LECTURE 4

GREEN REVOLUTION

Definition

“The green revolution is the phrase generally used to describe the Spectacular increase that took place during 19687-68 and is continuing in the production of food grains in Developed and Developing countries”.

History of Green Revolution:

- The beginnings of the Green Revolution are often attributed to Norman Borlaug, an American scientist interested in agriculture. In the 1940s, he began conducting research in Mexico and developed new disease resistance high-yield varieties of wheat.

- Due to the success of the Green Revolution in Mexico, its technologies spread worldwide in the 1950s and 1960s.

- The introduction of high-yielding varieties of seeds after 1965 and the increased use of fertilizers and irrigation provided the increase in production which improved agriculture.

Methods Used in Green Revolution:

¬Double/ Multiple Cropping system

¬Seeds with superior genetics

¬Proper irrigation system

¬High Yielding Variety (HYV) of seeds

¬Use of pesticides and fertilizers

¬ Use of modern machinery (Tractor, Harvester, Thrasher)

¬ Expansion of farming areas

Basic Elements in Green Revolution:

- Continued expansion of farming areas: Green Revolution continued with quantitative expansion of farmlands.
- Double-cropping existing farmland: Instead of one crop season per year, the decision was made to have two crop seasons per year. There had to be two "monsoons" per year. One would be the natural „monsoon“ and the other an artificial „monsoon“.
- Using seeds with superior genetics: This was the scientific aspect of the Green Revolution to use High Yielding Variety (HVY) of seeds.

Causes of Green Revolution:

θHigh Yielding Varieties of Seed

θChemical Fertilizers

θIrrigation

θ Multiple Cropping

θModern Agricultural Machinery

θCredit Facilities

θAgricultural Research

θ Plant Protection

θRural Electrification

θ Soil Testing and Soil Conservation

Effects of Green Revolution:

θIncrease in Production

θCapitalistic Farming

θ Effect on Rural Employment

θReduction in Imports of food grains

θDevelopment of Industries

θEffect on Prices

θBase for Economic Growth

θEffect on consumer

θEffect on Planning

θIncrease in Trade

θ Change in Thinking of Farmers

Advantages of Green Revolution:

1. Yields increased many times.
2. Multiple cropping.
3. Other crops grown which varied the diet.
4. Surplus to sell in cities creating a profit improving the standard of living.
5. Allows purchase of fertilizers, machinery etc.
6. Countries become self sufficient in food grains.

Limitations of Green Revolution:

1. The Green Revolution, howsoever impressive, but NOT a 100% success.
2. The new farming techniques, has given birth to the serious pollution of drinking water causing cancer and other diseases.
3. High rate of genetic damage among farmers, which was attributed to pesticide use.
4. The new organic fertilizer, pesticides and chemicals are ruining the soil.
5. Lead to unemployment and Rural-Urban Immigration.

Need for Second Green Revolution:

ϖThe time is now ripe for Second Green Revolution.

ϖCountries such as India has tremendous export potential in agriculture in present era of globalization.

ϖIn Second Green Revolution emphasis should be laid on:

1. Non food grains
2. Improving global market opportunities
3. Improving rural infrastructure
4. Improving irrigation, rural roads and rural electrification.

Green Revolution and Africa:

- There have been numerous attempts to introduce the successful concepts from the Mexican and Indian projects into Africa.

- These programs have generally been less successful.

- Reasons cited include:
  - widespread corruption,
  - insecurity,
  - a lack of infrastructure, and a general lack of will on the part of the governments.
  - Yet environmental factors, such as:
    - the availability of water for irrigation,
    - the high diversity in slope and soil types in one given area.

A recent program in western Africa is attempting to introduce a new high-yielding 'family' of rice varieties known as "New Rice for Africa" (NERICA).

NERICA varieties yield about 30% more rice under normal conditions, and can double yields with small amounts of fertilizer and very basic irrigation.

However, the program has been beset by problems getting the rice into the hands of farmers, and to date the only success has been in Guinea, where it currently accounts for 16% of rice cultivation.

- After a famine in 2001 and years of chronic hunger and poverty, in 2005 the small African country of Malawi launched the "Agricultural Input Subsidy Program" by which vouchers are given to smallholder farmers to buy subsidized nitrogen fertilizer and maize seeds.
- Within its first year, the program was reported to have had extreme success, producing the largest maize harvest of the country's history, enough to feed the country with tons of maize left over.
- The program has advanced yearly ever since. Various sources claim that the program has been an unusual success, hailing it as a "**miracle**".