Al Dahra Agricultural Company LLC

Sustainable Approaches in the Food Business – Retail and Production

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Definitions

Sustainable agriculture is the practice of farming using principles of ecology the study of relationships between organisms and their environment.

It is "an integrated system of plant and animal production practices having a site-specific application that will last over the long term and fulfil the following:

Satisfy human food and fibre needs.

Enhance environmental quality and the natural resource base upon which the agricultural economy depends.

Make the most efficient use of non renewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls.

Sustain the economic viability of farm operations.

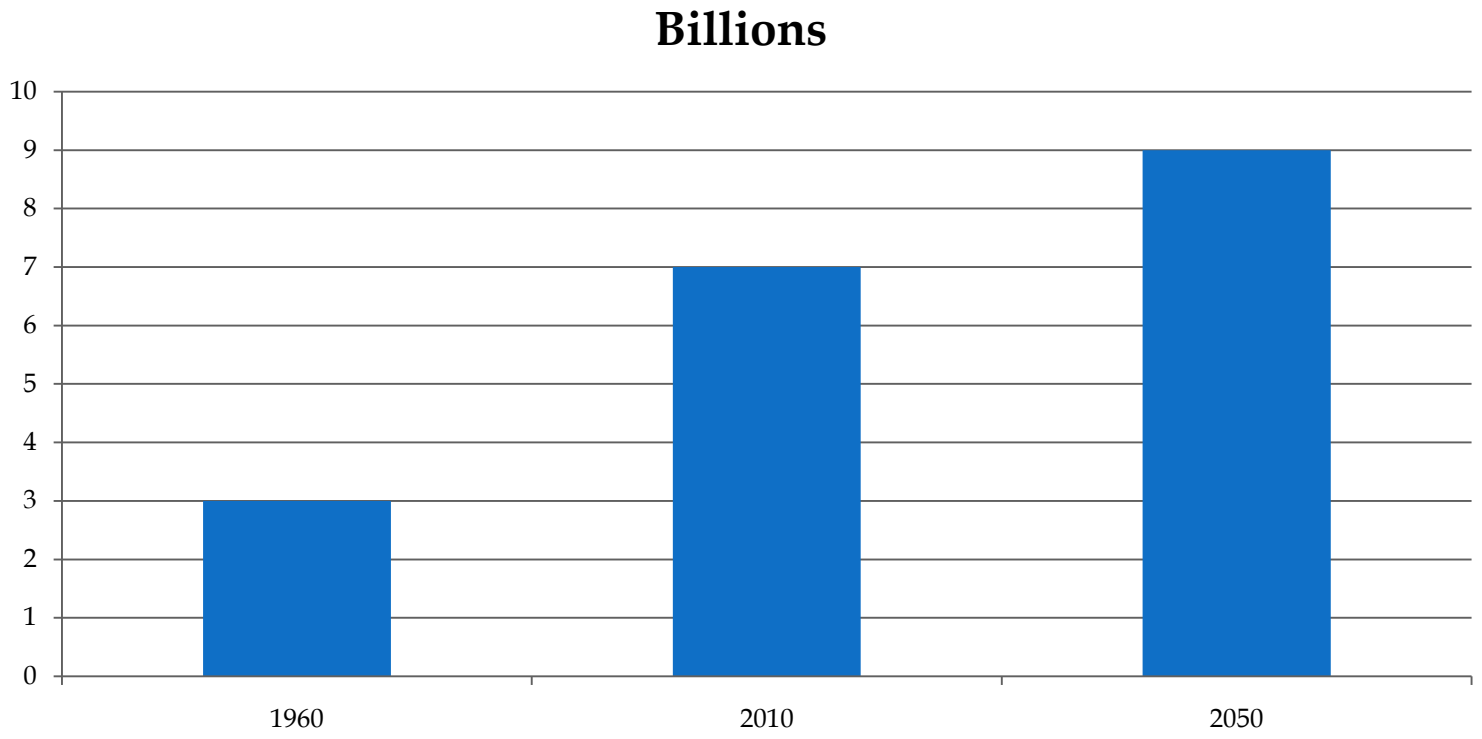
Enhance the quality of life for farmers and society as a whole.

Definition by USDA

Why Sustainability – Population Factors

Current world population 7 billion, 1 billon are below hunger level as per World Bank.

By 2050 population that will be 9 billon. FAO estimates food production needs to increase by 70% to feed this size of population.

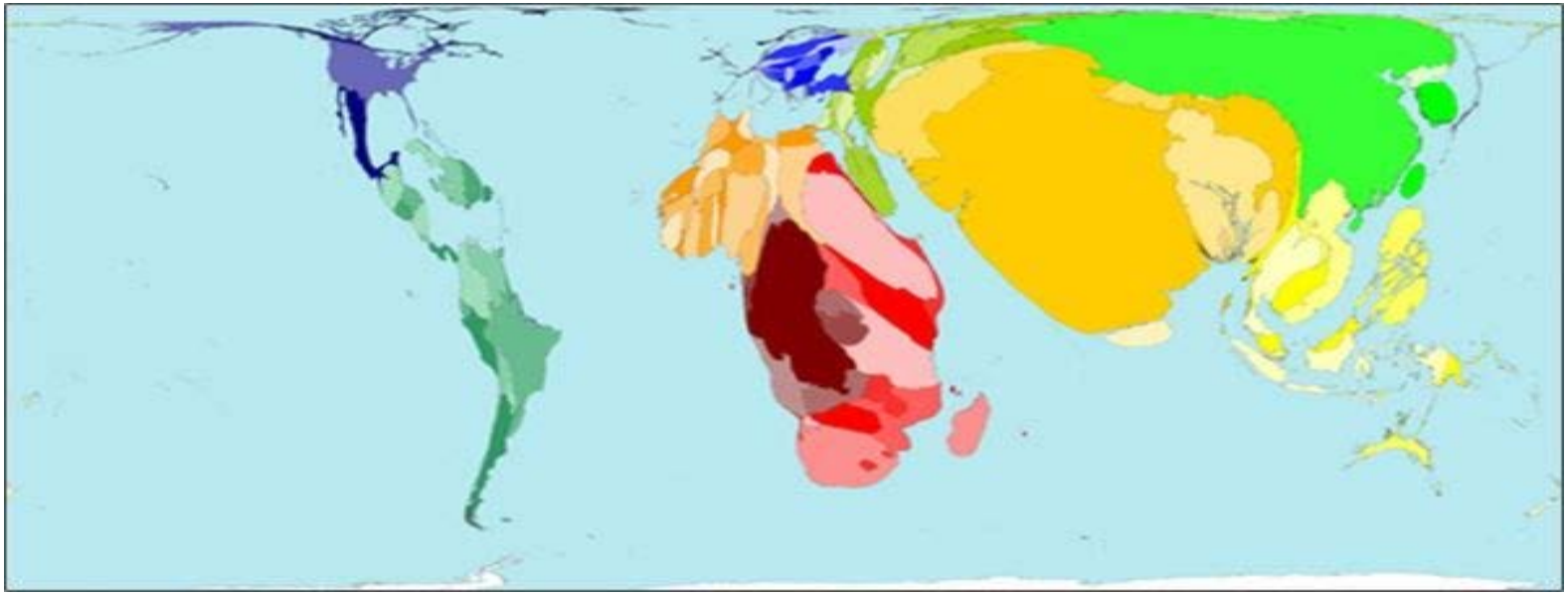


Why Sustainability – Population Factors

Population shift from rural to urban, by 2030 - 60% will be urban.

Diminishing Agricultural population. Africa & Asia this will drop to 50% by 2015

Rise in capita consumption in the developing world – FAO estimates



World Under Nourished Map Source US Sate Dept

Why Sustainability – Resource Factors

Ratio of Arable Land to Population is decreasing. In 1960 4.3 hectares per person, in 2020 it will be 1.8 hectares.

Reduction of available farming land, current world average is 37.7% but in Mena region it is only 23.12%

Water scarcity- demand for fresh water has tripled over the last 50 years as population has grown.

Agriculture accounts for 71% of all global water use. This equates to 3,100 billion cubic meters.

In developing nations agriculture can account for over 90% of all water usage.

It is estimated by 2030 that 3.9 billion (47%) of world population will be living under severe water stress. This will affect Sub-Saharan Africa, Asia and the Middle East especially.

Agricultural Techniques

Today, sustainable farming practices commonly include:

Crop rotations that mitigate weeds, disease, insect and other pest problems; provide alternative sources of soil nitrogen; reduce soil erosion; and reduce risk of water contamination by agricultural chemicals

Pest control strategies that are not harmful to natural systems, farmers, their neighbours, or consumers. This includes integrated pest management techniques that reduce the need for pesticides by practices such as scouting, use of resistant cultivars, timing of planting, and biological pest controls

Increased mechanical/biological weed control; more soil and water conservation practices; and strategic use of animal and green manures

Use of natural or synthetic inputs in a way that poses no significant hazard to man, animals, or the environment.

Environmental Techniques

Environmental sustainability implies the following:

Conserving, recycling, and establishing priorities for the use of non-renewable resources

Keeping environmental impact below the level required to allow the systems affected to recover and continue to evolve.

Reducing carbon admissions and encouraging carbon neutralising biosphere's.

Reverse desertification and soil erosion – annually an average of 35,000sq km of arable land is lost to land degradation.

Reverse the trend in increasing Salinity due to excessive irrigation and from the intrusion of sea water on land due to increase flooding.

World wide, 450,000 sq km of irrigated land is salt-affected which reduces yield.

Political Techniques

Political sustainability implies the following:

Meeting the basic needs of all peoples, and giving this priority over meeting the needs of a few.

Keeping population densities, if possible, below the carrying capacity of the region adjusting consumption patterns and the design and management of systems to permit the renewal of renewable resources

Conserving, recycling, and establishing priorities for the use of non-renewable resources through policy and awareness.

Keeping environmental impact below the level required to allow the systems affected to recover and continue to evolve.

Environment protection by Government legislation.

Consequences of Un-sustainable Agriculture

Case study in disaster- The Ural Sea

Consequences of Un-sustainable Agriculture

Case study in disaster- The Ural Sea

In 1960 it was 68,000 sq km in size

In 1990 it was 28,687 sq km in size

In 2010 it was 6,800 sq km in size

This is a 90% reduction from it's original size in 50 years.

It is the equivalent of draining Lake Erie and Lake Ontario completely dry

Many Scientists have called this the " worst ecological disaster on the plant"

Consequences of Un-sustainable Agriculture

July - September, 1989

October 5, 2008

Consequences of Un-sustainable Agriculture

Case study in disaster- The Ural Sea – What caused this?

The Soviet Union had started a large Cotton Industry in what is now Uzbekistan

Massive irrigation drawn from the Ural Sea.

Mono-cultural instead crop rotation used

High use of pesticides & fertilizer which drain back into the sea

Results

Salinity of Ural Sea is now 100g g/L – normal sea water is 35 g/L so no fresh water.

Ecosystem destroyed and a new desert has been created.
Fishing industry and cotton industry destroyed.
Health problems caused by Toxic dust blowing from the former Sea Basin.

Political & Technical Sustainability

Global Agreements on Climate Change and Carbon Emissions.

Green Taxes and Carbon Off-Setting influencing production.

Should the continued de-regulation of the commodities market continue?

Direct food price control by Govt – Global prices have risen by 83% in last 10 years according to FAO

Direct Govt involvement in farming with a Global Perspective – CAP in EU

More fuel efficient Agricultural machinery

Improvement in crop quality to increase starch, protein and oil content.

Breeding plants which use nitrogen more efficiently and so reduce fertilizers.

Potential of increased development in the Biotech Seed market

Sustainable Progress - Production

Land needed to grow a bushel of corn has dropped by 37% in last 20 years

A bushel of soybeans can be produced today using 26% less land in last 20 years.

Soil loss through corn cultivation has plummeted 69% per bushel in last 20 years.

Cotton production is 66% more energy efficient per pound today than in the last 20 years.

Greenhouse gas emissions from soybean farming have fallen 38% per bushel in 20 years.

Yields for Rice and Wheat in the USA have doubled in the last 20 years.

In USA from field to market there is 50,000 fewer gallons are needed to grow an irrigated acre of corn than 20 Years ago.

Improved irrigation techniques such as drip, sprinkler and underground have on average saved 24 litres per day per person

Sustainable Progress - Retail

Retailer must use the immense influence that their volume buying and Global sourcing strategy can bring.

Price and volume cannot be the main drivers as this encourages short term planning.

Long term contracts with Suppliers with built in sustainability as an obligation.

Suppliers contractually obliged to impose same standards on their Suppliers.

Programs of education and health care in growing areas especially Africa & Asia.

Promote carbon off-setting schemes and green supply chains in transport terms.

Review commercial practices to reduce spikes in demand for Suppliers.

Review new store placement policy to reduce consumer' carbon footprint

Sustainable Progress- Retail- Waitrose UK

Waitrose has made what they term “Ethical Trading” a cornerstone of their sourcing.

Creation of Senior Manager for Ethical Trading.

Working to three core principles in their sourcing:

1. Provide best possible conditions for the workers
2. Protect the natural environment
3. Provide high standard of animal welfare

With Farmers they are working together on Integrated Crop Management.

Created a organization which works to promote always the linking of the needs of the environment to Farming practice for both arable and animal.

Sustainable Progress Retail- Waitrose UK

Waitrose have championed Fair Trade products with many Third World Suppliers.

The Waitrose Foundation works to aid Farmer workers and Small Holding in countries where they are sourcing.

Funding of education, medical, social and welfare programs in the local communities to the raise standard of living.

Sustainable Agriculture- Conclusion

Sustainable Agriculture is a Global matter that must consider:

•The value of broad based sustainable development.

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•The power of investments to enhance agricultural productivity.

•The importance of an open world trade system.

•The need of early action on adaptation and mitigation of technology on the environment.

•For countries to realize that neither food security nor climate change can be view in isolation.

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SIAL 2011
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Thank You