

Global Business

and

Global Food safety

Our Food:

Food Safety and Control System

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Introduction

- Agriculture, domestication of animals and abandonment of nomadic existence led to the rise of cities.

Business was born.

- All great civilizations were based on a food base. This base was usually a single key staple crop like rice, wheat, corn or meat.

Introduction

- Greater control of food has also created new concerns over the regulation of weight and body, new fears about over consumption, and an obsession with proper diet and the fear of poisoning or alteration of food as major concern.

Introduction

Disenchantment of food

- Whereas once food, cuisine, and meals were filled with symbolic and religious importance, today in our society they serve mainly as means of sustaining life.
- Food modernization seems destined to undermine or eliminate ethnic and regional food traditions.
- In order to coordinate the global trade the WTO was founded.

FAO

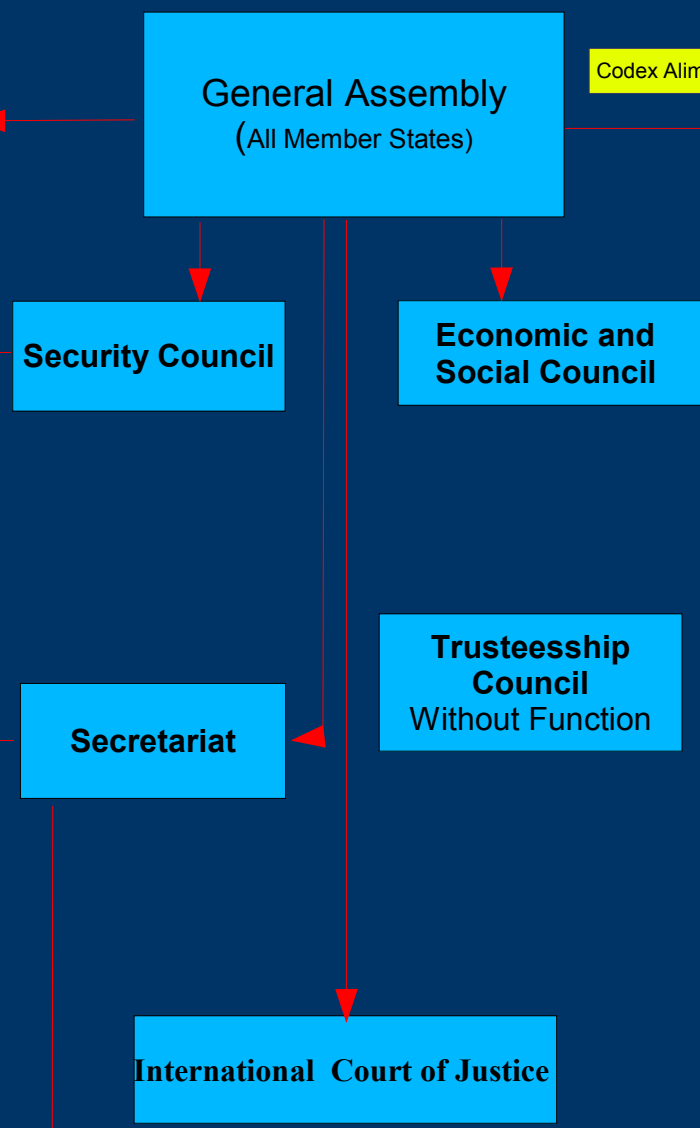
- The Food and Agriculture Organization (FAO)was founded in 1945 with a mandate to raise levels of nutrition and standards of living.
- FAO is the lead agency for agriculture in the United Nations system .
- The FAO works to alleviate poverty and hunger.

United Nations

Programmes and Funds
UNDP: UN Development Programme
UNCTAD: UN Conference on Trade and Development
UNICEF: UN Children's Fund
UNFPA: UN Population Fund
UNIFEM: UN Development Fund for Women
UNDCP: UN Drug Control Programme
WFP: World Food Programme
UNEP: UN Environment Programme
UNHCR: Office of the UN High Commissioner for Refugees
UNRWA: UN Relief and Works Agency
UNV: UN Volunteers
UNU: UN University

Peacekeeping Operations and Missions
 UN Monitoring, Verification and Inspection Commission (Iraq)
 Peacekeeping Operations and Missions
 Peacebuilding

International Criminal Tribunal for the former Yugoslavia and Rwanda



Specialized Agencies
ILO: International Labour Organization
FAO: Food and Agriculture Organization
WHO: World Health Organization
UNESCO: UN Educational Scientific and Cultural Organization
UNIDO: UN Industrial Development Org
IFAD: International Fund for Agricultural Development
ICAO: International Civic Aviation Org
IMO: International Maritime Org
ITU: International Telecommunication Union
UPU: Universal Postal Union
WMO: World Meteorological Organization
WIPO: World Intellectual Property Org

World Bank Group
IBRD: International Bank of Reconstruction and Development
IDA: International Development Association
IFC: International Finance Corporation
MIGA: Multilateral Investment Guarantee Agency
ICSID: Int Centre for Settlement of Investment Disputes.

IMF: International Monetary Fond

WTO (Trade): World Trade Organization

WTO (Tourism): World Tourism Organization

IAEA: International Atomic Energy Agency

FAO and Biological Diversity

Convention on Biological Diversity

- The Convention on Biological Diversity was adopted in 1992 as an activity of the UN Environmental Program.
- As many as 43 developing countries rely on a single agricultural commodity for more than 20 percent of their total export revenues.
- Most of these countries are in sub-Saharan Africa or Latin America and the Caribbean.

Even in emerging countries such as Brazil the overspecialization in Soy and coffee drives small peasants into poverty.

FAO Anti hunger Program

- The FAO Anti-Hunger Programme advocates measures to increase the productivity and improve the livelihoods of small-scale farmers and landless labourers.

Priorities of the FAO Anti-hunger Program

- Expanding rural infrastructure and market access
- Strengthening capacity for knowledge generation and dissemination
- Ensuring access to food for the most needy.
- A specific priority of the Organization is encouraging sustainable agriculture and rural development.

Codex Alimentarius Commission

- The Codex Alimentarius Commission was created to develop food standards aiming to protect health of the consumers and ensuring fair trade practices in the food trade.
- Established in 1995, the World Trade Organization (WTO), is the product of the Uruguay Round (1986-1994).
- The Uruguay Round includes specific commitments by WTO member governments to improve market access and reduce trade-distorting subsidies in agriculture.

Functions of WTO

- Administering WTO trade agreements
- Forum for trade negotiations
- Handling trade disputes
- Monitoring national trade policies
- Technical assistance and training for developing countries
- Cooperation with other international organizations

WTO's Agriculture Agreement

- The WTO's Agriculture Agreement includes commitments by member governments to improve market access and reduce subsidies in agriculture.
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The Doha Declaration

- The declaration reconfirms the long-term objective already agreed in the present WTO Agreement: to establish a fair and market-oriented trading system.
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- Members commit themselves to negotiations aimed at:
 - Market access.
 - Exports subsidies: Reductions of, with a view to phasing out, all forms of subsidies.
 - Domestic support: substantial reductions for supports that distort trade.

Sanitary and Phytosanitary Agreement

- Sanitary and phytosanitary of WTO wants to ensure that every consumers are being supplied with food that is safe to eat, and at the same time, to ensure that strict health and safety regulations are not being used as an excuse for protecting domestic producers.

STDF

- The Standards and Trade Development Facility (STDF) is a global program in capacity building and technical assistance to developing countries in trade and standards.
- The activities of STDF relates specifically to food safety, plant, and animal health, and to the Codex standards, the FAO International Plant Protection Convention (IPPC), and the OIE.

Causes of famines

Historical famines are always related to droughts or mismanagements:

- The British, for example, liberalized trade in grain in India in the nineteenth century this meant that they forced producers to sell their grain in an open market.
- Basic social and redistributive supports that had developed over centuries were destroyed. The result was a catastrophic famine unlike India had ever experienced killing 10 to 30 million Indians.

Great Irish Famine

The Great Irish Famine 1845-1850

- Following the arrival of the potato blight in Ireland in 1845 and the consequent failure of the national potato crop (the staple food of the poor) one million people perished from starvation and disease.
- The summer of 1845 was mild but very wet in Britain causing best conditions for the spread of the fungus 'Phytophthora Infestans'.

Famines

1873-4 **Indian famine:** due to droughts

1876-9 **Indian famine:** due to droughts

1889-91 **Famine:** in India, Korea, Brazil, Russia, Ethiopia and Sudan due to droughts.

1896-1902 Drought in tropics and northern China.

1900 **Great Irish famine**

1919 **Mislead informations:** Following mislead informations, a great funding for India was initiated in Canada. The famine did not take place.

1943-4 **Bengale famine**

Environmental impact

1993 **Rwanda civil war:** The food crisis suffered by refugees fleeing the Rwandan civil war in 1993 has resulted in the partial or complete deforestation of parts of Virunga National Park in Zaïre, prompting fears for the safety of endangered animal species living in the park.

2003-2004 Famine in Central Africa and Horn of Africa (Sudan)

UNCTAD

- In the 1970s, the Third World founded the international commercial stage through the United Nations Conference on Trade and Development (UNCTAD).
- In the 1980s, the U.S. forced the inclusion of agriculture into the Uruguay round of the GATT.
- By 1992, UNCTAD was rendered more or less irrelevant as an institution to protect the interests of Third World people.

Know-How of NGO movements

- To develop the principle of global solidarity of the UN, the FAO and the WTO, it is necessary to listen to international farmers movement like Via Campesina, FIAN, the international human rights organisation for the right to food, the global network of small peasants and landless people's movements.



José Bové

The knowledge of their speakers such as José Bové should be used to get a balance between new agrarian techniques and old inherited sustainable knowledge.

Local specific solutions

- UN, FAO and WTO have the obligation to make pressure on governments of countries making wealth with monocropping. They should sustain their small peasants.
- Brazil, on its way to become world exporter number one of soy beans is one example where the poor rural population should profit from such national gain.

Gross national product/inhabitant in US \$

Wealthy nations

	2000	1999
Luxenburg	42.060	44.640
Switzerland	38.140	38.350
Japan	35.620	32.230
Norway	34.530	32.880
USA	34.100	30.600
Denmark	32.280	32.030
Iceland	30.390	29.280
Sweden	27.140	26.750
Austria	25.220	25.970
Finland	25.130	24.730

Poor nations

	2000	1999
Chad	200	200
Tadschikistan	180	280
Niger	180	190
Guinea-Bissau	180	160
Eritrea	170	200
Malawi	170	190
Sierra leoni	130	130
Burundi	110	120
Zaire	100	100
Ethiopia	100	100

(World Bank)

Food sovereignty

A guiding principles, adopted by the NGO Via Campesina is that of Food Sovereignty:

- **Communities:** Communities should have the right to decide the food policies that are ecologically, socially, politically and economically appropriate for them.
- **Land:** First, people need equitable and just access to land Great monocropping agriculture should be controlled in order not to deprive poor peasants of their land.
- **Social costs:** Second, they need direct support for the social costs of producing food this means subsidies for education, health care, agricultural extension and support services.

Food sovereignty

Seeds: The patenting of seed by transnational corporations must end. Seed is the birthright of humanity, not a patentable good to be exploited by a few corporations. It should be guaranteed that local seeds of ancient agricultural habits should be preserved and be given in sufficient amount to small peasants.

Prices: Stable pricing and support mechanisms are necessary to ensure that farmers and consumers are in control of the food system, not corporations.

Fair trade: Food sovereignty includes fair trade.

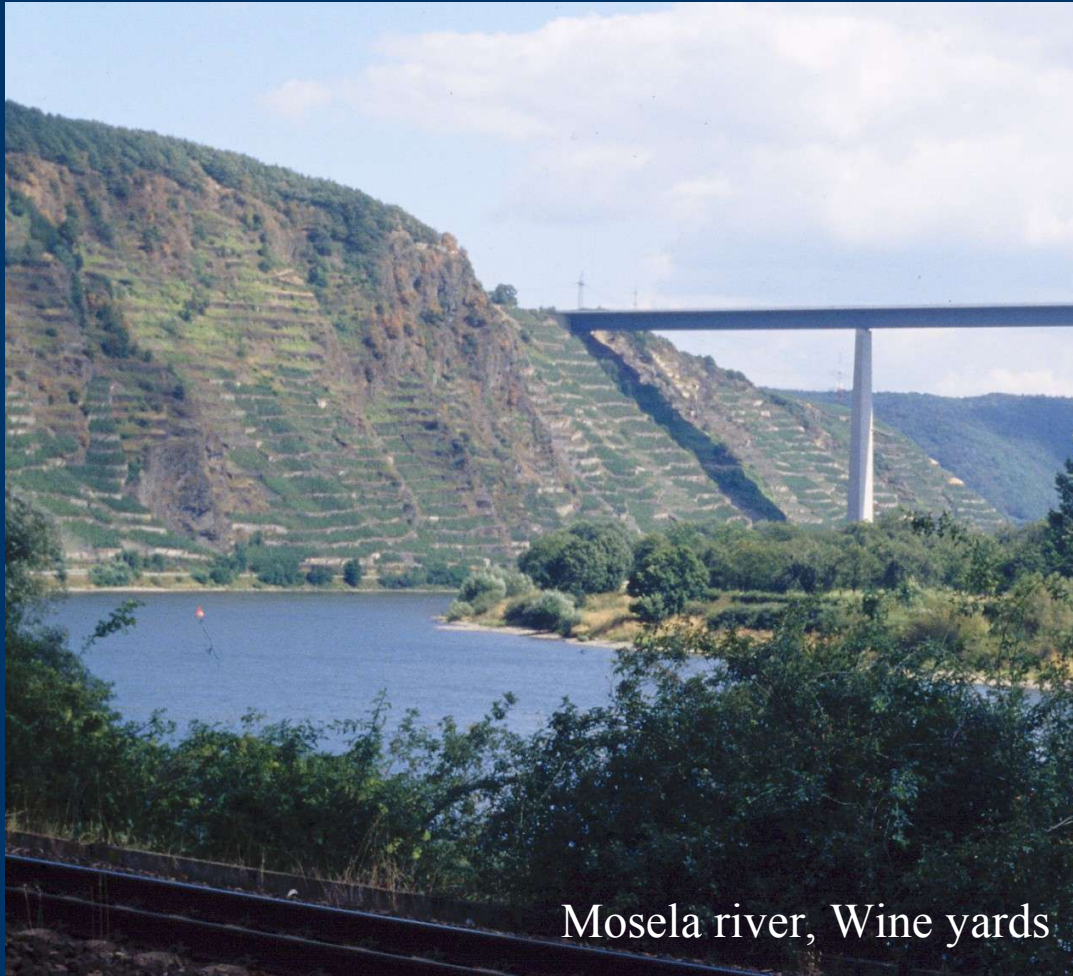
Local and regional production: Prioritizes local and regional production before export.

Public aids to farmers: Permits public aids to farmers, provided these are not intended directly or indirectly to export at low prices;

Stable prices: Guarantees stable agricultural prices at an international level.

One united front against hunger

Via Campesina wants WTO out of agriculture forgetting that it could become a valuable aid to support local agriculture by sponsoring sustainable small farms with their surplus.



Mosela river, Wine yards

The rapidly increasing world population demands intensive agriculture, but also demands sustainability of regions where conventional agriculture is not practicable.

Problems with the new institutions

- **Agreement on Agriculture:** The WTO's Agreement on Agriculture (AoA) demands that countries open up their economies to agricultural products, whose flood of heavily subsidized imports wipes out rural economies.
- **Organization for Economic Cooperation and Development (OECD):** The OECD has been active in the development of rules for international investment, capital movements and trade in services.
- **Trade related aspects of intellectual property rights (TRIPS):** The TRIPS Council made WTO member governments decide on intellectual property protection and public health agreeing on legal changes that will make it easier for poorer countries to import cheaper generics made under compulsory licensing if they are unable to manufacture the medicines themselves.

Cancun

- The Fifth WTO Ministerial Conference was held in Cancún, Mexico in 2003.
- The ministers could not summon the necessary flexibility and political will to bridge the gaps that separated them.

The future of WTO

- Cropping is not so efficient as heavy monoculture, but it generates work avoiding unemployment.
- The solution is to let WTO manage huge agriculture but at the same time this organization must support local small peasants practicing sustainable agriculture in the areas where monocropping is not successful. This would support diversity of cropping.

NAFTA

- On January 1, 1994, Canada's first regional trade and investment agreement came into effect - the North American Free Trade Agreement (NAFTA).
- This agreement was negotiated between Canada, the United States and Mexico. It was an expansion of the idea of FTA (Canada-US Free Trade Agreement) from 1989.

Misuses of NAFTA

- Some negative effects of global trade agreements will always be used by some corporations to protect their activities or to consolidate their monopolistic worldwide enterprises.

Gasoline additive MTBE: California decided to phase out MTBE because of its threat to groundwater. Taking advantage of NAFTA provisions Methanex Corporation sued the US government in September 2000 to lift the ban or to pay nearly \$1 billion in compensation.

Ethyl Corporation and gasoline additive MMT: In 1998, Canada was forced to settle a NAFTA complaint filed by Virginia-based Ethyl Corporation over Canada's ban on MMT, that may cause brain damage. As conditions of the settlement, Canada ended its ban on MMT, paid \$13 million to Ethyl, and declared publicly that MMT is safe, despite the known risks.

Misuses of NAFTA

PCBs waste import/export: In 2002 a NAFTA tribunal ordered Canada to pay \$50 million to S.D. Myers, an Ohio-based toxic waste disposal company, which claims it was denied the right to import hazardous PCBs from Canada for incineration in the United States.

US Metalclad corporation hazardous waste landfill: A NAFTA tribunal in 2002 ordered Mexico to pay \$19 million in damages to Metalclad after environmental officials in the state of San Luis Potosi blocked a planned hazardous waste landfill that, the state officials say, threatened to pollute the region's water supply.

Misuses of Agreements

- Not the NAFTA is to be claimed for this. The culprit resides in the philosophy of these corporations which do not put ethics in front of their economic interests.
- To increase international food trade, the WTO pressures countries to lower their strong food safety standards to comply with weaker international standards.
- For instance, the WTO recently ordered Europe to lift its ban on American beef treated with growth hormones.

Mercosur

- Mercosur has its origins in the political accord in 1985 which brought together Brazil and Argentina after decades of rivalry.
- Paraguay and Uruguay also adhered in 1991 to form the Common Market of the South with a combined population of over 200 million.

Mercosur and the EU

- There are now moves towards links between Mercosur and the European Union and between Mercosur and other South American countries for a South American Free Trade Area (SAFTA).

AFTA

The American Free Trade Area

- According to the Brazilian Embassy in Washington, Brazil's view is that AFTA will result from the gradual convergence of all the integrationist processes in the hemisphere:
- Mercosur, the Andean Pact, the Group of Three, the Central American Common Market, CARICOM and NAFTA.
- It is important to maintain a constant dialogue between Mercosur and NAFTA, both as groups and in terms of the individual countries.

Trade Agreements

- Participating in a community brings the countries to abandon their aggression toward their neighbour and opens the way to a better understanding of FAO of the UN and the WTO.
- It should be the job of a future WTO together with the FAO to determine the regions where heavy monocropping can be done and to protect the diversified agriculture of smaller units.

International Plant Protection

International Plant Protection Convention

- The International Plant Protection Convention (IPPC) is an international treaty to prevent the spread and introduction of pests of plants and plant products. The Convention extends to the protection of natural flora and plant products.

National Plant Protection Organizations

- National Plant Protection Organizations (NPPOs) and Regional Plant Protection Organizations (RPPOs) work together. They can in a near future sustain the heavy monocropping and the sustainable small farming in a balanced way. The future of global nutrition depends on both synergistic coexistence.

Agroecology

- Monocultures requires increases in the use of pesticides and fertilizers. In some places, yields are actually in decline. Probable causes are:
- The maximum yield potential of current varieties is being approached.
- Agroecologists believe that the leveling off is because of the steady erosion of the productive base of agriculture through unsustainable practices.

Agroecology

Agroecology sees two groups of effects of excessive monocropping:

- 1- **Diseases of the ecotope:** This includes erosion, loss of soil fertility, depletion of nutrient reserves, salinization and alkalinization, pollution of water systems, loss of fertile croplands to urban development.
- 2- **Diseases of the biocoenosis:** Biocoenosis means the varied community of organisms living in the same small area, e.g. in the bark of a tree, on a wall, in a pond.
 - Diseases of the biocoenosis include loss of crop, wild plant, and animal genetic resources, elimination of natural enemies, pest resurgence and genetic resistance to pesticides, chemical contamination, and destruction of natural control mechanisms.

Agroecology

- Chemical fertilizers pollute the environment due to wasteful application. Fertilizers end up in the environment, mostly in surface water or in ground water, promoting eutrophication.
- At first a population explosion of photosynthetic algae takes place colouring the water bright green, preventing light from penetrating beneath surface layers, and therefore killing plants living on the bottom.
- The first wave of environmental problems is deeply rooted in the prevalent socioeconomic system which promotes monocultures, being not only an ecological process, but also a social and political-economic process.

Agroecology

- The present orientation and control by multinational corporations, further industrialization of agriculture and the intrusion of private interests into public interest sector make it necessary global agrarian structure to be influenced by the WTO.
- Alternative sources of nutrients to maintain soil fertility include manures, sewage sludge and other organic wastes, and legumes in cropping sequences.
- Proponents of a 'second' Green Revolution (GRII) generally argue that scarcity and low agricultural productivity cause food insecurity and will also aggravate global hunger in the future.

Agroecology

In contrast, the agroecological approach offers several advantages:

- It relies on local farming knowledge.
- It restores agricultural lands that have been degraded.
- It offers an environmentally sound way, for smallholders .

Agroecology is a scientific discipline that defines, classifies, and studies agricultural systems from an ecological and socioeconomic perspective.

Agroecology integrates indigenous knowledge with modern technical knowledge.

Agroecological Systems in use

Stabilizing the Hillsides of Central America: The major agricultural challenge in Latin America is to design cropping systems for hillside areas, that are both productive and reduce erosion.

World Neighbours: Is a private voluntary organization in Honduras with a training program in agricultural development in the control of erosion and restoration of degraded soils.

- The traditional "tapado"(keep it covered) system, used on the Central American hillsides, have also reported increased maize yields. (Zero tillage agriculture!)

Agroecology

Pre-Colombian agricultural methods



- The system of raised fields which had been used 3,000 years ago called waru-warus proved to be very successful today. The system was based on platforms of soil surrounded by ditches filled with water, plants were able to grow despite floods, droughts and the killing frosts.
- The combination of raised beds and canals proved to have important temperature moderation effects, extending the growing season and leading to higher productivity on the waru-warus in Peru.

Agroecology

Integrated Production Systems

Projects of diversified farms are going on in the Andean Region. In this system each farm biologically reinforces the other components, for instance where wastes from one component become inputs to another.

Cuba agroecological example

In Cuba, the Asociación Cubana de Agricultura Orgánica promoted alternative production modules.

- The trade relations with the socialist bloc collapsed in 1990, pesticide imports to the island have dropped by more than 60 percent. The Cuban government adopted an IPM policy which focused on biological control.

Agroecology

Phillipines

Similar results have been obtained by ICLARM researchers in Philippines, with the integrated rice-based systems.

Senegal

- In Senegal the Regenerative Agriculture Center is working to promote sustainable agriculture based on soil regeneration for small-scale farmers who have suffered from soil degradation.
- The cropping system is a millet-groundnut rotation, and legumes and intercropped with cereals.

Tanzania

A Soil Erosion Control and Agroforestry project began in the Lushoto district in 1980.

Intelligent Pest Management (IPM)

As long as the simplified structure of monocultures is maintained, pest problems will continue because the process of ecological simplification that has been set in motion. Some IPM projects withdrawing pesticides allowed beneficial fauna to recover.

Peru

In the mid 1950s as cotton production reached a peak in the Canete Valley, organochlorinated insecticides were in intensive use. With the introduction of IPM system, and pests declined and control costs were substantially reduced.

Costa Rica

In 1954, over 12,000 hectares of United Fruit Company banana plantations were treated with an aerial application of dieldrin.

This killed off many natural enemies. Other pests which had previously been of minor significance reappeared. In 1973, United Fruit entomologists stopped all insecticide sprays. Insect pests fell to below a harmful level.

Intelligent Pest Management (IPM)

Nicaragua

In Nicaragua, cotton also exhibited the classic pesticide "treadmill" pattern observed earlier in Peru.

Brazil

By 1970, total soybean production had reached high results and the number of insect pests increased. In 1974, Brazil adopted an IPM programme that relied primarily on monitoring pest damage, establishing economic thresholds and the application of specific insecticides.

Insecticide applications fell by 80-90% between 1974 and 1982.

Colombia

During the late 1970s and early 1980s, it would have been considered as usual to make some 20 to 30 pesticide applications in a tomato growing area that covered about 2,000 hectares. An IPM programme in the Cauca Valley implemented in 1985 succeeded in reducing the number of pesticide applications to two or three.

Intelligent Pest Management (IPM)

Chile

In 1972, populations of two aphid species (*Sitobium avenae* and *Metopolophium dirhodum*) were detected in cereal fields.

- Despite the increasing industrialization of agriculture, the great majority of the farmers in the developing world are peasants, or small producers, who still farm the valleys and slopes of rural landscapes with traditional and subsistence methods.

Agroecology

Many of the systems are surrounded by physical barriers (e.g., forests, rivers, mountains) and therefore are relatively isolated from other areas where the same crops are grown in large scale.

Specific seeds for local agriculture

Some specific seeds have local importance and should not be changed despite their adverse effects.

Brown sorghum: Brown sorghum grains are high in polyphenols and are bitter. The polyphenols have adverse nutritional effect. Soaking or germinating the grains in wood-ash or lime to reduce the tannin content of the grain in food preparation are necessary.

This variety is cropped in east side of the Shinyanga region because of crop loss due to birds.

Agroecology

Quinoa (*Chenopodium quinoa*): A grain crop in the Altiplano of Bolivia and Peru. The grains often contain saponins.

Saponins are present in grains in areas where the birds are numerous, and that good-quality grains without saponins are grown in other areas.

The saponins protect the crops from predatory activities of birds. They are removed by soaking bagged grain in the rivers.

Some developments of seeds can be of global importance as long as they do not collide with local demands.

- **Lathyrus:** The grass-pea, is a pulse. It can be seeded into rice fields among the stubble immediately after the rice harvest.

Agroecology

Lupin: Lupins, are a source of oil in the Altiplano of South America but the presence of the alkaloid lupinin requires long periods of treatment in water to prepare it as a cooking oil.

Sorghum: Cyanogenic glycosides in sorghum were a dangerous source of poisoning to cattle. New breeding for forage sorghums and the Sudan grasses are of very low dhurrin content.

Triticale: It is a cross between wheat and rye with 1 or 2 per cent protein more than in wheat. Triticale outyields wheat on acid soils in the tropics and subtropics in the highlands of East Africa and in South America.

Rice grains: New rice grain has a plus of 2% protein and good amino-acid profile, with a high glutelin fraction.

Maize: Among the best known quality breeding programmes is that using the Opaque-2 gene in maize.

Ethnic food

Strange diets

- Atkins diet: high protein , low-carbohydrate Atkins diet endangers public health. According to British nutritionists it is based on “pseudo science”.
- Recent studies have confirmed its success in weight loss but late consequences of high fat and protein intake could strain the kidneys and increase amounts of calcium excreted from the body, affecting bone growth and regeneration.

Ethnic food/Supplements

Methylation and the Agouti gene

- A mother's nutrition can alter her offspring's susceptibility to disease by changing gene expression. Recent researches concerning the Agouti gene explained for the first time how maternal nutrition can predetermine risk of obesity or cancer.
- In experiments, pregnant mice that received vitamin B12, folic acid, choline and betaine (from sugar beets) gave birth to babies predominantly with brown coats.

The 'epigenetic' effect

- During DNA methylation, a methyl group attaches to a gene at a specific point and alters its function silencing the gene or reducing its expression inside a given cell, without changing it.
- Early environmental factors can alter gene expression without mutating the gene itself.

Ethnic food/Supplements

- These changes occur early in embryonic development resulting in developmental changes, some of them beneficial and others detrimental.
- If such epigenetic alterations occur in the developing sperm or eggs, they could even be passed on to the next generation, potentially becoming a permanent change in the family line.
- "Junk" remnants of viral infections, called "transposons," insert themselves randomly within the human and animal genomes.
- If the transposons have inserted themselves in or near a functional gene, the gene can be inadvertently methylated, too, thereby reducing its expression.

Ethnic food/Supplementation

- More than 40 per cent of the human genome is comprised of transposons that are likely to be methylated, so any genes positioned near them could be at risk for inadvertent methylation.
- For example, methylation that occurs near or within a tumour suppressor gene can silence its anti-cancer activity.
- Diet, nutritional supplements and other seemingly innocuous compounds can alter the development in utero to such an extent that it changes the offspring's characteristics for life, and potentially that of future generations,
- That is the reason why all supplements such as vitamins, minerals, probiotics and a lot of other compounds should be analyzed carefully and nutrition should be kept as natural as possible.

Conclusions

- All these systems using widely ancient wisdoms are best suited to small farms where diversity can achieve a sustainable agriculture.
- Prevailing economic policies in Latin America and other merging economic regions, encourage the production of export and/or commercial crops, primarily in large-scale monocultures like soy in Brazil.
- The WTO , the UN and the FAO should exert pressure on the local government to guarantee all poor displaced peasants an access to land and facilitate a new start.