

Vinyl 2010 Essay Competition: Faced with today's food and energy crisis, how can society improve its well-being?

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Summary:

The recent food and energy crisis highlighted the paradox of high demand and resource shortages that represent the basis of an apparently modern, globalised society, but a society that is in many ways simply stuck in an old paradigm. We need strong global solutions and strategies, such as increasing the availability and use of alternative energy resources, investing in large-scale research and development, and implementing specific measures in fragile, underdeveloped areas. The food and energy crisis represents a wake-up call to action on all these fronts, for the long-term benefit of all society.

Essay:

The recent food and energy crisis has highlighted the paradox of high demand and resource shortages that represent the basis of an apparently modern, globalised society, but, that is in numerous ways stuck in an old paradigm. Without effective measures and real change, serious threats to our well-being could resurge, and become even more widespread, such as starvation and lack of energy. We need long-term, global solutions and strategies, and to recognise that fragile areas need specific measures. While many of these solutions have been proposed over the last decade or so – the crisis is a wake-up call that must not be ignored.

At the heart of the paradoxical relationship between high demand and resource shortages is the acquisition of oil. Oil is a resource that self-perpetuates itself into shortages due to its finiteness coupled with high demand. Areas which have large supplies of oil are often fought over, either politically or through military means, by various countries wishing to gain drilling access to the oil. These 'fights' often result in the acquisition of oil becoming precarious, which in turn leads to shortages, and increases the desires of countries to gain superior access to oil. The most plentiful supply of oil, for example, although located in a war-free zone in the arctic, requires a lengthy process of acquisition including seeking permission from the UN based on scientific ties that the country has to the land. This discourages governments and business alike, and leads to high demand in other areas such as the Middle East. But fundamentally, continuing to use oil is unsustainable. The replacement of oil is inevitable and must begin now. Rather than wasting resources on military, defensive activities, resources should be devoted to investment into creating a transformed, energy efficient global economy through the use of alternative and renewable energies, such as wind and solar power.

Solar power is crucial. In 'Toward Cost-effective Solar Energy Use' Nathan Lewis highlights that 'more energy from Sunlight strikes Earth in one hour than all of the energy consumed by humans in an entire year'. Solar energy has enormous potential to help toward an efficient and sustainable energy economy. However, current development levels of solar are low, so it tends to be inefficient, expensive, and difficult to implement on a large-scale basis. To increase its efficiency and cost-effectiveness, in-depth scientific research is essential. In 'Don't Forget Long-term Fundamental Research in Energy' George Whitesides and George Crabtree suggest that enhancing the understanding of inefficiencies through research into biological photosynthesis for example, could lead to a 'closed-cycle capture of energy from the Sun in forms that are useful as fuels'. Whilst technologies such as Carbon Capture and Storage (CCS) will be crucial in a world based on traditional coal consumption, technologies such as solar present an opportunity to jump-start and avoid coal from day one.

This recommendation does not come without caution, however. In the deployment of alternative energy, avoiding jeopardising other industries and unintended effects is essential. The adoption of bio-fuels as an alternative energy source demonstrates the importance of caution. In 2007, UK and US governments theorised that climate change had an astronomical effect on the food and energy crisis, especially in light of a drought Australia, a major grain exporter. In response, they implemented strong policies to raise the use of bio-fuel resources to reduce carbon emissions and oil dependency. However, in July 2008 the Guardian newspaper, quoting a secret US report on food prices, stated that droughts in Australia 'had a marginal effect on food prices' whilst the push on bio-fuels had itself 'forced global food prices up by 75%' by displacing production of traditional crops. Although the impact of bio-fuels on the food and energy crisis is an issue of continuing empirical investigation, it is clear that caution is necessary in this uncharted journey of tackling climate change and oil dependency. Furthermore, governments and organisations involved in policy making and research concerning the crisis must put the crisis prior to politics. For example, the publication of the abovementioned secret report was delayed to avoid embarrassing the US government's policy decisions – despite the important insights on the origins of the crisis.

Events will always affect some communities disproportionately, and the food and energy crisis has been no exception. The poorest around the globe were, paradoxically, the victims of stronger economic growth and development. Growth in countries such as India and China had encouraged higher transport and meat consumption, in turn increasing oil and grain demand. But these countries, and other less developed countries, have large swathes of populations in poverty, who could not afford high prices. The answer to this chain of events is not to restrict economic development, but instead to create new modes of development. For example, finance from affluent countries around the globe, deployed now, could encourage the creation of sustainable cities to prevent not only high CO₂ levels but reduce oil dependency, and create new jobs to raise development in a sustainable way. Such projects are expensive, and difficult for governments to do on

their own. However they are significantly cheaper to adopt in less developed countries than in highly populated and developed cities in middle income countries, therefore it is in the interests of affluent countries to contribute funds. Curitiba in Mexico is a particularly extraordinary demonstration of the successful implementation of sustainability in underdeveloped cities; according to the US Environmental Protection Agency its 'bus system costs approximately \$3mn USD/km as compared to a typical tram system \$8-12mn USD/km or a subway \$50-100mn USD/km'.

These sorts of strong, research based actions and "transformational" policy choices, implemented across the globe and especially in the poorest of countries are needed now. Not only will they improve society's well being, they will reduce the risks of a future crisis, and they could reduce conflict and save billions. The Stern Review mantra that the costs of action now will be less than the costs of inaction rings truer than ever with this crisis; immediate change is crucial.