

Vinyl 2010 Essay Competition Submission Template

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Summary:

As energy and food security decline in the 21st century, the ability of centralised institutions and production methods to deal with a mounting crisis seems to decline in equal measure. This essay argues that society needs to rethink, reorganise and revolutionise its organisational structure, adapting the resources at its disposal toward decentralised production methods. This would help to create an independent, responsible and sustainable society which can avoid an ensuing economic and social catastrophe. Whilst we possess the technology and knowledge to overcome our problems, history shows our fate is dependent upon our ability to evolve, adapt and change.

Essay:

The age of relative human technological advancement is perhaps also an age of paradox. Obesity and starvation prevail in equal measure (World Health Organisation, 2009) and energy in the form of heat, electricity, fuel and food, taken for granted by the consumer markets of the first world, are only aspirations for others. Well being is seemingly rising for first world countries whilst declining for others (Economist, 2005) and the gross imbalances in quality of life are often achieved at the others' expense. In 2008, a global food and energy supply crisis began throughout the world, in both developed and undeveloped countries. Against a backdrop of high global population growth, climate change concerns and economic turmoil, fuel and food prices rose at unprecedented rates, and some countries saw the collapse of supply chains, public disorder and rioting. Whilst technological solutions to these problems are within our grasp, it is perhaps the organisation of societies' systems of production which offers the key to securing our future.

Currently, both our food and our energy are organized around centralised processes. Farmers grow crops and farm livestock and a multi-layered global supply chain takes food to densely populated urban centres, where it is sold to consumers. Modern agriculture as a production system faces immense challenges. As world population increases, so does demand for food supply. This is directly contrasted with falling agricultural production output quantity and quality due to loss of land for development of buildings, land degradation due to soil erosion and intensive farming, changing weather patterns and the use of agricultural land for 'biomass' fuel crops (Food & Agricultural Organisation, 2008). In addition, the worldwide agricultural industry contributes approximately 25 % of the global carbon emissions, which accelerate climate change, exacerbating food production problems. The F.A.O confirms that 2 billion people live in conditions of 'intermittent food security' and advocates an economic approach to protect the existing system of production, allowing food producers the technological and

financial opportunities to produce more. However, this approach seems flawed in that it does not address the fundamental problem of the reducing capacity of agriculture to produce. The agricultural industry is desperately in need of wholesale innovation, and some believe decentralised production of food may be the answer. Urban agriculture, using 'vertical farming' methods (Despommier, 2008) would feature shifting the activity of farming from remote outdoor locations to indoor locations closer to the point of demand. Under this method, a vast range of crops and livestock would be farmed indoors in homes and buildings closer to urban centres, and using the latest technology, these urban farms would be able to produce greater yields of higher quality produce. This would improve the potential output of land per m², and would enhance the security and energy efficiency of the supply chain. Also, existing agricultural land would receive a respite from intensive farming. Reconnecting consumers with food production has the potential to promote responsible production of food, reduce wastage and over consumption.

World energy is also currently produced using centralised methods. Power stations, often powered by carbon fuels, generate electricity and supply homes utilising inefficient infrastructure. The 'transaction costs' (Coase 1937) of centralised electricity production are incredible. A Greenpeace report, (Decentralising Power, 2005) highlights that 67% of energy generated under centralised production methods is lost in the process of delivery. Reliance on carbon based fuels to power vehicles and generate electricity is increasingly unsustainable and insecure. As carbon based fuels decrease in abundance and cost more to extract and refine, the world becomes reliant on key geographical areas to deliver fuel. This creates a competition for energy supply, which has political, economic and sometimes military implications, to the dis-benefit of society. The realities of power outages and rising energy prices highlight the deficiency of centralised power generation. In contrast, decentralised energy (DE) production would feature the generation of electricity and fuel at the point of demand. A DE system would involve a mix of renewable and sustainable production methods such as solar, biogas, biomass, wind, geothermal which would be linked into the existing national power grid. Buildings and vehicles, two of society's largest energy users, would be both producers and consumers of energy across an adaptable energy web (Rifkind, 2003) and energy could also be sold back to the grid creating additional income for consumers and additional output for society. This would allow energy production to occur at the point of consumption, increasing the efficiency, security and independence of society. The connection of consumers with the means of producing would also result in a decrease in wasteful energy consumption.

Centralised production features a top down approach; the remote separation of production and consumption. This structure, while most able to generate profits for a capitalist global economy due to efficient economies of scale and scope, is perversely grossly inefficient for society in terms of energy use. Decentralised models of production offer a 'bottom up' approach and the chance to bring consumers and producers closer together. This removes wasteful layers of the supply chain, and creates a true economy of scale where the world's inhabitant's benefit from enhanced security, vastly reduced transaction costs and a greater level of independence. Decentralisation is not a new idea and it embodies the old principles of self sufficiency and responsibility which we now need re-embrace to secure our energy future. The problems of how we produce our food and fuel our existence are interconnected and we require holistic reorganization to create a sustainable net gain for society. Strategies of optimization and conservation of resources can only delay the effect of the supply problem. Centralised government has a

crucial role to play in using the tax system and legislation to incentivise and empower change. But crucially it is people throughout the world who want change, to improve their own well being and enhance quality of life for future generations.

Adaptation has been a defining ability of humankind civilizations began. Now, our generation must adapt once more to ensure the survival of our species, without it costing the earth.