Snapshot of the World 2037

ONE WORLD ORDER

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Facing global scarcity of key resources, nations establish international rules to ensure their fair and sustainable use. Global trade thrives, but its course is shaped by the very visible hand of regulation, at times an iron fist in a velvet glove.

It has become clear that oil production has peaked. Renewable energy technologies have failed to live up to the heightened expectations of replacing coal and oil. The environmental crisis faced by the world's population has taken on an urgent dimension, as looming scarcity increases social and political tensions within and across nations. Policy avenues are aggressively pursued at a global level to ensure equitable access to clean air, drinkable water and healthy food for vast populations across the world, as well as the raw materials and energy required to sustain their communities.

Fearing conflicts and war over the growing scarcity of vital resources, the governments of the most powerful countries come together to create a supranational entity, the World Sustainable Trade Organization (WSTO), to regulate the use of resources and resolve disputes among nations. While many see the WSTO as a replacement for the World Trade Organization, it is in fact much stronger than the WTO ever was. The WSTO reaches far beyond trade and has been given real teeth for strict enforcement. Also, through monitoring and reporting, it dictates efficiency and penalizes waste, prioritizing usage according to global needs. All world powers and most other countries have signed the Charter of the WSTO, and are working towards full compliance with its regulatory framework.

Paradoxically, and despite the forecasts of detractors, global trade has not only remained strong, but it has actually continued to thrive in this heavily regulated world. The regulation-based system of balancing availability and needs did not replace the traditional market-based system of balancing supply and demand. Instead, it has redefined boundaries of the free market, therefore complementing it in unexpected ways. For example, grains are shipped from greener regions where they are produced in abundance to places where the land is not fertile. Metals are shipped in the opposite direction, from the arid yet mineral-rich countries towards the agricultural foci of the world. Technology and labor follow a similar pattern: less developed countries serve as providers of young labor for more technologically advanced countries, which in turn export their technology and knowledge back to the developing countries in the

form of finished goods and services. Many analysts describe the new system as one of "global optima" for the long run, where the objective is sustainable use, not just short term corporate profits.

What gives shape to trade flows is not the invisible hand of the market, but a very visible body of regulations. These are seen by many as a '*green bureaucracy,*' a necessary nuisance. At the end of the day, while individual firms still get to make - for the most part - their own decisions as to *what* to produce and *where*, it is in the *how* that the influence of the WSTO's global bureaucracy and its ever growing tapestry of regulations play an influential role, sending the right signals to the market: how much water can be used, how much CO_2 can be emitted, how discards should be recycled, etc. As a result, the speed of global trade - once mercurial and chaotic in the days of globalization - has slowed down into an optimized order, more entangled in regulations and quotas, yet less volatile and – in consequence – more predictable.

Forged by the struggle for survival of globalized markets, firms have adapted relatively quickly to the new demands of a regulated world. Tracking and offsetting of greenhouse gases, even to the level of zero emissions, is now a prerequisite for doing business. Manufacturers with similar needs have grouped together to create large scale facilities, known as *production clusters,* where they find relief in numbers. They have found it is more cost effective to comply with tight regulations when the cost of required technology can be shared by many. Production clusters, coupled with ultra-efficient supply chains that make use of sensing and advanced computing, are emerging as the greenest solution.

Regulations for urban areas have also forced local governments to adapt. Through a series of stick-and-carrot regulations, the WSTO has sent municipalities a clear message: cities much clean up their act, too. Regulations promote a more efficient use of energy and water in urban areas, a reduction in transportation emissions, and a more effective treatment of waste and sewage. The largest cities in the world now compete for subsidies, and try to avoid penalties, on the basis of improving their performance against a series of sustainability indexes. As a result, large cities have continued to grow even bigger, even as they strive to make their environmental footprint smaller and easier to offset.

Regulators have become aware that online purchasing has a much higher carbon footprint than shopping in person. In order to offset the higher per-pound emissions of home delivery, most urban municipalities have mandated parcel carriers to charge customers a flat tax on all home deliveries. The effect of this tax is felt more on smaller, cheaper packages. Since for consumers it makes little sense to pay a $5 tax for the home delivery of a $10 book, most large cities have seen the appearance of *consolidation centers,* where goods from many retailers are consolidated and delivered to the final customer only when a certain amount of products have accumulated. This has radically change 'last mile' delivery of goods in metropolitan areas. ■

FOOD PRICE INDEX (1990 TO 2037)

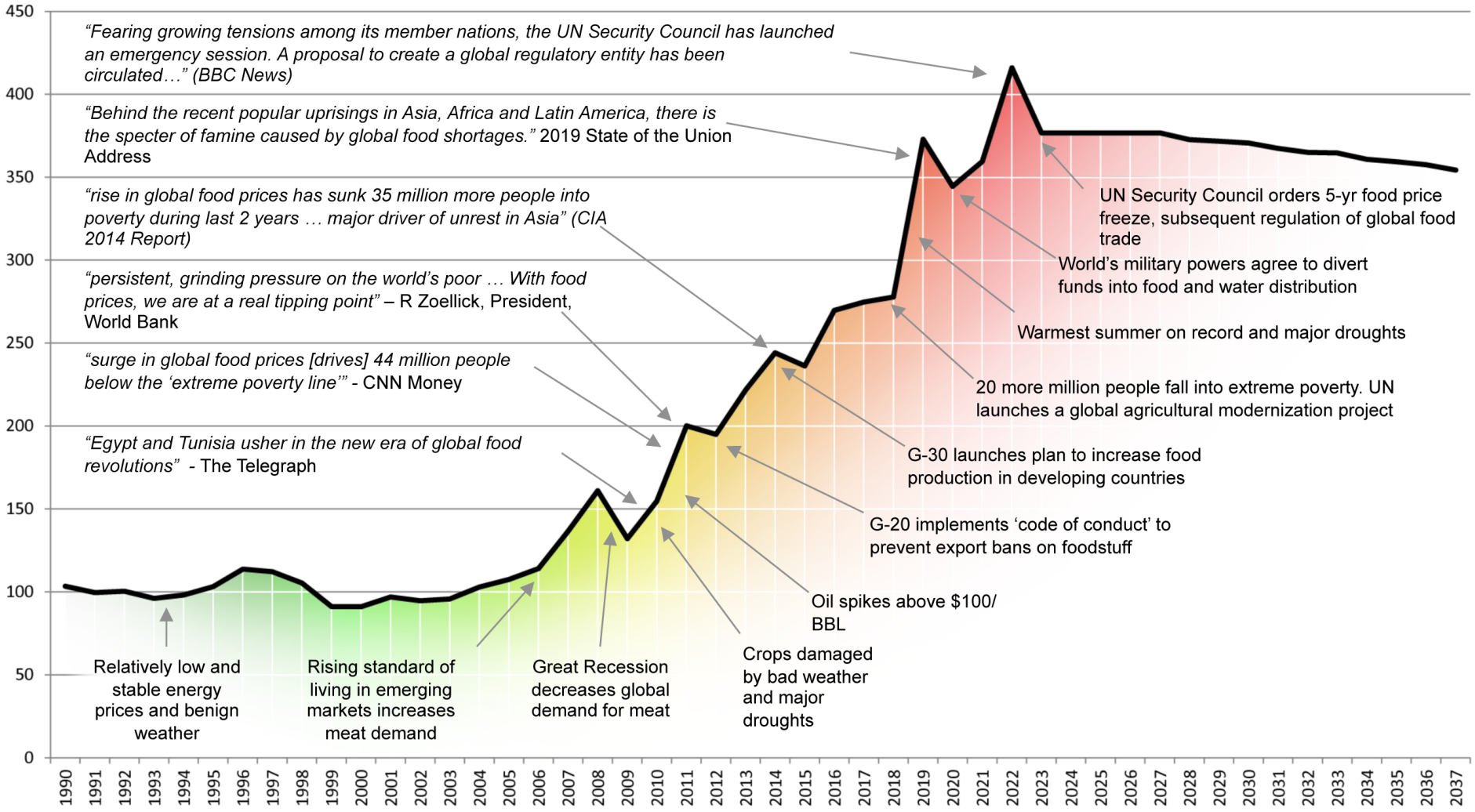

Figure 1. The Food Price Index is calculated by the Food and Agriculture Organization of the United Nations. The index consists of the average of 5 commodity group price indices: meat, dairy, cereals, oils and sugar. The index includes in total 55 commodity quotations, weighted with the average export shares of each of the groups between 2002 and 2004. Prices have been deflated using the World Bank Manufacturers Unit Value Index. For the graph above, the period between 1990 and 1995 is used as reference, so the average during this period is made equal to 100.

GLOBAL DOMESTIC PRODUCT (GDP)

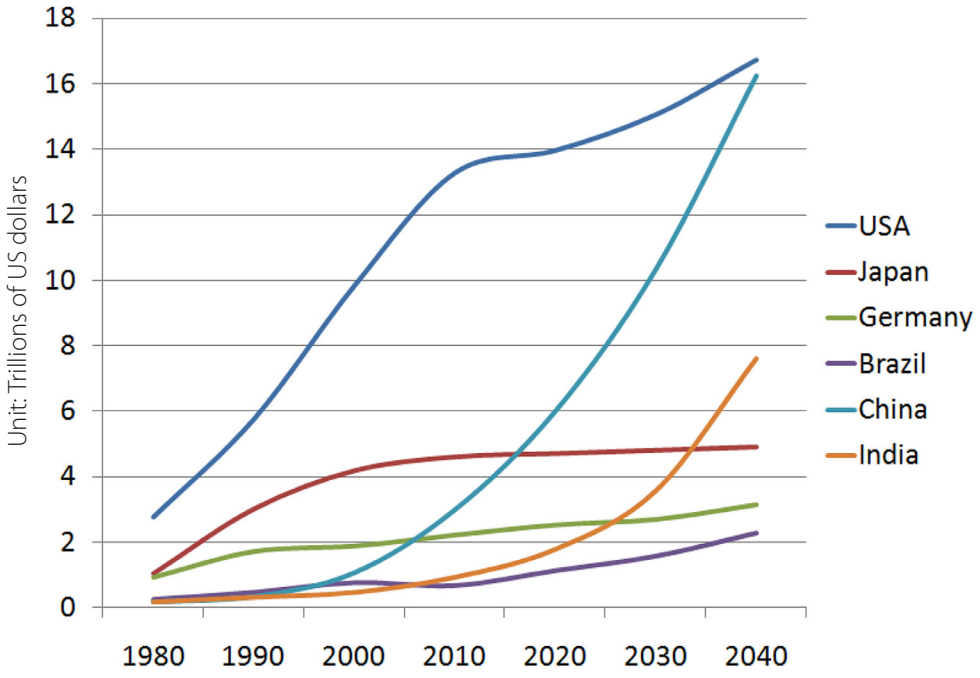

Figure 2. Despite being highly regulated, this is a prosperous world, as shown in the figure above in terms of gross domestic product. Although its has slowed down to a sustainable rate, the US continues to be the largest economy in the world. China, who also struggled to clean up its act, has put its technological prowess to good use and is projected to replace the US as the largest economy in the early years of the 2040s. Economies with more limited resources, such as Japan, have reached their full potential and display little or no growth.

CURRENT ACCOUNT BALANCE AS % OF GDP

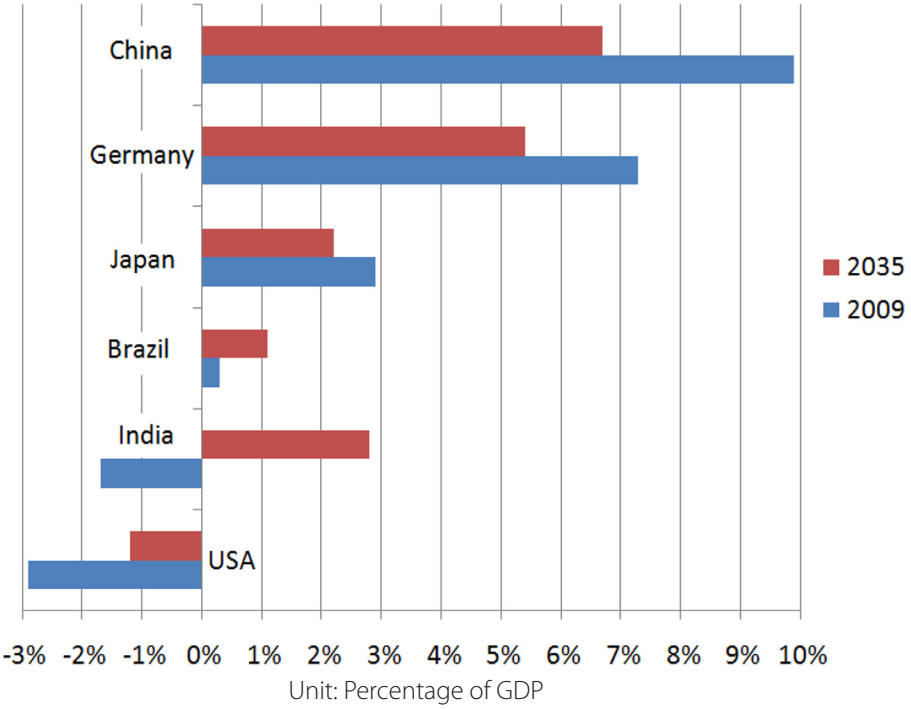

Figure 3. International trade is more balanced in this world, as shown in the figure above. The current account balance of countries, that is to say, the difference between the imports and exports of a given country, are more temperate in this world. A positive balance indicates a country is a net exporter, while a negative balance indicates it is a net importer. The US continues to be a net importer, yet the trade deficit has shrunk in terms of the country's GDP. China, on the other hand, continues to be a net exporter, but its trade surplus has shrunk relative to its GDP. This is true of most nations: one of the effects of regulating trade has been a balance of imports and exports.

ENERGY CONSUMPTION PER CAPITA

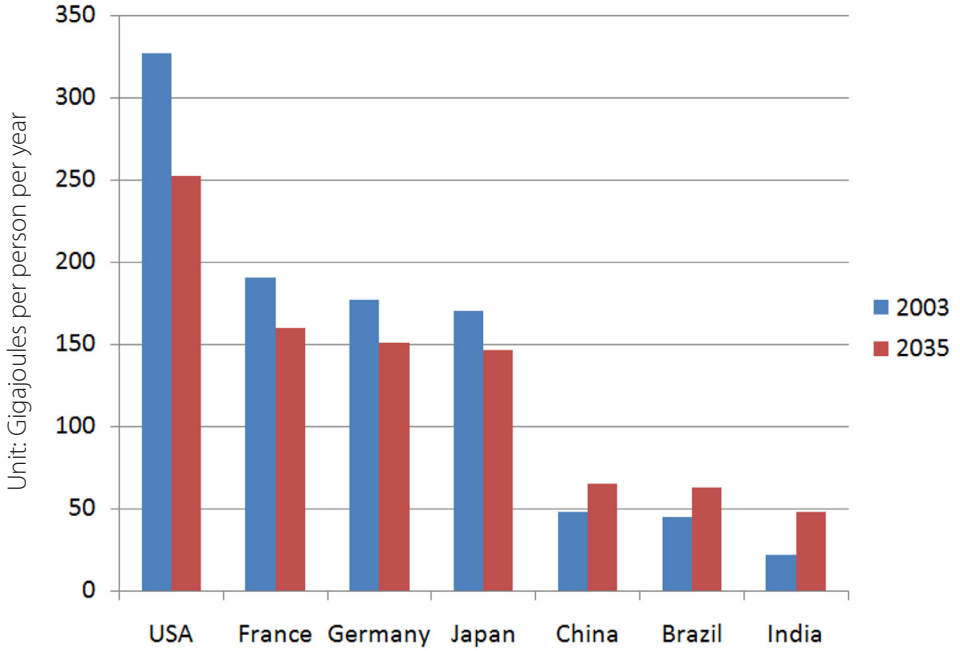

Figure 4. A partial explanation of the higher emissions per capita seen in the US can be found in its higher energy consumption per capita. As the figure above illustrates, the US still consumes more energy per capita than other comparable developed countries such as Japan and Germany. Developing countries, thanks to their significant rural populations, have maintained their energy consupmtion in relatively low per-capita values.

ELECTRIC ENERGY COST PER SOURCE

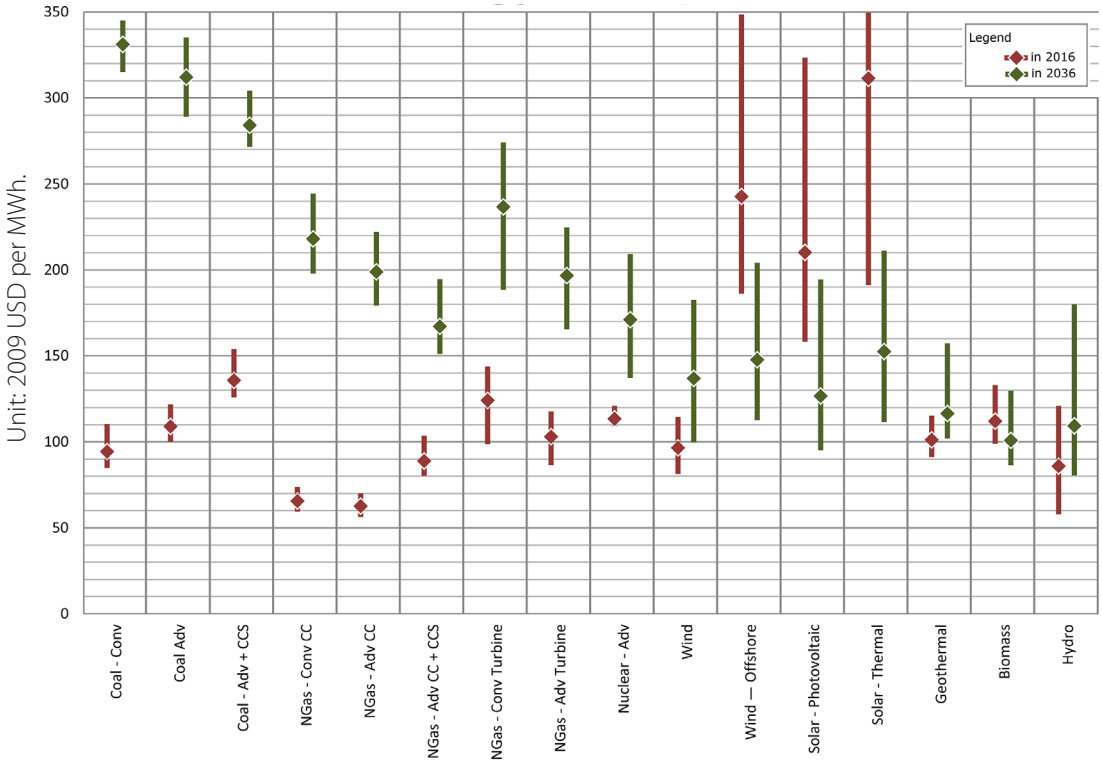

Figure 5. The cost of electricity for an assortment of sources is shown, in 2009 US dollars per megawatt-hour, at two points in time: 2016 and 2036. Shown in the graph is the range of costs for what is called the total system levelized costs, which include the levelized capital cost, the fixed and variable operating and maintenance costs, and the transmission investment. Abbreviations: CCS stands for carbon capture and sequestration; NGas stands for natural gas; CC stands for combined cycle; Conv stands for conventional technology; and Adv stands for advanced technology.

HUMAN DEVELOPMENT INDEX (HDI)

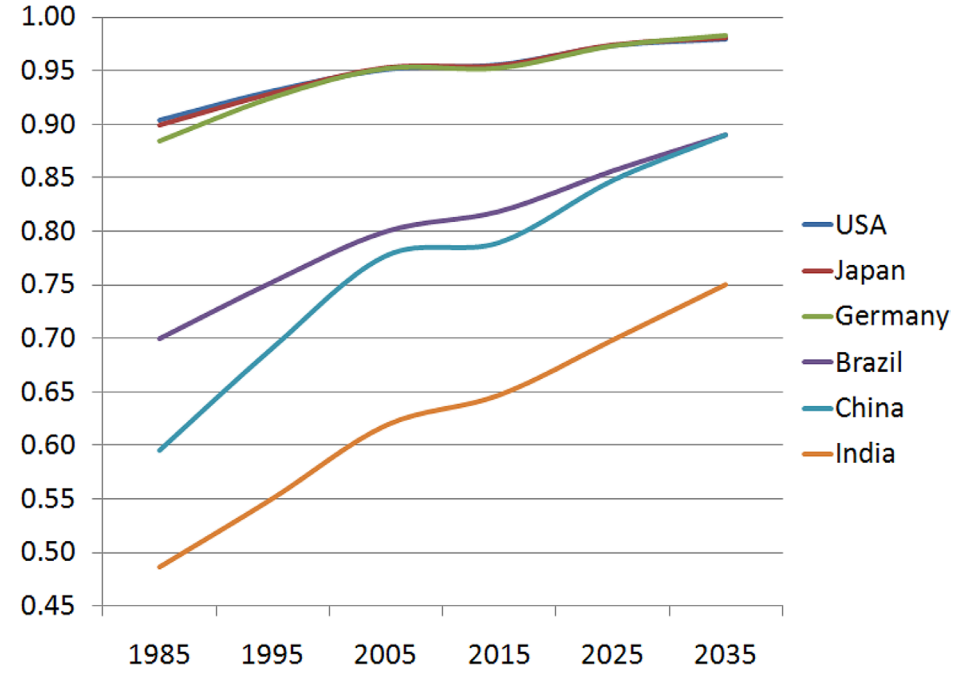

Figure 6. In this world, prosperity translates not into luxury, but into better quality of life. The figure above illustrates the sustained improvement, both in developed and developing nations, in terms of the human development index, a composite statistics that considers life expectancy, education and per-capita GDP. The inhabitants of this world live longer, are more educated and have better income than their predecessors, despite (some would say thanks to) the sustainability policies put in place by the WSTO. The Human Development Index (HDI) ranges from 0 to 1 where a value of 0.8 or higher is considered high development.

ECOLOGICAL FOOTPRINT

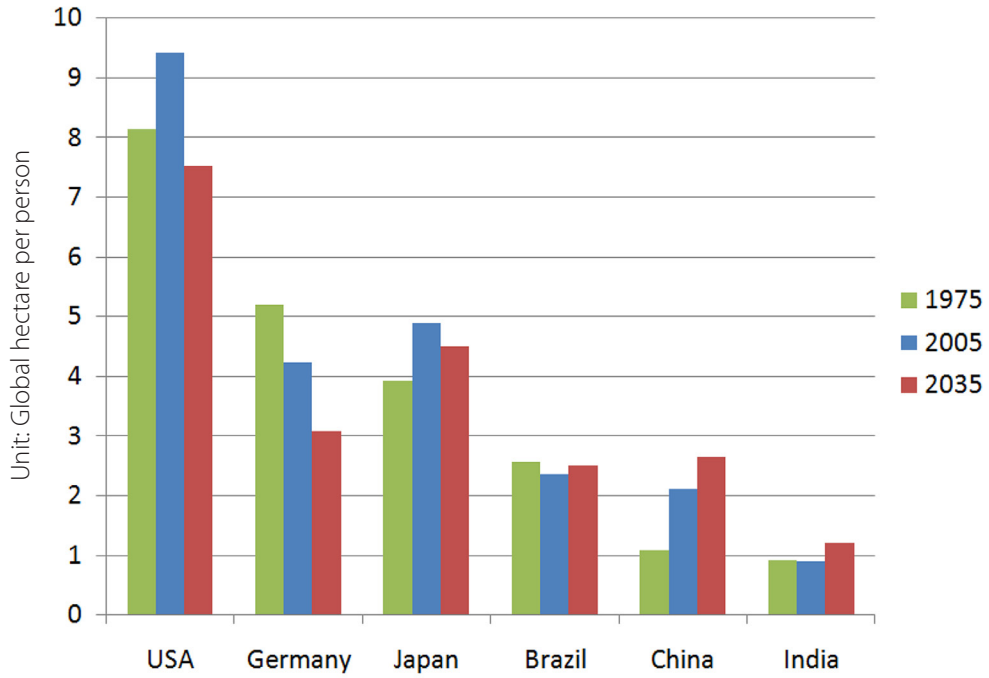

Figure 7. 'Ecological footprint,' a concept only a few understood - or had even heard of - before the resource crises of the early 2020s, has by now become a household term. It summarizes the impact on the environment of supporting a given entity: a person, a town, a company or even a country. For a country, the unit used is the hectare per capita, i.e. how many hectares of land have to be dedicated, either in that country or elsewhere, to support the typical inhabitant of that country. Anything above 2.1 hectares per person is considered unsustainable. As seen in the Figure above, most developed countries are still struggling to shrink their ecological footprints to acceptable levels, while developing countries have managed to stay within acceptable levels, largely thanks to the low impact of their rural populations.

MUNICIPAL WASTE PER CAPITA

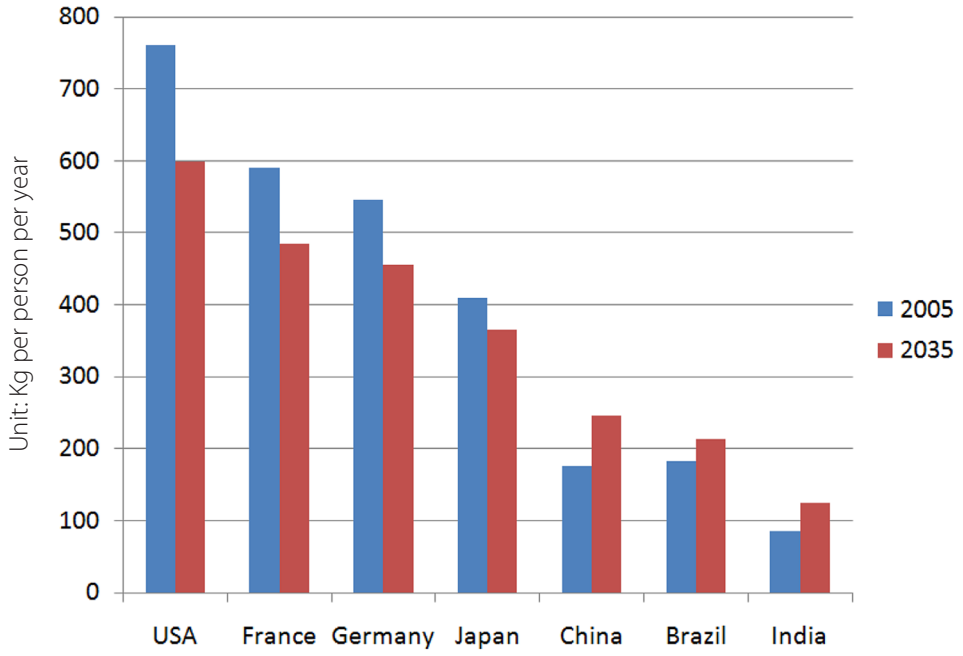

Figure 8. One of the biggest challenges facing the WSTO is sending the right signals to cities to keep their waste production within low levels. As cities grow larger, they have had to invest in technology and infrastructure to properly process municipal waste. The sheer cost of processing waste has also moved cities to implement measures to reduce the amount of waste produced in the first place. These measures, as seen in the Figure above, seem to be having a positive effect.

WATER CONSUMPTION PER CAPITA

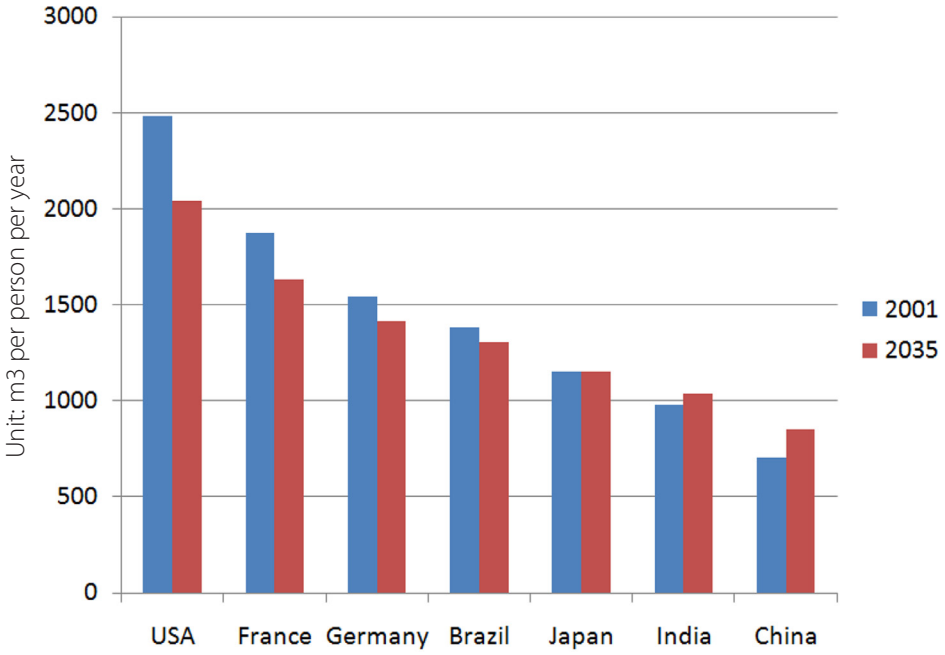

Figure 9. The WSTO has established different permissible levels of water consupmtion for different world regions. Countries like Brazil, naturally rich in water, are given more generous quotas in exchange for the commitment to export huge amounts of excess water to countries in need. Nevertheless, countries are expected to work towards reaching, by the year 2050, a water consumption not in excess of 1000 cubic meters per capita per year. For the US, this means cutting its water consumption per capita in half, a goal that is expected to be achieved by decreasing water waste in industrial processes and improving the efficiency of domestic water use.

Facing global scarcity of key resources, nations establish international rules to ensure their fair and sustainable use. Global trade thrives, but its course is shaped by the very visible hand of regulation, at times an iron fist in a velvet glove.

ONE WORLD ORDER SCENARIO RECAP

How would you characterize the future of One world Order in terms of . . .

Level of Global Trade	☐ Low	☐ Medium	☐ High
Availability of Resources	☐ Low	☐ Medium	☐ High
Cost of Energy	☐ Low	☐ Medium	☐ High
Commodity Price Volatility	☐ Low	☐ Medium	☐ High
Environmental Awareness	☐ Low	☐ Medium	☐ High
Migration Between Countries	☐ Low	☐ Medium	☐ High
Currency Fluctuation	☐ Low	☐ Medium	☐ High
Reach of Government Regulations	☐ Low	☐ Medium	☐ High

NOTES

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