Agricultural Development Economics and Policy
(EKONOMI DAN DASAR PEMBANGUNAN PERTANIAN)

EPT 4501

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# INTRODUCTION TO THE COURSE

## a. Course Information

- **Department**: Department of Agribusiness and Information Systems
- **Course Name**: Agricultural Development Economics and Policy
- **Course Code**: EPT 4501
- **Credit Hours**: 3 (3+0)

## b. Course Writer Information

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## c. Course Objectives

**LEARNING OUTCOME**: Students are able to:

1. identify various development theories and policies in agricultural sector (C4)
2. develop agricultural sector development and growth strategies (P4, CTPS)
3. explain agricultural sector development and growth strategies (A3)
4. understand the effects of economic, environment and sociocultural professional practices (EM)
c. Sinopsis Kursus

This course encompasses various agricultural development theories, policies and current issues in developed, developing and least developed countries.

d. Course Content

1. Introduction to economic development and policy 3
   - Definition of economic development
   - Economic development theories

2. Characteristics of economic development 3
   - Developed country
   - Developing country
   - Least developed country

3. Poverty Indicator 3
   - Lorentz curve
   - Poverty level
   - Poverty alleviation strategies

4. Developed nations experience in agricultural development 3
   - GDP, Employment and exports
   - Penawaran firma, penawaran pasaran

5. Development Plan of Malaysia 3
   - Malaysia Five Year Plans
   - Tenth Malaysia Plan

6. National Agriculture Policy 6
   - NAP1, NAP2, NAP3
   - National Agro-food Policy
   - National Commodity Policy

7. Industrial Master Plans 6
   - IMP1, IMP2 and IMP3

8. Regional Development Policy 6
   - Iskandar Malaysia
   - ECER
   - NCER
   - Sabah Development Corridor (SDC)
   - Sarawak Corridor of Renewable Energy (SCORE)
9. International Trade Policy
   - WTO
   - AFTA
   - Multi-lateral & Bilateral Agreements

10. Future Direction of Economic Development
    of Agricultural Sector
    - Sustainable development
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f. Course work / Lab (if applicable)

g. Course Assessment

Course assessment is divided into:

(i) Course work 40%

(ii) Mid-term exam 20%  

(i) + (ii) 60%

(ii) Final Exam 40%

Total 100%

**Course assessment may change from time to time depending on the lecturer who teaches the course**

Proposed Timetable and Learning Activities

1. Face to face 4 hours
2. Self learning 45 hours/week
3. Tutorials (4-6 sessions) 8 – 12 hours

**Total learning time** .... hours

h. Mid-term (if applicable)

i. Final Exam (if applicable)
j. References


k. Additional references


SECTION B
1.0 Unit Introduction
In studying this course, it is important for us to first discuss the concept of development. Understanding on the general concept is a prerequisite to understanding agricultural development and analyze economic impact of a particular policy.

Learning Outcomes: Students are able to;

1. explain the concept of development
2. discuss the objective of development
3. make distinction between economic development and economic growth
4. compute the economic growth rates.

1.1 The Concept of Development
Development is not entirely an economic phenomenon but actually a multi-dimensional process that involves reorganization and reorientation of whole economic and social systems. Development is a process of improving the quality of all human lives with three equally important aspects, as stated by Todaro.

They are basically the objectives of development, namely:

a) Raising peoples’ living standards such as higher incomes and consumption, providing more jobs, levels of food, medical services, education through relevant growth processes
b) Creating conditions favorable to the growth of peoples’ self-esteem through the establishment of social, political and economic systems and institutions which promote human dignity and respect
c) Increasing peoples’ freedom to choose by enlarging the range of their choice variables, e.g. varieties of goods and services.

However Mabogunje provides the following three alternative meanings of development:

I. Development as Economic Growth. Under this definition of development, commodity output as opposed to people is often emphasized as measures of growth in GNP. Note here the persistence of a dual economy where the export sector contains small number of workers but draws technology as opposed to traditional sector where most people work and is dominated by inefficient technology.

II. Development as Modernization. This aspect emphasizes on process of social change which is required to produce economic advancement; examines changes in social, psychological and political processes; How to develop wealth oriented behavior and values in individuals; profit seeking rather than subsistence and self-sufficiency. Hence, shifting from commodity approach to human approach with investment in education and skill training.

III. Development as Distributive Justice. This meaning of development views development as improving basic needs such as housing, food and clothing. Nevertheless, the interest in social justice has raised three issues:

i. Nature of goods and services provided by governments
ii. Matter of access of these public goods to different social classes
iii. How burden of development can be shared among these classes.

Target groups of this definition include small farmers, landless, urban under-employed and unemployed or rural and urban poor.

1.2 Sustainable Development
Sustainable Development is defined as development that is likely to achieve lasting satisfaction of human needs and improvement of the quality of life and encompass:

i. Helping the poorest who are left with no option but to destroy their environment to survive. This includes nomad and shifting cultivation.


iii. The idea of cost-effective development using different economic criteria to the traditional approach; that is to say development should not degrade environmental quality, nor should it reduce productivity in the long run.

iv. The great issues of health control, appropriate technologies, food self-reliance, clean water and shelter for all.

v. The notion the people centered initiatives are necessary; human beings are the resources in the concept.

1.3 Distinction between Economic Development and Economic Growth
Often time people interchangeably use the two concepts albeit differences among them. It is crucial for us to be able to differentiate between the two concepts so that we will correctly use them in future.

i. As it has been described above, Economic Development occurs when the standard of living of a large majority of the population rises, including income, jobs opportunity, consumption, education and other dimensions like health and literacy.

ii. On the other hand, Economic Growth takes place when there is a sustained increase in a country's output. Sustained means an ongoing for at least 1-2 years of output. The output is measured by Gross Domestic product (GDP) or Gross National Product (GNP). The measurement can also in terms of per capita output (GDP or GNP per person). The growth of GDP per capita or GNP per capita is a better indicator of growth than GDP or GNP. It is because if the population grows faster that output (GDP or GNP), output could grow, but output per person (GDP or GNP per capita) falls. Therefore, saying ‘growth’ is occurring is misleading.

1.4 Understanding Gross Domestic Product (GDP) and Gross National Product (GNP)
They are common measures of the output of an economy. GDP is defined as the sum of the value of finished goods and services produced by a society in a given year. The computation of GDP excludes intermediate goods (such as steel used to produce a car because it will be counted as part of the car). GDP only considers all final output produced within the country, regardless the nationality of the producers.

On the other hand, GNP is quite similar to GDP but only considers the income of the citizens of the country. Hence income of foreign citizens within the country is not included but incomes of its citizens working in foreign countries are included.

1.5 Reason for the distinction between Economic Development and Economic Growth
The main reason for this distinction boils down to how income is distributed. Let us take the case of economic growth. It is possible for a nation to increase its economic output per capita and it is call growth. However a large number of people in the country can have their income decrease at the same time if the increase in output is earned by a small portion of the population.
Let us take a hypothetical example to illustrate the above point. If in a country, 80% of its population is in traditional agriculture and 20% is in modern sector, the average income (per person) can increase due to large gains by the modern sector minority but the income of the population in traditional sector (80%) can at the same time be reducing over time. Hence an increase in GDP per capita is still insufficient to conclude development has taken place.

On the other hand, development occurs when income increase (GDP of GNP per capita) together with other standards of living such as increase in education, life expectancy, reduced mortality rates, lower illiteracy, etcetera.

To illustrate the above situation, once again let’s take a hypothetical country as an example. In this country the majority of population relies on traditional agriculture. If a foreign company exploits a discovery of natural resources such as oil or minerals in the country but there is no accompanying increase in living standards such as increase in schooling, literacy, health, etcetera, of local population, then growth may occur but not development.

1.6 Growth Rates
The growth rate between two years can be computed by the following formula.

\[
growth = \frac{GDP_{year_2} - GDP_{year_1}}{GDP_{year_1}}, \quad \text{where } GDP_{year_1} \text{ is the GDP in base year and } GDP_{year_2} \text{ is the GDP in current year.}
\]

Example: If the rate of growth between 2010 (base year) and 2011 is 1.3%, then to find the GDP in 2011, multiply the GDP in 2010 by 1.013:

\[
GDP_{2011} = 1.013 \times GDP_{2010}
\]

Take note that the growth rate is given in per year terms (so if the growth rate is 1.3%, the economy grows an average of 1.3% every year). In order to figure out the GDP over a longer period of time, say between 2010 and 2015 (a period of 5 years), the computation will be:

\[
GDP_{2015} = GDP_{2010} \times (1.013)^5
\]

Observe that the growth rate is the average annualized rate, which is exactly 1.3% growth probably doesn’t occur every year. It is the average annual growth rate, the rate that would generate the end year result if one growth rate had obtained for the entire time.

Perhaps many of us would like to know that what growth rates are feasible for a country. Some countries have average growth rate of about 6% a year for many years. Malaysia used to achieve this rate before 1997/98 financial crisis. Developed countries in general have never had growth rate of more than 4% for more than a decade.

As far as development is concerned, most countries have had an increase in their standard of living as measured by the following indicators:

i. life expectancy
ii. infant mortality
iii. income
iv. adult literacy

1.7 Measurement Issues
GDP per capita is an important measurement of income distribution. However there are some issues pertaining to the accuracy of using it as the measurement of income distribution. Non-
marketed or non-traded goods and services (as they do not go through a market) are not counted as part of GDP or GNP. Nevertheless the non-marketed goods can be a significant portion of what is produced and consumed by the producers of the goods. Subsistence agriculture is a good example of this issue. What are produced by subsistent producers will never be considered as part of GDP/GNP.

Since we want to use GDP or GNP as a measure of the standard of living which is partially correct for the exclusion of non-marketed goods in output, economists estimate the amount of non-traded agricultural products produced and add their value based on market process to GDP and GNP. Still, the choice of agricultural products is arbitrary as other goods and services could also be considered like domestic labour services (thus the classic paradox: if a man marries his housekeeper, then GDP decreases because she is no longer paid a wage although she does the same amount of work as before). There is no general solution to correct for all such goods that are not traded.

1.8 Summary
Development is not entirely an economic phenomenon but actually a multi-dimensional process that involves reorganization and reorientation of whole economic and social system. People tend to interchangeably used GDP as the measurement for development but it is only partially correct. Development involves other parameters such as increase in standard of living which include increase in life expectancy, infant mortality, adult literacy and income. Change in GDP on the other hand measure economic performance (positive or negative growth) and GDP per capita measures income distribution.

ACTIVITY 1.1

a. What is the growth rate for Malaysia currently?
b. Make comparisons of economic growth rates of selected developed countries, developing countries and least develop countries for last decade. What can you generalize from the data?
c. Using the standard of living indicators, make standard of living comparisons between developed, developing and least developed countries for last decade. What can you conclude from the data?
( Go to World Bank website to retrieve all required data)

ACTIVITY 1.2

Are Economic growth and development worthwhile? Discuss the following sentences.

a. Economic development and growth have their costs and benefits.
b. Economic growth widens the range of human choice, but this may not necessarily increase happiness.

Reference

UNIT 2
THEORIES OF ECONOMIC DEVELOPMENT

2.0 Unit Introduction
This unit discusses theories of economic development. The evolution from classical theories to neo-classical and the new (endogenous) growth theory will be highlighted.

Learning Outcomes: Students are able to:
1. Discuss the theories of economic development
2. Discuss how potential sources of growth are used in theories of economic development

2.1 What is a theory?
For economists, a theory is a systematic explanation of interrelationships among economic variables, and its purpose is to explain causal relationships among these variables.

2.2 The Classical Theory of Economic Stagnation
The classical theory was based on the work of an English economist, David Ricardo in the 19th century. Through Principles of Political Economy and Taxation (1817), he was pessimistic about the possibility of sustained economic growth. He assumed that little continuing technical progress because growth was constraint by scarcity of land. Ricardo with other classical economists such as Adam Smith, Thomas R Malthus, and John Stuart Mill were influenced by Newtonian physics. Similar to Newton, who posited that activities in the universe were not random but subject to some grand design instead. These economists believed that the same natural order determined prices, rent and economic affairs. Smith (1937, first published 1776) visualized that it was as if there is an invisible hand behind the self-interest of capitalist, merchants, landlords and workers, directing their actions toward maximum economic growth.

The classical model also took into account: a) the use of paper money, b) the development of institutions to supply it in appropriate quantities, c) capital accumulation based on output in excess of wages and d) division of labor (limited primarily by the size of the market).

A major theory of Ricardo was the law of diminishing returns that refers to successively lower extra outputs from adding an equal extra input to fixed land. For Ricardo diminishing returns from population growth and a constant amount of land threatened economic growth. With this iron law of wages (real wage always tend in the long run, toward the minimum wage necessary to sustain the life of the worker. It is because competition for laborers for employment will drive down to minimum level) total wages increase in proportion to the labor force. Output increases with population, but other things being equal, output per worker declines with diminishing returns on fixed land.

2.3 Marx's Historical Materialism (growth stage)
Karl Marx's views were formed by radical changes in Western Europe: the French Revolution; the rise of industrial, capitalist production; political and labor revolts; and a growing secular rationalism. Marx (1818-83) disagreed the prevailing philosophy and political economy, particularly the opinions of utopian socialists and classical economists. He however in favor of a world view called Historical Materialism. It is a theory of socioeconomic development according to which changes in material conditions (technology and productive capacity) are the primary influence on how society and the economy are organized. Marx wanted to replace the
unhistorical approach of the classicists with a historical dialectic. Marxists consider classical and later orthodox economic analysis is like a still photograph, which describes reality at a point in time. In contrast, the dialectical approach, similar to a moving picture, looks at a social phenomenon by examining where it was and is going and its process of change.

2.4 Rostow’s stages of economic growth

Five stages of Rostow’s Economic of Growth:

i. The Traditional Society
Rostow doesn’t have much to say about the concept of traditional society. He only indicates that the traditional society is based on attitudes and technology prominent before the turn of the eighteenth century. Issac Newton’s work and formulates the law of gravity ushered the change. After Newton, people widely believed “that the external world was subject to a few knowable laws, and was systematically capable of productive manipulation.”

ii. Preconditions Stage for takeoff
Rostow’s precondition stage for sustained industrialization embraces radical changes in three non-industrial sectors:
   a. increased transport investment to enlarge the market and production specialization
   b. a revolution in agriculture, so that a growing urban population can be fed
   c. an expansion of imports, including capital, financed perhaps by exporting some natural resources.

iii. Takeoff
Rostow’s central historical stage is the takeoff. It is a decisive expansion occurring over 20-30 years, which subsequently radically transforms a country’s economy and society. During this stage, barriers to steady growth are finally overcome, while forces making for widespread economic progress dominate the society, so that growth becomes the normal condition. According to Rostow, the three conditions must be satisfies for takeoff.
   a. Net investment as a percentage of net national products (NNP) increases sharply, from 5 % to over 10%.
   b. At least 1 substantial manufacturing sector grows rapidly.
   c. A political, social and institutional framework rapidly emerges to exploit expansion in modern sectors.

iv. Drive to Maturity
The drive to maturity is a period of growth that is regular, expected, and self-sustained.

v. Age of High Mass Consumption
The symbols of this last stage, reached in the United States in the 1920s and in Western Europe in the 1950s, are the automobile, suburbanization, and innumerable durable consumer goods and gadgets.

2.5 Harrod Domar Growth Theory
The model was developed by Sir Harrod in 1939 and Evsey Domar in 1946. This is a growth model which states that an economy’s growth rate is dependent on the level of saving and the capital output ratio. If there is a high level saving in a country, it provides funds for firms to borrow and invest. Investment then can increase the capital stock of an economy and generate economic growth through the increase in production of goods and services.

The Harrod-Domar equation is:

\[ g = \frac{s}{v} \]

where, \( g \) is the growth rate, \( s \) is the saving rate, and \( v \) is the capital-output ratio.
2.6 Vicious circle theory
The vicious circle theory indicates that poverty prolongs itself in mutually reinforcing vicious circles on both the supply and demand sides.

Supply Side
Since incomes are low, consumption cannot be diverted to saving for capital formation. When there is lack of capital, low productivity per person will be low, which subsequently prolongs low levels of income. Hence, the circle is complete. A country is poor because it was previously too poor to save and invest. As countries grow richer, they save more, creating a virtuous circle where high savings rates lead to faster growth.

Demand Side
Moreover, as incomes are low, market size for consumer goods, such as textiles, or durable goods, is too small to encourage potential investors. Lack of investment means low productivity and continued low income. A country is poor because it was previously too poor to provide the market to attract investment.

Critiques on vicious circle theory
a) The theory seems acceptable to Westerners who imagine that the entire population of the third world is poor and facing hunger problem. This is due disability of the third world to save sufficiently.

b) Everett E. Hagen (1960)- The theory of Social Change: How Economic Growth Begins) opposes that the market is ample for using modern production methods effectively for products commonly consumed by low-income people. The products include sugar, milled rice, milled flour, soap, sandals, textiles, clothing, cigarettes, matches, and candies. He argues that even a fairly small improvement in productivity for any of these commodities would capture a sizable market.

2.7 The neoclassical growth theory
Robert Solow of MIT won a Nobel Prize for his formulation of the neoclassical theory of growth, which emphasizes the importance of savings and capital formation for economic development, and for empirical measures of sources of growth. Solow allowed changes in wage and interest rates, substitutions of labor and capital for each other, variable factor proportions, and flexible factor prices. He showed that growth need not be unstable, since as the labor force outgrew capital, wages would fall relative to the interest rate, or if capital outgrew labor, wages would rise. Factor price changes and factor substitution mitigated the departure from the Harrod-Domar growth path.

Aggregate growth refers to increases in total production. Then we can visualize growth factors if we examine the factors contributing to production. We do this in a production function stating the relationship between capacity output and the volume of various inputs. Solow used the following Cobb-Douglas production function (written in the 1920s by mathematician Charles Cobb and economist Paul Douglas) to distinguish between the sources of growth—labor quantity and quality, capital, and technology. The equation is

\[ Y = TK^\alpha L^\beta \text{ equation 1} \]

where Y is output or income, T the level of technology, K capital, and L labor. T is neutral in that it raises output from a given combination of capital and labor without affecting their relative marginal products. The parameter and exponent \( \alpha \) is \((\Delta Y/Y)/(\Delta K/K)\), the elasticity (responsiveness) of output with respect to capital (holding labor constant). (The symbol \( \Delta \) means increment in, so that, for example, \( \Delta Y/Y \) is the rate of growth of output and \( \Delta K/K \) the rate of growth of capital.) The parameter \( \beta \) is \((\Delta Y/Y)/(\Delta L/L)\), the elasticity of output with respect to labor (holding capital constant)
If we assume $\alpha + \beta = 1$, which represents constant returns to scale (that is, a 1 percent increase in both capital and labor increases output by 1 percent, no matter what present output is), and perfect competition, so that production factors are paid their marginal products, then $\alpha$ also equals capital's share and $\beta$ labor's share of total income. (Constant returns to scale, where output and all factors of production vary by the same proportion, still entail diminishing returns, where increments in output fall with each successive change in one variable factor.) The Cobb-Douglas production function allows capital and labor to grow at different rates.

The neoclassical model predicts that incomes per capita between rich and poor countries will converge. But empirical economists cannot find values for parameters and variables (such as $\alpha$, $\beta$, and capital formation rates) that are consistent with neoclassical equation. Can we modify neoclassical assumptions to arrive at plausible numbers that are consistent with no convergence? Mankiw, Romer, and Weil (1992) argue that while the direction of the variables, the growths in capital and labor, is correct, the magnitudes of these growths on income growth are excessive. These three economists propose an augmented Solow neoclassical model, which includes human capital as an additional explanatory variable to physical capital and labor.

Human capital, as well as physical capital, can yield a stream of income over time. Nobel economist Theodore W. Schultz (1964) argues that a society can invest in its citizens through expenditures on education, training, research, and health that enhance their productive capacity. While there are diminishing returns to physical capital by itself, there are constant returns to all (human and physical) capital (Lucas 1998:3-42). Given the fact that such a large percentage of capital stock is human capital, Mankiw, Romer, and Weil (1992:407-37). expected that adding a human capital variable, the fraction of the working age population that attends secondary school, would improve the explanation of the model. Mankiw et al.’s augmented model substantially reduces labor’s share of income from about 0.60 to 0.33. They modify Equation 1 to

$$Y = T^0.33L^0.33H^0.33$$

where $H$ is human capital. $H$’s positive correlation with savings rates and population growth substantially alters the results. Adding human capital, which explains 80 percent of the variation between rich and poor countries, does indeed give plausible values for the neoclassical growth model. Mankiw et al.’s model means that, with similar technologies and rates of capital and labor growths, income growth should converge, but much more slowly than Solow’s model (Equation 1).

2.8 Dependency theory

Dependency theory is the thought that resources flow from a “periphery” of poor and underdeveloped states to a “core” of wealthy states, enriching the latter at the expense of the former. It is a central contention of dependency theory that poor states are impoverished and rich ones enriched by the way poor states are integrated into the “world system.”

The theory arose as a reaction to an earlier theory of development which held that all societies progress through similar stages of development, that today’s underdeveloped areas are thus in a similar situation to that of today’s developed areas at some time in the past, and that therefore the task in helping the underdeveloped areas out of poverty is to accelerate them along this supposed common path of development, by various means such as investment, technology transfers, and closer integration into the world market.
Dependency theory rejects this view, arguing that underdeveloped countries are not merely primitive versions of developed countries, but have unique features and structures of their own; and, importantly, are in the situation of being the weaker members in a world market economy.

Dependency theory no longer has many proponents as an overall theory, but some writers have argued for its continuing relevance as a conceptual orientation to the global division of wealth.

Let us briefly discuss the contentions of dependency theorists (source).

Celso Furtado (1970, 1968), a Brazilian economist was an early contributor to the Spanish and Portuguese literature in dependency theory in the 1950s and 1960s. He says since the 18th century, global changes in demand resulted in a new international division of labor in which the peripheral countries such as Asia, Africa, and Latin America specialized in primary products in a territory controlled by foreigners while importing consumer goods that were the fruits of technical progress in the central countries of the West. The increased productivity and new consumption patterns in peripheral countries benefitted a small ruling class and its allies, who cooperated with the DCs to achieve modernization. The result is “peripheral capitalism, capitalism unable to generate innovations and dependent for transformation upon decisions from the outside”

A major dependency theorist, Andre Gunder Frank’s writing in the mid-1960s, criticized the view of many development scholars that contemporary underdeveloped countries resemble the earlier stages of now-developed countries. Many of these scholars viewed modernization in LDCs as simply the adoption of economic and political systems developed in Western Europe and North America. For Frank the presently developed countries were never underdeveloped, though they may have been undeveloped. His basic thesis is that underdevelopment does not mean traditional (that is, non-modern) economic, political, and social institutions but LDC subjection to the colonial rule and imperial domination of foreign powers. In essence Frank sees underdevelopment as the effect of the penetration of modern capitalism into the out-of-date economic structures of the third world. More plainly stated, the economic development of the rich countries contributes to the underdevelopment of the poor. Development in an LDC is not self-generating nor autonomous but ancillary. The LDCs are economic satellites of the highly developed regions of Northern America and Western Europe in the international capitalist system. The Afro-Asian and Latin American countries least integrated into this system tend to be the most highly developed.

He suggests that, in fact, the following economic activities have contributed to underdevelopment, not development:

- Replacing indigenous enterprises with technologically more advanced, global, subsidiary companies.
- Forming an unskilled labor force to work in factories and mines and on plantations.
- Recruiting highly educated youths for junior posts in the colonial administrative service.
- Workers migrating from villages to foreign-dominated urban complexes.
- Opening the economy to trade with, and investment from, developed countries.

According to Frank, a third-world country can develop only by withdrawing from the world capitalist system. Perforce such a withdrawal means a large reduction in trade, aid, investment, and technology from the developed capitalist countries.

2.9 Endogenous growth theory

Endogenous growth theory holds that economic growth is primarily the result of endogenous not external forces. The theory holds that investment in human capital, innovation, and
knowledge are significant contributor to economic growth. The theory emphasizes on positive externalities and spillover effects of a knowledge-based economy which will lead to economic development. The theory also believes that the long run economic growth rate depends on policy measures such as subsidies for research and development or education.

Let us look through some contentions pertaining to endogenous growth theory.

Robert Lucas from the University of Chicago finds that international wage variances and migration are hard to reconcile with neoclassical theory. He believes if the same technology were available globally, skilled workers (human capital) will not move from Least Developed Countries (LDCs), where human capital is scarce, to Developed Countries (DCs) where human capital is abundant, as what is occurring currently. The same skilled workers will not be earning a higher wage after moving from LDCs to DCs.

Harvard's Robert Barro and Xavier Sala-i-Martin observe that diminishing returns to capital in the neoclassical model should mean substantial international capital movements from DCs, with high capital-labor ratios, to LDCs, with low capital-labor ratios. These capital movements should enhance the convergence found in Solow’s model, in contrast to the lack of convergence found in the real world. Additionally, most LDCs attract no net capital inflows, and many LDCs even experience domestic capital flight. New growth theorists think their model is closer to the realities of international flows of people and capital than the neoclassical model.

Paul Romer believes that if technology is endogenous, explained within the model, economists can elucidate growth where the neoclassical model cannot. When the level of technology is allowed to vary, one can explain more of growth, as DCs have higher level than LDCs. Variable technology means that the speed of convergence between DCs and LDCs is determined primarily by the rate of diffusion of knowledge. For new growth theorists like Romer, innovation or technical change, the embodiment in production of some new idea or invention that enhances capital and labor productivity, is the engine of growth.

2.10 Summary
This unit has presented various development theories, both classical and neoclassical. Ricardo’s theory, law of diminishing returns refers to successively lower extra outputs from adding an equal extra input to fixed land. For Ricardo diminishing returns from population growth and a constant amount of land threatened economic growth. Rostow argued there were five stages of economic growth; the Traditional Society, Preconditions Stage for takeoff, Takeoff, Drive to Maturity and Age of High Mass Consumption. Harrod Domar Growth Theory states that an economy’s growth rate is dependent on the level of saving and the capital output ratio. Solow’s formulation of the neoclassical theory of growth emphasizes the importance of savings and capital formation for economic development. Dependency theory is the thought that resources flow from a “periphery” of poor and underdeveloped states to a “core” of wealthy states, enriching the wealthy at the expense of the poor states. It is a central contention of dependency theory that poor states are impoverished and rich ones enriched by the way poor states are integrated into the “world system.” Endogenous growth theory holds that economic growth is primarily the result of endogenous not external forces. The theory holds that investment in human capital, innovation, and knowledge are significant contributor to economic growth.
Activity 2.1
Compare and contrast the H-D model with the Solow model, and explain the impact of population growth on income per head and economic development.

Activity 2.2
“Dependency” theorists believe that moving surplus labor from agriculture to industry where that labor will earn profits that can be reinvested for further growth is the key to overall economic growth and development. Is this statement true or false? Explain why.

References

3.0 Unit Introduction
This unit will discuss the factors of growth of a country. The unit is divided into 6 sub-units representing each of factors of growth. The factors are Population; Employment, Migration, and Urbanization; Education, Health, and Human Capital; Capital Formation, Investment Choice, Information Technology; Entrepreneurship, Organization, and Innovation; and Natural Resources and the Environment.

The production Function
Before we discuss each growth factor in detail, let us look at growth factors in a production function:

\[ Y = F(L, K, N, E, T) \]

Which means: **Y is the GNP** during a period depends on the input flows of labor \( L \), capital \( K \), natural resources \( N \), entrepreneurship \( E \) and prevailing technology \( T \). The model assumes that each input is homogenous. **Labor** \( L \) represents a number of labor units in which a skilled person is more than 1 unit; realistically there are many different skills available in a unit of time. Capital goods include plant, equipment, machinery, building and inventories, are produced goods used as inputs in further production. However, **variable K** refers to the flow of capital services available for the production during the period. \( N \) is however a heterogeneous complex of natural resources. Even though the stock of natural resources may be slowly deleting, only the flow per unit of time is relevant for the production function. If technology is fixed, there will be limitations on the flows of natural resources in production such industries as steel and tin. New technologies or techniques discovered enable to increase the exploitation of natural resources, so that the flow of \( N \) increases per unit of time. But the advanced of technology such as microchips may reduce the amount of natural resources required per unit of output. **Entrepreneurship** \( E \), is the production resource coordinating all the inputs (labor, capital, natural resources and technology). Issue with this variable is on the quantification or measurement. Technology \( T \) or technical knowledge represents skills, knowledge, practices or procedures for transforming inputs into outputs. The relationship would be an increase in technology will reduce input per output produced.

**Learning Outcomes**: Students are able to:

1. identify the factors of growth
2. explain how the relationships between factors of growth with economic growth and development.

3.1 Population and Development
This section examines how population growth affects economic development and how fertility affects labor force participation and development.

**World Population.**
Population dynamics are one of the key factors to consider when thinking about development. The world population grew at a rate of only 0.002 percent (or 20 per million people) per year since the human existence. This growth was subject to considerable fluctuations due wars,
plagues, famines, and natural catastrophes. Since about 8000 BC, population growth rates have accelerated. World population reached one billion in the early nineteenth century after millions years of human existence on earth. As shown in Figure 3.1, the second billion was added about a century later, in 1930. Only after 30 years that is in 1960 the third billion came along. The fourth billion took only 15 years, in 1975 and it took only 11 years for the world population to increase to 5 billion and the sixth billion came 12 years later, in 1998. And with population growth deceleration the seventh billion is expected in 15 years, in 2013. The world population is expected to reach its 9 billion in 2048.

![Figure 3.1 World Population Growth, in Billions.](image)

As shown in Figure 3.2 about 80 percent of the world population is found in developing countries. World’s population increased significantly beginning 1950 where population growth rates in developing countries substantially outpaced the developed countries. Reasons for this unprecedented population increase are illustrated in Figure 3.

![Figure 3.2: Population Trends in Developed and Developing Countries](image)

A "natural population increase" occurs when the birth rate is higher than the death rate. A country’s population growth rate depends on the natural increase and on migration but world population growth is determined exclusively by the natural increase.
From Figure 3.3, overall, the world death rates progressively decreased in the late 19th (1800 – 1900) and the 20th (1901-2000) centuries. The death rates in the developing countries plunged after World War II (1939-1945) due to modern medicine. In most of the developing countries the decline in death rates preceded the decline in birth rates by 20 years or more, causing in record-high rates of population growth of 3 percent or even 4 percent a year.

II. Population Growth in Developed and Developing Countries
Countries can be divided into three groups:

i. The Developed Countries (DCs) and transitional economies, comprising countries in Europe, North America, Australia, New Zealand, and Japan, with population growth rates below 0.8 percent per year;

ii. several countries from East and Southeast Asia and Latin America, including Argentina, Chile, Cuba, China, Taiwan, South Korea, Malaysia, Thailand, Vietnam, Indonesia, and Sri Lanka, with crude death rates below 9 per 1000 and annual growth rates between 0.8 and 1.7 percent, whose demographic behavior is closer to DCs than to Least Developed Countries (LDCs).

iii. The LDCs--most of Africa, Asia, and Latin America, with population growth rates of at least 1.9 percent per year.

The main difference between the three groups is the birth rate. (Following the conventional use, crude birth and death rates denote a number per 1000, not percent.) The DCs and transitional countries’ crude birth rate are less than 16 per thousand. Most developing countries have birth rates of at least 25 per 1000. Countries in category (ii) generally fall between these two birth rates - between 16 to 25 per 1000.

III. Population growth: Is it spurring or hampering economic development?
This question has been debated by classical economist specifically Thomas Robert Malthus and modern economist Julian L. Simon.

a. The Malthusian View.
Malthus’s Essay on the Principle of Population (1798,1803) was written about the food and population balance. His theory was that population increased geometrically (1,2,4,8….) outpaced food supply, which grew arithmetically (1,2,3,4….). According to him, the only check to
population growth would be wars, epidemics, infanticide, abortion, and sexual perversion, unless people practice moral restraint; that is later marriages and abstention. He further believed that standards of living would remain at a subsistence level in the long run. Nevertheless, Malthus failed to foresee the capital accumulation and technical progress that would overcome diminishing returns on land. Rough estimates are that between 1650 and 2005, the world's food production multiplied fourteen to sixteen times, while population increased only nine times (Nafziger 2012). The world’s cultivated land has also doubled or triples during the period. Output per hectare increased fourfold during the period due to improved seeds, irrigation, multiple cropping, use of commercial fertilizer, better farm management and implements and other agricultural innovations. Malthus also underestimated the extent to which education, economic modernization, urbanization and industrialization would reduce fertility rates.

Figure 3.4 illustrates the increasing world grain production per person trend from 1950 to 2012. Considerable increase is seen from 1950 to mid 1980s and fluctuates between 300 to 350 kg from mid 1980s to 2012.

![Grain production per person (kg) 1950-2012](image)

**Figure 3.4: Trend of world grain production per person**

Data source: Earth Policy Institute

b. **Simon’s View**

Julian Simon (1979: 26-30) claims that population enhances the level of technology. More people increase the stock of knowledge via additional learning gains compounded by the accelerating effect of greater competition and demand which stimulating more innovations. As markets expand division of labour and large scale production will expand as well. Simon views that as population size grow, supply of and demand for inventions rise and subsequently improve productivity and economic growth. Simon’s model does not require government interventions and thus consistent with free market (laissez-fairs) population policy.

3.2 **Employment, Migration and Urbanization**

Employment, migration and urbanization are related to labor which are affecting development and growth. Let us deliberate on each of these factors.

i. **Employment**

The rate of unemployment is one of important indicators of growth and development. Unemployed refer to those in the labor force without work but are available and seeking for employment. Unemployment as a percentage of the labor force (employed plus unemployed);
for different countries are given in table 3.1 below. Most of the countries in the table except South Africa experiences double digits unemployment rate. China shows a steady unemployment rates between 4% to 4.3% during the period from 2005 – 2012. Malaysia is showing impressive unemployment rate between 3% - 3.7%. A country with unemployment rate of less than 5.5% is considered as full employment. Developed countries such as the US and UK experienced higher rates beginning 2009 due to economic turmoil in both Europe and North America.

<table>
<thead>
<tr>
<th></th>
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<td>3.7</td>
<td>3.4</td>
<td>3.2</td>
</tr>
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<td>6</td>
<td>6.2</td>
<td>8.3</td>
<td>7.3</td>
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<td>4.3</td>
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<td>2.9</td>
<td>2.8</td>
</tr>
<tr>
<td>South Africa</td>
<td>23.8</td>
<td>22.6</td>
<td>22.3</td>
<td>22.7</td>
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<td>24.7</td>
<td>24.7</td>
<td>25</td>
</tr>
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<td>1.2</td>
<td>1.2</td>
<td>1.5</td>
<td>1</td>
<td>0.7</td>
<td>0.7</td>
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<tr>
<td>United Kingdom of Great Britain and Northern Ireland</td>
<td>4.7</td>
<td>5.4</td>
<td>5.3</td>
<td>5.3</td>
<td>7.7</td>
<td>7.8</td>
<td>7.8</td>
<td>7.9</td>
</tr>
<tr>
<td>United States of America</td>
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<td>4.6</td>
<td>4.6</td>
<td>5.8</td>
<td>9.3</td>
<td>9.6</td>
<td>8.9</td>
<td>8.1</td>
</tr>
</tbody>
</table>

Source: World Statistics Organization

In Least Developed Countries, the unemployed are mainly city residents as unemployment in urban areas is twice that of rural areas. Those who are unemployed are mainly the first time entrants to the labor force. Generally the unemployment rate for youth in 15-24 age range is twice that of 24 years and older. The unemployed are those with fairly well educated as studies show that unemployment correlates with education levels, when it begins to fall.

**Underemployed and Underutilized Labor**

Another term we need to understand in this context is underemployed. Underemployed are those who work less than they would like to work. The visibly underemployed are workers who are compelled to work short hours as an alternative to being out of job. Invisible underemployment results from an inadequate use of workers' capacities.

Underutilized Labor or underemployed according to Edgar O. Edwards (1974:10-11), exists in three forms. a) Disguised employment. Many employees or farm workers seemed occupied but then the services they render may actually much less than full time; b) Hidden employment. This type of unemployment is due to i. jobs are not available at the levels of education they attained; or ii. Jobs are available but not open to women due to discrimination. Thus they continue education of doing house chores; c) The prematurely retired. Some employees especially among civil servants opt for early retirement although they are still fit to work.

**Growth of Labor force and employment**

From table 3.2, within 15 years, there are significant increases in labor force in most countries except for Japan which experience -3.3 reductions. Developed countries such as the US and UK have lower annual growth compared to developing countries such as Singapore, Malaysia and Thailand.
Table 3.2: Labor Force (Active Population, 15 years old and above), (1000)

<table>
<thead>
<tr>
<th>Country</th>
<th>2000</th>
<th>2005</th>
<th>2010</th>
<th>2015</th>
<th>Growth (2-point) (%)</th>
<th>Ave. Annual Growth (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>728,129.4</td>
<td>769,342.1</td>
<td>801,588.0</td>
<td>823,470.7</td>
<td>13.1</td>
<td>0.8</td>
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<tr>
<td>Japan</td>
<td>67,005.8</td>
<td>65,899.2</td>
<td>66,190.5</td>
<td>64,827.3</td>
<td>-3.3</td>
<td>-0.2</td>
</tr>
<tr>
<td>Thailand</td>
<td>34,824.3</td>
<td>37,885.5</td>
<td>39,404.3</td>
<td>41,000.4</td>
<td>17.7</td>
<td>1.1</td>
</tr>
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<td>Malaysia</td>
<td>9,890.2</td>
<td>10,957.1</td>
<td>11,977.2</td>
<td>13,224.5</td>
<td>33.7</td>
<td>2.0</td>
</tr>
<tr>
<td>Singapore</td>
<td>2,011.9</td>
<td>2,244.3</td>
<td>2,809.0</td>
<td>3,002.3</td>
<td>49.2</td>
<td>2.9</td>
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<tr>
<td>United States</td>
<td>147,317.3</td>
<td>153,700.4</td>
<td>157,932.8</td>
<td>164,208.4</td>
<td>11.5</td>
<td>0.7</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>29,517.2</td>
<td>30,588.3</td>
<td>31,706.6</td>
<td>32,710.6</td>
<td>10.8</td>
<td>0.7</td>
</tr>
</tbody>
</table>

Data Source: International Labor Organization

Labor force would have positive correlation with total employment; which mean increase in population will lead to increase in labor force. However we need to remember that if the population increase rate is faster that employment rate increase then unemployment rate will increase. Hence, employment growth rate is slower or even negative (table 3.3).

Table 3.3: Total Employment and annual growth by country

<table>
<thead>
<tr>
<th>Country</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>annual growth (%)</th>
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<tbody>
<tr>
<td>China</td>
<td>720850</td>
<td>730250</td>
<td>737400</td>
<td>744320</td>
<td>752000</td>
<td>758250</td>
<td>764000</td>
<td>769900</td>
<td>774800</td>
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<tr>
<td>Japan</td>
<td>64460</td>
<td>64120</td>
<td>63300</td>
<td>63160</td>
<td>63290</td>
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<td>Malaysia</td>
<td>9269.2</td>
<td>9357</td>
<td>9542.6</td>
<td>9869.7</td>
<td>9979.5</td>
<td>10045.4</td>
<td>10275.4</td>
<td>10538.1</td>
<td>10659.6</td>
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<td>Thailand</td>
<td>33001</td>
<td>33483.7</td>
<td>34262.9</td>
<td>34677.1</td>
<td>35711.6</td>
<td>36344.5</td>
<td>37122</td>
<td>37836.6</td>
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<td>Singapore</td>
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<td>1573.7</td>
<td>1605.4</td>
<td>1632.1</td>
<td>1647.3</td>
<td>1796.7</td>
<td>1803.2</td>
<td>1852</td>
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<td>28132</td>
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<td>146047</td>
<td>145362</td>
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</table>

Data Source: International Labor Organization

ii. Urbanization

Urbanization is the increasing number of people that migrate from rural to urban areas. It predominantly results in the physical growth of urban areas. Urbanization is also increasing with rural to urban migration. In 1980’s and 1990’s the population growth in LDC’s averaged 2.1%. But, urban population growth is averaged at 3.5% although in many countries were 6 to 8%. From table 3.4, except for the United Kingdom and the United States, average urban population growth from 2005 to 2013, were between 2.03% to 3.86%. The United Kingdom and United States representing the developed countries have lower urban population growth average.

Table 3.4: Urban population growth by country (%)

<table>
<thead>
<tr>
<th>Country Name</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cambodia</td>
<td>2.18</td>
<td>2.14</td>
<td>2.07</td>
<td>2.05</td>
<td>2.10</td>
<td>2.20</td>
<td>2.61</td>
<td>2.70</td>
<td>2.74</td>
<td>2.31</td>
</tr>
<tr>
<td>Somalia</td>
<td>3.69</td>
<td>3.78</td>
<td>3.73</td>
<td>3.72</td>
<td>3.76</td>
<td>3.83</td>
<td>4.04</td>
<td>4.10</td>
<td>4.13</td>
<td>3.86</td>
</tr>
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<td>Malaysia</td>
<td>3.54</td>
<td>3.16</td>
<td>3.12</td>
<td>3.08</td>
<td>3.03</td>
<td>2.97</td>
<td>2.63</td>
<td>2.59</td>
<td>2.54</td>
<td>2.96</td>
</tr>
<tr>
<td>China</td>
<td>3.76</td>
<td>3.66</td>
<td>3.53</td>
<td>3.44</td>
<td>3.34</td>
<td>3.24</td>
<td>3.04</td>
<td>2.98</td>
<td>2.93</td>
<td>3.32</td>
</tr>
<tr>
<td>Philippines</td>
<td>1.89</td>
<td>2.04</td>
<td>1.97</td>
<td>1.92</td>
<td>1.92</td>
<td>1.93</td>
<td>2.19</td>
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<td>2.21</td>
<td>2.03</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>0.78</td>
<td>0.86</td>
<td>0.91</td>
<td>0.91</td>
<td>0.88</td>
<td>0.91</td>
<td>0.94</td>
<td>0.85</td>
<td>0.79</td>
<td>0.87</td>
</tr>
<tr>
<td>United States</td>
<td>1.33</td>
<td>1.31</td>
<td>1.30</td>
<td>1.29</td>
<td>1.22</td>
<td>1.17</td>
<td>1.02</td>
<td>1.02</td>
<td>1.01</td>
<td>1.19</td>
</tr>
</tbody>
</table>

Data source: The World Bank
One of the effects of urbanization is the shift in the rural:urban population ratio. Over time, the proportion of urban population will supersede rural population. This is shown in figure 3.5. Both Developed and Least Developed Countries are experiencing increases in urban population proportions. In more developed regions, in 1950 the percentage of urban population was only 30% but it is expected to increase to almost 55% in 2015. The least developed region is showing faster changes in the rural:urban population ratio. Let us come back to Malaysia’s scenario. Data from the United Nations show that similar trends are occurring in Malaysia. The percentage of urban population is expected to be more than 50% in 2015. Data from the Department of Statistics, Malaysia indicates that in 2010 the urban population has reached 63% of the total population (figure 3.6).

There are basically two reasons why people migrate from rural to urban areas.

i. Economic factors. In most cases they are looking for better job opportunities with perceived better working conditions. Urban areas have better facilities and infrastructure, and better market for setting up businesses. They migrate because of the benefits of moving outweigh the costs of moving.

ii. Social and cultural factors.
Impact of migration
i. Good impact
a. Migration provides labor (skilled and unskilled) to industries. Thus industries are able to make efficient use of resources.
   b. Demand for education will increase. Thus education sector will be more developed.
   c. Migration provides larger markets to good and services.

ii. Bad impact
a. Migration might increase unemployment in urban areas.
   b. Demand for housing and public services increase. Create squatters if affordable housing is unavailable. Examples of public services include schools and hospitals.

Migration Models
i. The Lewis Model. Lewis (1954) explains transition from a stagnating economy based on traditional rural sector to a growing economy driven by development of modern urban sector. Lewis assumes that there is surplus labor in rural sector, so that marginal productivity (change in output from 1 additional unit of labor) is close to zero and workers share output among themselves so that their wages are equal to their mean product. He further assumes that agricultural sector can supply perfectly elastic labour to modern sector by migration. Migration to urban area occurs when wages are equal to the mean product of agriculture sector. Thus in Lewis model, internal migration removes ‘disguise unemployment’ from rural areas and enables the transition to a modern economy.

   The model can provide some justifications due to the fact that many underdeveloped or least developed countries tend to have capital scarcity but abundant of labor. According to this model, rural-urban migration is desirable and thus government should encourage or at least should not discourage the migration. Nevertheless, in many countries such as Africa, urban areas are experiencing high rate of unemployment.

ii. The Harris-Todaro Model: The Lewis model does not consider why rural-urban migration continues despite high urban unemployment. John R Harris and Michael Todaro whose opinion a worker’s decision to migrate on the basis of wages and probability of unemployment. They try to close the gap in the Lewis model.

   Harris-Todaro assumes that migrants respond to rural-urban differedence in expected gains rather the real earnings. To them creating more urban jobs by expanding industrial output is not enough to solve urban unemployment issue. They instead recommend that government should reduce wages, eliminate other factor such as price distortion, promote rural employment and generate labor-intensive technologies policies.

3.3 Education, Health and Human Capital
i. Investment in human capital
   Theodore W. Schultz (1964) claims that capital goods are always treated as produced means of production. However, the concept of capital goods is generally restricted to material factors. Therefore the concept excludes the skills and other capabilities of man that are augmented by investment in human capital. The acquired abilities of a people that are useful in their economic endeavor are obviously produced means of production. And in this respect forms of capital, the supply of which can be improved.

ii. Economic returns to education
   Education helps individuals realize and apply their abilities and talent. Through education, productivity, health and nutrition are increased. Schooling develops one’s skills, value change, more receptive to new ideas and changes their attitudes toward work and society. More importantly, the effect of education is reducing poverty and increase income.
George Psacharopoulos (1994), studies on the social rates of return to educational investment, indicates that the highest average returns are from primary education. He shows that returns to primary education were 18 percent per year, secondary education 13 percent, and higher education 11 percent. John B. Knight, Richard H. Sabot, and D.C. however found the average rates of return on primary education were higher than that to secondary education, the marginal rates of returns to the cohort entering into the labor market were lower for primary education than for secondary education. In the 1960s and 1970s, primary graduates were in scarce supply; a primary-school certificate was a passport to a white-collar job.

3.4 Capital Formation, Investment, Information Technology
The United Nations economists, in 1950, considered capital shortage was the major limitation to LDC economic growth. By capital they meant tools, machinery, plant, equipment, inventory stocks, and so on, but not human capital. A British economist Sir Alex Caincross question whether capital plays the central role to economic growth. He felt that capital increase did not explain economic growth but the way round. The amount of capital responds to its demand. Further study found that two major sources economic growth, namely capital formation and technical progress.

3.5 Entrepreneurship, Organization and Innovation
i. Entrepreneur as Innovator
The rapid economic growth of the western countries during the past century is mainly a story of how novel and improved ways of satisfying wants were discovered and adopted. This episode is not just one of inventions or devising new methods or products but more on innovations. For example, the Stanley Steamer, invented in the twentieth century, perhaps unsuccessful not because it was inferior (because made of internal combustion engine) to the automobile but because the inventors. The Stanley brothers did not try to mass produce it. To explain economic growth, we must emphasize innovation rather than invention. Little attention have been paid to the process of innovation; the embodiment in commercial practice of some new idea or invention; and to the innovator by economists.

ii. Schumpeter’s Theory
Schumpeter (1961; 1939) is an economist who links innovation to the entrepreneur, maintaining that the source of private profits is successful innovation and that innovation brings about economic growth. To him an entrepreneur undertakes economic activities by a) introducing new products, b) introducing new production functions which decrease inputs required to produce a given output, c) opening new markets, d) exploiting new source of materials, and e) reorganizing an industry.

The Schumpeterian model begins with a static state, where economic process is unchanging, just reproduces itself at constant rates without innovators or entrepreneurs. Perfect competition, full employment and no savings nor technical change are the assumptions of this model. In static state operations are routine and entrepreneurial function is not required. Nevertheless, a profit oriented entrepreneur begins to work in a static situation. Entrepreneurs will introduce new production function that increases the marginal productivity of various inputs. Eventually such innovation leads to the construction of new business or companies which require new leadership. Innovation sets monopoly gains but for a short time as similar product (imitation) enter the market. To stay ahead of rivals, innovation must continue.

Schumpeter theory however is valid for capitalist economies or under perfect competition. Current emergence of few large high-tech firms, oligopolistic competition created. And this theory might not work in mixed and capitalist LDC, since many industries in these countries, especially in manufacturing, are dominated by a few large firms.
3.6 Summary
Population, urbanization, employment, education, health, human capital, capital formation, investment, information technology, entrepreneurship, organization and innovation are factors influencing development of a country. Theories and models pertaining to the factors of development are discussed to determine the relationships or correlation between the variables and development.

ACTIVITY 3.1
Discuss the theories of economic growth by Malthus and Simon. In relation to agricultural development, which of the two views is more applicable to the Malaysian situation? Justify your answer.

ACTIVITY 3.2
Schultz argues that human capital is a form of capital which supply can be improved. What are your views on this claim on human capital investment in the context of Malaysia's efforts to improve agricultural productivity? Provide evidences to your arguments.

Reference
UNIT 4
CLASSIFICATION OF COUNTRIES

4.0 Unit Introduction
Economic development between countries is not the same. Although some countries are
dowered with natural resources, their development is not as fast as compared to countries
with fewer resources. Because of this difference countries are classified into categories to
show their relative development level. The classification is made for both economic and trade,
and social purposes. For example in the World Trade Organization, least developed and
developing countries are given more time to adjust it when it comes to trade liberalization as
compared to developed economies. If poor countries are identified, it is easier for what kind of
humanitarian aids can be provided. When evaluating a country, a business manager will
assess the country’s income and the purchasing power of its people, legal and regulatory,
infrastructure and overall business environment of the country.

Nevertheless, experts are debating how to define the level of development of a country. Which
criteria to use and which countries are truly developed or developing. This debate crosses
political, economic and social arguments. This unit attempts to discuss the different
classifications of countries by different world organizations.

Learning Outcomes: students are able to:
1. identify global countries classifications in terms levels of development,
2. differentiate countries classifications by different world organization.
3. use different classification indices in classifying countries

4.1 Issues and Importance of Countries Classification
Even though the importance of classifications varies from field to field, their ubiquity is
evidence to their usefulness. Similarly, when it comes to classifying countries according to
their level of development, there is no single criterion which is generally accepted. We often
times hear people mention about developed and developing countries, but there are also least
developed countries. Some other times we hear people are using income to differentiate
countries’ development. High income countries, middle income countries and low income or
poor countries are also used to describe countries’ level of development. Not to forget, there
times where people categorize into developed and transitional economies. These are
examples of classification currently used and accepted.

To justify the importance of countries classification, let us take the following scenario. There
are obvious differences in standard of living between countries. Citizens in Burkina Faso earn
on average US$510 as compared to US$37,879 enjoyed by Japanese citizen. While 29% of
adult population in Burkina Faso is literate, all adults in Japan are literate. A new-born baby in
Japan could expect to live 83 years but a new-born baby in Burkina Faso could expect to live
53 years. These differences can be made better sense by placing them into groups. The most
famous is either developing or developed. Even though most economists agree that Burkina
Faso is a developing country and Japan is developed country, they are not sure about
classifying Malaysia or Russia. It is because the exact line to draw between developed and
developing is very clear. The dichotomy might be too restrictive and probably another group
should be classified. The word pair developing/developed countries became in the 1960s the
more common way to characterize countries, especially in the context of policy discussions on
transferring real resources from richer (developed) to poorer (developing) countries (Pearson

1 Note: This unit is extensively drawn from Lynge Nielsen (2011)
et al., 1969). On the other hand, some international organizations have used membership of the Organization of Economic Cooperation and Development (OECD) as the main criterion for developed country status. Although OECD has not used such a country classification system, the members comprise of economically more advanced nations. Since OECD membership is limited to a small subgroup of countries (it has 34 members up from 20 members at its establishment in 1961), this heuristic approach results in the designation of about 80–85 percent of the world’s countries as developing and about 15–20 percent as developed.

4.2. International Organizations’ Country Classification Systems

Over the years, the UN General Assembly has debated country classification issues. In 1971 the General Assembly identified a group of Least Developed Countries to be afforded special attention in the context of implementing the second UN Development Decade for the 1970s. This section the development taxonomies developed by three world organizations are discussed.

4.2.1 United Nations Development Program’s (UNDP) Country Classification System

The UNDP’s country classification system is built around the Human Development Index (HDI). HDI is a composite index of three indices measuring countries’ achievements in longevity, education and income. Thus, the index is able to capture the multi-dimensional nature of development. Due to lack of data, political freedom and personal security are excluded albeit it’s importance. The income measure used in HDI is GNI per capita (GNI/n) with local currency estimates converted into equivalent USD using Purchasing Power Parity (PPP). Longevity is measured life expectancy at birth. As far as education is concerned, a proxy is constructed by combining measures of actual and expected years of schooling. Those measures of achievements in the three facets do not enter directly into sub-indices, but has to go through a transformation. The computation of HDI is:

\[
\text{The basis is } X = (X_{\text{actual}} - X_{\text{min}})/(X_{\text{max}} - X_{\text{min}})
\]

(Detail computation of HDI will be discussed in unit 5).

The Human Development Report (HDR 1990) designated countries as either industrial or developing. At the times the terminology of ‘north’ to equate to industrial countries and ‘south’ representing developing countries was used as well. But in the HDR 2007/08, the industrial country grouping had been replaced by: (1) member countries of the OECD and (2) countries in Central or Eastern Europe or members of the Commonwealth of Independent states. The developing countries group was retained. This arrangement, however, had partially overlapping memberships. For example, Mexico and Turkey which were the members of OECD also designated as developing countries. At the same time, the Central/Eastern European countries of Czech Republic, Hungary, Poland, and Slovakia were also members of the OECD.

The above overlapping issues were then resolved by introducing a new category “developed” countries as presented in the HDR 2009. The criteria for the developed countries were countries that have achieved very high human development and other countries were designated as developing. The distinction between developing and developed countries was recognized as “somewhat arbitrary.” The absolute thresholds were then dropped in favor of relative thresholds, as reported in HDR 2010. In the new classification system, developed countries are countries in top quartile in the HDI distribution. Countries in the bottom three quartiles are developing countries.
4.2.2. The World Bank’s Country Classification Systems
The World Bank system of classification divided into operational country classification and analytical classification system. The operational classification system preceded the analytical classification system, which draws upon the operational system.

a. Operational classification system
The International Bank for Reconstruction and Development (IBRD) of the World Bank has a statutory obligation to give loans to credit-worthy member countries at reasonable terms. To do so, IBRD is required to designate a group of its membership as eligible borrowers. To determine the eligibility, the IBRD used GNI/n criterion beginning early 1980s. By this system, countries which borrow from IBRD and exceed a certain income threshold will be moved to non-borrowing status. Then country is said to have ‘graduated’ from IBRD borrowing.

In 1960, the International Development Association (IDA) was established. With this establishment, the World Bank identified two lists of IDA member countries. Part 1 countries, was countries that were expected to contribute financially to IDA. Part 2 countries, was other countries which were expected to draw on concessional resources. The criterion used was the per capita income. There are few exceptions though. Spain which was included in Part 1 countries did not consider it belonged into the classification. Japan on the other hand, due to its capacity to export capital, was placed in Part 1 despite relatively low per capita income level (Mason and Asher in Nielsen 2011).

In the 1970s operational guidelines used GNI/n thresholds as the basis for determining preferential assistance. This was done because Bank’s research that had found “a stable relationship between a summary measure of well-being such as poverty incidence and infant mortality on the one hand and economic variables including per capita GNI on the other.”

Besides the threshold on IDA eligibility, the Bank has also established a threshold to afford preferences to national companies in civil works procurement bids in Bank-financed projects. To these three thresholds, the fourth threshold was added in 1980s relating to IBRD graduation (as described above). After the thresholds had been established, they were then adjusted annually in line with inflation. The use of income thresholds were because the World considered GNI/n to be the best single indicator of economic capacity and progress. For the 2011 fiscal year (July-June), the operational thresholds ranged from US$995 (the civil works preference threshold) to US$6,885 (the IBRD graduation threshold). The thresholds can be summarized as in Table 4.1 below.

<table>
<thead>
<tr>
<th>Item</th>
<th>Per capita GNI(US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civil works preference (ceiling)</td>
<td>995</td>
</tr>
<tr>
<td>IDA eligibility (operational --ceiling)</td>
<td>1165</td>
</tr>
<tr>
<td>IDA eligibility (historical --ceiling)</td>
<td>1905</td>
</tr>
<tr>
<td>IBRD Graduation (FY – July-June)</td>
<td>6885</td>
</tr>
<tr>
<td>World per capita GNI</td>
<td>8741</td>
</tr>
</tbody>
</table>

Source: Lynge Nielsen (2011)

b. Analytical classifications
The analytical country classification system was constructed in 1978 by the World Bank. It was launched together with the World Development Report where the World Development Indicator (WDI) was annexed to it. The WDI classified countries into three categories: i. Developing Countries, ii. Industrialized Countries, and iii. Capital-scarce oil-exporting countries. Developing countries category were the sub-divided into low income and middle
income countries. Low income countries' threshold was US$250 or below (GNI/n or GNI per capita) and middle income countries are those countries with GNI per capita above US$250.

The World Bank did not use income threshold to demarcate between developing and industrialized countries but it used membership in the OECD. However, four OECD members, namely Greece, Portugal, Spain, and Turkey were placed in the group of developing countries. South Africa, which was not a member of the OECD, was designated as an industrialized country. The 1973-74 oil price shock had made the Capital-surplus oil-exporting countries classification inconsistent in terms of designating its member. For example, Iran, Iraq and Venezuela were the capital surplus oil exporters but were grouped in Developing countries. South African and Ireland with respectively GNI/n of US$1340 and US$2560; which relatively poor countries were placed in Industrialized Countries. Also Singapore, Venezuela and Greece and Spain (OECD members) whose income levels higher than Ireland were classified as developing countries.

In 1989, the country classification system was improved. First, a high income category was established. Countries with GNI/n above US$6000 are included in this category. Thirty countries were in this group. All OECD member countries, except Turkey were classified as high income countries. Second category is the middle income developing countries. Within this category, there are lower and upper middle income countries. The thresholds used the income cut-off between softer and harder IBRD borrowing terms. Third improvement was the abolishment of developing countries and industrialized countries categories. The summary of this classification is shown in Table 4.2 below.

<table>
<thead>
<tr>
<th>Item</th>
<th>Per capita GNI(US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low income (ceiling)</td>
<td>995</td>
</tr>
<tr>
<td>Lower middle income (ceiling)</td>
<td>3,945</td>
</tr>
<tr>
<td>High Income (Floor)</td>
<td>12,195</td>
</tr>
<tr>
<td>World per capita GNI</td>
<td>8,741</td>
</tr>
</tbody>
</table>

Source: Lynge Nielsen (2011)

4.2.3. The International Monetary Fund (IMF) Country Classification Systems

Similar to the World Bank, IMF’s classification systems used for both operational and analytical purposes. For the simplicity, this section will focus on the analytical countries classification as it is easier to identify the demarcation between categories.

To get facilities from the fund a country must be a member. Member countries are then required to provide economic and financial data to IMF which in turn will act as a center for exchange of information. Beginning 1964, analytical classifications of various types have been used by IMF. The first classification system grouped countries into 1. Industrial countries, 2. Other high-income countries, and 3. Less developed countries. The classification was then revised in early 1970s as following: 1. Industrial countries, 2. Primary producing countries in more developed areas, and 3. Primary producing countries in less developed areas. The classification system was again changed in late 1970s where countries were categorized as 1. Industrial countries, 2. Other Europe, Australia, New Zealand and South Africa, 3. Oil exporting countries, and 4. Other less developed areas. Again in early 1980, the classification were significantly simplified to just two category classification system, that is, 1. Industrial countries, and 2. Developing countries. This classification system was introduced by International Financial Statistics (IFS) and adopted by IMF in the same year (published in World Economic Outlook).
Later in 1997, IMF renamed the Industrial Category to Advanced Country Category. This was done to recognize the decreasing share of manufacturing common to all members. Singapore, South Korea and Israel were added to the group due to their rapid development. The following countries were then added to the category; Cyprus (2001), Slovenia (2007), Malta (2008), The Czech Republic (2009) and Slovak Republic (2009).

Within the period from 1993 – 2004, WEO used an additional country category – Countries in transition. Countries in transition means countries whose economy are shifting from centrally administered system to market based system. This category comprises 15 former Soviet Union republics, 12 central and eastern European countries, and Mongolia. This category however creates slight confusion as both advanced and developing countries have economies based on market principle. The accession of eight countries in central and Eastern Europe to the European Union took place in 2004. These transition group of countries was combined with the developing countries category which subsequently for a new classification, namely emerging and developing countries category.

4.3 Summary of Different Country Classification System Taxonomy
The summary and comparison of different taxonomies of countries classification system by the three world organizations is given in table 4.3 below:

<table>
<thead>
<tr>
<th>Name of “Developed Countries”</th>
<th>IMF</th>
<th>UNDP</th>
<th>World bank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of “Developing Countries”</td>
<td>Advanced Countries</td>
<td>Developed countries</td>
<td>High income countries</td>
</tr>
<tr>
<td></td>
<td>Emerging and developing countries</td>
<td>Developing countries</td>
<td>Low and middle income countries</td>
</tr>
<tr>
<td>Development Threshold</td>
<td>Not explicit</td>
<td>75 percentile in the HDI distribution</td>
<td>US$6,000 GNI per capita in 1987 prices</td>
</tr>
<tr>
<td>Type of development threshold</td>
<td>Most likely absolute</td>
<td>Relative</td>
<td>Absolute</td>
</tr>
<tr>
<td>Share of countries “developed” in 2010</td>
<td>17%</td>
<td>25%</td>
<td>26%</td>
</tr>
<tr>
<td>Sub-categories of “Developing countries”</td>
<td>1. Low income developing countries</td>
<td>1. Low human development countries</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Emerging and other developing countries</td>
<td>2. Medium human development countries</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. High human development countries</td>
<td>3. High human development countries</td>
<td></td>
</tr>
</tbody>
</table>

Source: Lynge Nielsen (2011)

4.3 Summary
This unit dwelled on the countries classifications by three world organizations. The UNDP uses relative classification by categorizing countries into two; developed and developing countries. HDI index is used to demarcate those categories. The World Bank uses income per capita to divide countries into high, middle and low income countries. The IMF demarcates countries into advanced, and emerging and developing countries. However there is no one criterion used as a general acceptable criterion to categorize countries of the world. Nevertheless, all countries classifications are accepted in discussing development levels of countries.

Activity 4.1
Using HDI (UNDP), World Bank and IMF Classifications, identify countries to 10 countries (ranked) for every category in each organization’s classification. Which of the classification do you think the most appropriate to measure economic development? Give your reasons.
(The statistics required are available in respective organizations’ websites – look for data/statistics.)

References

Nielsen, Lynge (2011). *Classifications of Countries Based on Their Level of Development: How it is Done and How it Could be Done*. IMF Working Paper
5.0 Unit Introduction
This unit will discuss about human welfare in a broader perspective. We will cover incidence
of poverty, income distribution and measures of development in a little detail. Understanding
of last unit (unit 4) will enhance understanding of this unit.

Learning Outcomes: students are able to:
1. explain the meaning of inequality and inequity
2. compute and apply Gini Coefficient to measure inequality
3. measure poverty levels of a country

5.1 Inequality (equality), Inequity (equity) and Efficiency
Equality and inequality are positive terms and they can be considered apart from value
judgement. Inequality refers to “differences, variation and disparities” in the characteristics
of individuals and groups. If development has the goal of increasing living standards or reducing
poverty then equality has to be considered, since it is a determinant of how much living
standards improve for how many people. Equity and inequity on the other hand are normative
terms as they require a value judgement and therefore there is controversy over the criteria for
determining equity/inequity. Inequity adds a moral dimension. It refers to a subset of those
inequalities that are considered unjust. Inequity and inequality are integral to the capability
approach because of their links to distributive justice.

The United Nations Development Programme reports on Human Development emphasized:
“Equality of capabilities would be equitable. However the distribution of capabilities
typically cannot be observed, because it is concerned with substantive freedoms rather
than outcomes (Sen 1985, 1999). Rather, the extent to which societies are inequitable
must be inferred on the basis of inequalities in outcomes, and consideration of the
process by which they come about. As argued in the HDR 2011, “Inequalities in
outcomes are largely the product of unequal access to capabilities” (UNDP 2011, p.
19). If people within a society had equal capabilities, we would not necessarily expect
equal outcomes because people have different preferences and values. But we could
be confident that those outcomes arose because of differences in people’s choices
rather than constraints on their abilities to exercise their choice.”

Author Okum writes on Equality and Efficiency: The Big Tradeoff in 1970s. He argued
that there was a tradeoff between equality and efficiency. He reasoned that inequality might be
necessary to motivate people to improve their well-being or standard of living. But if the
government’s redistribution programs are too generous, then the programs will limit people’s
incentives to work or invest.

Another argument said, there is not always a tradeoff between equality and efficiency as there
are cases where greater equality results in greater efficiency, such as greater growth. The
following cases will lead to greater efficiency:

i. Land reforms: If land is distributed more evenly then output grows; for example, if rich
landowners hire workers to farm their land then dividing the land and giving it to the
workers will often increase output, because the new owners work the land more intensively; thus, land reform both reduces inequality and improves efficiency. In Malaysia FELDA settlement schemes is a good case.

ii. Education: If education is allocated by who can pay, then upper income groups will receive more education even if they are not the ones who have the aptitude to benefit most from education. Redistributing educational dollars to those with the most potential would benefit society by reducing this misallocation.

iii. Political instability: High levels of inequality can bring to political instability (guerilla movements, civil wars, general strife) or detrimental government policy (powerful disaffected minorities can force interventions that are harmful to the economy).

iv. Health care: Similar to education. If health care is provided to those who can pay, then the wealthy one will be benefited. Poor are deprived from getting good health care and become less productive.

Most economists (advocators of free markets) believe that government intervention or welfare states are not good for efficiency. It is because inequality can create inefficiency as the government is compelled to redistribute income. For example Taiwan has relatively equal income and is not highly redistribute. Conversely Brazil has high inequality and pressure the government to intervene.

5.2 Kuznets curve
The Kuznets curve was formulated by Simon Kuznets in mid 1950s. He says that in preindustrial societies, almost everyone is equally poor, therefore inequality is also low. Then, inequality rises as people move from low productivity agriculture to the more productive industrial sector. The sector where average income is higher and wages are less uniform. When the society matures and richer, the urban-rural gap is reduced and old aged retire, unemployment benefits and other social transfers lower inequality. Therefore Kuznets curve is similar to upside-down U shape. Here, the measure of inequality is by GINI coefficient and economic development is measured by GNP per capita. The Kuznets curve is illustrated as in Figure 5.1.

![Kuznets Curve](image)

Figure 5.1 The Kuznets Curve

Three to four decades ago the poorest countries such as Bangladesh and Papua New Guinea had more equal income distribution. This could be due to everyone was poor. But in middle income countries such as Mexico and Brazil, they have greater inequality. However in industrialized countries like Germany there is less inequality as skills and productivity are widespread and more redistribution. These situations implied that inequality might be inevitable along the process of development. That is probably why the attitude of economists in 1950s and 1960s were not too concerned with the rising inequality.
This situation of relationships between inequality and development actually is not easily proven. Studies using cross-sectional, comparing between counties at the same point in time, will not be able to predict the trend of rising inequality. Then trend can be predicted using time series data for a country. However the hypothesis of inequality is inevitable through development is not supported. For example, Korea and Taiwan went through development without much inequality growth. Therefore this scenario can be illustrated in Figure 5.2 as follows:

The above diagram illustrates the two possibilities of inequality impact through development of a country. Our Korea and Taiwan as well as Mexico and Brazil example countries do not support Kuznets curve as predictor of individual country development dynamic path.

More current researches have shown that a more equal distribution of income has been associated with rapid economic growth. Some researchers have done cross country analysis (regression) by using rate of growth GDP per capita as the dependent variable and initial GDP per capita, investment rate, Gini coefficient, etcetera as dependent variables. The studies find that countries with a lower Gini coefficient (less inequality) grew faster. Thus, this is contrary to the opinion that inequality is necessary for growth.

5.3 Measures of Inequality
Before we discuss the specific measures of inequality, let us first understand few conditions. Measuring inequality requires us to capture the distribution of some type of income or asset. For instance, we might want to measure the inequality of a) income, either disposable income or after tax income; b) wealth, either assets or household; c) consumption. Here we are focusing on the distribution of income but not specific to which variant of income. We will need a unit of analysis such as individuals (adults or laborers) and household.

In our discussion, we will consider the distribution of average per capita income among households.

i. Size distributions
To illustrate this method of measurement, suppose in a country there are 50,000,000 households. The first step is to order the households from poorest to riches. They are ranked in terms of per capita household income from the lowest to the highest. Then, the households are grouped together in quintiles (sometimes deciles are used). Because it is in quintiles we group for every 20% of households. The poorest 20% of the households in the data are
grouped together in the “bottom quintile”, the next poorest 20% are grouped in the “second quintile”, the next lowest 20% are grouped in “third quintile”, the next lowest 20% are grouped in “fourth quintile” and the highest 20% in grouped in “top quintile”. Example is shown in Table 5.1 below.

<table>
<thead>
<tr>
<th>Quintile</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottom</td>
<td>10,000,000 households with the lowest incomes</td>
</tr>
<tr>
<td>Second</td>
<td>10,000,000 households with the next lowest incomes</td>
</tr>
<tr>
<td>Middle</td>
<td>10,000,000 households with the next lowest incomes</td>
</tr>
<tr>
<td>Fourth</td>
<td>10,000,000 households with the next lowest incomes</td>
</tr>
<tr>
<td>Top</td>
<td>10,000,000 households with the highest incomes</td>
</tr>
</tbody>
</table>

The distribution household income by quintile is then used to compute the income share for each group. This is shown in Table 5.2. Table 5.3 shows the distribution of income share for different countries. The percentage next to each quintile (in the country column) represents the proportion of the total household income going to that quintile. If income were perfectly evenly distributed, each quintile would receive 20% of the total household income. That means each household would receive average income per household.

Let us take Bangladesh for our discussion. The income is definitely not evenly distributed. The share of income for 20% of total households in Bangladesh is only 8.88%, which is much less than 20%. Conversely 20% in the top quintile account for 41.41% of the total income of overall household in Bangladesh. If we were to compare between the five countries, the common observation is that each of the three lowest quintiles receives less than 20% of total household income. This illustrates that 3/5 of households receive less than average household income.

<table>
<thead>
<tr>
<th>Country</th>
<th>Income share held by lowest 20%</th>
<th>Income share held by second 20%</th>
<th>Income share held by third 20%</th>
<th>Income share held by fourth 20%</th>
<th>Income share held by highest 20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangladesh</td>
<td>8.88</td>
<td>12.37</td>
<td>16.07</td>
<td>21.27</td>
<td>41.41</td>
</tr>
<tr>
<td>Indonesia</td>
<td>7.63</td>
<td>11.33</td>
<td>15.33</td>
<td>21.82</td>
<td>43.65</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>7.72</td>
<td>11.39</td>
<td>15.33</td>
<td>20.97</td>
<td>44.59</td>
</tr>
<tr>
<td>Thailand</td>
<td>6.76</td>
<td>10.5</td>
<td>14.62</td>
<td>21.45</td>
<td>46.67</td>
</tr>
<tr>
<td>Colombia</td>
<td>3</td>
<td>6.83</td>
<td>11.23</td>
<td>18.79</td>
<td>60.15</td>
</tr>
</tbody>
</table>

Source of data: World Bank

This data can be modified to consider the cumulative share of income of the bottom 20%, bottom 40%, bottom 60%, and so on as shown in table 5.3 below:

<table>
<thead>
<tr>
<th>Quintile</th>
<th>Proportion of all income going to quintile (%)</th>
<th>Cumulative share of income (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottom quintile</td>
<td>8.88</td>
<td>8.88</td>
</tr>
<tr>
<td>Second quintile</td>
<td>12.37</td>
<td>21.25</td>
</tr>
<tr>
<td>Middle quintile</td>
<td>16.07</td>
<td>37.32</td>
</tr>
<tr>
<td>Fourth quintile</td>
<td>21.27</td>
<td>58.59</td>
</tr>
<tr>
<td>Top quintile</td>
<td>41.41</td>
<td>100</td>
</tr>
</tbody>
</table>

ii. The Lorenz curve

The Lorenz curve is a graphical representation of the size distribution of household (sometime personal) Income. It shows the actual quantitative relationship between the percentage of income recipients and the percentage of total income they received during a given year. The
percentage of income is on the Y-axis and the percentage of income recipients is on the X-axis. The diagonal represents perfect equality. The further the Lorenz curve is away from the diagonal indicates the greater the degree of inequality. It plots the cumulative share of income versus the percent of households considered in the cumulative share. Let us take our example from table 5.3 and plot as shown in Figure 5.3.

Take note that to measure inequality, other variables, such as wealth, consumption, land, etc. can be used instead of income. The diagonal line or the 45° line shows what the Lorenz will look like if there were perfect equality. The line is a useful reference as the distance between the Lorenz curve and 45° line is a measure of inequality.

![Figure 5.3: Lorenz Curve For Bangladesh, 2010](image)

If we superimpose Columbia into Figure 5.3, we will get the different levels of Lorenz curves. From the chart, we can observe that relatively, Columbia is having higher inequality curve than Bangladesh (figure 5.4).

![Figure 5.4: Lorenz Curve For Bangladesh and Columbia, 2010](image)

iii. The Gini Coefficient
The Gini coefficient is calculated by taking the area between the Lorenz curve and the diagonal and dividing it by the triangle area in which the curve lies. A Gini coefficient of 0 would mean perfect equality, and a coefficient of 1 would mean perfect inequality. Coefficients
between 0.50 and 0.70 are considered to mean a highly unequal distribution of income. Coefficients between 0.20 and 0.35 are considered to represent relatively equitable distributions of income. Since we are dealing in percentage terms, we can compare Gini coefficients across countries.

The Gini coefficient is the ratio of area $A$ to the area $A+B$ (Figure 5.5) and is computed as:

$$Gini\ coefficient = \frac{A}{A+B}$$

Let us calculate Gini coefficient for Bangladesh. Recall data from table 5.4 and Figure 5.5.

To calculate area $B$ (Area under trapezoid) the formula is:

$$Area\ B = \frac{1}{2} \times (0 + 8.88)^220 + \frac{1}{2} \times (8.88 + 21.25)^220 + \frac{1}{2} \times (21.25 + 37.32)^220 + \frac{1}{2} \times (37.32 + 58.59)^220 + \frac{1}{2} (58.59 + 100)^220 = 3520.8$$

(note: 20 is the scale in the chart. If you use decile the the scale will be 10)

Total area $(A+B) = \frac{1}{2} (100\times100) = 5000$

Area $A = 5000-3520.8 = 1479.2$

Thus Gini coefficient = 1479.2/5000 = 0.296

If compute Gini coefficient for Columbia the Gini coefficient will be: 0.51

Therefore, relatively Columbia has a higher inequality than Bangladesh.

5.4 Poverty

According to Snarr and Snarr (2005), poverty is lack of sufficient resources to provide exchange for basic necessities. Basic necessities include food, shelter, health care, clothing, education and opportunity to work.

Quantitatively, poverty is defined in relation to an absolute standard. This standard can be calculated by determining a basket of goods sufficient for basic needs and computing the income required to purchase this consumption bundle. The World Bank uses income of US$1 per day and US$2 per day as standards for severe and moderate poverty.

5.5 Brief Outlook of Poor by Country
If we look back in the list of countries by classifications, poor countries are normally placed in either Low Human Development Countries (UNDP) of Low Income Countries (World Bank) or Emerging and Developing Countries category.

Table 5.4 shows examples of countries whose population’s purchasing power parity (PPP) of US$1.25 or below a day - severe poverty. Nigeria, in 2010 has 67.98% of its population under poverty and Bangladesh placed second in the world poverty problem with 43.25% of its population are under poverty. India is the third highest poverty incidences with 32.68% of populations’ PPP of US$1.25 or below. High proportion of poor shows inequality occurs in those countries.

<table>
<thead>
<tr>
<th>Country</th>
<th>Poverty Headcount Ratio at $1.25 a day (PPP) (% of population)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nigeria</td>
<td>67.98</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>43.25</td>
</tr>
<tr>
<td>India</td>
<td>32.68</td>
</tr>
<tr>
<td>Indonesia</td>
<td>18.06</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>4.11</td>
</tr>
<tr>
<td>Thailand</td>
<td>0.38</td>
</tr>
</tbody>
</table>

Data source: World Bank

5.6 Poverty measurement

i. Physical Quality of Life Index (PQLI)

The PQLI which was developed by Morris David Morris in 1970s is an attempt to measure the quality of life or well-being of a country. It is the value of three statistics; basic literature rate, infant mortality rate and life expectancy at age one. All are weighted on a 0 to 100 scale.

Steps to Calculate Physical Quality of Life:

Find percentage of the population that is literate (literacy rate).

Find the infant mortality rate. (out of 1000 births)

\[
\text{INDEXED Infant Mortality Rate} = (166 - \text{infant mortality}) \times 0.625
\]

Find the Life Expectancy.

\[
\text{INDEXED Life Expectancy} = (\text{Life expectancy} - 42) \times 2.7
\]

Physical Quality of Life =

\[
\frac{(\text{Literacy Rate} + \text{Indexed Infant Mortality Rate} + \text{Indexed Life Expectancy Rate})}{3}
\]

ii. Human Development Index

The HDI is used as an alternative index by the United Nations Development Programme (UNDP). The UNDP publishes the Human Development Report annually. The report focuses on the social indicators as compared to the World Bank's World Development Report (WDR) which focuses on economic indicators. The computation of HDI as follow:

1. Life expectancy Index (LEI) = \[
\frac{LE - 20}{85}
\]

2. Education Index (EI) = \[
\frac{MYSI - EYSI}{2}
\]
i. Mean Year of Schooling Index (MYSI) = \( \frac{\text{MYS}}{15} \)
   (average number years of education received by adults ages 25 and older. Maximum is 15 and minimum is 0)

ii. Expected Year of Schooling Index (EYSI) = \( \frac{\text{EYS}}{18} \)
   (Expected number of years a child would receive education from schooling to university. Maximum is 18 years and minimum is 0)

3. Income Index (II) = \( \frac{\ln(\text{GNIpc}) - \ln(100)}{\ln(75,000) - \ln(100)} \)

4. HDI is the geometric mean of the 3 indices. HDI = \( \sqrt[3]{\text{LEI} \times \text{EI} \times \text{II}} \)

HDI is therefore bounded between zero and one. The countries are divided into low, medium, high and very high human development using threshold values 0.5, 0.8 and 0.9 respectively.

5.7 Summary
Inequality refers to “differences, variation and disparities” in the characteristics of individuals and groups. Equity and inequity on the other hand require a value judgment as it adds a moral dimension. Kuznets curve attempts to explain inequality moves from low inequality to high as people move from low productivity to high productivity sector. But when the society matures and richer inequality low again. Gini coefficient as measure of inequality, physical quality of life index and human development index as measures of poverty are discussed.

Activity 5.1
With the aid of graph(s) explain Kuznets curve of inequality.

Activity 5.2
a) Using information in Table 5.3 compute Gini Coefficients for Thailand and Indonesia.
b) Go to the World Bank data and get the latest available data and use the same approach in (a) above compute Gini Coefficient for Malaysia. What can you conclude about Malaysia inequality position.

Activity 5.3
A survey was carried out in a hypothetical country and the following survey results are obtained. The country’s GNI per capita is USD$30,000, the average life expectancy is 60 years, the mean expected year of schooling is 15 years and the average year of schooling is 12 years. Compute the HDI index for this hypothetical country.

Reference
6.0 Unit Introduction
The agricultural development theories are attempts to explain the forces in society and the economy that lead to agricultural change or development. There are five models of agricultural development. They are: the resource exploitation; the conservation; the location; the diffusion; the high-payoff models and theory of induced innovation.

Learning Outcomes: students are able to:
1. identify and explain the various agricultural development related theories.

6.1 The Resource Exploitation Theory
This model is basically using natural resources such as opening new land areas to increase agricultural output production. It is also called "Expanding the Extensive Margin." It is evident throughout the history. The most dramatic example in Western history was the opening up of new continents, specifically the North and South America and Australia to European settlement in the eighteenth and nineteenth centuries. With the introduction of cheap transportation cost the new continents become important sources of food and agricultural raw materials to the cities of the Western Europe.

Similar processes had taken place earlier in the peasant village economies of Europe, Asia and Africa. The agrarian colonization of the Indus and Ganges river valleys occurred in the third millennium. This theory has also fitted in Malaysia context. Such examples include the opening of new rubber plantations in 1950s under the British Colonization. The plantations were managed by Sime Darby and Harrison-Cross field, later nationalized by the government under Tun Razak's Administration in 1970s. Opening of new paddy fields especially in 1960s to late 1970s is another dramatic example. Then, irrigation canals were built in almost every paddy field areas. The FELDA settlement scheme in 1960s (although poverty eradication was another objective) has adopted this theory. This theory of resource exploitation is still being adopted especially in developing countries, including Malaysia. Attempts to increase beef production in Gemas (albeit unsuccessful) and attempt to open new paddy granary in Sarawak (have yet to realize) fall into adopting this theory (Please take note that we are addressing in the context of utilization of land and not technology). Generally, intensification of land use in existing villages was followed by pioneer settlement, the establishment of new villages, the opening up of forest and jungle land to cultivate crop or raise animals.

In situations where population is rapidly growing, the limitations to the resource exploitation model were often quickly recognized. The limitations include; the crop yields were typically low and output per hectare and per man-hour tend to decline. Opening new areas awaits the technologies to combat the increased the problems of pests and diseases, and soil. In the future there will be fewer resources such as land to be exploited for producing additional food or agricultural output.

6.2 The Conservation Theory
This conservation theory of agricultural development developed from the progressed in crop and livestock husbandry linked to the English agricultural revolution; and also the notions of soil exhaustion, suggested by early German chemists and soil scientists. The concept of application to the land or diminishing returns to labor and capital was emphasized by the
English classical school of economics. The conservation theory was well accepted in the 19th century as it was the only approach to intensification of agricultural production available to most farmers in the world. The wet rice cultivation in East and Southeast Asia is evident to this theory of agricultural development.

The theory suggested that agricultural inputs be produced by agriculture itself. It means that more intensive crop rotation systems to replace the open field systems. This involves the introduction and more intensive use of new forage and green manure crops and animal manures. To maintain the soil fertility, the intensification of crop-livestock production is carried out through the recycling of plant nutrients. Hence, inputs used such the plant nutrients, animal power, land improvements, physical capital, and agricultural labor force were mainly produced or supplied by the agricultural sector itself.

Agricultural development within the framework of this model was capable of sustaining agricultural growth, in the region of 1% annually, in many parts of the world over a relatively long period of time. Nevertheless, it becomes obvious that the feasible growth rate and even with rigorous recycling effort, is not meeting the rates of growth of demand for agricultural output. The conservation model will remain an important framework of productivity growth in most parts of developing countries. The awakening of organic farming movement among agrarian fundamentalists and health conscious consumers in both developed and developing countries will make this model more relevant.

6.3 The Location Theory (Urban Impact Theory)

The location model, developed by J.H. von Thunen in Germany, was initially tried to explain geographic variations in the intensity of farming systems and the productivity of labor in an industrializing society. It was later extended in the United States in efforts to explain the more effective performance of input and product markets in regions of rapid urban industrial development than in regions of slower urban industrial development.

The rationale for this model was that, industrial development stimulated agricultural development through expanding demand for farm products, supplying inputs to industries and to improve farm productivity, and drawing away surplus labor from agriculture.

The location theory is more relevant in less developed regions of highly industrialized countries of lagging regions of more rapidly growing less developed countries. In contrast, agricultural development policies based on this model will not be appropriate in countries where growth in urban areas results in rural-urban migrations for employment.

6.4 The Diffusion Theory

The diffusion of better farm and animal husbandry practices were the main source of productivity growth. In the early post World War II period the diffusion theory provided a strong foundation for giving technical assistance to developing countries. The theory says that the route to agricultural development was through more effective dissemination technical knowledge and information in improving farm productivity. This is done through extension services. Since its emergence the theory has provided the intellectual foundation to research and extension in farm management and production economics.

In the period of 1960s, the technical assistance and rural development program, either implicitly or explicitly based on the theory has not successfully generated either rapid modernization of traditional farms and communities or rapid growth in agriculture output as there were very few opportunities to generate large productivity gains through the transfer of technology from one agroclimatic zone to another, or even among regions in the same agroclimatic zone. (Vernon W. Ruttan,1985).
6.5 The High-payoff Input model

In 1960 agricultural development was viewed in a new perspective with respect to inadequacy of policies based on the conservation, location and diffusion models. The crucial factor to transform traditional agriculture sector into a productive source of economic growth is investment. The investments are designed to make modern and high pay-offs inputs available to farmers in poor countries. According to Schultz, T.W, peasants in traditional societies remained poor as there were only limited technical and economic opportunities that they can respond to. To transform the traditional agriculture high pay-offs input need to be invested. According to Vernon W. Ruttan (1985) there are three categories of new high payoff inputs: a) the capacity of public and private sector research institutions to produce new technical knowledge; b) the capacity of the industrial sector to develop, produce, and market new technical inputs; and c) the capacity of farmers to acquire new knowledge and use new inputs effectively.

The enthusiasm which the high payoff input model has been accepted and translated into economics doctrine was due to studies reporting high rates of return to public investment in agricultural research. Such studies have developed new high yielding grain varieties, such as high yielding wheat varieties in Mexico in 1950s and new high yielding rice varieties in the Philippines in 1960s. These new crop varieties were highly responsive to industrial inputs such as fertilizer and other chemicals and water management/irrigation. The high return associated with the adoption of the new varieties and associated technical inputs as well as management practices has led to rapid growth in investment in agricultural research. In Malaysia, besides high investment in agricultural research, investment in irrigation has made possible rice being planted and harvested twice a year.

Thus far, the acceptance of the high-payoff input model has not been inclusive. Reasons being: a) There are countries which have not freed their private sector to produce and market new technical inputs, or in some aspects demand for new technologies is low to produce at economies of scale is not possible. This is true in developing countries; b) the implication of high input model is education or literacy of farmers. There are cases, especially in developing countries, where policy makers hard to understand the importance of literate and numerate peasantry in agricultural development. The future of agriculture is envisaged the continuous stream of bio-technology, mechanization and automation which require new skills. Hence education and training become necessary.

6.6 The Induced Innovation Theory

The induced innovation model attempts to make more explicit the process by which technical and institutional changes are induced through the responses of farmers, agribusiness entrepreneurs, scientists, and public administrators to resource endowments and to changes in the supply and demand of factors and products. The state of relative endowments and accumulation of the two primary resources, land and labor, is a critical element in determining a viable patterns of technical change in agriculture. Agriculture is characterized by much stronger constraints of land on production than most other sectors of the economy. Agricultural growth may be viewed as a process of easing the constraints on production imposed by inelastic supplies of land and labor. Depending on the relative scarcity of land and labor, technical change embodied in new and more productive inputs may be induced, primarily either (a) to save labor or (b) to save land.” (Hayami and Ruttan, 2nd ed., p. 4).

There are two major changes that influence the agricultural development: 1. Technical change in agriculture represents a response to changes in relative resource endowments and to growth in product demand, 2. Institutional change in agriculture is induced by changes in relative resource endowments and by technical change.
Technical Change

Land and labor are the two primary factors of production, and capital goods substitute for land or substitute for labor. Examples of land saving capital are biological, chemical, & water control investments (seeds, fertilizers, insecticides, irrigation). Examples of labor saving capital are machinery & equipment, such tractors and harvesters.

Hayami and Ruttan (1971) regarded technical change as any change in production coefficients resulting from resource using activity directed to the development of new knowledge embodied in designs, materials or organizations. Hence, it is rational for firms to allocate funds to develop a technology that facilitates the substitution of less expensive factors for more expensive factors. The argument of market induced innovations is shown with the aid of figure 6.1.

![Figure 6.1: Induced Innovation-Illustration of Resource Endowment Change](source: Yujiro Hayami and Vernon W. Ruttan (1971))

Suppose at a point of time a firm is operating at equilibrium, point A or point B, depending on prevailing factor price ratio, p or m, for an isoquant, \( u_0 \), producing a given output. This firm perceives innovation options which are represented by isoquant \( u_1, u_1' \), etc., producing the same output, in such a way as to be enveloped by a concave curve U, which Ahmad (in Yujiro and Ruttan 1971) called it an innovation possibility curve, which can be developed by the same amount of research expenditure.

For the firm to minimize total cost for producing given output and given research expenditure, the firm’s innovation efforts should be directed to developing Y-saving technology (\( u_1 \)) or X-saving technology (\( u_1' \)) depending on the prevailing factor price ratio p (parallel to PP) or m (parallel to MM and MM'). If the firm is facing a price ratio m, then develop X-saving technology (\( u_1' \)), hence it an obtain an additional gain by the amount of distance between M and M' as compared to developing Y-saving technology (\( u_1 \)). In this framework, it apparent that if X becomes more expensive relative to Y, the innovation efforts of a firm (entrepreneurs) should be geared towards developing X-saving and Y-using technology. By the same token, in a country in which X is more costly relative to Y than in other country, innovative efforts or research should be directed to X-saving and Y-using than in other country.

For agricultural productivity to grow, the sector should have the capacity to adapt to the changes to factor and product prices. The changes may arise due to increase in demand
pressing against supply of the factor or changes in the factor prices resulting from shifts in the supply curves for factor inputs. The above graph illustrates the changes of factor price that leads to innovation. Next we will look at the changes in factor-product price in relation to innovations of new technology.

Figure 6.2: Induced innovation (output to input price changes)
Source: Yujiro Hayami and Vernon W. Ruttan (1971)

Referring to figure 6.2, let $u_0$ and $u_1$ represent the curve of “indigenous” and “improved” varieties respectively. For farmers using indigenous variety represented by $u_0$ curve, a decline in fertilizer prices relative to product price from $P_0$ to $P_1$ would not be expected to result in significant increase in fertilizer use or increase in yield per unit area. The significant impact of fertilizer price fall on the fertilizer use and output per unit area will be observed only if new improve variety ($u_1$) is made available to farmers. Improved varieties are more responsive to fertilizer resultant from innovation.

6.7 Summary
Six agricultural development theories have been discussed in this unit. The Resource Exploitation Theory is basically using natural resources such as opening new land areas to increase agricultural output production. This conservation theory of agricultural development developed from the progressed in crop and livestock husbandry linked to the English agricultural revolution. The theory suggests that agricultural inputs be produced by agriculture itself – use of animal manure. The location model rationalizes that, industrial development stimulated agricultural development through expanding demand for farm products, supplying inputs to industries and to improve farm productivity, and drawing away surplus labor from agriculture. The Diffusion Theory says that the route to agricultural development was through more effective dissemination technical knowledge and information in improving farm productivity. The induced innovation model attempts to make more explicit the process by which technical and institutional changes are induced through the responses of farmers, agribusiness entrepreneurs, scientists, and public administrators to resource endowments and to changes in the supply and demand of factors and products.
Activity 6.1
Explain the Conservation Theory. Do you think the uprising of organic agricultural in Malaysia suit to this theory? Give reasons to your answer.

Activity 6.2
Assume that as agricultural land become scarcer compared to labor over time in a country, the land price increases relative to the price of labor. Use the concept of “induced technical innovation” to describe how the agricultural sector is expected to adjust to accommodate the relative price change. Use a graph to help in your description

References
Hayami, Yujiro and Vernon W. Ruttan (1971) *Induced Innovation In Agricultural Development*. Center for Economics Research, Department of Economics, University of Minnesota


UNIT 7
ROLES OF AGRICULTURAL SECTOR IN ECONOMIC DEVELOPMENT

7.0 Unit Introduction
This unit attempts to discuss the roles and important of agricultural sector to the national economy. Comparative analysis of the performance of the sector between developed and developing countries will be made in order to assess the roles played by the sector.

Learning Outcomes: Students are able to:
1. identify the parameters within agricultural sector that contribute to economic development
2. describe how those parameters contribute to the sectoral and national economy

7.1 The importance and roles of agriculture to countries’ development.
They can be described by the following parameters.

7.1.1 Share of Agriculture sector to GDP
The share of portion of agriculture value added to the GDP is showing what percentage the value of agricultural production contribute to the total Gross Domestic Product of a country. Or in other words, what is the size of agriculture relative to the total economy. Table 7.1 shows the trends percentage of agriculture value added of GDP by selected countries from 2005 to 2013. However generally there are no significant variations in terms of the changes of contributions of agricultural sector to the GDP. It is apparent that differences between developing and developed countries are relatively large. From table 7.1 we can see that basically the two digits percentages of share of agriculture to the GDP are developing countries. The bottom four countries are developed countries. We can infer that the share of agriculture sector in the total economy is higher in developing countries than in developed economies.

<table>
<thead>
<tr>
<th>Country</th>
<th>2005</th>
<th>2010</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nepal</td>
<td>36.3</td>
<td>36.5</td>
<td>35.1</td>
</tr>
<tr>
<td>Afghanistan</td>
<td>31.8</td>
<td>27.1</td>
<td>23.6</td>
</tr>
<tr>
<td>Pakistan</td>
<td>21.5</td>
<td>24.3</td>
<td>25.3</td>
</tr>
<tr>
<td>Nigeria</td>
<td>32.8</td>
<td>23.9</td>
<td>21.0</td>
</tr>
<tr>
<td>Vietnam</td>
<td>19.3</td>
<td>18.9</td>
<td>16.4</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>20.1</td>
<td>18.6</td>
<td>17.2</td>
</tr>
<tr>
<td>India</td>
<td>18.8</td>
<td>18.2</td>
<td>18.2</td>
</tr>
<tr>
<td>Indonesia</td>
<td>13.1</td>
<td>15.3</td>
<td>14.4</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>11.8</td>
<td>12.6</td>
<td>10.8</td>
</tr>
<tr>
<td>Thailand</td>
<td>10.3</td>
<td>12.4</td>
<td>12.0</td>
</tr>
<tr>
<td>Malaysia</td>
<td>8.3</td>
<td>10.4</td>
<td>9.3</td>
</tr>
<tr>
<td>China</td>
<td>12.1</td>
<td>10.1</td>
<td>10.0</td>
</tr>
<tr>
<td>Turkey</td>
<td>10.8</td>
<td>9.6</td>
<td>8.5</td>
</tr>
<tr>
<td>Brazil</td>
<td>5.7</td>
<td>5.3</td>
<td>5.7</td>
</tr>
<tr>
<td>Russian Federation</td>
<td>5.0</td>
<td>3.9</td>
<td>3.9</td>
</tr>
<tr>
<td>Mexico</td>
<td>3.4</td>
<td>3.5</td>
<td>3.5</td>
</tr>
<tr>
<td>South Africa</td>
<td>2.7</td>
<td>2.6</td>
<td>2.4</td>
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<td>Germany</td>
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<tr>
<td>United Kingdom</td>
<td>0.6</td>
<td>0.7</td>
<td>0.6</td>
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</tbody>
</table>

Source: World Bank
7.1.2 Agriculture Value Added
Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources. Table 7.2 illustrates the trends of agriculture value added by selected countries. It is rather hard to delineate between developed and developing countries in terms absolute values of agriculture value added. China, India and the United States are the three top agriculture producers in the world.

Table 7.2 Agriculture, Value Added (constant 2005 US$)

<table>
<thead>
<tr>
<th></th>
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<td>355,688</td>
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<td>51,994</td>
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<td>32,200</td>
<td>36,797</td>
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</table>

Source: World Bank

7.1.3 Agriculture Employment
Agricultural sector is one of major sources of employment, especially in rural areas. As we can see in table 7.3, there is same pattern with regards to percentage of agriculture employment between developed and developing countries. Percentages of agriculture employment against total employment in developed nations are smaller than developing nations. Observe the percentage columns for United Kingdom, United States, Japan, Canada and New Zealand are in single digit. However, they are almost constant from 2005 to 2008. Agriculture employment in Indonesia, Thailand, the Philippines and Pakistan are very important employment source. Russian and China which are transition economies are showing vast different in percentage of agriculture employment.

Table 7.3 Employment in Agriculture, Hunting, Forestry and Fishing, 2005-2008 ('000)

<table>
<thead>
<tr>
<th>Country</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
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<tr>
<td>Total</td>
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<td>6935</td>
<td>68858</td>
<td>69687</td>
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<tr>
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<td>117132</td>
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<td>15276</td>
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<td>41310</td>
<td>95437</td>
<td>41076</td>
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<td>42216</td>
<td>18431</td>
<td>43.0</td>
<td>46925</td>
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<td>11628</td>
<td>35.8</td>
<td>12326</td>
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<td>42.6</td>
<td>36345</td>
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<td>355</td>
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<td>141730</td>
<td>2197</td>
<td>1.6</td>
<td>144427</td>
</tr>
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<td>355</td>
<td>0.6</td>
<td>10219</td>
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<td>440</td>
<td>2.6</td>
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<td>63560</td>
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<td>63820</td>
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</table>

Source: International Labour Organization
7.1.4 Food Security

Food is important in sustaining world population. World population is 7 billion and growing at 1.14% per annum. It is expected to increase to 8 billion in 2024. The expected population increase has raised concern for food insecurity issue in most countries. To understand the food security situation, let us some indicators of food security.

According to FOA, “Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.” This definition identifies four main dimensions of food security: (a) food availability; (b) food access; (c) food utilization (we will not be discussing) and (d) stability. (unescap.org)

a. Availability: This means that food must be available in sufficient quantity and quality, either through domestic production, trade or food aid. One of availability indicators is average dietary energy supply. Form table 7.4, the world’s average dietary energy supply adequacy has increased by about 8 points for the last three decades. If we break down into countries development category, the increase of average dietary supply increase among developed countries is only 2 points. Nevertheless they are in access of relatively high in the range between 32% - 34%. Whilst developing countries’ average dietary energy supply adequacy has increased 10 points, least developed countries’ average dietary energy supply adequacy are able to make it adequate in 2010 at 104 percent.

<table>
<thead>
<tr>
<th></th>
<th>1990-92</th>
<th>2000-02</th>
<th>2010-12</th>
</tr>
</thead>
<tbody>
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<td>121</td>
</tr>
<tr>
<td>Developing countries</td>
<td>108</td>
<td>112</td>
<td>118</td>
</tr>
<tr>
<td>Developed countries</td>
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<tr>
<td>Least developed countries</td>
<td>95</td>
<td>97</td>
<td>104</td>
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</tbody>
</table>

Data source: World Bank

Figure 7.1 shows the average dietary energy supply for some selected countries situations. If we observe figure 7.1, some countries, especially in less developed and in African continents, are still under 100 percent adequacy levels.
The food production index as shown in table 7.5 can be used to identify the world’s and individual country’s food supply conditions. The world food production has increased by 18% as compared to 2004-2006 average (based year). In fact most of the countries listed in the table showed increase in food production. Singapore interestingly had jumped into increasing food production by 5%.
Table 7.5 Food production index (2004-2006 = 100)

<table>
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<th></th>
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<td>67.1</td>
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<td>109.6</td>
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<td>73.9</td>
<td>91.5</td>
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<td>495.1</td>
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<td>92.3</td>
<td>101.1</td>
<td>105.3</td>
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<td>65.0</td>
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<td>83.5</td>
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<td>77.9</td>
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<td>124.4</td>
<td>125.5</td>
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<td>76.9</td>
<td>119.2</td>
<td>124.9</td>
<td>132.3</td>
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<td>58.4</td>
<td>67.7</td>
<td>93.2</td>
<td>114.7</td>
<td>119.6</td>
<td>125.8</td>
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<td>39.4</td>
<td>60.6</td>
<td>88.4</td>
<td>113.7</td>
<td>120.7</td>
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<td>130.6</td>
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</table>

Data source: World Bank

b. Food access: It means that individuals must have the required resources to be able to acquire food for their consumption. The world as a whole, as shown in Figure 7.6, has registered a reduction in the proportion of food inadequacy population from 25.9% in 1990-92 to 18.2% in 2010-12. Developed countries’ has impressive less than 5% of population with inadequate food. Developing countries’ prevalence of food inadequacy has been reduced by 10.4 points. Table 7.7 shows detail breakdown of prevalence of food inadequacy by individual country. Malaysia has able to reduce the prevalence of food inadequacy from 10.3% in 1990-92 to 8.7% in 2010-12.

7.6 Prevalence of food inadequacy (%)

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<td>&lt;5.0</td>
<td>&lt;5.0</td>
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<td>Turkmenistan</td>
<td>14.6</td>
<td>15.2</td>
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</table>

Source: World Bank Data
c. **Stability.** Stability means low susceptibility to the risk of not having access to food over time. Cereal import dependency ratio is one of stability indicator used to determine food security situation. Import dependency ratio is a ratio of import to the sum of production and net imports (imports / (production + imports – exports)). As we can see from table 7.8, the world cereal import dependency ratio has increased by 2.1 percent points indicating consumption increase faster rate as compared to increase in production rate. This increase is observed greater in developing countries, which increase by 3 percent point since last 3 decades. Malaysia, Japan and Libya are among the highest cereal import dependency ratio which is above 80% in 2009-11. Large rice producing countries such as Thailand and Bangladesh are having small ratios. The USA, the major exporter of cereal or grain is among countries with low import dependency ratio. Basically this ratio can be used to measure the self-sufficiency of a country.

<table>
<thead>
<tr>
<th>Regions/Subregions/Countries</th>
<th>1990-92</th>
<th>2000-02</th>
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<tr>
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<td>Least developed countries</td>
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<td>Nigeria</td>
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<tr>
<td>Russian Federation</td>
<td>23.6</td>
<td>4.9</td>
<td>1.6</td>
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Source: World Bank

7.1.5 **Contribution towards Exports**

In terms of trade, agriculture is helping a country to earn foreign exchange through exports. In turn, foreign exchange helps a country to import those items which it cannot competitively produce. Trade is actually distributing goods and services where they are demanded at given prices.

Charts below are showing top ten exporters of important agricultural commodities. They are presented in export value to represent the export revenue received from exports. From Figure 7.2 the top exporters of wheat are generally the developed countries with USA’s export worth more than US$11 billion. The leading exporters of soybean are USA and Brazil, also developed country (Figure 7.3). The exports for both countries are worth more than US$17.5 billion and US$16.7 billion respectively. Meanwhile China is the highest exporter of vegetables, and followed by EU and other developed countries. Again, mostly they are developed countries.
Figure 7.2 Top 10 Wheat Exporters  
Source: Food and Agriculture Organization (FAO)

Figure 7.3 Top 10 Soybean Exporters  
Source: Food and Agriculture Organization (FAO)

Figure 7.3 Top 10 Fruits and Vegetables Exporters  
Source: Food and Agriculture Organization (FAO)
Malaysia’s agriculture exports earning is mainly contributed by oil palm. As we can see in Figure 7.4 Malaysia is the world leading export of the commodity slightly more than Indonesia’s export value. Since Indonesia has the advantage of land area, the export value of Indonesia will soon supersede Malaysia’s. These two developing countries are the main suppliers of palm oil.

Natural rubber used to be Malaysia’s important export commodity has been taken over by oil palm. Because of high price fluctuation, the rubber plantations areas has been significantly reduced and replaced with oil palm. Thus, rubber production is mainly continued by small holders. As such, the export value has been significantly reduced. In 2011, the export value of rubber for Malaysia was US$203.6 million as compared to USD$2.5 billion exported by Thailand. This is shown in Figure 7.5.

![Oil Palm: Top 10 Exporters 2011 (US$1000)](source)

![Natural Rubber: Top 10 Exporters 2011 (US$1000)](source)

Figure 7.6 shows top ten rice supplier to the world. Thailand, India and Vietnam are three leading exporters with export values US$6.5 m, US$4.1m and US$3.6m respectively. Together with Pakistan they represent the developing countries. The USA is the leading developed country exporter of rice.
7.2 Summary
This unit discusses the roles and contribution of agriculture sector to the economic development. Share of agriculture sector to GDP, agriculture employment, food security, and exports are amongst parameters discussed. Comparisons between selected countries are made to illustrate importance of agriculture economy between countries. Generally, contribution on agricultural sector to the overall economy shows inverse relationships with countries’ development status.

Activity 7.1
By using the four dimensions of food security and related indices, evaluate and describe the Malaysia’s food security situation. What can you conclude from your evaluation?
8.0 Unit Introduction
The Malaysia Plan is a five year development plan of the government. It is a relic impacted from the British colonization after the World War II. The five year plan began with the First Malaya Plan effective from 1956 to 1960 and followed with Second Malays Plan for the period from 1961 to 1965. In 1963, when Malaysia was formed after the inclusion of Sabah and Sarawak, the Malaya Plan was changed to Malaysia Plan with the First Malaysia Plan effective for the period from 1966 – 1970.

Learning Outcomes: students are able to:
1. describe the relative importance of agriculture sector in the national economy from 1st MP to 11th MP
2. Identify development policies thrusts and programs in each Malaysia Five Year Plan.

8.1 The First Malaya Plan (1956-1960)
The first five year plan attempts to define the objectives of social and economic policy for the period 1950-1955. The first assumption made was that the demand of people for social services and social justice must somehow be met. The first feature of the plan is the condition in which people live must be improved and the workers condition must be better off in both the essential and amenities of life. The second feature is emphasis on rural development. During this plan, Rural Industry and Development Authority (RIDA) was instituted. Besides the battle against illiteracy, poverty will be alleviated and social discontent influenced by communism must be removed.

Three thrusts of development are i. social service development, ii. development of national resources and utilities, and iii. development of trade and industries.

8.2 The Second Malaya Plan (1961-1965)
The Second Malaya Plan has similar goals and objectives to the First Malaya Plan which is to develop rural populace and closing differences gaps between rural and urban. The specific objectives are: i. to uplift the living standard of rural population; ii. to promote agriculture crop diversity and rural industry; iii. To provide more social facilities in rural areas; iv. to increase job opportunities; and v. to reduce dependency on imported foods. Among significant strategies in the plan were to increase the planning capacity for FELDA to undertake Southeast (tenggara) Johor Project and Jengka Triangle Project in Pahang, and the establishment of the Federal Agricultural Marketing Authority.

8.3 The First Malaysia Plan (1966-1970)
This is the first development plan after the formation of Malaysia. The plan involved the whole Malaysia including Sabah and Sarawak. The plan goal was to improve the welfare of all population, and elevate the living standard of rural people especially lower income groups.

The development objectives under the plan period are: i. to improve the nation’s economy for the betterment of people’s welfare and their unity; ii. to improve the poor’s income; iii. to develop the rural economy; iv. to intensify the efforts for the economic diversification; v. to reduce unemployment rate and vi. to develop the industrial sector.
Amongst special focus of the First Malaysia Plan was to further develop the agricultural sector in order to improve the socio-economy of rural population. FELDA, the agency responsible for developing the socio-economy in rural areas, had undertaken several development projects until 1966. The projects were Jengka Triangle settlement project and Southeastern Johor settlement project. These two projects had successfully improved farmers’ income, provide jobs and reduce unemployment rate in rural areas.

Two important agencies were instituted during this plan period. Firstly, FELCRA was established in 1966 to consolidate and rehabilitate government land development projects. Secondly, MARDI was instituted in 1969 to carry out agricultural production and marketing research for crops and livestock except rubber. Industrial crops such as oil palm, cocoa and sugarcane were planted in bigger scale.

During this period, RIDA which was established in the First Malaya Plan was restructured and replaced with Majlis Amanah Mara (MARA) which was assigned to develop, promote, facilitate and undertake education, socio-economic programs and activities in rural areas. MARA is also functioning to facilitate bank loans approval to the Bumiputra entrepreneurs.

8.4 The Second Malaysia Plan (1971-1975)
Within this plan period the New Economic Policy (NEP) was inaugurated. The NEP period is 20 years. Thus the focus development program was toward the realization of the New Economic Policy (NEP). The main goal of the plan was to restructure the society so that the dominance of the Chinese and foreigner in economic sector will be reduced and economic situation of the Malays will be improved and at the same time reduce poverty. The policy was instituted following the race riot which took place on 13th May 1969 due to economic unbalance between races. The aim of the policy is not to limit the holdings of Chinese in the economic sector but to increase the overall economic expansion so that the holdings of both Malay and Non-Malay are larger. The Second Malaysia Plan shows an increased the government involvement in economy with the target to increase the Malay share in economic sector, particularly in production and mining.

During the plan period, four agencies were instituted in government’s efforts to achieve its goals. The National Paddy and Rice Authority (LPN) was established to ensure reasonable price received by paddy farmers so that they could increase their yield and continue to produce. The Malaysia Fishery Development Authority (LKIM) is another agency established in this period to play important roles in developing fishing industry and ascertaining fisherman use modern technologies in fishing. The Rubber Industry Development Authority (RISDA) was established to provide financial assistance and develop rubber small holders. The Farmers Organization Authority was inaugurated in 1973 with the purpose to coordinate the cooperation between farmers associations with other government departments and agencies.

8.5 The Third Malaysia Plan (1976-1980)
The Third Malaysia Plan is implemented in the period from 1976 to 1980, which is still within the NEP period. Thus the objective of NEP was still embedded in the third plan. The focus on agriculture development as an approach to close the economic gap between rural and urban was still considered strategic approach. In this plan period, new township and land development schemes such as KEJORA, DARA, KETENGAH and KESEDAR were opened. New rubber and oil palm planting areas were increase to increase the exports for the two commodities.

8.6 The Fourth Malaysia Plan (1981-1985)
The fourth Malaysia Plan is still based on the NEP with the two pronged objectives namely to eradicate poverty and restructure the society. The importance of agriculture was still recognized with the launching of the National Agriculture Policy in 1984 (NAP will be discussed in the later unit). Earlier in 1983, the National Privatization Policy was introduced. The policy objective was to get involvement of private sector together with local authorities
and government to shoulder the responsibility in the country's development. Malaysian Corporatization Policy was launched to promote cooperation between public and private sector in the nation's development.

In efforts to balance up the equity between Bumiputra and Non-Bumiputra, Permodalan National Berhad (PNB) was established in 1981.

8.7 The Fifth Malaysia Plan (1986-1990)
This five-year plan is marked for the end of NEP period. The Fifth Malaysia Plan main focus was to increase the development of industrial sector by liberalizing certain rules such as relaxing on the rule of control of company ownership and relaxing on licensing requirement in the private sector. On top of it, terms and conditions on foreign capital investments in export oriented industrial sector were relaxed.

During this plan period rural development was still emphasized. This was done through new land development and rural industry such as handcraft. Credit was facilitated through Bank Pertanian, Skim Pinjaman Khas Pertanian and Amanah Ikhtiar Malaysia.

8.8 The Sixth Malaysia Plan (1991-1995)
The Sixth Malaysia Plan sets another phase of another long term plan, that the Rangka Rancangan Jangka Panjang Kedua (RRJP2) -1991-2000. The National Development Policy (Dasar Pembangunan Negara (DPN)) – replacing NEP- inside RRJP2 determined the general objectives, strategies and goals as the guiding principles to nation's development in 1990s. Hence, the Sixth Malaysia Plan’s objectives and strategies and programs are formulated geared for achieving DPN’s objectives.

The main thrust of 6th MP was to maintain economic growth through ‘balanced economy’ which mean while economic growth is maintain, economic base has to be broadened. Thus, the ‘balance’ development strategies will comprise diversify industrial base, human resource development, modern technology utilization and reducing inter-sectoral and interregional imbalances.

8.9 The Seventh Malaysia Plan (1996-2000)
The launching of the 7th MP, the Malaysian Economy has entered into the second phase of RRJP2. The impressive economic performance in the 6th MP has set a good foundation for the 7th MP and PPJP2 achieve objectives of the balanced economic growth. The development main thrusts of 7th MP are maintaining high economic growth (continuing from 6th MP) to achieve vision 2020 and at the same time emphasize on social justice, quality of life, political stability and social and spiritual values are given. Other thrusts are poverty alleviation and restructuring the society, growth driven by productivity and increase international competitiveness in facing stiffer competition.

8.10 The Eight Malaysia Plan (2001-2005)
The 8th MP marked the first phase of RRJP3 (2001-2010). Inside RRJP3 there is National Mission Policy or Dasar Wawasan Negara (DWN) which determine the direction for the country’s development in the 21st century. The 8th MP combines strategies, programs and projects aimed at achieving the DWN, i.e sustainable growth and strengthened economic viability as well as establishing unified and just society.

The 8th MP policy and strategies are focusing on achieving sustainable economic growth and competitiveness. The main thrusts are crafting the growth strategies driven by knowledge instead of input driven. The changes in strategy crafting made to increase the potential of production of outputs, to accelerate the structure change of manufacturing and service sectors and to strengthen the socio-economic stability through fair distribution of wealth.
One of unique initiatives in 8th MP is growth driven by private sector where public sector facilitates through the provision of conducive institutional policy frameworks as well as quality services. In efforts to improve the country’s competitiveness, emphasis is given to productivity and efficiency improvement via human resource development, and utilization of modern technologies. Albeit industrialization motives poverty eradication and restructuring of society are still important initiatives in the economic development.

8.11 The Ninth Malaysia Plan (2006-2010)
This five-year development plan was launched after Malaysia had gone through 15 years of Vision 2020 period when it was inaugurated in the 6th MP, 1991. As earlier plans, the 9th MP has the goal of driving the country towards prosperity albeit world economic uncertainty such as financial crisis and increasing oil prices.

Five thrusts of development were set forth and they are organized according to the thrusts of the National Mission. The first thrust is to move the economy up the value chain. The strategies under this thrust include: a. increasing the value added of manufacturing, services and agriculture. In manufacturing, application of high technology and production of higher value added products was emphasized. Agriculture was regarded as the engine of growth to portray the new approach of agriculture development. This include greater orientation towards modern and commercial scale, production of high value added products; wider application of ICT as an enabler and biotechnology for wealth creation.

The second thrust is to raise the capacity for knowledge and innovation and nurture ‘first class mentality’. This is achieved through the development the country’s human capital in order to drive the transformation to a knowledge-based economy. The third thrust is to address persistent socio-economic inequalities constructively and productively. Programs to realize this thrust are poverty eradication, reducing income disparity, reducing regional disparity and bridging the digital divide. Fourth thrust is to improve the standard and sustainability of quality of life. Programs set forth include meeting housing needs and improving urban services; improving health care services; improving the transportation system; and promoting environmental protection and sustainable resource management. Finally the fifth thrust is to strengthen the institutional and implementation capacity. This thrust is achieved through promoting good governance; enhancing the public service delivery system; and promoting development through international cooperation

8.12 The Tenth Malaysia Plan (2011-2015)
This plan is another critical period of the vision 2020. Hence for the 10th MP, it is developed based on 10 big ideas. They are: 1. Internally driven, externally aware which basically means Malaysia to strategize herself in order to stay competitive within the global market as to ensure economic growth. This is because Malaysia’s economy is largely dependent on exports. 2. Leveraging on our diversity internationally; Malaysia has diverse ethnic and cultural heritage and this can be viewed as a unique asset with significant competitive value. This cultural endowment provides a competitive advantage to build greater trade and investment linkages. 3. Transforming to high-income through specialization: From independence, Malaysia is transformed from a poor country to middle income country today through sectoral diversification strategy (agriculture to industrial sector). With the vision of becoming high income country – transformation from middle- to high-income country, the country needs a shift towards higher value-add and knowledge intensive activities. To achieve competitiveness in high value-add, it requires specialization in terms of having critical mass and eco-system of firms and talent. 4. Unleashing productivity-led growth and innovation: Factor (capital, energy and labour) driven economic growth is no longer sustainable if the country want to stay competitive. The economic structure to becoming high income country would be based on value-add activities. Future growth would be productivity growth and this can be achieved
through research and innovation. 5. Nurturing, attracting and retaining top talent: Human capital development lies at the foundation of transforming Malaysia from middle-income to high-income country. 6. Ensuring equality of opportunities and safeguarding the vulnerable: The Government’s economic development framework continues to be based on a foundation of growth with equity. In charting the economic growth, each and every community will not be left behind or marginalized. 7. Concentrated growth, inclusive development: High value-add activities through clustering create concentration of firms and talents, hence support faster economic growth which benefit from scale efficiency, productivity and innovation. Whilst creating growth, liveability (low crime, good public transportation and recreation) of cities will be the focus to attract high-skilled talents on the global stage. 8. Supporting effective and smart partnerships: It is about partnerships between the public and private sector as a mechanism to drive the economic transformation. Three areas have been identified, namely catalysing and accelerating strategic private investments; partnering to advance industry and economic development; and collaborating to support public delivery and social development.

9. Valuing our environmental endowments: This the assurance that the environment and ecological resource will be sustainably managed so that the current development needs will not compromise the future development. 10. Government as a competitive corporation: The economic and social structure of the country has changes. Thus the government structure needs to change as well in facing new development needs. The government’s transformation will be on basis of four principles, namely a culture of creativity and innovation, speed of decision making and execution, value for money and integrity. The transformation will focus on: 1. Customers; which in the Government’s case involves the rakyat and businesses, 2. competitiveness: in terms of raising the performance of public delivery; 3. Finances: both in terms of getting value for money on expenditure and ensuring sustainability of public finances; and 3. Talent and organisation: ensuring the necessary human capital and organizational structure to meet the needs of the country

The same five thrusts of the National Mission as they are stipulated in the 9th MP are the development thrusts for 10th MP. The growth corridors which were developed in the 9th MP will accelerated in the 10th MP. During the Tenth Plan period, Malaysia will focus its economic growth efforts on National Key Economic Areas (NKEAs). Twelve potential NKEAs have been identified comprising 11 sectors and one geographic area - Kuala Lumpur. The twelve NKEA are 1. Oil and gas; 2. Palm oil and related products; 3. Financial services; 4. Wholesale and retail; 5. Tourism; 6. Information and communications technology; 7. Education; 8. Electrical and electronics; 9. Business services; 10. Private healthcare; 11. Agriculture; and 12. Greater Kuala Lumpur

8.13 NKEA Oil Palm
Malaysia is the world leader in the palm oil and basic oleo-chemicals industry. Despite achievements in terms of production and export performance, the industry continues to face issues related to low productivity among smallholders, rising cost of production and dependency on foreign labour in upstream activities. And downstream activities are only confined to intermediate processing.

Significant untapped opportunities exist to grow this sector, particularly in downstream activities that generate high value add. During the Plan period, the target is to increase the palm oil industry’s output. To achieve this target, the following are some of the initiatives that will be undertaken:

• Promoting Malaysia as a global hub for palm oil and preferred destination for foreign investments in areas such as oleochemical based products, bulking facilities and R&D;

• Developing Palm Oil Industrial Clusters into integrated sites for promoting downstream activities such as biofuel, oleochemicals, biofertilisers, specialty food products, biomass products, nutraceuticals and pharmaceuticals;
• Encouraging good agriculture practices, agronomic management and mechanisation especially among smallholders; and
• Centralising procurement of agricultural inputs such as fertilisers and pesticides to lower input costs for smallholders.

8.14 NKEA Agriculture
There is growing demand for these high value products (swiftlet farming, aquaculture, seaweed, sago, ornamental fish, herbs and spices, organic fruits and vegetables, mushroom and floriculture) which provide opportunities for farmers to increase their income. However, growth in these products have been constrained by limited access to suitable land and financing, lack of skilled workers, uneconomic scale operations, inadequate support services, lack of R&D support and weak linkages to the market.

During the Tenth Plan period, these high value agriculture activities will be given special focus. Strategies to achieve production growth include:

• Setting up agriculture consortiums and cooperatives to reap the benefits of scale, encourage adoption of accredited practices by farmers, fishermen and agropreneurs, and strengthen marketing through contract farming and strategic alliances;
• Reviewing and streamlining current regulation and procedures, particularly in the swiftlet ranching, aquaculture and herbal industries to attract greater investments and participation from private sector;
• Promoting innovation-based growth and production processes that utilise modern farm technology and ICT, including ICT-based Agriculture Flagship Project;
• Providing adequate and specific infrastructure, facilities and logistics to support value addition activities based on availability and proximity of resources, particularly in the designated Permanent Food Production Parks and Aquaculture Industrial Zones; and
• Intensifying collaborative R&D with established agriculture research institutes to leapfrog innovation in the production processes, disease control, safety and quality control, including development of new high-value added products.

In addition, food security will be strategically addressed to ensure the availability, accessibility and affordability of food, particularly rice for the general public. During the Plan period, strategies to ensure sufficient supply of rice include maintaining rice stockpile at 292,000 metric tonnes or sustained consumption for 45 days, entering long-term contract agreements to import rice with matching agreements to export palm oil or oil, and increasing the productivity of existing granary and non-granary areas through upgrading of infrastructure. No new areas will be developed for paddy cultivation and local production of rice will be set to fulfil a 70% level of self-sufficiency.

8.15 Summary
This unit briefly discussed the objectives, thrusts and focus areas of economic development from the First Malaya Plan to the 10th Malaysian Plan. The plans evolved from agricultural based economy to industrial based economy to knowledge based economy. Nevertheless the importance of agriculture remain significant in terms of its contributions to the socio-economic of the country.
Activity 8.1

Going through all the Malaya and Malaysia plan, we should be able to observe some transformation plans and policies such as transformation from agricultural focused to industrial focused economies. Identify those transformation policies and match them to which Malaysia Plan.

References

EPU website: www.epu.gov.my
UNIT 9
THE NATIONAL AGRICULTURE POLICY

9.0 Unit Introduction
Before the National Agriculture Policy 1, that is 1984, there was no formal agriculture policy to serve as a guiding principle for agricultural development in the country. The economic structural change, from agriculture-based to industrial-base, from 1980s has made to government to relook at the importance and roles of agricultural sector in the economy. This structural change results in the decline in agricultural sector's relative contribution to national income, export earnings, employment and investment. The first National Agriculture Policy (NAP1) was inaugurated to streamline the development focus and continue to be important in both social and economic functions. This unit will briefly discuss policy directions and thrusts set forth for agricultural development from NAP1 to NAP4 of better known as the National Agro-food Policy and the National Commodity Policy.

Learning Outcomes: Students are able to:
1. Identify the thrusts of agricultural development enshrined in the National agricultural policy
2. Explain strategies and programs of agricultural development through times.

In 1960s to 1970 there was abundant land and cheap labour. The agriculture policy then was expansion on paddy and export crops such as rubber, oil palm and cocoa. The focus of agricultural development was heavy investment in infrastructure, institutional building and new land development. Construction of irrigation canals to irrigate water to paddy fields was carried out in almost every area that could be planted with paddy. New land opening for rubber, oil palm and cocoa for both plantation and small holders were extensively implemented. The emphasis on commodity crops was due to reaping foreign exchange through exports, where demand for the commodities was strong. On top of that, commodity crops were taxed for revenue. In contrast food crops such as rice was (still is) protected through subsidies, grants and trade restrictions.

Beginning mid 1980s and during 5th MP, the economic structural change began and heavy investments made to realize the aspiration of becoming an industrial and modern nation. Decline in agricultural sector’s relative contribution to GDP, export earnings, employment and investment were the result of the structure transformation. Hence the following challenges faced the agricultural sector: i. Labour shortage in agriculture occurred because of high demand for labor in the growing industrial sector; ii. New land area for agriculture and agro-food become limited. Competition for land became more vigorous as lands were needed for building of manufacturing plants and housing estates; iii. production costs in agriculture increased as input prices soared. Labor cost escalated due to competition for labor with manufacturing and construction sectors.

Owing to those challenges and expected to continue in the future, the NAP1 was inaugurated in 1984. NAP1 is beginning of liberalizing agriculture. The NAP1 still emphasized on the expansion of industrial crops as they were the major export earnings. Heavy investments on infrastructure, new land development and institutional building were the way forward. New land development such as settlement schemes was deemed rational as it has successfully efforts in increasing production and poverty eradication. Another focus of development was
consolidation of uneconomic farm size through in-situ development. Due to the new challenges toward agriculture, the NAP1 strategies stressed that for growth to be sustained, agriculture growth should be driven by productivity and efficiency.

In years between 1984-1991, the country has recorded a rapid expansion of manufacturing sector and transformed the development of Malaysia’s economy. The favourable policies toward industrialization has created conditions which are not attractive to invest in agriculture and hence led to the outflow of resources from agricultural to industrial sector. Consequently, the relative importance of agriculture sector in the economy is reduced. Since NAP1 was unable to arrest the growing challenges, it was revised and NAP2 was introduced. NAP2 effective period was between 1992 to 2010. NAP2 continues to emphasize on productivity, efficiency and competitiveness as these factor were theoretically correct when it comes to limited resources issues.Whilst industrial crops were continued to be important commodities in the NAP2, the policy had outlined strategies for expanding food production. New strategies introduced in NAP2 were greater role of private sector in agriculture was required commercial agriculture will observe productivity, efficiency and competitiveness in their operations. Agricultural marketing reform was introduced to improve the efficiency of distribution of agricultural products and reducing the ‘control’ of middleman in marketing chain. To boost up agricultural development, NAP2 emphasized the importance of contribution of agro-based industry, hence the development of agro-based industry had to be accelerated. Efforts to further liberalise the agricultural sector intensified.

9.3 The National Agriculture Policy 3 (NAP3) – (1998-2010)
The growth in the industrial sector was in fact accelerated in years from 1992-1996. Again, it led to further resource constraints to agricultural sector. Thus the performance of agricultural sector relative to other sectors such as manufacturing and service was deteriorated. It was observed also that the Malaysia food import bills escalated year by year and it was alarming. Besides economic and structural changes in domestic economy, the international economic changes had also occurred. The establishment of the World Trade Organization (WTO) instituted trade liberation including agriculture has affected the Malaysian trade policy and earnings. The pressure form international community of sustainable development and environmental protection led to the need of our country to conserve, preserve and utilize resource on sustainable basis. The sudden financial crisis in 1997-1998 had caught governments of many countries of guard, Malaysia’s included. The immediate effects were depreciation of ringgit value, food and agricultural input prices soared and cheaper exports. The NAP2 did not anticipate these sudden changes in domestic and international economy. Thus the policy needed a revision and new policies had to be formulated.

Considering all those factors, the NAP3 was introduced in 1998. To capture both domestic and international claims the NAP3 was inaugurated with the following goal, objectives and strategies.

i. The policy goal is maximization of income through optimal utilization of resources in the sector. This includes maximizing agriculture’s contribution to national income and export earnings as well as growth of agricultural sector. The specific objectives are: i. to enhance food security; ii. to increase productivity and competitiveness of the sector; iii. to deepen linkages with other sectors; iv. to create new sources of growth for the sector; v. to conserve and utilise natural resources on a sustainable basis.

ii. Two Strategic Approaches were set forth to realize the policy objectives.
a. Agroforestry approach: aimed at addressing the increasingly scarce resources— land & raw material availability (we will not discuss this approach in detail)
b. Product-based approach: key products and markets are identified based on market demand, preferences and potential
The approach will:

i. Enable the identification of opportunities for market expansion and deepening through the transmission of market signals and consumer preferences.

ii. Encourage the production of high quality and high value produce, facilitate product differentiation and increase value-added of agriculture products.

iii. Strengthen the strategic role of upstream agricultural industries in linking and supporting the downstream industries.

iv. Encourage vertical integration & the internalisation of value-added activities – sorting, grading, packaging & processing at farm level.

v. Widen the scope of agricultural and forestry development and create business opportunities for a wider range of business ventures through a system of linkages.

The old approach was the commodity-based. However it limits the effectiveness to serve markets and more segmented.

The Policy Thrusts: Five policy thrusts has been identified:

i. **Meeting National Food Requirement**: Increase domestic food production through large scale production by private sector, support services, reverse and offshore investments.

ii. **Enhancing Competitiveness and Profitability**: Productivity improvement, market development and strengthening, market/trade distortions removal, adoption of quality and safety standards.

iii. **Enhancing the Integrated Development of Food and Industrial Crop Sub-sectors**

iv. **Strengthening Requisite Economic Foundation**: Upgrading human resource quality, development of R&D capability and technology, information technology, infrastructure, business support services, financing and incentives.

v. **Adopting Sustainable Development**: Strengthening of rules, regulations & incentives to encourage environment-friendly agriculture. Research and application of technologies and innovations are emphasized.

9.4 The National Agriculture Policy 4 (National Agro-food Policy)

The old challenges facing agricultural sector such as labour shortage, input prices hike and limited land continue to be perpetual and can be reduced with technology adoption and innovations. Another pressing issue during NAP3 was the issues of food security and climate change. Although increase food production is given due consideration in NAP3, import food bills continue to escalate and food trade balance deficit continue to widen. Due to this situation, among others, Food Security Policy (2008-2010) was launched in 2008, to address the food security issue facing the country.

The National Agro-food Policy (2011-2020) – Acronym used by MoA is DAN as for Dasar Agro-makanan Negara. was developed specifically focusing on development of food commodities aiming to achieve food security objectives, increase processing activities, and export earnings from high value agriculture. (note: commodity development policy is captured in National Commodity Policy under the purview of Ministry of Plantation Industries and Commodity).

DAN was developed based on eight principal ideas.

i. **Food security**: The planned initiatives for achieving food security goals are:
   a) Increase food production through optimum land utilization, sustainable intensive farming and large scale rice production in paddy granary areas.
   b) Improve access to food by providing marketing infrastructure and undertake promotions.
   c) Ensuring fair food prices by developing food price monitoring and early warning systems.
d) Ensuring safe and nutritious food through Food-based Social Safety Network Programs and food awareness campaigns.

ii. Development of high value agriculture: This idea is planned to improve the contribution of agriculture the GDP. Projects for this idea are identified and implemented under NKEA initiatives. The focused industries are edible bird nest, cattle and goat farming, aquaculture, sea weed, ornamental fish, herbs and spices, premium fruits and vegetables, mushrooms and floriculture. A total of 16 Entry Point Projects and 11 Business Opportunity have been identified under NKEA. Another aspect is the contribution of agro-based industry will be through high value products such as pharmaceutical, nutraceutical and cosmetic products.

iii. Sustainable agriculture development: Due to world community’s pressure on sustainable development, Malaysia agriculture and food production will enforce good agricultural practices and focus area are the Permanent Food Park (TKPM) and Aquaculture Industry Zone (ZIA). Competition for land between agriculture and non-agriculture sector, as well as between enterprises within agriculture sector have become more vigorous as land has become more scarce. Thus the policy is emphasizing on optimal land utilization by implementing intercropping for cash crops, livestock integration in oil palm plantations and development of idle lands.

iv. Dynamic agriculture cluster, maximizing income generation: Agro-food sector in developed countries is efficient due efficient supply chain management. Malaysia has started to adopt the supply/value chain approach in efforts to improve the performance of agro-food sector, but has not been inclusive. Amongst contributing factors to the problem are production is non-market oriented, pricing not transparent, multiple layers of marketing, etcetera. To close the value chain gaps, clustering approach to improve the efficiency of agro-food industry value/supply chain. Initiatives planned are agro-food input industry development, consolidate infra- and info-structure, improve logistics and market networking.

v. Private investment is the catalyst for modern agriculture transformation: To encourage private sector to invest in large scale commercial food production, the following initiatives are mooted. To do so, the government will create ecosystems which are business friendly, transparent, support innovations and more attractive business opportunities. Focus of activities is progressively dismantling agricultural product price control, facilitate credit approval from commercial institutions and rationalizing agricultural subsidies.

vi. Smart and knowledge human capital: Human capital development with respect to knowledge and skills is the focus to reduce over dependence on foreign workers. This will promote food production with technology and innovation intensive.

vii. Modernization of agriculture driven by R&D, technology and innovation: To modernize agro-food industry, technology and mechanization utilization will be intensified particularly in large scale areas. R&D activities need to be based on customers’ wants especially toward productivity improvement.

viii. Excellence in agriculture support services: Government agencies involved in support services will be restructured, particularly in terms of area coverage and distribution of officers, to increase technology transfer efficiency and of target groups. The emphasis on the capacity building among extension agents will be done.

The objectives of DAN
i. Ensuring enough and safe food supply
ii. Ensuring agri-food industry as a competitive and sustainable industry

iii. Increase income of agriculture entrepreneur

In ensuring the objectives of DAN are achieved, the following seven strategic directions are identified:

i. Ensuring food supply: this food security initiative is focusing on production of rice, meat, fruits, vegetables and fish to attain targeted SSL. The strategies are: increase food production and supply; increase access to food; stabilize food prices; ensure food safety.

ii. Increase the contribution of agro-food industry: Efforts to rise the contribution and competitiveness of agro-food industry are realized through – exploring the potential of high value agriculture; improve productivity by intensifying factor utilization; and expand agro-based industry.

iii. Value chain completeness: Strategies of this strategic direction are developing dynamic, integrated and sustainable cluster; and strengthen domestic and global market network.

iv. Towering human capital: Strategies are provision of knowledgeable and trained agricultural work force, and create the agro-entrepreneur generation with progressive mind.

v. Reinforce R&D and innovation activities and technology adoption: strategies are creating conducive conditions to enhance creativity and innovation; increase commercialization of R&D and development of innovated products; widen mechanization and automation utilization and effective technology transfer.

vi. Creating business environment led by private sector: Strategies are provision of integrated and complete infrastructure and info-structure; facilitate food production business with less bureaucratic procedures; providing more competitive investment incentives to attract domestic and foreign investments; strengthen the roles of agricultural SME/SMI; and rationalize subsidy and minimize market distortions.

vii. Strengthening service delivery systems: this is done through rationalization of roles and functions of agricultural departments and agencies.

9.5 The National Commodity Policy (2011-2020)

Beginning 2011, The National Commodity Policy or Dasar Komoditi Negara (DKN) is developed specifically to further strengthen the roles and contributions of industrial commodity to the country’s economy. The policy targets the industry to be transformed into a more dynamic and competitive industry by 2020. Market requirements and the potential of generating wealth through high value products were given due consideration during the formulation of the policy.

In efforts to further develop and increase the competitiveness of commodity industry as well as making Malaysia as the world commodity hub, the following objectives are set forth:

a) To increase the contribution of commodity industry to country’s economic growth

b) To modernize and transform the commodity industry to achieve greater and sustainable competitiveness

c) To promote growth along the value chain of commodity industry

d) To increase income of commodity producers including small holders

e) To make Malaysia as a centre of excellent in R&D, farm technology and commodity-based industry

There are seven thrusts of DKN:

i. Empowering commodity industry in economic development of Malaysia.

Priory will be given to the development of new products with high value added and market orientation and this is achieved by R&D. Attention will be given to production efficiency along the value chain of the commodity industry.

ii. Driving the modernization of Commodity industry
This trust will concentrate on technology use to save production costs, reducing dependence on foreign labors and quality improvement along the value chain of the commodity industry. GAP, GMP and Life Cycle Analysis (LCA) are stressed to facilitate access to international markets.

iii. Diversifying production of high value products
For this thrust the government through the Ministry of Plantation Industries and Commodity will activate the production of diversified downstream products which are having high value added and high market demand. This goal is realized through R&D supports both by domestic researchers and collaboration R&D between domestic and international researchers.

iv. Generating new sources of income
Besides existing commodities, new commodities such as sago and kenaf are identified commodity which might generate economic growth and income. The concept of ‘waste to wealth’ is going to be further developed and promoted. Research and innovations at both upstream and downstream levels are the keys to these aspirations.

v. Increase competitiveness and market expansion
One of strategies to achieve this thrust is to establish product branding which symbolizes the product quality and eco-friendly. The development of products for certain market niche will be established as an expansion strategy to the existing mass markets. Market intelligent and market information systems will be established.

vi. Advancing smallholder and entrepreneur
Integrated approach to smallholder development that comprises replanting practices, technical advisory services and mechanization will be adopted. Capacity building among smallholders pertaining to industrial commodities will continually be done to improve smallholders’ skills and enhance technology adoption.

vii. Develop and empower human capital
This thrust intends to increase the number of skilled and semi-skilled work force in industrial commodity sector as to modernized and increase the competitiveness of the industry.

9.5 Summary
This unit discusses the evolution of the National Agriculture Policy from NAP1 to NAP4 (DAN) and also the National Commodity Policy (DKN). The emphasis on industrial or export commodity from shifted to food crops as the world issues of food security cropped up resultant from world food crisis. This however has never mean that export commodities are left out because these commodities have performed well and they are been taken care under the newly developed policy dedicated for the industrial commodities which under the purview of the Ministry of Plantation Industry and Commodity. The National Agro-food Policy is under the jurisdiction of the Ministry of Agriculture and Agro-based Industry.

Activity 9.1
a. Evaluate the performance of major food crops in terms of production, per capita consumption, imports and exports for periods i. NAP1, ii. NAP2, and iii. NAP3.
b. From compute the growth rates for NAP1 to NAP2; NAP2 to NAP3; and NAP1 to NAP3.

References
EPU Website: www.epu.gov.my
................................. Dasar Komoditi Negara (2011-2020)
UNIT 10
THE MALAYSIAN INDUSTRIAL MASTER PLAN

10.0 Unit Introduction
This unit will briefly discuss industrial development policy, specifically the Industrial Master Plan and how the IPM influences the agricultural development in the country.

Learning Outcomes: Students are able to:
1. understand the industrial development thrusts and strategies to enhance economic growth.
2. identify linkages between agricultural sector and industrial sector.

10.1 Background
In the 1950s and 1960s the Malaysian economy was heavily depended on natural rubber and tin ore. As the prices of the commodities were not stable and fluctuated, the government launched industrial program to initiate a more vigorous and stable economic growth. The industrial development policy then was focusing on export substitution industries. In 1970s, the industrial development focused on labor/workers intensive (provide high job opportunities) and export industries which tried to satisfy the NEP. The government investments on heavy industries were high as private sector was unable to invest in high risks projects. Although the overall economic growth was satisfactory from 1960s to 1980s, there were still many weaknesses. Exports were too dependent on electric and electronic items and textile. Another weakness was the lacking of integration between and within sectors. Hence value added activities were almost absent as many industrial activities were mostly assembling parts into finished goods.

The above issues and weakness had mooted the government undertook two studies in 1983 to identify factors contributing to the issues. Firstly, Malaysian Industrial Policy study was done to review all investment incentives and export expansion policies. Secondly, Industrial Master Plan to formulate the general goals for the industrial development and to identify strategies for small sub-sectors which have the potential rapid growth.

10.2 Industrial Master Plan 1 (IMP1)
IMP1 was officially announced on 3rd February 1986. The planning focus was on manufacturing sector for import substitution. It involved heavy industries, small and medium industries (SMI) and technological industries. IMP 1 was meant to formulate the objectives of economic development. Domestic Industries that have been identified for development are rubber products, oil palm products, food processing, timber based products, metal products (other than iron) and mineral-based products (non-metal). Foreign industries are electric and electronic, transportation equipment, engineering and machinery products, metal, iron and steel based products, and textile and clothing.

10.2.1 Objectives of IMP1
The objectives of IMP1 are
1. To heighten level of R&D of domestic technologies as the foundation of becoming an industrialized country
2. To make manufacturing sector as a catalyst for industrial development
3. To increase technical training opportunities
4. To promote full utilization of sustainable resources
5. To increase exports through domestic productivity improvement
10.2.2 IMP1 Strategies
Nine strategies have been identified to enhance achievement of the objectives: They are:
1. Restructure the existing industrialization promotion systems
2. Diversify exports and promote import substitution sector
3. Promote consumption of local products
4. Explore new markets to expand export in larger scale
5. Expand industrial to less developed areas
6. Promote heavy industries as drivers to establishment of new industries
7. Develop small and medium industries
8. Consolidate institutions responsible for the development of manufacturing sector
9. Develop technologies and skilled work force.

10.3 Industrial Master Plan 2 (IMP2)
IMP2 was inaugurated on 28th Nov 1996 with the main goal to improve and march towards economic growth. The time frame for IMP2 is 10 years.

10.3.1 Objectives of IMP2
The objectives of IMP2 are:
1. To expand exports of products those use natural resources
2. To improve values of output through productivity improvement
3. To ensure economic growth through industrialization
4. To increase job opportunities from industrial sector.

10.3.2 IMP2 Strategies
1. Integrated manufacturing strategy
   a. Shifting from assembly and low value added activities to high value added activities especially in terms of R&D, product design and marketing and distribution.
   b. Shifting the entire value chain to a high level through productivity-based growth, and high technology.
2. Industrial development base on cluster and emphasis on:
   a. Development of competitive industrial cluster
   b. Increase intra-intra industry, inter-industry networks with local SMIs.
3. Identify eight main industrial clusters

10.4 Industrial Master Plan 3 (IMP3) – 2006-2020
The IMP3 defined policies and strategies which designed toward realization of the country to become developed nation by 2020. The plan developed based on the encouraging results from the IMP1 and IMP2. The overarching objective of IMP3 is to attain global competitiveness through innovation and transformation of manufacturing and service sectors. At the same time, IMP3 is also designed to contribute to other thrusts of National Mission of the 9th MP development plans. IMP3 emphasizes on technology upgrading, attracting and generating quality investments, developing creative and innovative human capital, and integrating Malaysian industries and services into regional and global network and supply chain.

10.4.1 Targeted Industries
To achieve the overriding objective, IMP3 targets twelve industries for further development and promotion and expect to initiate greater growth of the manufacturing sector. They are value-added, technology, exports, knowledge content industries; industries which have multiplier and spin-off effects; and industries which have the potential to be integrated regionally and globally. Specifically these industries are divided into two categories, namely 1. Non-resource based comprising electrical and electronics, medical devices, textile and apparels, machinery and equipment, metals and transport equipment; 2. Resource-based comprising petrochemicals, pharmaceuticals, wood-based, rubber-based, oil palm-based and food processing industries.
As far as service sector is concerned, eight sub-sectors have been targeted by IMP3 to be further developed and promoted. They are: business and professional services, logistics, ICT services, distributive trade, construction, education and training, healthcare services and tourism services. These sub-sectors are targeted as they have the potential to contribute to exports and strengthen inter-sectoral linkages.

In agricultural sector, IMP3 expects contributions from modernization and transformation of agriculture via application of technology and commercialization of R&D will accelerate the sector’s growth. IMP3 targets agricultural sector to grow at 5.2% per annum during the plan period and total investment of RM169 million during the period. Innovations from biotechnology are expected to spearhead the sector’s growth. IMP3 identified following six areas for biotechnology applications. They are food processing, seed development, health products, plant research, cell culture and microbial pesticides and other micro-organisms.

10.4.2 IMP3 and National Mission
The implementation period of the IMP3 coincides with the execution period of the National Mission introduced in the 9th MP. Therefore the thrusts of the National Mission are adopted in the IMP3. The five thrusts of the National Mission are:

1. To move the economy up the value chain
2. To raise the capacity for knowledge and innovation and nurture ‘first class’ mentality
3. To address persistent socio-economic inequities constructively and productively
4. To improve the standard and sustainability of the quality of life
5. To strengthen the institutional and implementation capacity.

10.4.3 Strategic Thrusts of IMP3
Ten strategic thrusts have been set forth to facilitate the achievement of the macro-targets on IMP3. The thrusts are categorized into three as follow:

Category 1: Development initiatives
1. Enhancing Malaysia’s position as a major trading nation
2. Generating investments in targeted growth areas
3. Integrating Malaysian companies into the regional and global networks
4. Ensuring industry growth contributes towards equitable distribution and more balance regional development

Category 2: Promotion of growth areas
5. Sustaining the manufacturing sector’s contribution to growth
6. Positioning the service sector as the major source of growth

Category 3: Enhancing the enabling environment
7. Facilitating the development and application of knowledge-intensive technologies
8. Developing innovative and creative human capital
9. Strengthening the role of private sector institution, including trade and industry associations
10. Creating a more competitive business operating environment through effective institutional support and effective government delivery systems.

10.5 Implications of IMP3 on Agriculture and Agribusiness
This section attempt to identify sub-sectors/industries which are planned to be further developed promoted and benefited from IMP3 particularly under the strategic thrusts. Hence contributions from agricultural and agro-based sector to the economic growth are significant. Under the first thrusts, biotechnology and agro-based products are identified to be export products which can significantly contribute to the economic growth. The second thrust lists developing Malaysia as the regional hub for halal products and services and biotechnology.
Under the fifth thrust, the targeted agro-industries which are identified as the major source of growth are pharmaceutical, wood-based, rubber-based, oil palm based and food processing industries. These specifically identified areas and industries would get direct benefits or attentions as stipulated under various strategies.

10.6 Summary
This unit presented the industrial development plans from IMP1 to IMP3. IMP1’s planning focus was on manufacturing sector for import substitution. It involved heavy industries, small and medium industries (SMI) and technological industries. IMP2’s goal is to improve and march towards economic growth. Strategies are shifting from assembly and low value added activities to high value added activities especially in terms of R&D, product design and marketing and distribution and Industrial development base on industrial clusters. The IMP3 defined policies and strategies which designed toward realization of the country to become developed country by 2020. Agricultural sector linkage with the industrial sector would be in value-adding activities. This means, agriculture supplies raw materials to the manufacturing industries.

Activity 10.1
Discuss the contribution of IMP towards the development of agricultural sector.

References
EPU website: www.epu.gov.my
MITI website: www.miti.gov.my
PMO website: www.pmo.gov.my
11.0 Unit Introduction
This unit will dwell on new form of regional development which is through development of economic corridors. The five corridors are the Iskandar Malaysia (2006-2025), Northern Corridor Economic Region (NCER) (2007-2025), East Coast Economic Corridor (ECER) (2007-2020), Sabah Development Corridor (SDC), and Sarawak Corridor of Renewable Energy (SCORE). Development focus area of each economic region will also be discussed in this unit.

Learning Outcomes: Students are able to:
1. explain the objectives and functions of various economic corridors
2. identify the focus areas of development in each regional corridor.

11.1 Background of Economic Corridor Development
The 9th MP discovered that development gaps between states as well as between rural and urban areas were great especially in the east coast and in west Malaysia states. The 9th MP strives for more balanced between states and between rural-urban areas. The main objective of balanced development is to narrow down development gaps between those areas. In ensuring higher economic growth in all states, the government developed growth centres in respected states and in trans-border (involves two or more states) areas. The trans-border areas are 1. The Northern Terengganu-Southern Kelantan-Western Pahang Zone; identified as Eastern Corridor states, 2. The Northern Peninsular Development Zone comprising Kedah, Perlis, Seberang Prai and Northern Perak, 3. South Johor Economic Region (SJER) as the focus area for development in the southern region, 4 Sabah Development Corridor (SDC), and 5. Sarawak Corridor of Renewable Energy (SCORE).

11.2 The Iskandar Malaysia
Iskandar Malaysia, formally known as the South Johor Economic Region is a corridor planned to develop a world class and dynamic metropolis in southern Johor. The development of Iskandar Malaysia is guided by three key principles, which are nation building, growth and value creation, and equitable and fair distribution among stakeholders. These principles will ensure that development is in consistent with the aspiration of national and state level plans in the process of nation building. Most importantly, the development of Iskandar Malaysia should be consistent with tenets of growth with equity, i.e. local people and Bumiputra area able to participate in the development and reap benefits from the growth.

Iskandar Regional Development Authority (IRDA) is a Federal statutory body (established 2007) is responsible for regulating and driving stakeholders towards realizing the Iskandar Malaysia vision through the core function of planning, promoting and facilitating investment and policy.

11.3 The Northern Corridor Economic Region (NCER)
The NCER aims at accelerating economic growth and elevating income levels in northern Peninsular Malaysia covering Perlis, Kedah, Pulau Pinang and northern Perak (the districts of Hulu Perak, Kerian, Kuala Kangsar and Larut Matang – Selama). The NCER initiative as laid out in the NCER blueprint will be carried out from 2007 to 2025, covering 4 Malaysia Plans.
The objectives of the NCER initiative are:

1. maximising the region’s economic potential.
2. closing the development and income gap between different regions in Malaysia.
3. moving towards higher value-added and knowledge-based economic activities in order to increase per capita income.
4. developing the region in targeted economic focus areas which emphasise local community involvement.

The 2 main themes of the NCER initiative are:

1. increasing value-add from existing industries with emphasis on transforming and expanding the target economic focus areas (agriculture, manufacturing, tourism and logistics) in the region; and
2. a commitment to growth with social equity where there will be programs to accelerate growth in the target economic areas that emphasize local community involvement led by the private sector and driven by market imperatives.

Key economic focus areas

The NCER has 4 targeted economic focus areas, namely agriculture, manufacturing, tourism and logistics (Table 11.1). These are the region’s existing industries which are to be further transformed and expanded under the NCER initiative.

<table>
<thead>
<tr>
<th>Focus Area</th>
<th>Targeted Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>• To become Malaysia’s modern food zone and increase the country’s efficiency in food production.</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>• To become high-tech electronic hub and expand the current predominant assembly and test activities to higher value add activities.</td>
</tr>
<tr>
<td></td>
<td>• To promote new industries downstream agriculture, biotechnology, sustainable materials and oil and gas.</td>
</tr>
<tr>
<td>Tourism</td>
<td>• To position NCER as a premier destination for tourists seeking world class resorts, spas and destination for long day vacations.</td>
</tr>
<tr>
<td></td>
<td>• To become Asia’s medical tourism hub which provide high quality and affordable specialist medical procedures.</td>
</tr>
<tr>
<td>Logistics</td>
<td>• To become a major processing entre and entry port.</td>
</tr>
<tr>
<td></td>
<td>• To promote Penang port as a regional transshipment centre.</td>
</tr>
</tbody>
</table>

Source: NCER website

The Northern Corridor Implementation Authority (NCIA)

The duty of implementing NCER initiative is assigned to NCIA, which is acting as the facilitator between government and investor. NCIA is also entrusted to manage special funds which are used to provide financial assistance to entrepreneur and/or company involved in NCER.

Incentives: Both financial and non-financial incentives are provided for an entrepreneur or a company to invest in NCER.

1. Financial Incentives include soft loans, grants, venture capital funds, flexible land lease arrangement at the discretion of state government and fiscal incentives.
   For agriculture 2 funding and incentive packages are available:
   a) NCER agro-preneur incentive package is to enable trained and experience agronomists to set up modern farming sme.
   b) NCER commercial incentive package is to encourage large companies to undertake promoted agricultural activities.

2. Non-financial incentives
   Among the planned non-financial incentives are:
   a) a waiver of the need to meet certain Government guidelines/requirements;
b) to fast track the processing of licences and work permits for Malaysian doctors returning from overseas and foreign medical expertise; and
c) assistance and incentives in obtaining international standards accreditation.

11.4 The Eastern Coast Economic Region (ECER)
The ECER covers the states of Kelantan, Terengganu, Pahang and the district of Mersing, Johor. The ECER development plan covers 12 years period from 2009 – 2020 or 3 Malaysia Plans. The Master Plan aims to transform the region into a major tourism destinations, an exporter of resources based and manufactured products, a vibrant trading centre, a logistic and infrastructure hub.

Economic clusters
Five economic clusters have been identified as key focal points for development in the ECER. They are i) Tourism, ii) Oil, gas and petrochemical, iii) Manufacturing, iv) Agriculture and v) Education

These economic clusters will be supported by economic enablers and among the key enabler projects are:
   i. Improving access via upgrades to existing road networks, airports and sea port
   ii. Mitigating floods and coastal erosion
   iii. Improving utilities and sewerage
   iv. Real estate development
   v. Conservation of environment

East Coast Economic Region Development Council (ECERDC) is a statutory body established under the East Coast Economic Region Development Council Act 2008 (Act 688). The function is to drive the implementation projects and key programs identified in the ECER Master Plan. The ECERDC is empowered to provide the direction, policies and strategies in relation to the development within the ECER as well as coordination between Government entities in the promotion of trade, investment, tourism and development activities within the ECER.

Incentives
Some special ECER incentives are as in Table 11.2 below. To qualify for the incentives, companies must commence operations before 31 December 2015.

<table>
<thead>
<tr>
<th>Industry</th>
<th>Special incentive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tourism (Designated areas only)</td>
<td>Tourism (owner or owner operator of hotels and resorts)</td>
</tr>
<tr>
<td></td>
<td>• Income tax exemption for 10 years or investment tax allowance (ITA) of 100% on qualifying capital expenditure for five years</td>
</tr>
<tr>
<td></td>
<td>• Withholding tax exemption on royalty and technical fees for 10 years</td>
</tr>
<tr>
<td></td>
<td>• Stamp duty exemption on land acquired for development Abolition of Real Property Gains Tax (RPGT)</td>
</tr>
<tr>
<td></td>
<td>• Import duty/sales tax/excise duty exemption on hotel or resort equipment</td>
</tr>
<tr>
<td></td>
<td>• Overseas promotion double deductions – expenses incurred for participation in promotional activities overseas</td>
</tr>
<tr>
<td></td>
<td>• Tour operators – 100% tax exemption for bringing in more than 500 foreign tourists per year or organise tourism packages for more than 1,200 local tourists per year</td>
</tr>
<tr>
<td></td>
<td>• Promotion of international conference and trade exhibitions – 100% tax exemption from income earned from bringing more than 500 foreign visitors per year</td>
</tr>
<tr>
<td></td>
<td>• Cultural performance – single deduction on expenses for local performances RM300,000–RM500,000 per year and foreign performances RM200,000 per year</td>
</tr>
<tr>
<td></td>
<td>• Double deduction – revenue expenditure incurred (excluding exhibits) on participation in trade fairs approved by MITI in Malaysia.</td>
</tr>
</tbody>
</table>

Eco-tourism (tourism projects with a minimum of RM5 million investment)
• Income tax exemption for five years or ITA of 100% on qualifying capital expenditure for
<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hallmark events</strong></td>
<td>• Event sponsors are eligible for single deduction up to a maximum of RM1 million for each year of assessment</td>
</tr>
<tr>
<td></td>
<td>• Overseas promotion double deductions – expenses incurred for participation in promotional activities overseas</td>
</tr>
<tr>
<td></td>
<td>• Tour operators – 100% tax exemption for bringing in more than 500 foreign tourists per year or organise tourism packages for more than 1,200 local tourists per year</td>
</tr>
<tr>
<td></td>
<td>• Promotion of international conference &amp; trade exhibitions – 100% tax exemption from income earned from bringing in more than 500 foreign visitors per year</td>
</tr>
<tr>
<td></td>
<td>• Cultural performance – single deduction on expenses for local performances RM300,000</td>
</tr>
<tr>
<td></td>
<td>• Car rental operators – full exemption on excise duty for purchase of national cars</td>
</tr>
<tr>
<td></td>
<td>• Tour operators – 50% exemption on excise duty for purchase of locally assembled 4WD vehicles</td>
</tr>
<tr>
<td><strong>Petrochemical (designated areas only)</strong></td>
<td>• Income tax exemption for 10 years from the year the company derives profit or ITA of 100% on qualifying capital expenditure for five years</td>
</tr>
<tr>
<td></td>
<td>• Industrial building allowance on cost of building / infrastructure / amenities</td>
</tr>
<tr>
<td></td>
<td>• Double deduction for expenses incurred for promotion of the industrial park overseas</td>
</tr>
<tr>
<td></td>
<td>• Stamp duty exemption on instruments of acquisition or leasing of property relating to industrial park</td>
</tr>
<tr>
<td><strong>Companies undertaking promoted activities in the park</strong></td>
<td>• Customised incentives given to companies undertaking various activities in the industrial park (based on merit)</td>
</tr>
<tr>
<td></td>
<td>• Income tax exemption for eight years from the year the company derives profit or ITA of 100% on qualifying capital expenditure for five years</td>
</tr>
<tr>
<td></td>
<td>• Import duty and sales tax exemption on raw materials, components, machinery, equipment, spare parts and consumables that are not produced locally and used directly in the activity</td>
</tr>
<tr>
<td><strong>Manufacturing (designated areas only)</strong></td>
<td>• Income tax exemption for five years from the year the company derives profit or ITA of 100% on qualifying capital expenditure for five years</td>
</tr>
<tr>
<td></td>
<td>• ITA, industrial building allowance and capital allowance on cost of building, infrastructure and amenities</td>
</tr>
<tr>
<td></td>
<td>• Double deduction for expenses incurred for the promotion of the industrial park overseas</td>
</tr>
<tr>
<td></td>
<td>• Stamp duty exemption on instruments of acquisition or leasing of property relating to industrial park</td>
</tr>
<tr>
<td></td>
<td>• Pioneer Status (PS) income tax exemption of 100% for five years</td>
</tr>
<tr>
<td></td>
<td>• Investment Tax Allowance (ITA) of 100% on qualifying capital expenditure within five years</td>
</tr>
<tr>
<td></td>
<td>• Industrial Building Allowance granted to companies incurring capital expenditure on the construction or purchase of a building with an initial allowance of 10% and an annual allowance of 3% where such expenditure can be written-off in 30 years</td>
</tr>
<tr>
<td></td>
<td>• Reinvestment Allowance (RA) of 100% for qualifying capital expenditure for 15 years for selected sectors</td>
</tr>
<tr>
<td></td>
<td>• Accelerated Capital Allowance (ACA) to be utilised within three years after Reinvestment Allowance (RA) of 40% within first year and 20% annually thereafter</td>
</tr>
<tr>
<td></td>
<td>• ACA on equipment to maintain quality of power supply for two years</td>
</tr>
<tr>
<td></td>
<td>• Incentive for industrialised building systems with ACA for three years</td>
</tr>
<tr>
<td></td>
<td>• Increased exports given 10% tax exemption (30% value added Exported) and 15% tax exemption (50% value added exported)</td>
</tr>
<tr>
<td></td>
<td>• Group relief of 50% of the current year’s unabsorbed losses to be offset against the income of another company within the same group</td>
</tr>
<tr>
<td><strong>Halal Certification and Quality Systems and Standards Certification:</strong></td>
<td>• Double deduction on expenses incurred in obtaining quality systems and standard certification and halal certification from the Department of Islamic Development (JAKIM)</td>
</tr>
<tr>
<td></td>
<td>• Full tax exemption of statutory income for 10 years</td>
</tr>
<tr>
<td></td>
<td>• Dividends paid from the exempt income will be exempted from tax in the hands of its shareholders</td>
</tr>
<tr>
<td><strong>Wood-based products:</strong></td>
<td></td>
</tr>
</tbody>
</table>


### Double deduction on freight charges for export of wood-based products (excluding sawn timber and veneer)

**Rubber forest plantations**

1. **Investor investing in the project**
   - Tax deduction equivalent to the amount of investment made in the subsidiary company undertaking forest plantation
2. **Company undertaking the project**
   - Income tax exemption for 10 years from the first year the company derives profit
   - Funding under the Ministry of Plantation Industries and Commodities
   - Accelerated agriculture allowance on capital expenditure
   - Pioneer Status (PS) of 15 years (based on merit)
   - Investment Tax Allowance (ITA) of 10 years

### Free Zones

1. **Free Industrial Zone (FIZ):**
   - Duty free import of raw materials, component parts, machinery and equipment required directly in manufacturing process
2. **Licensed Manufacturing Warehouses (LMW):**
   - Duty free exports

If goods are allowed to be sold in domestic market (Principal Customs Areas – PCA), the following import duties apply:

- **Crop production and processing, livestock (excluding poultry) and fisheries**
  - **Investor (company / individual) investing in the project**
    - No minimum investment requirement
    - Tax deduction equivalent to the amount of investment made in the subsidiary company with at least 70% shareholding in the subsidiary company
    - Tax deduction equivalent to the amount invested in seed capital and early stage financing
  - **Company undertaking the project**
    - Income tax exemption for 10 years commencing from the day the company derives profit, or ITA of 100% on qualifying capital expenditure for five years
    - Tax exemption on dividends paid to shareholders from tax exempt income
    - Stamp duty exemption on instruments of acquisition or leasing of property
    - Import duty and sales tax exemption on raw materials, components, machinery, spare parts, consumables and equipment on the condition that the said items are not available locally.

- **Livestock or Fisheries (designated areas only)**
  - **Companies in collection, processing, packaging centres (CPPC) and collection and marketing centres (CMC)**
    - Income tax exemption for 10 years or ITA of 100% on qualifying capital expenditure for five years
    - Stamp duty exemption on land acquired for development
    - Funding for farmers undertaking crop, livestock and fisheries projects
    - Pioneer Status (PS) with income tax exemption of 100% for five years for some sectors
    - Investment Tax Allowance (ITA) of 100% on qualifying capital
expenditure within five years
• Integrated Agricultural Projects given additional five years ITA on manufacturing and processing expenses
• Reinvestment Allowance (RA) of 60% of capital expenditure can be offset against 100% of statutory income
• Reinvestment in resource-based industries given another round of Pioneer Status (PS) or Investment Tax Allowance (ITA)
• Modernising chicken and duck rearing given Reinvestment Allowance (RA) of 15 years
• Accelerated Capital Allowance after RA at 20% for first year and 40% thereafter, to be utilised within two years
• Agriculture Allowance given as long as it incurs the expenditure, regardless of whether it already enjoys PS or ITA
• Increased exports given tax exemption on 10% value of increased exports
• Approved Projects given 60% allowance on capital expenditure.

Education
New private sector schools, universities and colleges and centres of excellence
• Income tax exemption for 10 years
• Withholding tax exemption on royalty and technical fees for 10 years
• Special industrial building allowance of 10% expenditure for 10 years
• Tax exemption on import duty, sales tax and excise duty for all educational equipment including laboratory equipment for workshops, studios and language laboratories
• Single and double deduction for training
• Exemption on royalty payments for non-resident franchised programmes

ICT development projects
• Income tax exemption for 10 years
• Withholding tax exemption on royalty and technical fees for 10 years

Others – Culture and heritage projects
• Income tax exemption for 10 years or ITA of 100% on qualifying capital expenditure for five years

Source: NCER website

11.5 The Sarawak Corridor of Renewable Energy (SCORE)
SCORE covers an area of more than 70,000 km² of resource rich central region. It has more than 1,000 km coastal line, over 8 million hectares of forest, and almost 5 million hectares of arable land and peat land suitable for agriculture. SCORE has an abundance of natural resources, such as hydropower. The development period is 2008-2030 which targets 10 high impact industries and provision of downstream opportunities for SMEs.

Based on rich resources available in the state, SCORE lists 10 priority sectors: aluminums, glass, steel, oil-based, palm oil, fishing and aquaculture, livestock, timber-based, marine and tourism industries.

Regional Corridor Development Authority (RECODA) is entrusted with the task of implementing the SCORE initiative. Its primary task is to bring about the success of SCORE by executing marketing and investment programs, as well as ensuring the successful implementation of projects. RECODA’s functions also include facilitating the growth and development of infrastructure and human resources in SCORE by mobilizing the natural resources of Sarawak and providing investor support.

Incentives
1. Financial Incentives
The existing incentives available for various industries and approved activities under the
a) Promotion of Investments Act 1986 and the Income Tax Act 1967. The incentives include:
   i. Pioneer status;
   ii. Investment Tax Allowance on qualifying capital expenditure;
   iii. Deductions for research and development; and
   iv. Reinvestment allowance.
b) There are various sales tax and import duty exemptions as well.
c) Specific incentive packages customised to suit the special needs and requirements of SCORE investors are available on a case-to-case basis.

2. Non-financial Incentives
Investors in the top 10 priority industries will be eligible for industrial land at competitive lease rates and favourable payment terms such as minimal down payment and flexible payment terms. SCORE can offer its energy supply at more competitive rates compared to other regions. Furthermore, companies which are intensive users of energy will be eligible to negotiate for energy resources at lower than competitive rates.

11.6 The Sabah Development Corridor
The Sabah Development Corridor (SDC) was launched on 29 January 2008. Its establishment is aimed at accelerating the growth of Sabah’s economy. The SDC implementation will cover three sub-regions of Sabah – Western, Central and Eastern. The Western sub-region is Sabah’s industrial zone and major tourism gateway while the Central sub-region comprises the state’s agriculture and food production area. The Eastern sub-region is rich in natural resources and home to Sabah’s oil palm plantations.

Objectives
The key guiding principles for the SDC are:
1. Capturing higher value economic activities in the high-margin sectors such as tourism and logistics.
2. Promoting balanced economic growth which encompasses natural resources, cultural heritage and biodiversity.
3. Ensuring sustainable growth via environmental conservation to ensure the environment is conserved and protected for future generations.

There are 5 strategic development areas under the SDC initiative:
1. Kinabalu Gold Coast Enclave;
2. Brunei Bay Development Zone;
3. Interior Food Valley;
4. Sandakan-Kinabatangan-Beluran Bio-Triangle; and
5. Agro-marine Belt

The priority industries under SDC are shown in table 11.3 below:

<table>
<thead>
<tr>
<th>Sector</th>
<th>Industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>Fisheries and aquaculture, livestock, crops</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>Oil &amp; gas, oil palm, resource-based industries</td>
</tr>
<tr>
<td>Logistics</td>
<td>Tourism, logistics and transportation</td>
</tr>
</tbody>
</table>

Source: SDC website

Sabah Economic Development and Investment Authority (SEDA) has been commissioned with the task of implementing the SDC initiative. Its role is to promote and accelerate the development of SDC into an investment destination for investors. SEDA’s functions include recommending, coordinating and funds disbursement in the implementation of projects of potential growth and opportunities.

Incentives
The existing incentives in Malaysia are available for various industries and approved activities under the Promotion of Investments Act 1986 and the Income Tax Act 1967. The incentives given are in the form of:
• Pioneer status;
• Investment Tax Allowance on qualifying capital expenditure;
• Deductions for research and development; and
• Reinvestment allowance.

There are various sales tax and import duty exemptions. Specific incentive packages customised to suit the special needs and requirements of SDC investors are available on a case-to-case basis.

11.7 Summary

The objective of regional corridor development approach is to achieve balanced development between states and rural and urban areas. Five economic development corridors were established and their functions, development focus area were briefly discussed. Investment incentives of every corridor were listed. For each corridor, there is an authority to oversee, regulate and facilitate the development process and progress.

Activity 11.1

States why the Malaysian government takes the developments of economic corridor approach to develop the Malaysian Economy. Identify the core sector(s) of development for each corridor and justify your answer.

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UNIT 12
INTERNATIONAL TRADE POLICY

12.0 Unit Introduction
This unit will discuss theory of trade instrument policies. Cost and benefit analysis of effects of impositions of trade instrument will be illustrated using producer surplus and consumer surplus approach.

Learning outcomes: Students are able to
1. identify trade policy instruments normally used in trade
2. graphically demonstrate the effect of trade barrier using welfare analysis.

12.1 Trade policy instrument classification
Nowadays, there are many critics of free trade. However, trade restrictive measures are not new. Countries tended to be highly protectionist over the centuries, and tariffs were used both as a device to deter trade, and as an important source of revenue for the country. While in modern economies tariffs have been substituted by other instruments as a major source of revenue, their role of trade reduction and protection of selected interests is as relevant now as ever.

The classification of trade policy instrument is shown in figure 12.1 below.

Figure 12.1 Trade Policy Instruments

Before we proceed to discussion on trade policy instruments, let us understand protectionism and its effects are the so-called terms of trade of a given country. The terms of trade is:

The price of the good a country initially exports divided by the price of the good it initially imports.
It is important to note that a rise in the terms of trade increases a country’s welfare, while a decline in the terms of trade reduces its welfare. A small country is a country that cannot affect its terms of trade no matter how much it trades with the rest of the world.

12.1.1 Tariff
We need to be aware that there are various types of tariffs and consequently they might have slightly different effects on the economy.

1. Specific tariffs are taxes levied as a fixed charge for each unit of goods imported.
   For Example: A specific tariff of RM100 on each imported bicycle with an international price of RM1000 (or any other price for that matter) means that customs officials collect the fixed sum of RM100 per bicycle.

2. Ad valorem tariffs are taxes levied as a fraction of the value of the imported goods.
   For Example: A 15% ad valorem tariff on any bicycles generates a RM150 payment on each imported bicycle priced at RM1000 in the world market.

We can have a variation of the above tariffs too. In the case of a compound duty (tariff) we deal with a combination of an ad valorem and a specific tariff. Sometimes governments usually prefer to protect domestic industries through a variety of nontariff barriers such as import quotas (limit the quantity of imports) or export restrains (limit the quantity of exports)

Effects of a Tariff
The analytical framework will be based on either of the following:
1. Two large countries trading with each other
2. A small country trading with the rest of the world

Assume that two large countries trade with each other, home and foreign markets. Suppose Home market imposes a tax of $2 on every ton of wheat imported. Then shippers will be unwilling to move the wheat unless the price difference between the two markets is at least $2.

![Figure 12.2 The effects of a specific tariff of $t per unit of wheat.](image)


From Figure 12.2, in the absence of tariff (1), the world price of wheat at $P_w$ would be equalized in both countries. When the tariff is imposed, the price of wheat rises to $P_{fT} = P_T - t$ at Home (2) and falls to $P_{sT} = P_T - t$ at Foreign until the price difference is $t$ (3). In Home market, producers supply more and consumers demand less due to the higher price, so that fewer imports are demanded. In Foreign market producers supply less and consumers demand more due to the lower price, so that fewer exports are supplied. Therefore, the volume of
wheat traded declines due to the imposition of the tariff. The increase in the domestic Home price is less than the tariff, because part of the tariff is reflected in a decline in Foreign export price. If Home is a small country and imposes a tariff, the foreign export prices are unaffected and the domestic price at Home (the importing country) rises by the full amount of the tariff as shown in figure 12.3 below.

![Figure 12.3 A Tariff in a small country](image)


### 12.2 Costs and benefits of tariffs

The way in which a tariff operates prompts the following results. By virtue of raising prices in the importing country, it will affect consumers negatively, as they need to pay the new, higher price. Producers in the importing country on the other hand can charge a higher price than in the case of free trade. That is because foreign competition has diminished, where the price of foreign goods in the world market has been added up by the tariff imposed through national trade policy. Finally, the government of the country using protectionist measures will increase its revenue, by the value of the total tariff it charges.

Let us refer to figure 12.4 to determine the cost and benefit of tariff. Here D and S are the domestic demand and supply curves of a given product. At the same time, this product is produced and sold in the international market, at a price $P_w$. As world supply is virtually unlimited, the world supply is perfectly elastic at price $P_w$. Initially consumers in the country under observation will buy from domestic producers up to the price $P_w$, or a quantity $S_1$. After that, they will buy goods at the price offered on the world market, until they satisfy their demand, at point $D_1$. (note that the graph show quantity demanded > quantity supplied in domestic market). That means that the initial imports are given by the segment $S_1D_1$.

If the government decided to impose a tariff on this commodity, the price of this good in importing country's markets will increase to $P_t$, i.e $(P_t = P_w + \text{Tariff})$. At this new, higher price, consumers will buy quantity $S^t$ from the local market, and import $S^tD_2$ (or $Q_t$) from abroad. We can also see a change in consumer and producer surplus in this country. Now consumer welfare decreases, as the consumer surplus reduces by area $(a+b+c+d)$. At the same time however, producers in this country benefit from the tariff, and their surplus has been now raised, by area $a$.

If the tariff per unit of good is multiplied by the quantity of goods that are imported, it generates total government revenue of $Q_t$. This extra income in represented by area c. There is a further element to be considered, too. If the importing country is big enough, it will generate a fall in the price of its imported goods (world price), through limiting demand. Consequently, the
terms of trade for this country will improve and it will benefit from an extra positive welfare effect. This effect is given by area e.

In order to determine the net effect of tariffs on the imposing country, we need to calculate the total costs and benefits derived from it. As shown in figure 12.4, areas of the two triangles b and d becoming a loss to the nation as a whole (efficiency loss) and the area of the rectangle e measuring an offsetting gain (terms of trade gain). The efficiency loss arises because a tariff distorted incentives to consume and produce. Triangle b is the production distortion loss and triangle d is the consumption distortion loss. The terms of trade gain arises because the tariff lowers foreign export prices.

In conclusion, if the terms of trade gain is greater than the efficiency loss, the tariff increases welfare for the importing country. Nevertheless, by the same token, without the terms of trade influence (as is the case for a small country), the tariff reduces welfare for the importing country. Here, the positive terms of trade impact has disappeared and the country ends up with just the efficiency loss.

12.3 Costs and benefits of Export Subsidy

Export subsidy is a payment by the government to a firm or individual that exports their good abroad. When the government provides an export subsidy, exporters will export the good up to the point where the domestic price exceeds the foreign price by the amount of the subsidy. It can be either specific or ad valorem. An export subsidy raises prices in the exporting country while lowering prices in the importing country. In contrast to a tariff, the export subsidy worsens the terms of trade. An export subsidy definitely leads to costs that exceed its benefits.

Figure 12.4 Costs and benefits of import tariff in the importing country

Figure 12.5 Costs and benefits of export subsidy tariff in the importing country
Figure 12.5 illustrates the cost-benefit welfare analysis related to export subsidies. When the exporting country enacts an export subsidy, it raises the opportunity cost for an exporter of selling at home. Therefore, prices at home rise. If the country is "large", world prices fall (P’s) because of the effect on world supply and demand of the domestic output and consumption responses.

The welfare effects on domestic consumers and producers are consumers are paying higher prices, lose welfare equal to areas a + b. Producers, the recipients of the subsidy, gain welfare equal to areas a + b + c. The cost of the subsidy is equal to areas b + c + d + e + f + g. Areas b and d are the consumption and production distortions. Areas e + f + g are the terms of trade effect, which for a subsidy are negative because they result in higher costs for the subsidy-granting government (as opposed to higher revenues in the tariff case). Since this terms of trade effect is always negative, it never offsets the consumption and production distortions (as is possible in the case of a tariff), but always add to them. Hence this analysis indicates that an export subsidy unambiguously leads to costs greater than benefits – an export subsidy always decreases aggregate welfare.

12.4 Import quotas
An import quota is a direct quantity restriction on a good that is imported. The restriction is usually enforced by issuing licenses to some group of individuals or firms. License holders are able to buy imports and resell them at a higher price in the domestic market. The profits received by the holders of such import licenses are known as quota rents.

An import quota always raises the domestic price of the imported good. The difference between a quota and a tariff is that with a quota the government receives no revenue. However, in assessing the costs and benefits of an import quota, it is crucial to determine who gets the rents, too, as well as to question how these rents influence the general welfare.

12.5 Local Content Requirements
A local content requirement is a regulation that asks that a specified fraction of a final good be produced domestically. Local content laws have been widely used by developing countries trying to shift their manufacturing base from assembly into intermediate goods. However, they do not produce either government revenue or quota rents.

12.6 Voluntary Export Restraint (VER)
A voluntary export restraint (VER) is an export quota administered by the exporting country. It is also known as a voluntary restraint agreement (VRA). VERs are imposed at the request of the importer and are agreed to by the exporter to forestall other trade restrictions. A VER is exactly like an import quota where the licenses are assigned to foreign governments and is therefore very costly to the importing country. A VER is always more costly to the importing country than a tariff that limits imports by the same amount. The tariff equivalent revenue becomes rents earned by foreigners under the VER. A VER produces a loss for the importing country.

12.7 Summary
The overview of selected trade policy instruments given above has pointed out that their benefits to a nation are not always obvious, and the total effects are sometimes negative and often ambiguous. Nevertheless, countries chose to adopt them, even where the economic analysis shows clear-cut costs above benefits. However, more arguments in favour and against free trade are to be explored in the next topic. Before that, figure 8.4 makes a synthetic revision of the findings of the basic analysis of the most important trade policy instruments presented here:
Activity 12.1
Discuss different effects of imposing import tariffs by a large and a small importing country on domestic (of importing countries) markets.

Activity 12.2
Using graphical illustration, and costs and benefits (consumer surplus and producer surplus) approach, analyze the effects of Malaysia (small country) import quota policy on cabbage.

Reference
UNIT 13
MULTI-LATERAL TRADE AGREEMENTS

13.0 Unit Introduction
This unit will discuss multi-lateral agreements as potential solutions to trade problems. The world trade organizations (GATT and WTO) and regional agreements specifically AFTA will be described in terms of their roles and functions in multi-lateral trade agreements.

Learning outcomes: students are able to:
1. understand the objectives and functions of WTO and AFTA
2. explain the structure of Agreements on Agriculture under WTO
3. explain the instrument for realization of AFTA.

13.1 Background
With the establishment of World Trade Organization in 1995 many countries both developed and developing countries (WTO members) are having trade reform. It is envisaged that many countries will gain from trade reform. With trade reform, many developing countries would gain from lower barriers for their exports; some would lose from the projected 10-20% higher prices for grain imports. Europe and Japan have the highest trade barriers, but U.S. and developing countries also restrict trade significantly.

When we discuss trade reform in this context we refer to liberalizing trade of dismantling restrictions to trade. However, until today many countries are still reluctant to liberalize their agriculture sector. What are the effects of supporting (subsidies to) agriculture? Some of the effects are increasing total investment in agriculture relative to other sector, affect price of land and other fixed assets and holds people in agriculture that would normally move to other sectors as development proceeds. Those are internal effects. The external effects are fewer imports by importer (examples: US sugar; Japan rice) can lower world price. For net exporter, larger production and exports can depress world price (example: US cotton). Barriers to imports may reduce domestic price variability but increase variability on the world market.

There are many reasons why it is difficult to reduce agriculture subsidies and liberalize trade. Some of the reasons are: benefits of subsidies are capitalized into land values so value of land would fall hence farmers could invest in agriculture; in developed countries for example labor adjustment is difficult such as specialized worker skills become less valuable and retraining may be costly or impractical for older people; those with benefits want to keep the subsidies, i.e subsidy recipients do not give up without a fight or politicians are likely to lose campaign contribution and/or bribe.

Trade liberalization will definitely results in two groups of people: gainers and losers. Although there will be more gainers than losers, there are losers. The challenge is to formulate policies to compensate losers such as to facilitate their adjustment and to neutralize political opposition.

13.2 The World Trade Organization
The WTO is established on 1st January 1995 as a result of the Uruguay Round negotiations (1986-1994) in Geneva, Switzerland. As of June 2014 WTO has 160 member countries. Basically WTO is “A global organization dealing with rules of trade between nations”.

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13.2.1 Evolution of the WTO
The predecessor of the WTO is the General Agreement on Tariff and Trade (GATT) which was established in 1947. The GATT 1947 was the first major effort to establish international rules governing trade in goods. Though initially conceived as a provisional legal instrument, it endured for almost 50 years. It functioned without a formal organizational framework to oversee its implementation as the proposed International Trade Organisation (ITO) never materialized and the ITO Charter (aka the Havana Charter) of which GATT was only to be a part, never came into effect. GATT’s primary focus was the reciprocal reduction of tariffs which later expanded to other trade related areas. In the years leading up to the Uruguay Round, GATT expanded its competence through several rounds of trade negotiations which witnessed the formulation of complex legal instruments on specific aspects of trade, particularly disciplines on the use of non-tariff barriers.

The Uruguay Round (1986-1994): The results of the Uruguay Round (UR) were signed in Marrakech, Morocco on 15 April 1994. The WTO came into being on 1 January 1995 by virtue of the Agreement establishing the WTO. The scope of the multilateral trading system was broadened from trade in goods (GATT) to encompass trade in services (General Agreement on Trade and Services-GATS) and trade related aspects of intellectual property rights (Trade Related Aspects of Intellectual Property rights-TRIPS). It was a rule-based global trading system complete with its own dispute resolution procedures. The multilateral trade agreements under the WTO system are treated as a single undertaking which means that every member state of the WTO is a party to every one of these agreements and must implement them accordingly.

13.2.2 The functions of WTO are
- Administers the WTO Agreements and facilitates their operation and implementation
- Provides a forum for trade negotiations among member states on matters covered by the Agreements and for further liberalization of trade amongst members
- Responsible for the settlement of differences and disputes between members
- Responsible for periodic reviews of the trade policies of members
- Also provides technical assistance and training for developing countries
- Cooperates with other international organizations on subjects of mutual interest

13.2.3 Four Principles of WTO
1. Most-favoured-nation (MFN): Treating other people equally. Under the WTO agreements, countries cannot normally discriminate between their trading partners. Granting someone a special favour (such as a lower customs duty rate for one of their products) and you have to do the same for all other WTO members. This principle is known as most-favoured-nation (MFN) treatment. Some exceptions are allowed, however. For example, countries can set up a free trade agreement that applies only to goods traded within the group — discriminating against goods from outside. Or they can give developing countries special access to their markets. Or a country can raise barriers against products that are considered to be traded unfairly from specific countries. And in services, countries are allowed, in limited circumstances, to discriminate. But the agreements only permit these exceptions under strict conditions. In general, MFN means that every time a country lowers a trade barrier or opens up a market, it has to do so for the same goods or services from all its trading partners — whether rich or poor, weak or strong.

2. National treatment: Treating foreigners and locals equally. Imported and locally-produced goods should be treated equally — at least after the foreign goods have entered the market. The same should apply to foreign and domestic services, and to foreign and local trademarks, copyrights and patents. National treatment only applies once a product, service or item of intellectual property has entered the market. Therefore, charging customs duty on an import is not a violation of national treatment even if locally-produced products are not charged an equivalent tax.
3. **Freer trade**: gradually, through negotiation. Lowering trade barriers is one of the most obvious means of encouraging trade. The barriers concerned include customs duties (or tariffs) and measures such as import bans or quotas that restrict quantities selectively. From time to time other issues such as red tape and exchange rate policies have also been discussed.

4. **Predictability**: through binding and transparency. Sometimes, promising not to raise a trade barrier can be as important as lowering one, because the promise gives businesses a clearer view of their future opportunities. With stability and predictability, investment is encouraged, jobs are created and consumers can fully enjoy the benefits of competition — choice and lower prices. The multilateral trading system is an attempt by governments to make the business environment stable and predictable.

### 13.2.4 Agreement on Agriculture (AOA)

The WTO agreements cover goods, services and intellectual property. The agreements spell out the principles of liberalization, and the permitted exceptions. They include individual countries' commitments to lower customs tariffs and other trade barriers, and to open and keep open services markets. They set procedures for settling disputes; prescribe special treatment for developing countries. They require governments to make their trade policies transparent by notifying the WTO about laws in force and measures adopted, and through regular reports by the secretariat on countries' trade policies.

The Uruguay Round produced the first multilateral agreement dedicated to agricultural sector. It was a significant first step towards order, fair competition and a less distorted sector. It was implemented over a six-year period (and is still being implemented by developing countries under their 10-year period), that began in 1995.

The objective is to reform trade in agricultural sector and to make policies more market-oriented.

1. Allows governments to support their rural economies, but preferably through policies that cause less distortion to trade.
2. Allows some flexibility in the way commitments are implemented.
3. Developing countries do not have to cut their subsidies or lower their tariffs as much as developed countries, and they are given extra time to complete their obligations.
4. Least-developed countries do not have to do this at all.
5. Special provisions deal with the interests of countries that rely on imports for their food supplies, and the concerns of least-developed economies.

### 13.2.5 Pillars of the Agreement in Agriculture

The structure of AoA is presented by three pillars of agreement as in Figure 13.1

**Figure 13.1 Pillars of the Agreement in Agriculture**

<table>
<thead>
<tr>
<th>MARKET ACCESS</th>
<th>DOMESTIC SUPPORT</th>
<th>EXPORT COMPETITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Various trade restrictions confronting imports</td>
<td>• Subsidies and other programs</td>
<td>• Includes export subsidies and other methods used to make exports artificially competitive</td>
</tr>
<tr>
<td></td>
<td>• Includes guarantee prices, price support and income supports</td>
<td></td>
</tr>
</tbody>
</table>

i. **Market access**

The rule for market access in agricultural products is "tariffs only". Before the Uruguay Round, some agricultural imports were restricted by quotas and other nontariff measures. These have been replaced by tariffs that provide more-or-less equivalent levels of protection. If the
previous policy meant domestic prices were 75% higher than world prices, then the new tariff could be around 75%. Converting the quotas and other types of measures to tariffs in this way was called “tariffication”.

Uruguay Round participants agreed that:

a. Developed countries would cut the tariffs by an average of 36%, in equal steps over six years.

b. Developing countries would make 24% cuts over 10 years.

c. (Several developing countries also used the option of offering ceiling tariff rates in cases where duties were not “bound” (i.e. committed under GATT or WTO regulations) before the Uruguay Round).

c. Least-developed countries do not have to cut their tariffs.

Four countries used “special treatment” provisions to restrict imports of particularly sensitive products (mainly rice) during the implementation period, (to 2000 for developed countries, to 2004 for developing nations). The four were: Japan, Rep. of Korea, and the Philippines for rice. Israel for sheepmeat, whealmilk powder and certain cheeses. A new member, Chinese Taipei, gave special treatment to rice in its first year of membership, 2002.

ii. Domestic support

Issues in domestic support are illustrated in Figure 13.2 below. Which means violations to AoA. Domestic supports such as price support and subsidized production (input subsidy) will encourage over production and tend to oversupply in the producing country. The country might adopt export subsidy policy to encourage export and increase producers’ income. But export subsidy reduces price of the given product in the world market. Hence affects the price of that given product in other producing countries.

However, there are exceptions to the reduction in domestic supports. There are four categories of domestic support guided by AoA. Figure 13.3 depicts the categories of domestic support.

![Figure 13.2 Effects of domestic support](image)

![Figure 13.3 Categories of domestic support](image)
a. Green box – Scope
Policies that are not deemed to have a major effect on production and trade are placed in the ‘green box’. They include:

i. **General services**, including: research; pest and disease control; training; extension/advisory services; inspection; marketing and promotion; infrastructural services; public stockholding for food security and domestic food aid.

ii. **Direct payments**, including: decoupled income support (supports that are not affecting production and trade); income insurance and income safety-net; relief from natural disasters; structural adjustment assistance such as producer retirement, resource retirement and investment aids; environmental programmes; and regional assistance programmes

b. Blue box – scope
Policies that fall into neither of Green Box and Amber Gox categories, but are, perhaps, somewhere in between, are known as ‘blue box’ policies.

Direct payments under production-limiting programmes exempt from reduction if:
- based on fixed area and yields; or
- made on ≤ 85% of base level of production; or
- livestock payments are made on a fixed number of head

**Article 6.2: Development programmes exempt from reduction**
- investment subsidies generally available to agriculture
- input subsidies generally available to low-income or resource poor producers
- support to encourage diversification from growing illicit narcotic crops

Examples of notified Article 6.2 programmes:
- Bangladesh – 2% interest rebate for repayment of loan on schedule
- Thailand – Farming input assistance programme
- Brazil – Production credit; Investment credit; Debt rescheduling

c. Amber Box – Current Total Aggregate Measure of Support (AMS)
Policies deemed to have a substantial impact on the patterns and flow of trade are classified in what is called the ‘amber box’ and are subject to reduction commitments.

The reduction commitments are expressed in terms of a “Total Aggregate Measurement of Support” (Total AMS) which includes all product-specific support and non-product-specific support in one single figure. Members with a Total AMS have to reduce base period support by 20 per cent over 6 years (developed country Members) or 13 per cent over 10 years (developing country Members). In any year of the implementation period, the Current Total AMS value of non-exempt measures must not exceed the scheduled Total AMS limit as specified in the schedule for that year. In other words, the maximum levels of such support are bound in the WTO.

In the case of Members with no scheduled reduction commitments, any domestic support not covered by one or another of the exception categories outlined above, must be maintained within the relevant “product-specific” and “non-product-specific” de minimis levels.

Applies to any form of domestic support not included in either the Green or Blue Boxes or under Article 6.2 are subjects to reduction commitments. Examples are as illustrated in figure 13.4.
Figure 13.4 Examples of computation of AMS

**Example: Calculation of the current total AMS**

**Member X (developed country), year Y Wheat:**
- Intervention price for wheat = $255 per tonne
- Fixed external reference price (world market price) = $110 per tonne
- Domestic production of wheat = 2,000,000 tonnes
- Value of wheat production = $510,000,000
- Wheat AMS (AMS 1) = ($255–$110) x 2,000,000 tonnes = $290,000,000
  
  *(de minimis level=$25,500,000)*

**Barley**
- Deficiency payments for barley = $3,000,000
- Value of barley production = $100,000,000
- Barley AMS (AMS 2) = $3,000,000
  
  *(de minimis level=$5,000,000)*

**Oilseeds:**
- Deficiency payments for oilseeds = $13,000,000
- Fertilizer subsidy = $1,000,000
- Value of oilseeds production = $250,000,000
- Oilseeds AMS (AMS 3) = $14,000,000
  
  *(de minimis level=$12,500,000)*

**Support not specific to products**
- Generally available interest rate subsidy = $4,000,000
- Value of total agricultural production = $860,000,000
- Non-product-specific AMS (AMS 4) = $4,000,000
  
  *(de minimis level=$43,000,000)*

**Current total AMS** (AMS 1 + AMS 3) = $304,000,000

*Note: de minimus: 5% developed countries
10% developing countries

**iii. Export subsidy**
The Agriculture Agreement prohibits export subsidies unless the subsidies are specified in a member’s lists of commitments. Where listed, the agreement requires WTO members to cut
both the amount of money they spend on export subsidies and the quantities of exports that receive subsidies. Developed countries agreed to cut the value of export subsidies by 36% over the six years starting in 1995 (24% over 10 years for developing countries). Developing countries also agreed to reduce the quantities of subsidized exports by 21% over the six years (14% over 10 years for developing countries). Least-developed countries do not need to make any cuts.

iv. Standard and safety
a. Food safety and animal and plant health and safety. Sanitary and Phytosanitary Measures Agreement or SPS allows countries to set their own standards. But it also says regulations must be based on science. They should be applied only to the extent necessary to protect human, animal or plant life or health.

b. Product standards. Member countries are encouraged to use international standards, guidelines and recommendations where they exist. When they do, they are unlikely to be challenged legally in a WTO dispute. Members may use measures which result in higher standards if there is scientific justification. They can also set higher standards based on appropriate assessment of risks so long as the approach is consistent, not arbitrary.

v. Issues in AoA
Agriculture has become the most important and controversial issue. It is important for developing countries, because around 75% of the populations in developing countries live in rural areas, and the vast majorities are dependent on agriculture for their livelihoods. The first proposal in Doha, Qatar, in 2001, called for the end agreement to commit to substantial improvements in market access; reductions & eliminations of all forms of export subsidies; and substantial reductions in trade-distorting support.

The United States is being asked by the EU and the developing countries, to reduce trade-distorting domestic support for agriculture. The United States insists that the EU and the developing countries make more substantial reductions in tariffs and to limit the number of import of sensitive and special products that would be exempt from cuts. Import sensitive products are of most concern to developed countries like the European Union, while developing countries are concerned with special products (those exempt from both tariff cuts and subsidy reductions because of development, food security, or livelihood considerations).

13.3 Asian Free Trade Area (AFTA)
The creation of the ASEAN Free Trade Area (AFTA) was agreed at the 1992 ASEAN Summit in Singapore. The main objectives of the AFTA are to:

- create a single market and an international production base;
- attract foreign direct investments; and
- expand intra-ASEAN trade and investments

Other purposes of creating AFTA was also as a response to other emerging regional groupings, such as the North American Free Trade Area (NAFTA) and the expansion of the European Union (EU). It was also to leverage on the huge potentials and complementarities that exist in the region in order to strengthen and deepen intra-ASEAN industrial linkages including creating strong and competitive in small and medium enterprises. The liberalisation of trade in the region through elimination of both intra-regional tariffs and non-tariff barriers had contributed towards making ASEAN's manufacturing sectors more efficient and competitive in the global market. As a result, consumers are able to source goods from the more efficient producers in ASEAN, thus creating a robust intra-ASEAN trade.
13.3.1 Asian Free Trade Agreement (AFTA)
AFTA comprises Malaysia, Singapore, Brunei, Philippines, Vietnam, Indonesia and Thailand, Laos, Myanmar & Cambodia. The ASEAN Economic Ministers signed the Agreement on the Common Effective Preferential Tariff (CEPT) Scheme for AFTA. This scheme is the main mechanism for the realization of AFTA. The ultimate objective of AFTA is to increase ASEAN’s competitive edge as a production base geared for world market. It is implemented through the elimination of intra-regional tariffs and non-tariff barriers.

According to the CEPT Agreement, the countries of ASEAN would reduce intra-regional tariffs on all manufactured items including capital goods and processed agricultural products and remove non-tariff barriers over a 15-year period commencing 1 January 1993. However, the AEM Meeting on 22-23 September 1994 in Chiangmai, Thailand agreed to shorten the time frame for the realisation of the AFTA from 15 to 10 years, finishing by 1 January 2003 instead of 2008, and to include unprocessed agricultural products into the CEPT scheme.

The time frames of realizing AFTA agreement are given as follows:

Six original members (Brunei, Indonesia, Malaysia, Philippines, Singapore and Thailand):
- 2008 (original schedule)
- 2003 (accelerated in 1994)
- 2002 (accelerated in 1998)

New members:
- Vietnam: 2006
- Lao PDR: 2008
- Myanmar: 2008
- Cambodia: 2010

13.3.2 Common Effective Preferential Tariff (CEPT) Scheme
The CEPT is a cooperative arrangement among ASEAN Member States to reduce intra-regional tariffs and remove non-tariff barriers. It is the main instrument for realising AFTA. The agreement requires all intra-regional tariffs to be reduced to 0-5% by the full implementation of AFTA in 2010. All quantitative restrictions (QRs) and other non-tariff barriers (NTBs) will be eliminated through progressive transfers of products into the CEPT Scheme based on each ASEAN member’s capacity and capability.

CEPT Concessions
CEPT is granted on a reciprocal basis. The conditions are: 1. Tariff rate on products included in the CEPT Scheme is at or below 20%. 2. Tariff reduction programme approved by the AFTA Council, 3. Satisfy Rule of Origin criteria where Certificate of Origin (COE) will be issued at time of exportation. CEPT Scheme covers all products; manufactured, processed agricultural products, and unprocessed agricultural products.

In realizing CEPT, and to give enough time for countries to make necessary adjustments products are listed under four lists.

b. Temporary Exclusion List: Covers manufactured and processed agricultural products. The timeframe is immediate inclusion began in 1993. Products are to be transferred to the Inclusion List in 5 equal installments beginning from 1 January 1996 and ending in 1 January 2000. By 1 January 2000, there will be no more TEL for manufactured or processed agricultural products.

c. Sensitive List: This contains unprocessed agricultural products, which are given a longer time frame before being integrated with the free trade area. The commitment to reduce tariffs to 0-5%, remove quantitative restrictions and other non-tariff barriers is extended up to the year 2010. The new members of ASEAN have up to 2013 (Viet Nam), 2015 (Laos and Myanmar) and 2017 (Cambodia) to meet this deadline.

d. General Exception (GE) List: Products in the GE are not included in the CEPT Scheme as provided for under Article 9 of the CEPT Agreement. Malaysia has excluded 63 tariff lines involving sugar, liquor and arms and weapons. They are excluded for security and health reasons.

Non-Tariff Barriers (NTBs)

Article 5 of The CEPT Agreement states that member States shall eliminate all Quantitative Restrictions (quotas, licences etc.) on the CEPT products upon enjoyment of the concessions applicable to those products. Member States shall eliminate other non tariff barriers which restricts trade on a gradual basis within 5 years after enjoyment of concessions applicable to their products.

Malaysia’s Commitments

Effective 1 January 2010, Malaysia with 5 other ASEAN Member States (which are Brunei, Indonesia, the Philippines, Singapore and Thailand) is a complete free trade area. These countries have eliminated import duties on all products in the Inclusion List and AFTA is almost completely realised among the ASEAN-6. On average, today ASEAN 6 has 99.65% of tariff lines in the Inclusion List at 0%. Only 0.35% or less than 1% of the Tariff Lines in the Inclusion list has import duties. For Cambodia, Laos, Myanmar and Viet Nam, collectively referred to as CLMV, 46.44% of the Tariff Lines in the Inclusion List are already at 0% effective 1.1.2010. On the average, ASEAN member states have 78.86% Tariff Lines at 0% effective 1.1.2010.

Malaysia has eliminated duties on 99.46% of its tariff lines in the Inclusion List. We now only have 66 tariff lines or less than 1% (0.54%) that have duties range between 5% and 20% covering tropical fruits and tobacco and highly sensitive products (rice), respectively. In 2015, ASEAN-6 and CLMV will become a complete free trade area. Malaysia has placed 96 Tariff Lines (TLs) on Exclusion List. 58 TLs are on alcoholic beverages and 38 TLs on weapons and arms. These products are not to tariff elimination.

13.4 Summary

The evolution of WTO, functions, principles and Agreement on Agriculture were discussed and explained in this unit. The three pillars of Agreement on Agriculture are the guiding principles for agriculture policies are allowable and which are prohibited. The AFTA is a regional agreement to reduce or eliminate trade barriers among ASIAN member. The Common Effective Preferential Tariff (CEPT) Scheme is the instrument to realize AFTA.

Activity 13.1

a. What is the WTO and what does it do, are developing countries members, and how does the WTO relate to the GATT?

b. What economic advantages do countries see in forming a free trade area and what might be some negative consequences of forming one?
c. If several developing countries stand to benefit from freer trade, why are so many developing countries reluctant to move forward with the Doha Round of trade negotiations under the WTO?

**Activity 13.2**

a. What is AFTA and what are its functions?
b. What are the pros and cons of these regional agreements?
c. Why is it often harder to get agreement during multilateral trade negotiations, such as in the Doha Round negotiations under the WTO, than it is to get regional agreements?

**References**

WTO website: www.wto.org
MITI website: www.miti.gov.my
UNIT 14
SUSTAINABLE AGRICULTURAL DEVELOPMENT AS FUTURE DEVELOPMENT APPROACH

14.0 Unit Introduction
This unit briefly discusses the current issues in agriculture production in relation to environmental degradation followed by discussion on the concept of sustainable development and sustainable agricultural as the future approach to agricultural development.

Learning Outcome: Students are able to:
1. discuss issues pertaining to pressures toward adopting sustainable agricultural development.
2. explain the concepts of sustainable development.
3. suggest future agricultural practices that support sustainable agricultural development.

14.1 Issues current Agriculture Production
Agriculture globally has done a great job in providing basic necessity – food - to human survival and civilization over the past millennium. The green revolution which began in 1960s, has solved the problems of hunger and malnutrition in most part of the world. Since then, the world food system has responded to a doubling of world population from 3 billion to over 7 billion today by providing more food per capita at progressively lower prices. As shown in table 14.1, the world per capita food production has increased by 32% from 1961 to 2012. Per capita food production growth in Asia is almost 66%, while in Africa, North America and Europe were 15%, 22.4% and 13.2% respectively, in the same period.

Table 14.1 Gross per capita Production Index

<table>
<thead>
<tr>
<th>Countries</th>
<th>1961</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>World</td>
<td>75.45</td>
<td>107.83</td>
</tr>
<tr>
<td>Africa</td>
<td>89.24</td>
<td>104.23</td>
</tr>
<tr>
<td>Northern America</td>
<td>73.91</td>
<td>96.3</td>
</tr>
<tr>
<td>Asia</td>
<td>50.48</td>
<td>116.42</td>
</tr>
<tr>
<td>Europe</td>
<td>85.44</td>
<td>98.63</td>
</tr>
</tbody>
</table>

Source: FAOStats

This impressive increase in agricultural productivity, however has brought with it considerable environmental challenges. Agriculture is the major user of environmental resources, including water, forests, pastures and nutrients, and its sustainability depends upon their availability. The modern agricultural and food production depends on fossil fuels and fertilizers. However the world’s nitrogen and phosphorus cycles are getting out of balance. Thus excessive or inappropriate use of nutrient causes environmental problems.

Globalization of food system has created great nutrient and water flow across regions through commodities trading. The nutrients imported are usually concentrated in urban areas and creates waste disposal problems rather than solving deficiencies in rural soils. In livestock industry, the concerns of the world is about intensive livestock production including overgrazing costs, influence of feed and meat trade on environment, pollution caused by livestock waste, transmission of diseases, animal welfare and large emissions of greenhouse gasses especially methane.
According to UK Department for International Development (DFID), there are four categories of environmental challenges can be identified that potentially threaten the future viability of agricultural systems, particularly at regional and local levels:

1. **Land degradation**: Land degradation threatens the productivity of existing farmland and pastures. In many developing countries, agricultural land has soil that is low quality or prone to degradation. About 1.2 billion hectares or almost 11% of the Earth’s vegetated surface has been degraded by human activity over the past 45 years. An estimated 5–12 million hectares are lost annually to severe degradation in developing countries. Causes of degradation include water and wind erosion, contamination from industry and agriculture (including pesticides and fertilizers), and overuse of irrigation water causing salinization.

2. **Limits to water availability**: Irrigated agriculture is a major user of water and is crucial to the world’s food supplies. One fifth of the world’s cropland is irrigated, and this produces 40% of the world’s food. In South Asia, over 80% of water resources are now used in agriculture. Water use efficiency in irrigation so far is generally very low albeit heavy investment, and there are major concerns regarding resource depletion and persistent conflicts over water rights. Unsustainable exploitation of groundwater may lead to unforeseen problems such as arsenic contamination of drinking water.

3. **Loss of biodiversity**: Diverse agricultural systems and landscapes are resilient to shocks and stresses, with various plants, insects and animals helping to control pests and keep soils fertile. Many of the world’s modern agricultural systems have become highly-simplified, and no longer making the best use of this “beneficial” biodiversity, such as biological pest control practices.

4. **Declining agricultural genetic diversity**: Declining genetic diversity in agriculture itself. Only 150 plant species are cultivated for food worldwide, and only 3 (rice, wheat and maize) supply 60% of the world’s calories. Downward trends of genetic diversity in crops has been observed; from some 30,000 varieties of rice were grown in India fifty years ago to now only 10 varieties cover 75% of the all the rice-growing area. Reductions in agro-biodiversity increase disease and pest problems.

Despite those challenges, agriculture remains important for food security and the principal livelihood of poor people who are mostly live in rural areas in developing countries. Also agriculture is considered as the major engine of economic growth in the majority of developing countries. Hence, agricultural production has to be changed to ensure resources are sustainably used and the capacity to produce food for future generation.

14.2 Sustainability Thinking

In 1978 Thomas Malthus was the first person to argue that, if population growth was not controlled, it would eventually overtake the ability to produce enough food leading to starvation and war (Malthus, 1978, in UK Department for International Development (DFID), 2004). However, increase in food demand since the 20th century are met resultant from improved in agricultural technologies. Thus the Malthusian trap has been avoided, at least for the time being.

As the UK Department for International Development (DFID), 2004 put forth, the thinking of sustainable or environment concerned caused by agriculture has begun in 1950s and 1960s. In the 1960s, concerns were voiced about the environmental risks caused by agriculture,
driven in particular by Rachel Carson's book entitle “Silent Spring” (Carson, 1963). In the 1970s, the Club of Rome’s controversial report on “Limits to Growth” (Meadows et al, 1972) identified the economic problems that societies would face when environmental resources were overused, depleted or harmed, and pointed to the need for different types of policies to generate sustainable economic growth. In the 1980s, the World Commission on Environment and Development, chaired by Gro Harlem Brundtland, published Our Common Future, the first serious attempt to link poverty alleviation to natural resource management and the state of the environment (World Commission on Environment and Development, 1987).

14.3 Concepts and definition of Sustainable Agriculture
Sustainable agriculture was addressed by the Congress in the Food, Agriculture, Conservation, and Trade Act of 1990. Under that law, the term sustainable agriculture means:

"an integrated system of plant and animal production practices having a site-specific application that will, over the long term:
- satisfy human food and fiber 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."

The goal of sustainable agriculture is to minimize adverse impacts to the immediate and off-farm environments while providing a sustained level of production and profit. Inherent to this goal is the understanding that sustainability must be extended not only globally, but indefinitely in time, and to all living organisms including humans. Simply stated, sustainable agriculture refers to the ability of a farm to produce food indefinitely, without causing irreversible damage to ecosystem health.

The three pillars of sustainable agriculture is illustrated in figure 14.1 below.

![Figure 14.1 Three Pillars of Sustainable Agriculture](image)

i. Environmentally Friendly or Ecology perspective: The main concerns are to reduce environmental and health externalities, to increase and use local ecosystem resources and preserve biodiversity. More recent concerns include better recognition for positive environmental externalities from agriculture.
ii. **Economic Viability**: The economic perspective on agricultural sustainability attempts to assign value to ecological asset. Hence we need a sustainable economic model that ensures fair distribution and allocation of resources. This pillar ensures that economic growth maintains a healthy balance with ecosystem. There must be at the time return to investment that provides opportunity to invest in the maintenance of resources.

iii. **Socially and politically acceptable**: There are many concerns about the equity or justice of technological change. At the local level agricultural sustainability is associated with farmer participation, group action and promotion of local institutions, culture and farming communities. At the higher level, the concern is for enabling policies that target poverty eradication.

Ideally, balance of the three dimensions is what people are looking for. Nevertheless it is the greatest challenge to operationalize the concept of sustainability in agriculture. The three dimensions are inter-dependent on each other. Environmental and social sustainability of productive resources depend in part on economic profitability which must provide for reinvestment in the maintenance of these resources, natural environment included. It also must provide satisfactory standard of living to owners and employees involved in the production process. In turn, economic sustainability is dependent on a productive workforce and productive natural resources. In operationalizing sustainability in agriculture, externalities are of great importance and therefore agricultural production strategies should be based on criteria which are more than simple productivity.

14.4 **Towards Sustainable Agriculture as Future Development Trajectory**

Population growth is the major factor for increasing food demand. But current agricultural production approaches in most countries especially developing economies are unsustainable which will risk the future survival of human. A sustainable development trajectory requires food system to be transformed to ensure increase in food and nutrition availability and utilization, preserve environment, healthier human being, and improve the prosperity of rural populace.

Sustainable agricultural development should be directed towards increasing productivity and efficiency and at the same time protects natural resources from unsustainable exploitation, degradation or pollution. Hence management of food losses and waste are important in reducing the pressure on agricultural land, water and natural ecosystems. The future growth requires increase in efficiency of complete agricultural value or/and supply chain and changing the behavior of all chain actors. This includes policy makers, agribusinesses, consumers and farmers. Food safety standards have to be raised and traceability needs to be implemented.

On the supply side, priority should be on productivity and efficiency improvement on existing crop land. Intercropping, integrated farming or diversifying of crops grown per season as well as reducing pre- and post-harvest losses are among possible options in improving efficiency. In terms of livestock production, big challenge is to increase productivity per animal through good husbandry practices such as better feeding, breeding and health care.

The pre-requisites to the shift to sustainable agriculture development trajectories are all stakeholders in food system have to adopt the state of the art knowledge and technologies and therefore it will require trying multiple models. As such research becomes an important agenda to be supported beginning this transition phase. The world needs to emphasize on science-based actionable solutions which are tailored to local situations and support structural transformation of the entire food system. The new food systems will require new business models for farming and new approaches to provide access to modern technology to farms of all scales so that sustainable agricultural development path is ensured. More importantly, good governance and excellent support mechanisms are required to ensure fair access to resources, markets and innovations. Right knowledge and information must be acquired by
policy makers, scientists, and agricultural professionals from all sectors to facilitate the sustainable development in agriculture.

14.5 Malaysia’s Policies towards Sustainable Agriculture

Malaysia is also concerned with unsustainable agricultural practices. The development of sustainable agricultural development has been given emphasis since the inauguration of NAP3. This has prompted the Ministry of Agriculture and Agro-based Industry to establish good agricultural practices schemes. This includes Malaysia Good Farm Practices Scheme (SALM), Good Husbandry Practices (SALT), and Aquaculture Good Practice Scheme (SAAB). Farm which is certified with any of those schemes is recognized as practicing sustainable product. However they implemented on voluntary basis.

The government commitment towards sustainable agriculture is further emphasized in the National Agro-food Policy (DAN). First, Sustainable Agriculture Development is one of the eight ideas in charting the transformation programs of agriculture development. Within this idea, the sustainable utilization and management of natural resources such as land and water in food production is critical in ensuring optimum and continuous production. As it has been mentioned in earlier unit, intercropping and integrated livestock with oil palm are among production approaches.

Second, under strategic direction III: Completing Value Chain. The specific program is integrating sustainable practices and traceability systems as components in value chain. To expand sustainable agricultural practices, increase in awareness towards environment preservation and health is a challenge to agricultural producers in producing sustainable standard products. Development of new agricultural areas will take into considerations factors such as sustainable management of forest, land and agricultural waste. Agricultural waste will be recycled into co-products such as compost, animal feed and bio-gas. To promote this activity, incentive which includes Accelerated Capital Depreciation Allowance will be provided.

Third, specifically for fishery industry, the strategy to modernized and transform captured fish industry is through sustainable captured fish industry development. In order to ensure fish resources are preserved and able to fulfill future needs. This will be realized through sustainable management of fish resources.

Fourth, the transformation of livestock industry will focus on commercial ventures, producing quality breeds and expansion of Good Animal Husbandry Practices. R&D on disease control and efficient production system will be emphasized.

Fifth, production of vegetables will be increased through productivity improvement on existing cultivated areas. The approach of productivity improvement will be by increase in crop intensity from currently 1.8 cycle to 2.5 cycle per year by 2020.

Sixth, the development of swiftlet nests area will be sustainably implemented by zoning according to carrying capacity in each zone.

In the National Commodity Policy, sustainable development is explicitly mentioned as one of strategic thrusts for making oil palm industry more competitive in the global market. The strategic thrust is developing sustainable and environmental friendly oil palm industry. This is important as palm oil and its derivatives are major export commodity of Malaysia. The strategies to achieving this thrust are: i. oil palm industry development will take environmental regulations into consideration, ii. Inculcating GAP and regulating Code of Practice (CoP MPOB), iii. ensuring oil palm planting will not affect environment, premises and communities, iv. enforcing Code of good nursery practices, v. adopting good manufacturing practices, vi. certify premises which have implemented GAP, vii. Monitoring of production and waste management practices, viii Provision of fiscal incentives for using green technologies in
production and processing, and ix. Encourage sustainable palm oil production through Roundtable on Sustainable Palm Oil (RSPO) / International Sustainability and Carbon Certification (ISCC) / Round Table on Sustainable Biofuel (RSB).

14.6 Summary
Agriculture is the major user of environmental resources, including water, forests, pastures and nutrients, and its sustainability depends upon their availability. The modern agricultural and food production depends on fossil fuels and fertilizers. But excessive or inappropriate use of nutrient causes environmental problems. Environmental degradation caused by agriculture has become a major concern. Hence, sustainable development needs to be implemented to ensure the survivor of future generation will not be at risk. Malaysian government has realized to importance of sustainable development and therefore has developed appropriate policies to support sustainable agriculture development in the country.

Activity 14.1
Discuss the three pillars of agriculture sustainable development.

Activity 14.2
Malaysian agro-food sectors are introducing good agriculture practice schemes to inculcate the sustainable agriculture production among producer. Evaluate this statement. Answer should include the policies imposed, developed schemes and progress of the schemes.

Activity 14.3
a. Why are developing countries particularly vulnerable to environmental degradation, and
b. Why should developed countries be concerned that environmental problems exist in developing countries?

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Agriculture and Natural Resources Team of the UK Department for International Development (DFID) in collaboration with Jules Pretty of the Department of Biological Sciences, University of Essex, UK (2004). Agricultural Sustainability. Working paper.
