectivity.’⁵⁰ This development will offer both new opportunities and new challenges, for governments and non-state actors alike.

A Hyper-connected World

Global internet data flows are growing quickly, and will likely continue to do so over the coming decade.⁵¹ But while the maintenance of free flows of information is a necessity for the global economy to function, an increasingly diffuse set of actors will be responsible for this service. As the World Economic Forum points out, "the hyper-connected world" is one without a central authority. Rising "hyper-connectivity" will have an equalizing effect in the world, but it will not

⁴⁸ EUISS 2011 op cit., p. 19.

⁴⁹ Ibid. p. 96

⁵⁰ Soumitra Dutta and Beñat Bilbao-Osorio, eds., "The Global Information Technology Report 2012: Living in a Hyperconnected World," Insight Report (World Economic Forum and INSEAD, 2012).

<http://globaltrends2030.files.wordpress.com/2012/11/global-trends-2030-november2012.pdf>

⁵¹ See "Cisco Visual Networking Index: Forecast and Methodology, 2012–2017," White Paper (Cisco, 2013).

make all countries and actors equal players. While technology can enable weak actors and create a more leveled playing field, emerging economies still have a long way to go to catch up with industrialized nations. In the World Economic Forum's ranking of countries according to their "network readiness" – defined as their ability to profit from rising hyper-connectivity – only a handful of countries score at the top (i.e. Scandinavian countries, Netherlands, UK, and North America). During the coming two decades, technology will become more evenly distributed throughout the world. Technological catch-up will take place, and the fastest growth will occur in those states that have the most catching up to do. Still, technological convergence is by no means automatic and will depend on a country's openness, education system, communication and infrastructure, government and business and investment climate.⁵² For example, 75% of the world's population already has access to a mobile phone – in some countries the number of people with mobile phones is even higher than the number of people with access to a bank account, electricity or clean water. By 2030, half of the world's population is projected to have access to the internet, up from 34% in 2012,⁵³ with the quickest increase expected to take place in many developing countries. In many of these countries, improved access to technology will bring opportunities to improve education, health, and governance and democracy, and will also ease access to the global markets. But the impact of the spread of technology, such as mobile phones in developing countries, is not one-sided. While the distribution of mobile phones in Africa has been proven to go hand in hand with upsurges in violence, it also allows governments and international responders to better track developments on the ground and, thus, to intervene to prevent violence.⁵⁴

Still, the distribution of technology will remain skewed, with the poorest population groups in developing states still lacking access to technology such as the internet and cell phones. The discrepancy between cities and rural areas in developing nations in terms of access to technology will also widen. Taken together, the proliferation of technology will thus not always have an equalizing effect, but may in some instances even exacerbate global inequalities within certain societies.

...But an Uncertain Future of Internet Freedom

Though expected to continue being a defining feature, the internet's future is far from certain. Advances in technology such as the advent of big data also give governments an unprecedented ability to monitor and control their own citizens and other countries. At the same time, the digital age is also one of rising worldwide transparency of information. It is increasingly hard for governments to keep secrets from their citizens.

These two trends have already given rise to increased discussion about how to view the trade-off between surveillance, on the one hand, and individual privacy and freedom on the other. The revelations by Edward Snowden of the American NSA surveillance programs have caused a massive stir among governments and citizens alike throughout the world about individual

⁵² "The World Order in 2050" (Carnegie Endowment for International Peace, Washington, DC, 2010).

⁵³ "Information and Communications for Development 2012: Maximizing Mobile (World Bank, Washington, DC, 2012).

⁵⁴ Ali Fisher, J.H. Pierskalla and F.M. Hollenbach, "Technology and Collective Action: The Effect of Cell Phone Coverage on Political Violence in Africa," *American Political Science Review* (2013), p. 107.

privacy and freedom concerns. The NSA controversy has also expedited the process that some scholars refer to as the ‘Balkanization of the internet’ (or ‘Splinternet’). This term denotes the process towards a fragmentation of the internet in various ways, including for security and espionage reasons. Proposals to create new closed-off intranets have been suggested by countries such as Brazil and Germany. In fact, Brazil and the EU have recently agreed to lay a new underwater cable from Lisbon to Fortaleza in an effort to reduce U.S. eavesdropping on transatlantic communications.⁵⁵ Furthermore, attempts to increase state-control and to limit freedom on the Internet have already been put forth by the World Conference on International Telecommunications (WCIT) and the Internet Corporation for Assigned Names and Numbers (ICANN). As advanced surveillance technology becomes more accessible, a growing number of states and non-state actors will use such tools by 2030. It remains to be seen whether regulation and legislation as well as governance models will keep up pace with technological developments.

Third Industrial Revolution: Driving the Global Economy

The unprecedented technological revolution seen in recent decades will likely continue – or even intensify – in coming years, fundamentally affecting the world in a number of key ways. New technologies will have the ability to create new opportunities for humans and to damage human lives and the planet. Increasingly, technological inventions will serve as the engine of economic growth around the world. However, this also puts additional demands on economies to also respond and adapt to these changes. The McKinsey Global Institute has identified several technologies that will have potentially ‘disruptive’ effects on businesses in 2025, including 3D printing, the automation of knowledge work, cloud technology, advanced oil exploration and recovery.⁵⁶ One particular area that is going to make a significant imprint on governments, businesses and ordinary citizens alike is information technology such as ‘data solutions,’ ‘social networking,’ and ‘smart city technology.’ As several reports have pointed out, the advent of data solutions or ‘big data’ will be a defining feature of information technology in the coming decade.⁵⁷ The development of process power and data storage will also allow for the provision of new types of global services, especially targeting the social media and cyber security areas.⁵⁸ Some authors even go so far as to talk about a ‘third industrial revolution’ (TIR) that will transform not only production but also society at large. According to its proponents, TIR will change production patterns, demand less energy and raw materials, affect social relations, and alter the relationship between people and production.⁵⁹ According to *The Economist* magazine, the foundation for TIR is the advent of 3D printing. One potential major effect of 3D printing in the future is the ability to shift from large-scale assembly lines with a myriad of subcontractors and complex global supply chains⁶⁰ - but its true potential use is still highly uncertain.

⁵⁵ "Brazil, Europe plan undersea cable to skirt U.S. spying," *Reuters*, February 24, 2014.

⁵⁶ For the full report, see, James Manyika et al., "Disruptive Technologies: Advances that will transform life, business, and the global economy" (McKinsey Global Institute, 2013).

⁵⁷ James Manyika et al., "Big data: The next frontier for innovation, competition, and productivity" (McKinsey Global Institute, 2011).

⁵⁸ *Global Trends 2030* (U.S. National Intelligence Council, 2012), p.86.

⁵⁹ "Envisioning 2030: US Strategy for the Coming Technology Revolution" (Atlantic Council, Washington, DC, 2013) p.15.

⁶⁰ *Ibid.* pp.16-17.

...But also higher risks for technological disruption

As history tells us, technological developments are certainly not always positive. Some technologies will have both direct and indirect disruptive effects. Whether cyber, bioterrorism, precision-strike capabilities or the risk for proliferation of new instruments of war, new technologies will have serious security implications. Non-state criminal actors and terrorists will benefit from the proliferation of new warfare technologies. The proliferation of new technological capabilities such as cyber and bioterrorism can potentially enable non-state actors to wreak havoc. Instruments of cyberwarfare are already available and could be used by non-state actors to conduct an attack on military systems, electricity grids, communication networks or financial systems. Key to addressing many of these new security threats will be effective cooperation between the public and private sectors, as much of the critical infrastructure remains in private hands – and coordination between public and private actors is often poor. The risk for cyber warfare is going to increase during the coming decades. In fact, the effects of sophisticated and coordinated cyberattacks are already starting to be felt throughout the world, giving rise to a tendency to view cyberspace as a new security frontier – in addition to land, sea and air. In response, the United States has declared computer sabotage from another country an ‘act of war’ to which the United States will respond using traditional military force. NATO members declared at their 2014 summit that cyber attacks could trigger the Alliance's Article 5 mutual defense clause. However, many doubts have been raised concerning the use of force as a response to a cyberattack due to the difficulties in identifying and locating an attacker. The consequences could be extremely serious and could even prompt an interstate conflict. Increased cyber espionage targeting governments and corporations alike is also increasingly becoming a serious security threat. The proliferation of global surveillance systems is very likely to a defining feature of the next decade.

Trend 4: ‘Shrinking World’ - Growing population and resource scarcity

A defining feature of the next few decades will be growing population, especially in the developing world, along with increases in living standards. Commensurate with this positive development is a more negative one: growing demands for resources will give rise to scarcities, which may in turn give rise to social tension and, in the worst cases, even new conflicts. Managing these prospects should be seen as a key priority for the international community in coming years.

Demographic trends – a growing but aging global population

One of the major trends identified in numerous studies concerns the combination of demographic data and predictions of aggravated resource scarcity. In particular, rapid population growth – the world’s population is expected to reach 8.3 billion by 2030 – will have significant consequences. The bulk of this population growth will take place in developing nations – with the fastest growth appearing the least developed countries in the world, particularly in Sub-Saharan Africa where the population is projected to rise by 500 million people, and in South-East Asia where we will see an increase of 400 million. India, for example, is expected to surpass China as the

world's most populous state by around 2028.⁶¹ In these and other parts of the world, such as the Middle East, young people account for a huge portion of the population. In contrast, the population growth in developed countries is predicted to decrease on average as the population growing older and lower birth rates.⁶² As a result, Europe's share of the world population will fall by 2030.

Figure 3. Projected Population Growth to 2025 in millions

Region	2013	2025	Change	Percent
World	7,137	8,095	+ 958	+ 13
High Income	1,246	1,285	+ 39	+ 3
Developing	5,009	5,652	+ 647	+ 13
Least developed	876	1,158	+ 272	+ 31

Source: Population Reference Bureau. 2013 World Population Data Sheet.

However, it is important to note is that global population growth is not predicted to continue at the same rate indefinitely. In fact, demographers expect global population growth to stall around 2030, particularly due to falling fertility rates and rising development levels in many countries. The world's population is also getting older due to longer expected average lifespans. A final demographic trend worth singling out is migration. Although the share of international migrants in 2010 only amounted to about 3% of the world's population, a number that has remained relatively steady in recent decades, according to the United Nations Population Division (UNDESA), international migration is likely to rise in the next two decades. One reason for this is to offset shortages in workers that are expected in many developed and developing nations. By 2030, we could also see both internal displacement and cross-border migration due to climate change.⁶³

Growing resource demands

Global population growth⁶⁴ combined with higher standard of living, means that the global demand for resources, including food, water and energy, will increase by 2030. As a result, resource scarcity may be a more common problem, albeit typically on a regional rather scale rather than a global one. Most vulnerable to resource scarcity will be fragile states in Africa and the Middle East (who will face shortages in such things as water and food), along with emerging economies such as China and India who will both have an expanding consumer class. For example, demand for cars in China and India is expected to double to 1.7 billion by 2030.⁶⁵

⁶¹ "World Population Prospects" (United Nations, New York, 2013).

⁶² Ibid.

⁶³ "Resources: trends and future challenges for states and regions - towards 2030," Conference report, Wilton Park, January 2013.

⁶⁴ However, if population growth (as is expected) flattens out by around 2030, this could cause resource demand to stabilize.

⁶⁵ "Reverse the curse: maximizing the potential for resource-driven economies" (McKinsey Global Institute, 2013), p.3.

The NIC *Global Trends 2030* report forecasts that the demand for food will rise by 50 percent by 2030.⁶⁶ This will put further pressure on net importers of food to strengthen their food supply security through mechanisms such as stronger regulation.⁶⁷ This will put an additional need for international cooperation to manage food price and volume shocks and to ensure a steady supply of food. Meanwhile, global demand for water will double by 2035, according to the International Energy Agency (IEA).⁶⁸ Estimates by the OECD suggest that nearly half of the world's population will live in areas with high water stress by 2030, including northern Africa, the Middle East, Central and Southern Asia, and northern China.⁶⁹ Rapid urbanization, higher standards of living, and climate change may further exacerbate this trend,⁷⁰ also posing a serious threat to food supply and food security. The interaction between state fragility and conflict will be especially pronounced in sub-Saharan Africa, where a combination of growing income inequality and a massive increase in urbanization risks paving way for increased social vulnerabilities in coming decades. Such vulnerabilities can give rise to a negative cycle by accentuating state fragility. Efforts to strengthen water security through, for example, better multi-national governance arrangements to address common water resources will therefore become a more pertinent issue for the international community to address.

Similarly, demand for energy will be 35% higher in 2030 compared to 2005;⁷¹ in non-OECD countries rapid economic growth is expected to increase the demand to about 65%. In the BRICS the equivalent number might even be 72%, according to the OECD.⁷² Rapid urbanization in many developing nations means that demand for consumption will significantly increase, requiring considerable new investments over the coming decade.⁷³ Energy demand, for example, is expected to rise by 45% in the developing world over the next two decades. While urban areas today comprise about two thirds of global energy consumption, their share will significantly increase (73%) by 2030. The lion's share of this growing energy demand will come from the Asia-Pacific region,⁷⁴ making it a major future energy importer. In 2030, the Asia-Pacific region is expected to import some 90% of Middle Eastern oil. China may also increasingly turn elsewhere, such as West Africa, South America and the Arctic for additional energy resources. A potentially important development that may partially help offset the growing gap between global energy demand and supply is the ongoing revolution in shale gas. Although several uncertainties remain (including still evolving, regulatory barriers and inadequate infrastructure), the potential for North America to become a net exporter of natural gas to the Asia-Pacific markets could have profound geopolitical and economic effects not the least on global energy prices. But as the

⁶⁶ NIC op cit.

⁶⁷ "Future State 2030: The global megatrends shaping governments" (KPMG International & Motwat Centre, Toronto), p.8.

⁶⁸ "Water Demand for Energy to Double by 2025," *National Geographic News*, January 30, 2013.

⁶⁹ According to the OECD, the share of the population living under water stress in the BRIC countries will increase from 63% to 80% by 2030, unless better water resource management is introduced.

⁷⁰ See "The Security of Cities: Economy and Conflict on an Urbanizing Planet" (Stimson Center, Washington, DC, 2013), pp.31-37.

⁷¹ "World Energy Outlook 2012: Executive Summary" (International Energy Agency, Paris, 2012).

⁷² "OECD Environmental Outlook on 2030" (OECD, Paris, 2008), p.6.

⁷³ According to the McKinsey Global Institute, \$11-17 billion will need to be invested in oil and gas and minerals extraction by 2030 to ensure supply remains on par with the souring global demand. See "Reverse the curse," op. cit., p.4.

⁷⁴ "Energy Outlook for Asia and the Pacific" (Asian Development Bank, Manila, 2013).

technology used for shale gas extraction develops and becomes more affordable, it is feasible that shale gas production will also take place elsewhere in the world, such as South America, which also holds large shale gas deposits.

Finally, it is predicted that the global demand for minerals, metals and biomass will increase by more than 55% by 2030. Another effect of the increased demand for global energy might be that the energy market itself becomes more volatile and unpredictable. Since much of the new demand will come from the evolving global middle class in cities located in emerging and developing countries, efforts to design ‘sustainable cities’ to address ecological challenges will become important. It is clear that cities, in order to have sustainable growth, “must be designed and built in ways that preserve and enhance the virtues of urban life while minimizing the use of land, water, energy, and other resources.”⁷⁵ A major caveat, however, is technology, which has the ability to improve efficiencies and productivity. For example, the development of agricultural technology such as geonomics, nanotechnology and precision agriculture may increase crop yields while also reducing risks and mitigating the challenges of climate change.⁷⁶

Possibility for resource strife and tension

There is a risk, albeit a fairly small one, that we will see more resource strife in coming decades. Even though historical trends indicate that the number of inter and intrastate conflicts have been in decline since the early 1990s,⁷⁷ the combination of demographic trends and resource scarcity suggest that such conflicts may multiply in the future. Growing populations combined with the impact of climate change and environmental degradation also increase the risk for natural disasters which may give rise to massive refugee flows and climate migration which could pose both political and security challenges. Although hard to predict, the International Organization for Migration (IOM) has warned that the number of permanently displaced climate migrants may exceed 200 million by 2050. In particular, humanitarian emergencies triggered by water and food scarcity may combine with failing state situations to generate major humanitarian crises. While the U.S. Intelligence Community Assessment does not view wars over water-related issues as a major risk over the next decade, tensions over shared water resources is likely to grow as access to water becomes more scarce. Challenges associated with water scarcity will likely increase the risk for general instability as well as exacerbate the risk for state failure. The lack of water may also seriously impede food production and economic well-being, particularly in countries in the MENA region and South Asia.⁷⁸ Major cities, especially in the developing world, will be key to addressing some of these challenges. Shortage of energy and food and other key resources is known to give rise to social tension⁷⁹ and, in some cases, even riots – as was the case during the

⁷⁵ See "The Security of Cities - Ecology and Conflict on an Urbanizing Planet" (Atlantic Council and Stimson Center, Washington, DC, 2013).

⁷⁶ "Resources: trends and future challenges for states and regions," Conference report, WP1218, Wilton Park, January 2013.

⁷⁷ See Uppsala Conflict Data Program, available at: <http://www.pcr.uu.se/research/UCDP/>.

⁷⁸ See "Global Water Security," Intelligence Community Assessment, ICA-2012-08, February 2, 2012.

⁷⁹ Marc, F. Bellemare, "Rising Food Prices, Food Price Volatility, and Social Unrest." APSA 2012 Annual Meeting Paper, August 3, 2013.

so-called ‘world food price crisis’ in 2007-2008 in a number of countries in Africa, Central Asia, Asia and Latin America.⁸⁰

Another challenge stems from the potential of rising resource nationalism. The uneven distribution of natural resource deposits in the world means that major resource-producing nations may increasingly opt to alter both market prices and the supply chain reliability through the use of cartels and export controls. One example of this latter is China’s attempts to limit its export of rare earth minerals. Here, the trend towards less privatization and more state-owned enterprises in the extraction sector in many countries gives governments’ added capacity to adopt interventionist policies, with detrimental impact on the global trading system as a result.

*Challenges but also opportunities in the Arctic*⁸¹

The Arctic illustrates the potential challenges but also opportunities brought by climate change and the interaction with geopolitics and resources. As Arctic sea ice continues to melt, the region’s waters and hydrocarbon resources will become far more accessible for exploitation and transportation. The United States Geological Survey (USGS) provides the most trustworthy, although still fairly speculative, assessment about Arctic hydrocarbon resources, estimating that the region holds “about 30 % of the world’s undiscovered gas and 13% of the world’s undiscovered oil [...], mostly offshore under less than 500 meters of water”.⁸² Additionally, the Arctic – in particular in Greenland but also other regions – hold other mineral resources, e.g. iron ore, copper, zinc or rare earths. Trans-Arctic shipping along these routes offers both economic and strategic advantages due to shorter distances between Asia, Europe and North America, a decrease in days at sea and consequent cost savings in fuel. But both a full-scale exploitation of potentially valuable Arctic hydrocarbon resources as well as the creation of regular trans-Arctic transport lines are still highly speculative due to a number of uncertain variables. Due to several ecological drivers, e.g. the natural climate variability in the Arctic and human-induced impact, reliable predictions on a seasonally ice-free state of Arctic waters will continue to be difficult. Additionally, future economic development in the area will not only depend on favorable regional climatic conditions but also on global economic and geopolitical developments and regional technological innovations and investments.⁸³ The Arctic area is already today the scene of a flurry of economic activities, including shipping of raw materials, tourism, and fishing, and the scale is increasing rapidly. But challenges are already evident. These challenges are related to areas such as environmental protection (there is no efficient method for cleaning up oil spills in icy waters), safety (there is very little capacity to assist a cruise ship which has hit an iceberg), or the sustainability of fish stocks. Moreover, Arctic states explicitly emphasize climate change and its consequences for the region’s environment, yet often in combination with the benefits of

⁸⁰ "The global food crisis," chapter in ‘The Global Social Crisis: Report on the World Social Situation 2011’, (United Nations, New York, 2011).

⁸¹ This draws on *The Maritime Dimension of CSDP: Geostrategic Maritime Challenges and their Implications for the European Union*, report for the European Parliament, 2013.

⁸² Gautier, et al., "Assessment of Undiscovered Oil and Gas in the Arctic," *Science*, 2009, p. 1175.

⁸³ For example, oil and gas production potential in other regions, including the price variability of these resources, the likely global exploitation of shale gas and other gas hydrates, the increasing role of renewable energy, lasting shifts in the global trade dynamics and world trade patterns, the role of the marine insurance industry, logistical and infrastructural developments along the new shipping routes or improvements on new Arctic marine technologies.

economic development. The highly sensitive Arctic environment and its variety of ecosystems could be significantly damaged by pollution from outside and inside the Arctic, e.g. black carbon, oil spills or nuclear waste.

Trend 5: ‘Global Awakening’ - Empowerment of individuals and social vulnerabilities

A combination of several factors, including advances in communication technology, reduction in poverty and middle class growth, will continue to empower individuals over the coming decade. The ‘global political awakening’ of repressed or marginalized peoples in Central and Eastern Europe and – more recently – in the Arab world is a force to be reckoned with for sure in the decades to come.⁸⁴

Rise of the global middle class

Overall, several trends point towards rising individual empowerment across the globe. The emergence of a ‘global middle class’ with better access to education and knowledge, healthcare and access to information and communication are especially salient developments in this regard. This group of individuals will increasingly be found across all continents and will be more influential by 2030. Still, it will remain heavily dependent on continued economic growth in developing and emerging countries. This group of people – defined by the OECD as having a purchasing power between \$10-100 per capita per day – is projected to have grown by an astonishing 172% by 2030, at which point this category will constitute roughly half of the world’s population. As a result of this growth, overall economic distribution in the world becomes more even. Each of the BRIC countries (i.e. Brazil, Russia, India and China) is expected to have influential middle classes by 2025. The rise of a global middle class, and the advances in health and education that it brings, may also have positive effects on improving gender equality in some countries. The emerging middle class can also lead to more political stability through increasing demand for accountability and good governance in certain countries.

That said, there is also a risk that the gap between the emerging middle class and those left behind will intensify, something that if left unaddressed could trigger societal tensions in some cases. Although absolute poverty is expected to diminish globally, extreme poverty and inequalities will still prevail in some regions in 2030, particularly in low-income countries in Sub-Saharan Africa and in South-East Asia.⁸⁵ And even though extreme poverty may diminish overall, nutrition and health poverty will remain a widespread problem in some places.⁸⁶ While the bulk of poverty reduction over the past two decades will be accounted for by China, other rising middle-income level countries also hold potential to make sustained progress on reducing poverty.

Moreover, technological advancements are enabling individuals in emerging and developing nations in a variety of ways. While the proliferation of mobile phones and access to the internet

⁸⁴ Zbigniew Brzezinski, *Strategic Vision: America and the Crisis of Global Power* (Basic Books, 2012).

⁸⁵ In OECD countries, the Gini coefficient measuring the gap between the richest and the poorest has risen by more than 10 percent over the past two decades. In emerging countries such as China and India, the inequalities are widening even faster.

⁸⁶ "Developing Co-Operation Report" (OECD, Paris, 2013), p.13.

generally allows individual citizens and groups to better communicate, the rise in social media also means that social uprisings are aided by better ability to organize protests, shaping different narratives, and putting pressures on policymakers both at home and abroad. Growing populations in combination with massive unemployment levels can also be a destabilizing factor in societies.

Emergence of a 'global community'

The spread of information and the rise of a global middle class promote (at least in theory) the emergence of a 'global community' in which ideas and values are exchanged. Particularly values such as human rights, democracy and environmental stewardship are being 'universalized' in terms of public opinion support. Data from the Pew Research Center and World Values Survey suggests that growing prosperity in the world tends to foment greater trust among individuals towards democratic institutions and civil liberties – even though this process is rarely linear. In particular, the role of the rising 'global middle class' is expected to be a key driver for improving governance and in promoting greater transparency and accountability. At the same time, failures to deliver democratic reforms in many developing states may also cause a growing 'governance gap' to occur between citizens' expectations and governments' ability to deliver solutions.

...But populism and extremism will remain viable factors

While the increased demand from civil society for political participation is obviously a positive development, it also risks giving rise to new forms of radical populism. In particular, nationalist populism will be a force to be reckoned with in authoritarian regimes facing rising domestic opposition. While individual empowerment leading to enhanced political awareness can give rise to peaceful democratic transitions, such processes can tend to be turbulent – as seen recently during the Arab Spring. Social media and other technologies that improve communication and organization also aid these types of movements. Moreover, the lure of various forms of radical populism and nationalism has the potential to not only undermine traditional political institutions, but also to 'cause societal fragmentation and even conflict.'⁸⁷ Fragmentation stemming from retrenchment into religious, ethnic, cultural and nationalistic lines is a real possibility in many countries. As the ESPAS report aptly concludes, "wars fuelled by nationalism and extremist identity politics, and the associated dangers of mass murder and genocide, will be the core security challenge of the coming decades."⁸⁸

Of course, lack of societal cohesion is not just a problem in the developing world. Across countries in the 'West' we are also witnessing the rise of populist political movements challenging the traditional political elites. Whether the Tea Party movement in the United States or anti-immigration far-right parties in Europe, these types of forces may well become a permanent fixture in the political systems in the West. Europe is experiencing a deep structural crisis that is far more serious than just the eurozone crisis, and is likely to continue to constitute a major political challenge over years to come. Rising euroskepticism and growing populism across the continent have accentuated gaps between European elites and European citizens, challenging the very notion of European integration. This makes achieving cohesion and

⁸⁷ EUISS op cit. 2012, p. 14.

⁸⁸ Ibid. p. 17.

‘solidarity’ within the EU all the more difficult. As we look towards 2030, it is not impossible to expect a growing north-south divide and growing domestic tensions (including rising nationalism) within many EU states. Another source of potential societal strains in the developed world is the increased pressure put on pension systems and health care expenditures due to aging populations.

Trend 6: ‘Extreme World’ - Climate Change and Environmental Degradation

The Impact of Climate change

Climate change is increasingly viewed as one of the defining characteristics of the 21st century. While there is no scientific consensus on the exact the scope and scale of climate change, the scientific community shares an overwhelming consensus on the presence of some form of climate change. While climate change is not a new trend but one that has been observed for decades, current research suggests that climate change is increasing in intensity. Case in point: the past three decades where the warmest since modern climate observations started in 1850. This may well have to do with a combination of both human activity and naturally occurring phenomena.

Different climate models show different scenarios for 2030. The International Energy Agency (IEA) estimates that the globe will face a long-term global temperature rise of 3.5°C. Among the International Panel on Climate Change, the effects of climate change includes the melting of snow and ice, rising sea levels, and higher concentrations of greenhouse gases in the atmosphere. If nothing is done, the OECD predicts that greenhouse gases will grow by 37% by 2030 compared to current levels.⁸⁹ As a result, in 2030 we may see increased risk for extreme temperatures, diminishing water supply as melting glaciers; increased drought, floods and storms negatively impacting agricultural crop yields; damaging of ecosystems and biodiversity; increased climate migration and risk for conflicts. While some parts of the world such as Africa will but hit harder by climate change, other parts such as Northern Europe will see less extreme effects. Coastal areas will also be affected by rising sea levels and increased risks for floods.

More “extreme weather”

As a result of climate change, extreme weather will be more common by 2030, affecting far more people than ever before. When it comes to natural disasters, for instance, we have already seen a growing trend towards more such events in recent decades. This trend is predicted to continue to grow in both scope and scale as we look towards 2030.⁹⁰ In accounting for this trend, we must take into account the effects of global climate change and environmental degradation as well as increased population growth and rapid urbanization. Moreover, weak and fragile states, lacking adequate emergency response capacities, infrastructure and health services, are particularly vulnerable to severe natural disasters – with the ones located in the global South

⁸⁹ "OECD Environmental Outlook to 2030" (OECD, Paris, 2008), p.4.

⁹⁰ EM-DAT, a database maintained by the Centre for Research on the Epidemiology of Disasters, has recorded that the number of natural disasters has risen from 240 disasters in 1988 to 335 in 2009, with an average of 392 during the period 2000-2008 (Vos et al., 2010).

predicted to be hurt the most on average. As a result of increased risks for extreme weather and natural disasters linked to climate change, will also contribute to poverty in some developing nations.⁹¹ In particular, food and biofuel production will be affected considerably by these changes. When occurring in weak states, disasters could also easily spill over national boundaries into affecting societal security elsewhere in the world in the forms of massive refugee flows, the spread of infectious diseases, or environmental collapse.⁹² In poorer states, climate change could also encourage rural-to-urban migration, causing cities to become destinations for climate refugees.⁹³

The costs of disasters are also rising. While the full financial costs of climate change are obviously hard to calculate, one estimate suggests that they will amount to \$2-4 trillion by 2030.⁹⁴ Compounding these trends are the need for disaster preparedness and risk reduction efforts and measures to strengthen resilience – areas that in addition to disaster response will likely be top priorities in the international development and humanitarian communities in coming decades.

Concluding discussion: what relevance for Euro-Atlantic societal security?

For the sake of our discussion, global trends, while certainly interesting in and by themselves, are especially relevant given their potential implications for societal security in the Euro-Atlantic area. Protecting the security of societies' critical functions has become a growing policy objective on both sides of the Atlantic, especially following the 9/11 attacks in 2001. Homeland security – or societal security as it is sometimes called – typically refers to a diverse set of policy objectives intended to safeguard territory, citizens and critical societal functions from malicious attacks or man-made and natural disasters. The regional threat perspective has evolved over time. In the immediate aftermath of 9/11 most Western governments understandably placed a strong emphasis on counter-terrorism. While terrorism remains a formidable threat today, other threats to societal security have also received more strategic attention as governments have shifted towards an all-hazards approach. As governments on both sides of the Atlantic prepares to deal with future risks and threats to societal security, understanding the impact of global trends is essential.

Contrasting our discussion about global trends above with the findings of some key government strategic reports makes for an interesting comparison. It allows us to discern whether EU and U.S. authorities are on top of the societal security threats they are likely to face in the future. According to the most recent edition of the U.S. Homeland Security Quadrennial Review,⁹⁵ the

⁹¹ See Andrew Shepard, et al., "The geography of poverty, disasters and climate extremes in 2030," (Overseas Development Institute, London, 2013).

⁹² Of course, developed states are not immune to severe disasters (e.g. Hurricane Katrina, and recently the tsunami in Japan). Moreover, spillover effects could also occur when a disaster hits a developed country (e.g. the 9/11 attacks also had worldwide economic effects).

⁹³ See, "The Security of Cities," op. cit., p.39.

⁹⁴ "Climate Change Scenarios – Implications for Strategic Asset Allocation," Issue Brief (International Finance Corporation, Washington, DC, 2011).

⁹⁵ *The 2014 Homeland Security Quadrennial Review* (Department of Homeland Security, Washington, DC, June 18, 2014).

top strategic priorities for homeland security are: security against and the evolving terrorism threat, safeguarding and securing cyberspace, countering biological threats and hazards, preventing nuclear terrorism, managing flows of people and goods, regulating immigration, and strengthening national preparedness and resilience. Although this list only pertains to the United States, a cursory overview reveals that most of these priorities are similar in an EU context as well. Below we explore in more detail how some of the key global trends discussed above may impact some key societal security threats and vulnerabilities in the Euro-Atlantic region in 2030.

Terrorism

In its report, DHS notes that the terrorism threat is evolving in nature, shifting both in terms of geography and tactics. As we look towards 2030, several of the global trends identified above should be expected to have some important effects on the future of terrorism. One such trend is population growth and urbanization, which – particularly when combined with bad governance, economic malaise and high unemployment levels – could lead to more disenfranchised youth becoming radicalized. Another related factor that must also be taken into account is state fragility. Breakdowns of societies and eruptions of civil war are likely to enable extreme militants to go about their business. Technology trends can further add to these developments, providing more opportunities for radical groups and ideologies to effectively spread their messages across the world, including in the West. An additional factor is the proliferation of technology and the accompanying “democratization” of warfare. By gaining better access to sophisticated weapons and technology, non-state groups’ ability to inflict damage on state targets will doubtlessly expand. Moreover, while detection technology improves, so does violent extremists’ ability to bypass them. A particularly worrying prospect is the growth in biotechnology. As this type of technology becomes more readily available, the risk for terrorists’ using biological agents also increases.

Cyberspace

The trend towards deeper and more interconnected global digital information and communications infrastructure has considerable implications for societal security. Already today much of modern societies’ communication, economies, energy grids and government services depend heavily on information technology. While they bring significant benefits to our societies, they also come with some considerable risks. Major breakdowns or malicious attacks against these critical infrastructures can have catastrophic effects. Moreover, critical infrastructure is increasingly seeing a “cyber-physical convergence” resulting in growing risks across several sectors – ranging from energy to transportation to healthcare. Major disruptions in critical infrastructure thus also runs the risk of giving rise to cascading effects, with serious consequences for societal security as a result.

Furthermore, the global flows of data could become just as important – or in some cases even more important – than physical flows of goods in the future. This is partially due to the emerging revolution of 3D printing. The growing dependence on data flows for ordinary citizens, companies and governments means that societal security may be at growing risk from cybercrime. Developments of new electric payment systems can make illicit trafficking and smuggling easier while investigation and interdiction also becomes more challenging. That said,

cyberspace also bring many benefits to societal security. As the Homeland Security Quadrennial Review concludes, “with appropriate protections for individual privacy and civil rights and civil liberties, technology can enhance situational awareness, improve investigative capabilities, and support operational integration.”⁹⁶

Natural disasters

As the Homeland Security Quadrennial Review makes clear, climate change will present a “major area of homeland security risk.” Already, disasters such as storms, earthquakes, droughts, and floods have affected Europe and North America with unprecedented force. These kinds of disasters are poised to become more common and more severe in the future. The risks they pose are exacerbated by the vulnerability of aging infrastructure and rising population density in high risks areas. Moreover, when major natural disasters do take place they have the potential to cause not only severe casualties and economic loss, but also to overwhelm the capacities of a series of critical infrastructure in society. Another aspect of climate change that DHS calls attention to concerns the kinds of “threat multipliers” these events can trigger. By aggravating stresses such as poverty, environmental degradation and social tensions, natural disasters can serve to enable terrorist activity, violence and organized crime. Disasters could also give rise to more frequent migration flows, particularly in vulnerable areas of the southern hemisphere. While DHS points to the particular risks of refugee flows from Central America to the United States, very similar concerns would apply on areas in Europe’s vicinity as well. Additionally, climate change would have particular impact on the Arctic. Though melting sea ice can give rise to positive developments in terms of increased resource extraction, shipping and tourism in the Arctic, it could also lead to new routes for illicit trade and illegal resource extraction well as new environmental disasters.

Border management

Growing flows of people and goods around the world will have profound effects on border security, both in the United States and in Europe. The reliance on global supply chains and travel means that disruptions with potential severe impact for our economies will become a growing risk. The Euro-Atlantic area will also face a growing risk stemming from the increased opportunities for illicit smuggling of goods and humans – particularly organized transnational criminal smuggling. Consequently, it is necessary that Western states invest more in screening and detection capabilities and capacities to meet these future demands. The DHS report also points to the risk for new pandemics as a result of population growth, urbanization and increased levels of global trade and traveling. Another contributing factor is the risk for growing antibacterial resistance. As a result of the growing risks and vulnerabilities associated with disasters, the cost for preparing for, responding to and recovering from such events is anticipated to surge.

⁹⁶ Ibid. p. 21.