LECTURE NOTE ON

AGRICULTURAL PRODUCTION AND OPERATIONS MANAGEMENT

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THE FARMER AND HIS MANAGEMENT FUNCTIONS

At the outset the study of management has to be recognized that whilst farms must be planned and run on business lines, the biological nature of agriculture, together with an inherent variability and uncertainty, frequently requires decisions to be taken and implemented on the basis of incomplete information. However, it is important to obtain as much information as possible to increase the chances of success.

THE PROCESSES OF MANAGEMENT

Each farmer has effective for his business. Management is concerned with ensuring that these objectives are attained. Every business has three primary sources; capital, which is used to obtain other resources; land (including building), and labour. Supposed on these is what might be termed the key factor in management ability after identification of objectives, every farmer has to consider the organisation of his resources into a suitable plan. At each stage, he must take particular article of the amount of capital required and the possibilities of obtaining it. Neat the plan has to be put into operation and managed; hence organisation and management is frequently used interchangeably.

Once the plan is in operation, the results have to be recorded. These are then analysed and appraised to establish what they indicate. Such results could be used as a basis for control of the plan.

The results must suggest that modifications are desirable to exploit strengths and remove weakness. Any changes have then to be put into operation it deemed appropriate. Sometimes minor amendments to the plan are insufficient to enable the business to comply with the objectives. It may then be necessary to undertake a complete replanning exercise for the whole farm. In practice, once the plan is operating most of the above processes are going on at the same time and are closely inter-related. These processes include: capital, land, labour, crop, stock and machinery.
Environmental factors which include physical, economic, political and sociological may influence management. To run a business effectively, an additional prices must be added. This involves forecasting both the performance of the management suggests and the influence of the environment. Thus; there are five main processes; (1) forecasting (2) Planning (3) Implementation (4) recording and (5) Controlling.

**Functions of Management**

The function of management is primarily concerned with the decisions making processes. The functions include:

(1) Planning: Planning encompasses short and long term. This will guide the farmer in making devices in respect of what and how to produce. When the plan is operating, the farmer has to take tactical decisions in whoming things like timing of operations (e.g) sowing in relation to soil conditions, and time of year; techniques of operation, (e.g.) sowing method and depth of sowing; adjustments within production processes (e.g) fertilizer levels or concentrate usage; and adjustments of production processes, (e.g) if the price of bacon pigs falls relative to that of pork, the bacon producer may decide to change to pork production for a limited time.

In essence, the farmer, having formulated his plan, has to put it into action. He has to control his resources and exercise his judgement to ensure that the production processes are carried out with a little function as possible between the different activities in the demand for resources at the one time and to ensure that production takes place to comply with the plan and the objectives for the business.

(2) Financing: With regard to financing, at the planning stage it is necessary to examine all the sources of capital to decide how much capital is required, when it is wanted and which source should be used, how and when it has to be repaid. At the operation stage, the capital has to be deployed in
accordance with the plan and allocated to those activities which produce greatest benefit to the business. It is necessary to ensure that money is available to meet the demands for continuing production, to see that there is sufficient finance for living expenses, taxation and interest plus repayment of capital. At the same time the farmer must consider the future needs for capital to develop the business. The farmer lives to keep within his borrowing limits and he has to ensure that the capital is put to work effectively. This requires a great deal of skill in timing production and marketing to ensure that money is available when required.

(3) Marketing: Successful marketing both buying and selling is one of the key functions of management. At the planning stage it is essential to ensure that the markets are, and will remain, available. At this point cognizance must be taken of the type and quality of the product which is intended to produce. Consideration must also be given to the timing of sales. At the operational stage, it is necessary to make use of every opportunity to market to best advantage. Marketing contracts may be negotiated. Produce has to be selected for sales and presented in the right condition, when it is in demand, at the right market. Equal care has to be taken in the purchase of goods required for production.

(4) Staffing: When planning, it is necessary to consider the number of staff required, the skills that will be necessary, the availability of workers, the degree of authority and responsibility which will be given to each person and the wages and conditions which will be provided. Once the plan is in operation, quite apart from managing his own time, the farmer has to direct the staff he has selected, supervise their work, keep them motivated and maintain good labour relations. It is essential to recognize that farm staff can markedly influence the results obtained from a farm. The farmer may do all his recording but many staff are motivated by monitoring the progress of the enterprises that they work with. After recording has been undertaken, the
point may arise when it is necessary to consider changes in strategy or tactics so that the business in complies with its objectives.

**THE FARMER AND MANAGEMENT SKILLS**

The Source of Management

On many farmers the owner of the business, or the person who carries the ultimate risk, provides most of the management skills either as tenant of his own land or of some one else. On other farms management staff are employed but the amount of authority delegated to them differs enormously from business to business. The success of management is very much determined by the quality of judgement in relation to the decisions that have to be taken. It is this factor which separates the good farmer from the bad if they are working under similar conditions.

**OBJECTIVES**

Clear objectives must be formulated for a business if it is to have positive direction. Many factors influence their selection, and in practice, most farmers modify what may be their initial objective, that of long term profit maximization.

Present and future requirements for the business, policies for developments, age and the provision for successors, attitudes to risk and uncertainty. Personal preference, knowledge, judgment and ability, tradition, status as owner occupier or tenants, taxation and many other factors may be relevant.

The first need of every farmer is to provide enough money to live on after his expenses, including taxes and servicing costs of borrowed capital have been deducted from his income.

Farmers with limited area of land may be forced to aim for high profits per hectare to justify this need. Those with large farms can place more emphasis on
return on capital and can consider less intensive systems. It must be realized that profitability per hectare is not synonymous with return on capital.

Once the basic needs are satisfied, more considerations can be given to long term growth of the business. Farmers differ in their resolve to do this, and some accept management pressures which others would not consider.

Occasionally, farmers adopt plans which reduce profits in the short term but in the long run produce greater benefits. A typical example could be the purchase of extra land, partially with borrowed money. The essential point is to avoid insolvency by ensuring that there are sufficient funds to finance current activities until the benefits from increased outputs arise.

Farmers who have high rents or expensive mortgages and those with large amounts of borrowed capital from other sources, at high interest rates, have particular pressure placed upon them. They may have less opportunity to indulge some of their personal preferences than more fortunate colleagues on similar farms.

Visitors to farms must take care in farming judgments about the farmer’s policy and objectives unless they know all the circumstances. Whilst it is frequently good advice to put as much money as possible into productive units such as cows, there comes a time, which is not always at the point of absolute necessity, when it is judicious to invest in buildings and machinery according to the particular financial and taxation position. This must not be confused with situations where investment is more a matter of prestige to keep up with these leading farmers, and where the investment is not always justified. Care must also be taken not to over emphasise one’s own attitudes when considering another person’s objectives. A farmer who is happy with his situation and can remain viable should not necessarily be forced into the management difficulties which might be attendant to profit maximization.
DIFFERENCES BETWEEN FARMERS

Caution is necessary when judging the respective merits of farmers. Clearly some have greater ability than others to take decisions and there are differences in their knowledge, willingness to research techniques, their ability to evaluate and innovate. Attitudes to risk and uncertainty can be an important factor in influencing decisions. When a farmer is planning his knowledge of the future is imperfect. Although the finite differences between risk and uncertainty can sometimes be a little vague, where enough observations of some thing happening can be made to establish the chances, in quantitative terms of it arising again, the situation falls within the realms of risk.

There are different degrees of risk. Thus a car insurance company knows from statistic that a student is more likely to have an accident than his more mature lecturer and charges him a higher premium accordingly.

Uncertainty refers to situations where the probable outcome cannot be expressed in quantitative terms. Some farmers are prepared to take greater risks than others. The rewards for taking risks can sometimes, but by no means always be high. The penalties for failure can be serves. Examples range from basic aspects such as “hey making in changeable weather to major capital investment. The reason why high risk activities may be very profitable is that not enough farmers are prepared to operate them and if their products are in short supply relative to demand, prices can be high.

MANY FACTORS INFLUENCING ATTITUDES TO RISK

The farmer with well-established business in which he owns most of the assets, and which is making good profits, might be considered to be in a better position to take chances than his colleagues who is new to farming, and who has not achieved the same sale of business and profitability.

Some established farmers are guilty of following tradition and are reluctant to adopt new techniques until they are confident that they can assess the risks. They may therefore, miss the opportunity for increased profits, although in some
cases they will be wise to avoid a technique just because it is new. There are farmers who feel that in a changing world, there is little point in planning for the future. They claim that there is too much uncertainty about prices and the availability of resources, quite apart from the difficulty of predicting crop and animal performance to make it worthwhile.

**DIVERSIFICATION AND SPECIALIZATION**

To avoid risks involved in “putting all eggs into one basket” many farmers maintain a diversity of enterprises. They hope that if some thing goes wrong with the performance or product price of one enterprise, the others will be able to cover the losses. Some farmers also assert that they are justified in diversifying because they need to select a range of enterprises to suit the different types of land found on their particular farm. Others point to advantages interaction effects between enterprises which result in higher production. Examples quoted include improved land fertility, which may be derived from livestock using a grass-break in a cropping rotation, the use of arable by products to feed stock, and in other cases better weed, diseases and pest control.

Claims are sometimes made that it is easier to plan labour on a mixed farm because the demands for staff by the different enterprises can be made to dovetail if care is taken at the planning stage. Specialization and simplification can result in the concentration of management and other resources such as labour on to a limited range of activities, perhaps with greater productivity because of attention to detail. Farmers who specialize do, however, have to accept the risk that if things go wrong heave losses can result. Marketing may be easier in specialized situations because not only will the farmer be able to devote more of his time to one product, but the quantities of goods he sells or buys will be target, with the result that he may be able to obtain better terms.
THE REAL SIGNIFICANCE OF MANAGEMENT

The truth is that successful management depends very largely on personal experience for the formation of sound judgments. The part academic knowledge can play varies from situation to situation. Management should be regarded as a skill which utilizes a wide range of abilities. Students of agriculture will find that it requires and indeed is a logical combination of all facets of their course, whether it be the farm practical, the husbandry or science classes, or the management and economic studies. They will have to realize, however, that successful management principally depends upon the efforts and ability of the individual to utilize his experience to fully analyse and interpret situations. Knowledge of a few facts and techniques alone cannot do this.

Many farmers without formal academic training are exceptionally good managers. Years of experience, a good training from father, innate ability, luck, personal research or self-teachings, use of advisers, and many other factors play their part. When farming enters a difficulty period survival may become a problem for some and such people may have to consider whether they should “sell-up” and take some money from the business whilst they can.

Farmers with a lot of borrowed capital generally must be efficient even in “good times” but they can face special problems in bad times”. All farmers would be wise to stand back from time to time and look objectively at their businesses to assess not only the reasons for their present performance but also their future viability; and at the same time allow the farmer to have a more satisfying life.

The principles and techniques of management will not take decisions for anyone, but if properly applied should provide sound guidelines which will not only give some idea of the risks involved in particular courses of actions but at the same time promote an increased number of correct decisions.
ENVIRONMENTAL FACTORS AND FORECASTING

A farm business has to trade with agencies outside the farm gate and cannot operate in isolation. This means that quite apart from a consideration of the physical environmental factors of land, soil and climate, the farmer must consider economic, political and social influences that might affect agriculture and his business in particular. It is therefore, very important that farmers are fully aware of the factors affecting the agricultural industry.

Supply and Demand

In order to understand the full significance of the environmental factors, it is necessary to be aware of the inter relationship between supply and demand and the price of product. Here, the term ‘product’ is used, but remember that one business product may become another business input e.g. barley sold for stock feed.

It might be considered that he ideal price is that at which demand for a product equals the supply since that is the point at which price would be most stable. In practice, the amount demanded rarely equates with the amount supplied although, there are many forces which work to bring this about.

In general, the demand for products increases as their price falls because people are prepared to buy more at lower price. By convention, the price is expressed on the vertical axis and quantity demanded at any given price long the horizontal axis (fig A).

The supply of a product tends to rise as the price goes up because businesses are within to produce and sell more (fig B).

If the supply and demand curves are now shown together, the point ‘E’ (equilibrium) can be attained. This is the price which equates supply and demand (fig c). At prices above equilibrium (pe) surpluses develop due to supply exceeding demand, and at prices below (pe) shortages occur due to demand exceeding supply.
Supply and demand curves represent the change in amount supplied and demanded in response to a change in price. This type of change must be differentiated from a change in supply or demand caused by a movement of the demand or supply curve.

The latter point can be illustrated by reference to a year which produces a poor cereal harvest, but is an average year for livestock. Assume that stock farmers are not prepared to alter their attitudes on the price that should be paid for barley. The aggregate demand curve for barley (DD) therefore remains the same (fig D).

However, because of the poor harvest, total supplies of barley are lower. The supply curve (SS) for a normal barley harvest moves to the left and takes up the new position (S, S) shown by the dotted line. At this new position it can be seen that the price which equates the new supply and demand is pe2.

Price pe2 is higher than pe, because cereal growers offer less barley than formerly or all price levels, whilst supply is less than demand, thus forcing prices upwards. As the prices stock formers demand less grain until or pe2 the amount demanded and supplied is in equilibrium.

**ALTERNATIVE FORGONE OR OPPORTUNITY COST**

It might be considered naïve to assume that in a time of shortage, the stock farmers would not be forced to change their attitude some what about the price they would pay for barley because their stock would still require to be fed. Remember, that many would look for alternative foods, some beef producers would adopt less-speedy methods of finishing, and others who forecast the increased price of barley might have reduced the number of cattle they bought or purchased barely in advance. Opportunity cost infact, is the alternative forgone. Dire quest for rice is the cost for not affording meat.
PRICE ELASTICITY

The response in supply or demand to a change in price is called price elasticity. The percentage change in the quantity demanded of a given product relative to the percentage change in price gives a measure of its price elasticity of demand. If the percentage change in demand is less than the percentage change in the price, the demand is relatively inelastic i.e. “Ed’ = more than 1.0.

When the percentage change in demand is bigger than that of the price, the demand is elastic, i.e. “Ed” = more than 1.0.

Question:

What does this mean and how can it affect the farmer?

Answer:

Let fig (A) below show the demand for milk and fig (B) the demand for potatoes. If the price was to rise in each case from P₁ to P₂, the response in demand would be greater in the case of milk than potatoes, i.e. in (fig 1A) demand fall from Q₁ to Q₂ units and in (fig iB) from Q₃ to Q₄ units. The different in fall in demand between milk and potatoes is due to the difference in the slope of their demand curves.

Note the following pointers with reference to the demand for agricultural products. The demand for some products can be said to be a derived demand. This means that the requirement for them is derived from the demand for other
products (eg) the demand for feed barley depends upon the demand for beef, lamp and other livestock products. The increase in demand for agricultural products tends to be slow because of the pattern of spending on food by consumers. Significant increases in demand can come with increases in the population.

Where there is elastic demand for a product, demand will increase markedly if the price rises. Where there is inelastic demand for a product, total revenue will increase if a supply shortage occurs.

Inflation apart, there is a tendency for the price and demand for many products to remain fairly static. This encourages farmers to introduce new technology to raise yields to increase their incomes. Increased yields tend to produce surpluses, which tend to push down prices, so the farmers have again to increase yields to maintain or increase their incomes. This produces what can be described as the ‘feed mill syndrome’

**PRICE ELASTICITY OF SUPPLY AND DEMAND**

The price elasticity of supply can be explained in much the same way as that for demand. Basically, it deals with the way in which supply changes in response to an increase or a decrease in price. One factor to note is that in farming there is frequently a time lag between the change in price and the response because of the length of the biological cycle needed to produce the product.

Another point is that a farmer has to take care before deciding to reduce his production because many of his overhead costs, such as rent, may still exist irrespective of his level of production.

**“SUBSTITUTION”**

Farmers substitute when prices of inputs rise. (eg) if the price of rice is high, the farmer could result to potatoes etc.
PERFECT AND IMPERFECT COMPETITION

The farmer should know who his competitors are and be aware of their strength. One of the main conditions for perfect competition is that no one business is big enough to have an effect on the market on its own. When a limited number of businesses can market sufficient produce to influence prices, imperfect competition occurs, and if there is a single seller, a monopoly exists.

There are big dangers for consumers from monopolistic types situation because sellers can dictate prices for products. The severity or the situation depends upon the possibility of using substitutes for the particular product and upon the ease with which new producers may begin to supply it if its price rises to a high level. Farmers must be aware of the development of monopolistic situations in the feeding stuff fertilizer and farm machinery industries. Their ability to prevent them occurring is limited.

COMPARATIVE ADVANTAGE

The law of comparative advantage states that “a product tends to be produced in areas where its ratio of advantage over other areas is higher, or its disadvantages are lower, than any other products.

Physical factors such as soil type, topography, attitude and ultimate can be important in this context. Other factors are biological, proximity to market.

The key factor is that each farmer must loose to see if he has any advantages which he can exploit. They may enable him to produce a better products to produce it at less cost, to produce more of it, or to sell it at a higher price than his competitors.

POLITICAL AND ECONOMIC FACTORS

These two factors have so many inter-related facets when affect farming, either directly or indirectly that they can be considered together. It has to be realized that government at the national level represents the interests of all branches of
the community and not just farmers. However, the strength of the farmers political vote, i.e. the number of farmers who can vote at parliamentary elections relative to people in other walks of life, can have a remarkable effect on many politicians decisions.

In some countries, farmers have to produce their goods to sell in a force market situation. This means that the laws of supply and demand are allowed to operate freely to influence the level of production. In other countries, politically inspired economic action is taken to modify the normal supply/demand forces. There is, however, little point in confirming the study of politics.

FARMERS EXPERIMENTATION WITH CASSAVA PLANTING IN INDONESIA

Farmers carry out their own experiments with crops. In fact, before the start of institutional agricultural experimentation, new developments in agronomic practices almost completely depended on experiments by farmers. Indonesian farmers are said to be good experimenters. A clear example is the development of the Mukibal system of cassava growing.

The Mukibal system is name after its investor, Mukibat, a farmer from East Java. He found that budding or grafting of tree cassava (Manihot glaziovil) onto a stock of ordinary cassava (M. esculenta) can lead to very high yields of tuberous roots. Tree cassava is a perennial, often growth in East Java and other parts of Indonesia, with support from the Agricultural Extension Service. But the system was not generally accepted. In the first 20 years after Mukibat started with his work no systematic scientific research in to the agronomy and economic feasibility of the system has been carried out. Some experiments were carried out by the Agricultural Extension Service and by research institutes. However, many trials, often very inventive, have bee done by farmers. Some times in cooperation with the Extension Service. Publications were very scarce and written in Indonesia. A first description of the system in English was written by De
Bruijn and Dhamaputra (1974). In 1973 the Faculty of Agriculture, Brawuhata University, Malang, started a research project on the Makubat system, in cooperation with the Wageningen Agricultural University and supported by the Canadian International Development Research Centre, research results gave more insight into the possibilities of the system. In this paper a short description of the Mukibat system is presented, and some examples of farmer's initiatives in the development of the system are mentioned. The relevance of the system is considered and the necessity for studying the system further in close cooperation with farmers and researchers is discussed.

The System

According to villagers from Ngadiloyo, where Mukibat lived, Mukibat got the idea of combining tree cassava with ordinary cassava after following a course given by the Agricultural Extension Service in which participants had to do some individual grafting work. Though initially Mukibat budded the cassava tree onto the stock, grafting became more popular later on. Mukibat planted the budded cuttings in his farm yard on spots where organic matter had been put in the soil before planting. This creates a favourable situation for the cuttings to grow. At present the most common way of applying the Mukibat system is as follows:

A scion of tree cassava, length 10-15cm, is grafted on a piece of stem of ordinary cassava, length 20-30cm, diameter 2-4cm, serving as a stock. Scion and stock, which have to be exactly of the same diameter, are cut slant wise. A thin piece of bamboo is put into the pith of both scion and stock to facilitate the connection, and both stem pieces are connected often with banana leaf fibre. The cuttings are put under shade and watered daily. After about 8 days sprouts start to grow. Sprouts are removed from the stock. When the sprouts from the scion are about 2cm long the grafted cuttings can be planted in the field. A hole normally is made before planting in which organic matter is mixed with the soil, after which the holes are filled up with soil and hilled up. The grafted cuttings, one per hill, are
planted in a vertical position. Plant care is rather similar to the way in which ordinary farmers protect their plants by supporting them with bamboo. Plant spacing is very variable, especially under intercropping conditions. But normally a spacing of 1.25m x 1.50m is quite common. The growing period may vary from 8 to 18 months; harvesting mostly takes place about 12 months after planting. More details about the system are given by De Bruijn and Dhamaputra (1974).

Farmers Initiatives in the Development of the System

It is impressive to see how many variation of Mukibat’s original ideas have been developed by farmers, in cooperation with the Agricultural Extension Service or not. We mention a number of modifications developed during the first 20 years of application of the system. In various cases the physiological considerations in way farmers think are striking. Much attention has been given to the question of whether budding or grafting is to be preferred. Though the grafting method is currently the most popular budding is also fairly common. Budding is more difficult; its percentage of success is often very low. Alternative ways to make the scion-stock connection have been tried out in farm yards, like the one which was propagated as the ‘Kurkur’ system (Kurniaatmadja, 1969). In this modification, cuttings of ordinary and tree cassava are planted separately. After 45 days young shoots of tree cassava are grafted on young shoots of ordinary cassava. For the scion material farmers distinguish original tree cassava stems and stems taken from a Mukibat canopy. It is not yet clear, however, whether the one is better than the other. Some farmers assert that the percentage of success from grafting can be improved by turning the graft units upside down for about five days, after which they are placed in the soil in normal position. Farmers found that after the first yield the grafted or budded cuttings can be replanted up to two or three times, on condition that the original stock is long enough. At the bottom end the stock is shortened by 5cm after harvest. The top end is cut at about 10 cm above the original scion. This method reduces the
effort of making planting material. It also eliminates the risk of breaking due to
wind. Moreover, the yield from replanted cutting appears to be better, though
roots may become too woody after using the same unit more than three times. In
order to promote higher yield, farmers often try to increase the number of roots
per plant by treating the bottom end of the cutting. This is done by cutting the end
slantwise, by making a circular incision in the peel, or by splitting the cutting
longitudinally by sawing in the centre up to about 10cm. The effectiveness of
these methods is not known. Considering that the big tree cassava canopy is not
in balance with the stock, Satrawl, another farmer experimenting in his backyard,
managed to connect one scion of tree cassava with three stocks of ordinary
cassava (Anon., 1973). This system is quite laborious and often fails. But the
yield capacity is said to be higher than that of the normal Mukibat system.
Satrawal plants produce more and smaller roots, and the stocks are some times
taken from different varieties, both having its own specific flavour. Showing his
skill, Satrawal even managed to make combinations of one scion with five and
even seven stocks!. Some East Javanese farmers even claim that by simple
perforation of the pith of ordinary cassava cuttings by a long bamboo stick, i.e.
without using any scion, the yield of tuberous roots can be increased. This is
called the ‘Masduku’ system. It has not been clearly proven whether it works or
not. Farmers have developed other different modifications. In our opinion the
development of methodology of the Mukibat system in about 20 years clearly
shows a dynamic way in which farmers are managing and modifying their
technology.

Relevance of the System

The relevance of the Mukibat system has often been subject to discussion.
Though the system has been used for many years in different regions of East
java, one may well wonder why it is not more widely used and expanding in other
countries as well. East Javanese farmers sometimes use both the ordinary and
the Mukibat system at the same time. A clear and general answer to the question of its relevance cannot be given. However, the general adoption of the system in some villages proves beneficial to the farmers. It appears that its relevance depends on a number of tractors. We shall consider some of those. In the first place, one should consider that the inputs to the system are quite high, mainly due to the grafting work and the digging of planting holes and filing them with organic matter. Comparing Mukibat and ordinary cassava, Soemarjo Poespodarsono et al. (1976) found that the input and output per hectare of the Mukibat way of planting was Rp. 152,700 and Rp. 295,230 respectively, and those of ordinary cassava Rp. 72,550 and Rp. 192,840 respectively. Thus the benefit margins of the two systems do not differ much, though they vary from one region to the other. It should be noted however that most inputs are local and consist mainly of labour. They yield benefit of the Mukibat system is often not so high as is sometimes suggested. Though the yield per plant may become more than 100 kgs in some cases, on a hectare basis with normal densities, yield per plant is much less. Experiments at Brawijaya University indicated that under comparable conditions the yield increase the Mukibat system is about 30%, though increases of more than 100% are claimed in some reports (Sitomput et al. 1982). The relevance of the system is highly dependent on local conditions. The system is very popular for growing cassava on sandy soils along the river Brantas. Experiments have shown that during the long dry season in East Java the leaf area of Mukibat plants is much less reduced than that of ordinary cassava (Bambang Guritno et al. 1981). This may be so because of the perennial character of tree cassava, causing a much faster and deeper rooting system. Thus water, and plant nutrients would be more available for Mukibat plants than for ordinary cassava plants. Farmers often use the Mukibat system to increase the yield of varieties with low production capacity but good taste. Research indeed indicated that the yield benefit in low yielding varieties is higher than that in high yielding varieties.
Conclusions:

It is evident that under certain conditions the Mukibat system is beneficial for farmers. However, it is not quiet clear which considerations make farmers adopt or reject the system. There are still many open questions. Answers could be found by further study of what is more attractive or feasible for farmers. One labour intensive factor is the grafting work. The development of a simple grafting machine could reduce labour inputs. Another labour intensive factor is the holes digging. Research indicated that digging holes is not absolutely necessary; the application of organic matter in combination with normal soil cultivation is sufficient (Bambang Guritno et al., 1981). In our opinion further study should be carried out in close cooperation with farmers who have ample experience with the Mukibat system, thus mainly by on-farm experimentation. Intensive participation by farmers into further study of a system which they mainly developed themselves seems to be more than logical. Researchers, however, are in a position to compare experiences from different farmers and from different regions. A good interaction of activities of farmers and researchers certainly could help to bring more light in the complexity of the system.

References:

INNOVATIVE TECHNOLOGIES AND MANAGEMENT SCHEMES FOR ECO-FRIENDLY FISH FARM MANAGEMENT AND PRODUCTION OF SAFE AQUACULTURE FOODS.

Preserving the integrity of the aquaculture while ensuring safe seafood products.

In many Asian countries, aquaculture holds great promise for increasing the availability of affordable food, protein and nutrients for human consumption and a healthier future for the people. Meanwhile, in the more developed countries in the region, aquaculture has become one of the fastest growing food production sectors.

However, there is now an increasing demand among consumers for high-quality, eco-friendly, and safe aquaculture products. Hence, it has become more important than ever to adopt innovative technologies and management schemes that will ensure the preservation of the aqua-ecosystem and its surrounding environment, and which will guarantee food safety or the protection of aquaculture products from any form of contamination. Meeting safety requirements (e.g. Hazard Analysis and critical control point (HACCP). Good Aquaculture Practice (GAP) etc in all stages of the production and handling process has now become an uncompromising condition in most countries. However, complying with these rigid safety requirements has been difficult for small-scale fish farmers, owing to their little knowledge about sustainable aquaculture management as well as some policy/regulation and structural constraints.

Eco-Friendly Aquaculture Workshop

The development and expansion of aquaculture must be and can be balanced with the need to protect the integrity of existing ecosystems. That, and the growing demand among consumers for quality and safety, as well as
knowledge of and accountability for what they are consuming, will spell the long-term viability of aquaculture development in the Asian region. Hence, this international workshop was organized to serve as a venue for the sharing of knowledge and experiences on improved aquaculture technologies and management system to address the need for eco-friendly production processes and food safety concerns. During the workshop, participants shared and exchanged information, knowledge and experiences on major issues and recent technological advancements in aquaculture such as environmentally sound poly-eco- aquaculture, organic aquaculture, integrated fish farming system, safety through monitoring for the presence of pathogenic bacteria, chemical contaminants, and drug residues in aquaculture products, all toward addressing the long-term viability and sustainability of aquaculture development, particularly in respect to commercial aquaculture by small-scale fish farmers.

**Major Issues and Concerns**

There is no doubt that aquaculture is now considered as a major player in the national economy of many developing Asian countries, specifically in terms of producing high nutritional value food for human consumption, and in contributing to rural income and employment through farming and related activities. However, the long-term viability and sustainability of both fresh water and marine aquaculture, particularly in respect to commercial small-scale fish farming has now become a critical factor in aquaculture development, in view of the increasing environmental and social concerns associated with the industry.

Another major issue in aquaculture development is the increasing demand among consumers for high-quality and safe aquaculture products. In becoming an important contributor to the markets for seafood, the aquaculture industry has become increasingly subject to rigid food safety and eco-friendly production and processing requirements (e.g. HACCP, GAP). Hence, to meet such requirements, small scale Asian fish farmers must be equipped with
technological innovations, and guidelines and standards on food safety/traceability. Policy and support services have likewise become necessary to enable them to continue to participate in the network of fisheries and aquaculture production, marketing and trade.

Eco-friendly production practices: Awareness of environmental conservation and responsible aquaculture production are the key factors shaping the development of aquaculture worldwide. To meet this trend, aquaculture development must be based on: socially acceptable and responsible practices; potentially competitive species; industry development through alliances among producers, suppliers, processors, and scientists/researchers; and extension/education and credit support to farmers. In some developing countries in Asia, eco-friendly and good management practices have been implemented through such schemes as: improved management systems like environmentally sound poly-eco- aquaculture and organic aquaculture, genetic improvement for growth and resistance; improved water management system; development of environmentally sound and high quality feeds; practical use of fish disease vaccine; regulations and control for quality of seeds, rearing procedure, chemicals/antibiotics, etc.

Food Safety and traceability: With the growing concern about food safety, increasing efforts must be undertaken to improve the quality of aquaculture food products that are placed in the market.

Some countries in the Asian region are more advanced in terms of implementing food safety protocols, while others are still in the level of consolidating a mix of best practices in aquaculture production aimed at sustainability of the aquaculture environment, and preventing/minimizing contamination and chemical hazards.

Process improvement must emphasize on good aquaculture practice (GAP), good manufacturing practice (GMP), land HACCP standards in all sectors of the food supply chain (hatchery and farm; feed, drug, and chemicals,
harvesting and marketing; GMP and HACCP in processing plants; import and export control), GAP certification procedures must be developed, and improved traceability of fishery product must be implemented to satisfy the demand for information among consumers.

Government/Policy and Support Services: Different types of organisations must have a good interplay in the development and sustainability of the aquaculture industry in each country. These include: policy-making institutions, scientific and technological/research and development agencies, extension and promotion/technology dissemination services, fish-farmer cooperatives/associations, and service-providing institutions (financing, processing, marketing, peer-group associations related to the fisheries sector and others). Regulations in the form of legislation directed towards the implementation of aquaculture development management must also be in place in each country.

**Toward a Sustainable Aquaculture Development**

Environmental and social concerns can influence markets for consumer goods, and that includes aquaculture products. In responding to these concerns, national and international guidelines for responsible and eco-friendly aquaculture through codes of conduct and fisheries policies must be fully observed and implemented to ensure the preservation of the aquaculture environments, as well as the quality and safety of aquaculture foods and other products. With sustainability and food quality/safety as the core components, there is also a critical need for countries within the region to harmonize standards and mechanisms for HACCP and /or GAP/GHP/GMP implementation. These standards must not only be accessible to large commercial/industrial production, but also be beneficial to small-scale fish farmers, and unique to the region’s aquaculture environments and conditions.
Given the importance of attaining sustainable aquaculture with no or limited negative externalities, exporting countries must adopt more sustainable production practices, such as eco-labeling schemes and safety assessments. Risk assessment and other precautionary approaches must be observed, especially before entry into production of new or exotic species, including the potential use of products from modern biotechnology.

Each country must likewise advocate strong government support, political will and legislation in support of food safety and eco-friendly technologies, particularly in terms of standardization/certification, fish farmers’ education and training, research and development on quality management systems, credit and other financial support, and marketing management strategies. Lastly, exchange and sharing of information and technology among researchers and scientists within the region must be sustained and enhanced.

**International Workshop on Innovative Technologies for Eco-friendly Fish Farm Management and Production of Safe Aquaculture Foods.**

Held in Denpasar, Bali, Indonesia on December 4-8  
No. of countries participating; 8 (Indonesia, Japan, Korea, Malasia, Philippines, Taiwan ROC, Thailand, and Vietnam)  
No. of papers presented: 14  
No. of participants: 40  
Co-sponsor: Research Centre for Aquaculture (RCA), Indonesia

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  - Mr. In-Woo Lee, FFTC Agriculture Economist.
A SIMPLE METHOD FOR COOLING DOWN THE SOIL IN BENCH CULTURE OF STRAWBERRY

In general houses, keeping plants up on benches saves farmers from having to work while bending over. When plants are grown in this way, however, the high temperature of the soil often disturbs the growth of the plants. Therefore, a simple method for cooling down the soil has been developed, making use of the latent heat of evaporating water.

Adaptability of the Technology
This technology has proved effective in the bench culture of strawberry. Benches were constructed out of a frame work of pipes and polyethylene film to hold the soil. In this simple form of bench, the temperature of the soil often gets too high which interferes with plant growth. This cooling technology is most effective for a simple bench of this kind. It may also be used for crops other than strawberry.

Advantages of the Technology
1. This cooling system cools down the soil more evenly than the traditional method of running water in pipes. It is, therefore, more favourable to the growth of the roots and tops than the traditional method.
2. It accelerates the formation of flower-buds and prolongs the harvest season of strawberries.
3. Less water is consumed in comparison with the traditional method of piped groundwater.

Points to Note when using the Technology
1. The Material used to contain the soil must be able to conduct heat. This is because the soil is cooled down by the conducted latent heat of water, evaporating from the unwoven cloth attached to the material.
2. In Japan, the unwoven cloth used for this technique is around 0.3 mm thick. However, the optimum thickness depends on the evaporation rate, which in turn depends on climatic conditions. If the cloth is too thick, too much water may drain away. If the cloth is too thin, on the other hand, it cannot hold enough water to meet the evaporative demand.

3. The system used to supply water to the unwoven cloth must be separate from the system for irrigation water.

**JOURNAL OF EXTENSION**

**Polling Your Audience with Wireless Technology**

*Abstract:* New audience response systems have number of unique qualities that are particularly well suited to Extension, especially economic and policy workshops. They preserve anonymity, can be used in a manner that is more comfortable for participants, and enable discussion of sensitive personal and policy information. This article provides an overview of the technology, discusses unique applications for Extension, and reviews its use in a recent farm business planning workshop. The technology enabled tailoring of the workshop to participants’ interests and facilitated discussion of minority views.

Recent advances in wireless technology provide new opportunities to engage audiences in Extension workshops. While audience response systems have been around for years, they were often cumbersome to use and fixed in location. New systems, such as the Personal Response System (PRS), are user friendly and transportation, and create the excitement of ‘polling the audience’ on Who Wants to Be a Millionaire. This article provides an overview of the technology, discusses unique applications for Extension, and reviews its use in a recent farm business planning workshop.
Personal Response Technologies

Modern Audience Response System (ARS) consist of a handheld response unit that is the size of a cell phone, with an embedded keypad, a receiver and software that tabulates, summarizes, graphs and records individual audience responses. At North Dakota State University, two-thirds of freshmen now use ARS in their classes. Instructors routinely use the system to monitor attendance, enhance student-teacher interaction, and assess student performance. Edmonds (2005), Elliot (2003), and Hake (1998) discuss other classroom applications and note that active learning depth of learning, and student interest all increase.

Off-campus use of ARS has been minimal to date, but offers great potential. Salmon and Stahl (2005) found no significant difference in learning with ARS in their off-campus workshops. However, ARS possesses a number of other unique qualities that are particularly well suited to Extension.

First, traditional participants in Extension workshops (farmers and other rural citizens) are often not accustomed to raising their hands and volunteering information publicly like students in a classroom. ARS preserves individual anonymity and can be used in a discreet manner that is more comfortable for participants.

Second, many extension programmes involve sensitive personal information, especially workshops on economic and finance topics. When participants in these programs really get involved, they often desire responses to their own personal situation, but are reluctant to volunteer information about their problem. Periodic planned examples can assist educators with development of examples that are more relevant to individual needs.

Third, when discussing topics of a policy nature, ARS provides an opportunity to express minority interests who otherwise would not speak up. Finally, ARS
methods may be an interesting way to break up day-long sessions and increase interaction (Ponessa, 1999).

**Strategies for Use**

Instructors can pose a question orally, write it on an overhead, or project it internally through ARS. Respondents have an allotted time to enter their response and can revise their answer if needed. Once the question is asked, a clock is started, and time remaining is shown. A grid on the projector’s screen indicates when individual handsets have responded. Respondents can check their handset number to see if their entry has been recorded. Questions can be Yes = 1, No=0, multiple choice (e.g. select one of five possible answers) or numeric (e.g. estimate your city’s population).

Classroom instructors frequently pause during their lecture and pose a question with ARS to monitor student comprehension of a topic. This technique could be readily adopted in Extension workshops to gauge audience understanding at the beginning of a workshop. Newer ARS have the capability of posing questions directly in Power Point slides for a more seamless integration of the technology.

Extension educators could also use ARs to gauge learning for assessment purposes by posing questions at the outset and conclusion of each workshop. Audience responses can be quantitatively measured and more conveniently obtained than pre and post paper testing.

ARS can operate either in anonymous or named mode. In most Extension workshops, ARS will probably be used anonymously. However, named mode may be useful when monitoring completion of certification programs. Further, named responses over time might reveal progress in lifelong learning.
Extension educators are advised to review their institution’s Institutional Review Board policies. Depending on the nature of individual responses received, proper assurances might need to be provided to workshop participants.

**Farm Business Planning**

ARS was recently used to enhance producer involvement in a series of farm business planning workshops held in North and South Dakota. At the beginning of the workshop, producers were divided in small groups and asked to identify important risks facing their operation (e.g. weather, disease outbreaks, border/trade issues, etc). The group then reassembled and used ARS vote for the 2-3 most important issues facing the group as a whole. These topics were then integrated into the remaining curriculum throughout the workshop.

In a discussion of household expenses, participants used ARS to identify the average level of household expenditures for North Dakota farms. They were presented with five possible responses ($15-$40,000. Most were surprised that the average level was the highest choice (over $40,000). Their modal response was $25,000.

When discussing labour issues, participants were presented with a problem employee situation and asked to use ARS to select the best strategy for responding. Responses were equally divided among the alternatives selected. This provided the instructor an opportunity to discuss the merits of all the alternatives and did not allow one member of the audience or idea to dominate the discussion.

**Conclusion**

New wireless audience response systems are rapidly being adopted in academic classrooms and may offer several opportunities for Extension. This article reviews the merits of ARS and discusses a recent trial in a farm business
planning workshop. Educators will have to invest some initial energy learning the software and integrating the system into their materials. However, heightened audience interaction and more personalized responses make the effort worthwhile.

References


ALLEY CROPPING IN SLOPING LANDS
Increasing population pressure is forcing people to cultivate fragile ecosystems in hills and mountains. As a result, soil erosion and nutrient losses occur, leading to low productivity, flooding, and environmental degradation.

Adaptability of the Technology
Alley cropping is adapted to uplands, particularly to degraded hilly lands with a 10-50% slope.
Effectiveness of the Technology
Alley cropping reduces soil losses to less than 10mt/ha per year. It maintains the productivity of fertile soils and enhances the productivity of degraded ones. It improves the physical properties of the soil, maintains soil organic matter, promotes nutrient recycling, suppresses weeds and improves productivity.

Assessment
Alley cropping involves establishing hedgerows planted with trees, shrubs and/or grasses along the contours. The spaces between hedgerows (the “alleyway”), are used to grow annual food crops (corn, upland rice, mungbean, vegetables, etc).

1. Asses and characterize the area, including biophysical aspects (topography, vegetation, climate and soil characteristics) and socio-economic aspects (farming systems/practices, customs, means of livelihood, services available, etc)

Defining the Contours
2. Contour the slope using an A-frame or carpenter water level hose. The A-frame is a simple device made up of three wooden or bamboo poles with a leveling mechanism. The water level hose is made up of a water-filled 20m transparent hose. Each end is attached to a wooden pole with a measuring tape. One pole is permanently placed at the reference point. The other pole is placed in each contour point, earlier established in roving manner.

3. Plow and harrow
Planting Hedgerows
4. Establish hedgerows closely and in double rows 0.5m apart. Plant four to six seeds per hill with 13 cm between hills. Plant at the start of the rainy season. Hedgerows must be fast growing plants such as grasses, fruit trees and multipurpose trees.
5. Trim the hedgerows depending on the season and soil fertility.

Planting Alley Crops
6. Plant in the alleyways crops such as corn, upland rice, peanut or mungbean. Practice crop rotation or intercropping of food crops and leguminous crops. The width of the alleyway may vary from 4 to 7 m, depending on the slope.
7. Apply the required fertilizer
8. Livestock may be integrated as a source of manure. Feed livestock with cut grass or forage from the hedgerows.
9. Practice stubble mulching, cover cropping, green manuring, and minimum or zero tillage to further minimize soil erosion.

Nebraska Forest Service Leading Multi-State Initiative to Prepare for Pest.
Lincoln, Neb – As fall’s colours emerge, it’s hard to miss the striking gold and purple leaves of ash trees lining streets and roads across the state.

However, when emerald ash borer arrives, Nebraska could lose its estimated 2.2 million ash trees planted in towns, cities and conservation plantings across the state. First detected in southeast Michigan in 2002, emerald ash borer, or EAB, is an exotic beetle that attacks and kills all native ash species, including white, green, black and autumn purple ash. To date the beetle is present in Michigan,
Illinois, Indiana, Ohio, Pennsylvania, Maryland, West Virginia and Ontario, Canada and has killed approximately 25 million ash trees. With the help of a $1 million U.S. Forest Service grant, the Nebraska forest Service, in partnership with state forestry agencies in Kansas, South Dakota and North Dakota, is engaging in a regional initiative to prepare for the insect’s arrival. The initiative is unique because it represents the first time states have worked together to prepare for such a significant forest health threat. “This is a major regional project that will serve as a model of how states can work together to address regional and national problems caused by an invasive species,” said Scott Josiah, state forester and director, Nebraska Forest Service. “There is no doubt EAB will be a disaster for our communities, but it is a disaster we can prepare for. It will be similar to Dutch Elm disease in the 1960s, which rapidly killed millions of trees in Nebraska and dramatically converted lush urban forests to barren, shade less urban landscapes,” Josiah said.

Because of ash’s popularity in rural and urban plantings, its loss would dramatically alter landscapes across the state. Current estimates show that some Nebraska communities could lose 25 to 50 percent of their three resource, and the cost of removing and replacing trees lost to EAB could exceed $1.5 billion.

The loss of trees to EAB also will result in the loss of ecosystem services, such as shade, air and storm water filtration and protection of streets and highways. These losses all translate into increased costs for home owners and municipalities. The goals of the initiative are to assess each state’s ash resource and develop educational programs to inform the public of EAB and its threats, regional monitoring and detection networks and markets for waste wood generated by EAB.

“The multi-state partnership allows us to utilize the strengths and expertise in each state and accomplish more than any one state could working on its own. The first step will be to conduct inventories of each state’s ash resource so we
have a clear picture of exactly how much ash is in each state and where its growing, “said Steve Rasmussen, Nebraska Forest Service district forester and coordinator of the EAB initiative. “Once we know what our ash resource is in each state, we can start looking at developing networks to monitor and detect the insect, as well as how to utilize waste wood.”

The Nebraska Forest Service is a part of the Institute of Agriculture and Natural Resources at UNL.

**FOOD SECURITY:**

**World Food Crisis**

Skyrocketing food prices is perhaps one of the major challenges presently facing the world. Specialists agree that the duo of bio-energy development and global climate change merged with traditional constraints to food supply, pushing prices up.

The situation has resulted in loss of purchasing power in most cases, near eclipse of the right to food, and escalating number of the malnourished and hungry. It is threatening the efforts made towards the attainment of the Millennium Development Goals (MDGs), particularly elimination of hunger and poverty.

As leaders deliberate on the global food situation, the Unite Nations Secretary General warns that the “world is in alarming juncture”. Severity so much, experts caution that anyone expecting a quick return to normalcy of food prices will be disappointed.

However, if all these sound dooms day prophesy, not to panic the world is not keeping quiet as bodies and nations individually and collectively have taken steps to ensure reversal.
The challenge of soaring food prices get with stiff opposition world-wide as experts in the food and agriculture sector, world body and leaders commit to finding solution to. As threat to global food security heightens, FSM upholds the 2006 call by FAO for investment in Agriculture, which says the whole world will profit if we invest in agriculture, reaffirming it as valid the as it is urgent now. Courtesy of the FAO, FSM brings you comprehensive and highly educative information on climate change and its impacts. And as developing nations lament high maternal and infant mortality, food safety and nutrition columns jointly present consideration of food safety and nutrition for pregnant women and infant feeding, courtesy of International Food Safety Authorities Network (INFOSAN).

Quite anticipatory, Nigeria’s foremost retail Bank, Union Bank Plc. strengthens her lead in agricultural financing. In an interview the Group Managing Director/Chief Executive of the multiple award winner of the prestigious Central Bank of Nigeria (CBN) Agricultural Support Bank under the ACGSF and SMEEIS support Bank awards, Dr. Barth Ebong, speaks on the place of the SME and agricultural sector in the sustainable economic growth and poverty reduction in Nigeria, the challenges of agricultural lending and services, the various awards of the bank and the bank’s future plans. Known for her liberal policy in agricultural credit disbursement, wide reach and customer satisfaction, Dr Ebong views the current global food crisis as a challenge to contribute more to the food sector.

After the UN Chief Executive Boards (CEBs) met for the coordination on the immediate needs to deal with the food crisis, the Secretary General of the UN say, the CEBs underscores the urgent necessity to address the structural and policy issues that have substantially contributed to the crisis and the challenges posed by climate change to the productive system. And as the food crisis rages, the G-8, a committee of the eight most industrial nations of the world, reiterates
her commitment to end global food insecurity by increasing funding, among other things.

Africa is not left in the quest for solution to world food crisis as the ECOWAS summoned an extra ordinary meeting of Ministers of Finance, Agriculture and Trade on the food price hike in parts of the continent. To them, one aspect of arresting the crisis will be increasing productivity and production among member nations. So far, the zenith of the global search for solution to the food crisis is the world food summit organized by the Food and Agriculture Organisation (FAO) of the United Nations, in Rome, June 3-5, 2008. The aim of the summit was to address the challenges of higher food prices, climate change and bio-energy and thus seek ways of achieving and sustaining world food security. The summit ended with a declaration of readiness by participants to use all available means to address the challenges of climate change and bio-energy development and alleviate the suffering caused by the food price hike. This World Food Conference was preceded by expert deliberations which discussed critical issues on the matter.

At the continental level, partnership to boost food production in Africa is strengthened. Also, the Gates foundation issues grants to FAO to improve the quality of statistical information on food and agriculture to reduce under nourishment and strength agriculture and rural development. As always this volume is full of tidbits on agriculture and the food sector.

**BRIEF ON THE NATIONAL FOOD RESERVE AGENCY (NFRA)**

The National Food Reserve Agency which is a Parastatal of the Federal Ministry of Agriculture and Water Resources was set up as a result of the merger of the following departments of the Ministry: Projects Coordinating Unit (PCU), Strategic Grains Reserve, Fertilizer, Cooperatives, and Engineering/Mechanization and Post-Harvest Technology Development divisions
of the federal department of Agriculture, with a view to addressing key issues/constraints relating to Agricultural production, processing, storage and marketing.

The Chief Executive Officer of the Agency is the Director General (DG)/Executive Director who reports to the Governing Board/Council. The seven Directorates/Departments of the Agency reporting to the DG are: Agricultural Production Inputs Services; Agro-Processing & Marketing; Food Reserve and Storage; International Collaboration & Partnership, Cooperatives; Finance and Accounts; and Administration.

The Agency’s operations are decentralized to zonal level with Regional Offices in each geo-political zone to ensure closer linkage with the states, local governments and communities, and quicker decision making, feedback and sustainability of activities.

The policy focuses of the Agency which will form the basis for its interventions in Agriculture are:

- Support for the implementation of the National Programme for Food Security (NPFS).
- Develop exit strategy to allow the private sector take full responsibility of fertilizer procurement and distribution to farmers. Government would only be involved in fertilizer regulatory functions and quality assurance.
- Facilitation of tractor and farm machinery services through Public Private Partnership (PPP).
- Support for the development of seed producers through provision of training, equipment and seed money for the production and marketing of improved seeds and seedlings.
- Enhance production through small scale irrigation development.
• Improve processing capacities through establishment of cottage industries, export conditioning centres and agro-industrial parks in partnership with the private sector.
• Improve access to credit through linkage with financial institutions.
• Establish and operate a Guaranteed Minimum Price System to stimulate and stabilize agricultural production.
• Increase National storage capacity through building and completion of additional silos and community warehouses.
• Build capacity of groups and cooperatives to improve access to support services and facilitate participation of the rural people in the development of their communities.
• Investment in rural infrastructure in support of agricultural development.
• Collaboration with National and International agencies for resource mobilization to complement Government efforts in agricultural development.
• Farm and collateralization to enable farmers get access to credit via agricultural cadastral surveys.
• Strengthening of Agricultural Extension delivery service.

• To assist in achieving increased food availability and increased purchasing power.

• Towards the attainment of the overall goal of sustainable household and national food security.

• Through public education, information dissemination and effective policy advocacy.
FOOD SAFETY AND NUTRITION DURING PREGNANCY AND INFANT FEEDING

Summary Notes:

- Pregnant women, the developing fetus, infants and young children are especially susceptible to certain chemical and microbiological hazards and need special protection.
- As the nutritional requirements of pregnant and lactating mothers and infants are different from those of the general population, tailored nutritional information should be provided to pregnant mothers and caregivers.
- Food safety authorities have a responsibility to work with nutritionists and maternal and child health professionals involved in pregnancy and infant feeding to ensure pregnant mothers and caregivers are provided with food safety and nutrition advice that can help to prevent food borne disease and improve their nutritional status.
- Many good examples of risk communication provided by food safety and public health authorities exist to assist with this.
- Information provided to consumers should reflect the local situation and hazards of most concern to the country or region, including the need in some cases to balance health risks and nutritional benefits.

While all population groups are susceptible to food borne disease there are groups more susceptible to food borne disease due to their low-levels of immunity, early stages of development or greater exposure. This note focuses on two high-risk groups, pregnant women and infants. This also includes the developing fetus as well as young children:

**Pregnant Women:** Hormonal changes during pregnancy affect the mother's immune system resulting in decreased immune function and greater susceptibility to food borne disease. Also the developing fetus is susceptible to
food borne pathogens that may not cause symptoms of illness in pregnant women.

**Infants (children less than 1 year old)** Because of their immature immune systems and developing organs particularly kidney is more prone to food borne disease. In addition, infants and young children consume more food in proportion to their body weight than adults; hence, they have greater relative exposure to food borne toxins and contaminants.

It is critical to control, to the greatest extent, possible food safety hazards during pregnancy and lactation as well as during initial complementary feeding of infants. Food safety controls during these periods should be integrated with nutritional guidance. For example, to prevent exposure to certain chemicals and pathogens, avoidance of specific foods is often recommended. However the nutritional impact should also be considered when providing such advice. Therefore, to help ensure pregnant mothers and caregivers make an informed decision on food safety and dietary issues. It is important that both food safety and nutritional advice be incorporated into guidance for pregnant mothers and caregivers. Specific issues for pregnant mother and caregivers along with general information on food safety and nutrition applicable to all life stages should be included in this advice. This note outlines examples of specific issues that may be considered in such advice.

**Food Safety during pregnancy, Lactation and Infancy**

Food borne disease during pregnancy can cause serious health problems to the mother, fetus or both. These include miscarriage, premature birth, stillbirth, death of the mother or neonatal illness. Different microbial and chemical contaminants can affect the mother and fetus or neonate in a variety of ways. Some times food borne disease can make the mother sick, while in other cases the symptoms are absent or so mild that the mother is unaware of infection or exposure to a hazard,
but still passing the infection or hazard to her unborn child, who may then experience serious effects from the illness.

**Food Safety control measures to reduce exposure to lead:**

- Washing fruit and vegetables thoroughly.
- Avoiding the use of colourful ceramic containers, particularly with acidic foods.
- Avoiding food in cans with lead soldered seams.
- Avoiding food produced or prepared near busy roads in countries that use lead in petrol or near smelters or lead contaminated areas.
- Control lead at source, e.g. through the use of un-leaded petrol.

Food is the main source of exposure to mercury, mostly in the form of methyl mercury. This exposure occurs mainly via fish consumption, particularly the long-lived, large, predatory fish at the top of the food-chain, where biomagnifications occur e.g. shark, swordfish and marlin). However, fish also contain beneficial protein, unsaturated fatty acids and important micronutrients for both the mother and the developing fetus. In general, food safety messages should therefore encourage women to switch their consumption from high-mercury fish to low-mercury fish. The actual message adopted needs to be specific for the country/region and situation as the importance of various types of fish in the diet needs to be considered. When providing messages, it is important that the health benefits of fish are explained, to ensure an important nutrient source is not excluded from the diet. In addition, such messages should be based upon knowledge of the locally predominant fish species and their levels of mercury.

**Dioxins and persistent Organic Pollutants**

Dioxins and other persistent organic pollutants (POPs) are industrial products and by-products that bioaccumulate in the environment and the food chain
mainly in foods of animal origin, such as fish, meat, eggs and dairy products. POPs can cross the placenta and can be found in breast milk. High-level exposures in utero and postnatally to certain POPs have been connected to neurological, respiratory reproductive and developmental changes. Consumption of low-fat animal products and removing fat from meat will lead to a lower level of exposure, particularly for girls and young women. Most important measures to reduce exposure to POPs is via source-directed measures, e.g. emission control, proper waste-management, but these are long-term solutions. Systematic monitoring is important to avoid highly contaminated foods entering the food supply.

Microbiological contamination of food
Listeria monocytotenes  Food borne listeriosis, caused by the bacterium L. monocytogenes is a relatively rare but serious disease with very high fatality rates of 20-30%. While listeriosis occur in adults, it is especially important in the fetus, and 40% of all cases are pregnancy-related where the disease can cause miscarriage, premature birth, still birth and neonatal disease. Food is the principle route of transmission for listeriosis. Raw foods may be contaminated by microbes in the environment, through soil or manure, or by asymptomatic animal that are used for food. In addition, cooked foods may be re-contaminated after processing. L. monocytogenes is particularly dangerous as it has the ability to grow at refrigerator temperature. High risk foods include deli meat and ready-to-eat meat products (e.g. cooked, cured and/or fermented meats and sausages), soft cheeses and cold smoked fishery products. Food safety control for preventing L. monocytogenes in pregnant women include:
• Avoiding high risk foods, which are not cooked prior to eating. For example, smoked and lightly preserved fish or seafood, unpasteurized milk and its products (e.g. soft cheeses), pate, and prepared salads from stores.
Cooking meats, including both raw, processed (e.g. ham, hot dogs and cold meats) and leftovers thoroughly.

Avoiding perishable foods that are past their expiry dates.

Additional to public education campaigns, food safety authorities should mandate control measures in food businesses handling listeria-prone foods. In foods that permit growth, the inclusion of control measures, such as temperature control or limiting storage periods, will mitigate the contaminated with L. monocytogenes should be considered for possible recall. However, the final decision will be based on an assessment considering national policy and regulations, the number of pathogens found in the food, the possibility for growth in the food, the presence of expiry dates and the shelf-life of the product.

**Toxoplasma Gondii 5,6,7**

Caused by the protozoan parasite T. gondii, toxoplasmosis is a highly prevalent disease world wide with serious long-term implications for the fetus. While it is estimated that 25% of the general population carries the toxoplasma parasite, toxoplasmosis in a healthy person usually causes only mild flu-like symptoms. However, congenital toxoplasmosis, which occurs when a woman becomes infected during or shortly before pregnancy can lead to serious total damage such as mental retardation, blindness, cerebral palsy, still birth and spontaneous abortion. In countries with the highest incidence, up to 3 to 6 per 1000 babies are born with toxoplasmosis each year.

The host of T. gondii is the cat family Felidae, in which the parasite undergoes sexual reproduction and is shed as oocysts in the faeces. Human infection can follow several different routes, including:

- Consuming uncooked or undercooked meat containing cysts of toxoplasma.
• consuming food or water contaminated with soil or cat faeces containing oocysts.
• Contact with infected domestic and feral cats.

Food safety control measures preventing T. gondii infections in pregnant women include:
• Avoiding meat and meat products that have not been treated to eliminate the parasite. Treatment may be cooking, freezing or irradiation.
• Washing vegetables and other foods that may come into contact with soil or cat faeces.
• Washing hands, surfaces, and cooking implements after coming in contact with cats, raw meats and soil.
• Preventing cats from surfaces where food is prepared, e.g. keeping cats out of the kitchen.
• Avoiding unpasteurized milk and dairy products.

Enterobacter sakazakii and Salmonella in powdered infant formula. Powdered infant formula (PIF) has been associated with serious illness and death in infants due to infections with bacteria: E. sakazakii and salmonella E. sakazakii can cause illness in all age groups, with neonates (first 28 days) and infants under two months at greatest risk. Pre-term infants and low birth-weight (less than 2.5kg) infants or immunocompromised infants are at greatest risk. The illness causes sepsis, meningitis or necrotizing enterocolitis. Salmonellosis causes headache, abdominal pain. Additionally, dehydration is a concern for infants who are more likely to experience severe illness or death than other age groups. Infants with immunocompromising conditions are particular vulnerable. While liquid infant formula can be sterile, with current manufacturing technology, it is not feasible to produce sterile PIF and pathogens such as E. sakazakii and
salmonella enteric may be present in the powder. During the preparation of PIF, inappropriate handling practices can exacerbate the problem. Although E. sakazakii and salmonella do not grow in the powder, E. sakazakii can survive up to and beyond 1 year in dry PIF. However, once reconstituted there is the potential for these microorganisms to grow depending on the conditions of preparation, storage (especially temperature) and use.

**Food Safety control measures preventing food borne disease from PIF:**

- In general, using sterile liquid infant formula for infants at the highest risk of infection.
- Where sterile liquid infant formula is not available, preparing PIF with water at a temperature of no less than 70°C. This will greatly reduce E. sakazakii and salmonella present in the powder.
- Minimizing the time from preparation to consumption (maximum of two hours)
- Storing prepared feed at temperatures no higher than 5°C.
- Using clean and sterilized feeding and preparation equipment.
- Informing users of PIF, through public education and labeling, that powdered infant formula is not a sterile product and may be contaminated with pathogens that can cause serious illness.

**Food safety in the context of the nutritional requirements of infants and young children.**

Infant less than 6 months old. In general infant should receive only breast milk during the first six months of life, with no additional food or liquids, not even water. Thereafter, to meet their evolving nutritional requirements, infants should receive nutritionally adequate and safe complementary foods while breast
feeding continues for up to two years of age or beyond. It is important to support breast feeding and promote its benefits for infants and young children.

A small number of health conditions of the infant or the mother may justify recommending her not to breast feed, or to introduce supplements in the first six months of life e.g. a metabolic condition such as classic galactosemia, or a maternal/condition that requires cytotoxic chemotherapy. There are instances where breast milk is not available, where the mother is unable to breastfeed, or where they have made an informed decision not to breastfeed, e.g. where the mother is taking medication that is contraindicated for breastfeeding. Similarly, some very low-birth-weight babies may not be able to breastfeed directly, and in some cases expressed breast milk may not be available in insufficient quantities. Infants who are not breastfed require a suitable breast milk substitute, that is, an infant formula prepared in accordance with the guidelines (discussed above) or equivalent guidelines provided by national authorities. Food safety agencies, with nutritionists, have an important role to work with manufacturers to ensure that the international Code of Marketing of Breast-milk Substitutes is adhered to.

**Breastfeeding and HIV/AIDS**

HIV can be transmitted from an infected mother to her baby during pregnancy, delivery and through breast milk. Avoidance of all breastfeeding by HIV-infected women is recommended when replacement feeding is acceptable, feasible, affordable, sustainable and safe. Where meeting all five of these requirements is not possible, exclusive breastfeeding is recommended for the first 6 months of life. At or after 6 months, all breastfeeding should stop once a nutritionally adequate and safe diet can be provided. Whatever the feeding decision, health services should follow-up all HIV exposed infants, and continue to offer infant feeding counseling and support, particularly when feeding decisions may be reconsidered, such as the time of early infant diagnosis. Feeding options for HIV-
positive women involve certain food safety aspects and such advice can benefit from the input from food safety authorities. 

Examples Include:

- Preparation of infant formula according to hygienic practices (discussed below):
- The importance of hygienic practices when handling and storing expressed breast milk; and
- Heat-treating (pasteurization or boiling) breast milk to destroy HIV and subsequent controls with regard to cooling and storage (undertaken by individuals and milk banks) to prevent microbial growth.

Feeding of infants and young children 6-12 months old (Note that this information also applies to children in their second year of life).

**Caregivers should practice responsive feeding:** feeding infants directly, slowly and patiently, being sensitive to hunger and satiety cues. They should gradually increase food amounts, consistency and variety as the infant gets older, adapting to the infant’s requirements and abilities. They should use fortified complementary foods or vitamin-mineral supplements as required. They should increase fluid intake during illness, including more frequent breastfeeding. Attention to hygienic practices during food preparation and feeding is critical for prevention of gastrointestinal illness. The peak incidence of diarrhoeal disease is during the second half year of infancy (i.e. 6-12 months), as the intake of complementary food increases. Microbial contamination of food and water are the major causes of childhood diarrhea which can be prevented by implementing food safety measures, such as:

- Washing caregiver’s and children’s hands before food preparation and eating;
- Storing foods safely and serving foods immediately after preparation;
• Using clean utensils to prepare and serve food;
• Using clean cups and bowls when feeding children;
• Avoiding the use of feeding bottles where adequate cleaning and sterilization is not possible. Feeding bottles are difficult to keep clean and are an important route of transmission of pathogens; and
• Using safe/potable water as a key element to prevent childhood diarrhea.

WORLD AT ‘ALARMING JUNCTURE’ AS LEADERS GATHER FOR FAO SUMMIT

World leaders gathered in Rome on Monday, 4th June, for a UN summit on food security, with UN Secretary General Ban Ki-moon warning that the world had come to an “alarming juncture”. “For years, falling food prices and rising production lulled the world into complacency”, and if this problem is not handled properly, it could trigger a cascade of other crises – affecting economic growth, social progress, and even political security around the world”. Ban told the UN International Fund for Agricultural Development (IFAD), adding: “You know better than anyone how we arrived at this alarming juncture”.

“Governments put off hard decisions and over looked the need to invest in agriculture,” “today, we are literally paying the price.” Ban said at IFAD’s new Rome headquarters on the eve of the three-day Food Agriculture Organisation (FAO) summit. Participants at the High-level conference on World Food Security will discussed short-term solutions as well as new strategies to deal with the effects of global warming, growing demand for biofuels and a crumbling agriculture sector in much of the developing world. Ahead of the summit, opinions had been divided over the causes of the global food price crisis. The humanitarian charity Oxfam, staged a protest on Monday to dramatise the effects
of the rising use of biofuels, with three actors dressed as ears of corn being strangled by a petrol pump hose.

“We are hoping for structural solutions to a problem that has gone on for at least 20 years, that of finding a sustainable model of agricultural production, “local Oxfam official Farida Chapman told AFP. But Oxfam stresses that European and US biofuel policies are only one of several factors causing higher food prices. Estimates vary on the extent to which demand for biofuels has pushed up food prices. The International Food Policy Research Institute, based in Washington, estimates that it accounts for 30 percent of the increase, the International Monetary Fund puts the figure at 15 percent, while the SU Agriculture Department says is under 3 percent.

“Really the driving factor (behind soaring food prices) is energy and increased consumption, “US Agriculture Secretary Ed Schafer told a news conference in Rome on Monday. Dozens of non-governmental organisations and small farmers’ groups opened a forum on Sunday to coincide with the FAO summit. Tejo Pramano, an Indonesian via Campesina activist, said of the summit: “If they really want to respond to the crisis, the only thing is to support the small farmer (instead of) agribusiness … which doesn’t see food as a right of the people. They raise prices as they like. This is a situation like war, he said.

Reflections and deliberations on the food situation at national and regional levels led to expert’s agreement on the need for a collective review of issues as well as to devise new strategies for finding short and long term solutions to best manage the global hike in food prices, particularly formulate ways of saving the world’s most vulnerable population. Of importance therefore is the gathering of world leaders in Rome June 4th, 2008 at the best of the Food and Agriculture Organisation (FAO) of the United Nations and eminent bodies and nations. Experts agree that the summit was timely since world food crisis is significantly distorting world order, programs and policies geared towards development,
particularly in threatening efforts at sustainable livelihood and other developmental efforts such as the Millennium Development Goals. The group agreed an estimated 800 million people barely had enough food to eat even before the food crisis and lamented that that the hike and unavailability in some quarters have exacerbated hunger and malnutrition, which already are underlying causes of death for over 4 million children annually.

Before the jump in food prices in 2007-2008, 850 million people were malnourished globally, but the figure has increased by 75 million, with poor families spending up to 80 percent of budget on food. Already, 21 of 36 countries worst hit by the food crisis are in Sub-Saharan Africa, according to FAO. This situation is also expected to trigger and exacerbate political unrest in several countries. Already, some countries have recorded insurgences following the hike in food prices. The World Bank, which has identified 33 countries as being at risk of public disorders, says rising global food prices poses a big threat to political stability and individual well-being in many developing countries. Regrettably, West and the horn of Africa are most vulnerable. Participants at the summit decried the pathetic condition of the majority, given the available resources and the fact that food politics may grow more rather than less acute as the century progresses in countries where food security is a key political issue.

African leaders have reported in a World Bank forum that high food and energy prices are putting their reforms, their growth strategies and most importantly their people at risk. Without fast action the food crisis will steal the potential of a generation. Although it has been difficult to identify exact cause of the prevailing price hike, experts blame it on low agricultural production coupled with increased consumption, weather shocks, high fuel costs and pressure from the bio-fuel sector. Touching briefly on the reason and contribution of each singly and collectively to this situation, observers see bio-fuel as presenting both challengers and opportunities. Addressing the participants, Giorgio Napoleon,
President of the Italian Republic lamented that the crisis has resulted in eclipse of the right of food in most countries. People have lost purchasing power and it is increasingly becoming difficult to achieve the Millennium Development Goals (MDGs) especially elimination of poverty and hunger. He said growing interdependence that links other major global issues and characterizes globalization such as the problem of energy; climate change and environmental degradation have exacerbated the food situation. Mr. Napolitano sees these as a confirmation of the problems that condition our future and charged participants to be fully aware of the responsibility and join forces in striving towards a more cohesive and orderly form of global development.

Welcoming delegates to the conference, the FAO boss, Mr. Jacques Dourf, said “we have before us a World food crisis that has recently had tragic social and political consequences in different countries, with riots and deaths that can endanger world peace”. Giving analysis of the food crisis, the FAO boss said FAO’s food price index increased by 12 percent between 2005 and 2006; 24 percent in 2007 and 50 percent by July 2008. He lamented that agriculture’s share of the ODA fell from 17 percent in 1980 to 3 percent in 2006. Loan portfolio to agriculture also fell from 33 percent in 1997 to 1 percent in 2007. He attributed higher food prices to 40-50 percent rising inflation. To him, “the structural solution to the problem of food security in the world lies in increasing production and productivity in the low income food deficit countries”. He said global food production must be doubled to feed a world population currently at 6billion and expected to rise to 9billion by 2050 and called for investment is needed in rural infrastructure, particularly for water control with irrigation and drainage, considering that 96 percent of arable land in Sub-Saharan Africa depends on rainfall. The problem of food security is a political one. It is a question and priorities in the face of the most fundamental of human needs. Addressing the gathering, the UN Secretary General, Mr. Ban Ki-moon, traced the problem
inaction on the part of nation towards agriculture and food sector development. He observed that the preceding decade’s cheap food started an orgy of food waste. Willing suppliers, particularly the developed nations using improved scientific technology, advantage of scale production, and protectionists splices, and produced large scale and excess of their demand, dumped the rest on developing nations, making production more expensive than purchase thus sending signal that exporting agriculture should be a now priority in such countries. Acknowledging the threat as obvious, UN boss said food crisis presents a historic opportunity to vitalize agriculture, especially in countries where productivity has Secretary General, been low in recent times. He said it is a chance to revisit past policies, while responding immediately to high food prices. It is important that our longer term focus is on improving world food security – and remains so for years – the world needs to produce more food. He said the UN feels priority should be given to agriculture in developing countries, particularly Africa where all countries see now losers from high food prices, and where farmers will benefit from this price increase with increase output. To them, an observer said, the hike in food prices represents an opportunity when well utilized.

On its own the FAO warns that food prices might not return to their former level and that prices are more likely to pick at levels higher than the present, and that would be expected to exacerbate hardship, both in severity and intensity. On the intensity of the crisis, the World Food Program described the crisis as a silent tsunami that is threatening to plunge more than 100 million people on every continent into hunger. Lending credence to this, Nigeria’s Minister of Agriculture and Water Resources and head of delegation to the summit said ‘hunger is more devastating than weapons of mass destruction. We need to see much more attention to food than to war on terrorism’ Weighing coordinated actions to try to stabilize the price hike, Ms Magdalene Sepulveda – UN independent expert on
Human Rights said now more than ever, the obligation to eradicate poverty must not be forgotten.

This larger-than-life summit for solution finding therefore presents a welcome development. It was headed by the United Nations Secretary General, Mr. Ban Ki-moon. In all, there were 43 Heads of state and government, 5,000 delegates, 1,350 journalists, 60 NGOs and civil society organisations, all from 181 member countries. Ministerial representatives and representatives of high ranking officials and groups in the food and agriculture sector were present. Participants included delegates and representatives of other interest groups and religions bodies, including representatives of the Pope. Observers believe this level of representation depicts the importance of the sector and the seriousness and concern with which the present crisis is viewed. Food business is everybody’s business and the crisis everybody’s concern.

Country position papers were read by the head of delegation to the summit. Head of Nigeria’s delegation to the summit, Honourable Dr. Sayaddi Abba Ruma told the gathering that the Federal Government has mitigated the hardship occasioned by the hike by releasing food at lower prices a short term measure. He announced temporary relief of tariff on rice importation and major moves to accelerate domestic production including plan for medium and long term farm input distribution and other agricultural equipments. Dr. Ruma says Nigeria is repositioning agriculture where intention to match global best practices, with increased budget allocation to agriculture from 4 percent 7 and with intention to reach 10 percent, as required by the Maputo declaration. Also 10 percent of Federation Account has been allocated as special intervention fund for agricultural development with efficient water management and irrigation facilities as key objectives. He called for strong partnership for greater agricultural development programs and also called on WTO to first track Doha round of talks
for improved agricultural products marketing. Rising from the World Food Summit held in Rome participants agreed that a combination of factors has been responsible for the global food crisis. However, low production, high food consumption, high energy price neglecting the implications of allocating crop land to bio-fuel production are key. Although, prices were expected to remain high for several more years, up to 2015 thereby placing the world’s poorest countries a continued risk, there was a general agreement that agriculture would once more play a prominent role on the international agenda. There is need to evaluate the medium and long term impact of agric and trade policies on exports on the one hand and on domestic consumption on the other; precisely where a balance between these two objectives is required. Increasing agricultural investment and enhanced agricultural productivity are therefore crucial. Oxfam boss, Alexander Woolcombe said the recognition of the role of agriculture is a vital role in development at this time. Observers believe investing in agricultural infrastructure and allowing producers free access to world market by both developed and developing countries are the only solution. They agreed higher prices create an opportunity for investment in agriculture and has made the sector attractive. By this development, agriculture, particularly farmer support will be in the forefront of the agenda for consideration. They called for increase humanitarian interventions to help deal with food shortages and increase prices. UN boss Ki-Moon, said budget must be up by $20 billion per annum needed to alleviate crises; FAO boss said $30 billion per annum to assist farmers grow food. Although figures vary, there is a consensus on the need for a substantial increase.

Zoellick said World Bank is poised to meet the immediate requirements of 20 of the most vulnerable countries through safety net support, school feeding, food for work, maternal and child programs, etc. Get seeds, fertilizers and other inputs to countries were small holder farmers can expand production and fast track
distribution and called on the international community to remove export bans and restrictions which are encouraging hoarding, increase price and hurting the poorest poor around the world. Delegates unanimously agreed that global food production must be doubled 2030 and farmers in poor countries better supported. According to the World Bank boss, global food production needs to double in the next 30 years. This means boosting development country agricultural production and productivity by investing all across the value chain, increasing agricultural research through the CGIAR and offering risk management tools for developing countries and small farmers, closing the DOHA WTO deal, which implies phasing out huge distortions from subsidies and tariffs, and combating global risks through actions that includes humanitarian stocks, among others. Mr. Zoellick said World bank has introduced drought derivatives to help countries dependent on rain-fed agriculture, created $1.2 billion rapid financing facility for the crisis and is ready to boost investment from 4-6 billion over the coming year. Many donors announced firm financial contribution to affected countries with the G7 nations pledging to fight crisis by doubling their contribution towards the sector. Observers see the adoption of final declaration as a sign that international community is speaking with one voice. While praising the efforts of the international community and various agencies in the food sector, Mr Ki-moon said much more needs to be done. He announced the declaration reinstates agriculture and food security as priority in world development and as key component of international political agenda.

Anticipating price hike at the onset of global food crisis, FAO in December 2007 launched Initiatives on soaring food Prices aimed at helping the world’s poorest countries increase their food production. Under the initiative, FAO will provide inputs such as high quality seeds, fertilizers etc to help poor farmers grow more food for their families over the next two seasons. This initiative is expected to expand, especially targeting the most vulnerable population. Working primarily
with small farmers to ensure success in planting season in the short term and increasing food production through increasing inputs such as seeds and fertilizers, increasing infrastructure in the long run is the bottom line of the initiative. A total of 79 members’ countries have so far requested assistance and so far 54 have received assistance.

**UNION BANK OF NIGERIA PLC**

**Setting Pace for others in Agricultural Financing**

Agriculture is widely recognized as a major factor in accelerating sustainable economic growth and poverty reduction in developing nations. A well developed agriculture and food sector boost to the Nigerian economy since the sector offers employment to majority of the populace who depends on it as a source of livelihood. It impacts directly on the economy through increase farmer income household food security, rapid community and rural development. Efficient agriculture and food sector drives industrial growth through value addition and the market, and has distinct positive on efforts at poverty reduction. Nevertheless, finance remains a critical factor in agriculture sector development in Nigeria.

One Bank remains outstanding for its commitment to agricultural support, its service to the sector earns positive rating. That Bank is Union Bank of Nigeria Plc. In its over 90 years of existence in the country with over 400 branch network nationwide, spread over the country, Union bank has taken agricultural financing to a greater height. The Bank stands out as leader and a pace-setter, offering standards to others in agricultural financing, with over N907.70 billion and N649.33 billion in assets and deposits base respectively; a gross financing of N92.94 billion as well as share holders’ funds standing at N119.16 billion, in
excess of requirement, as at March 2008. Union Bank remains one of the most capitalized financial institutions in the Sub-Saharan.

For instance in 2006, The Bank granted a total of 40,855 loans valued at N3,383 billion, representing 79 percent and 82 percent in terms of number and value of loan disbursed by all the banks under the Agricultural Credit Guarantee Special Fund (ACGSF). In addition, Union Bank customer got the Best Entrepreneur of the year (Small business model) award under the SMEEIS for 2006. According to the CBN and like in previous years, Union Bank had the highest percentage in terms of investment relative to the set aside funds, as well as geographical spread and sectoral allocation. Also in year 2007, the Bank remained consistent in exceeding in credit purveyance to farmers. It granted a total of 31,795 loans valued N3.37 billion to customers in different parts of the country. This performance represented 77 percent and 80.4 percent in number and value of loans disbursed by all banks under the ACGSF. As a way of strengthening its channels of credit to customers, Union Bank also introduced new products including the civil Service Farming Scheme and has added the patronage of the CBN – introduced Trust Fund Model in some states of the Federation. For this and its unflinching support in boosting the small and medium enterprises as a pivotal engine of growth and employment generation, the CBN adjudged the Bank as the BEST ACGSF – support Bank for 2007. Also, the Bank’s farmer-customers won the State Farmer of the Year award in 28 out of the 36 states of the federation, including Abuja, while two won the Best National Farmer of the year award in the Tree Crop and arable Crop categories.

Besides, the bank’s associated company unique ventures capital management company limited – was adjudged by the CBN as the best venture capital company in financing small and medium enterprises under the SMEEIS initiative for the year 2007. The company emerged tops in terms of the value of the
investment, the number of projects and the geographical spread of the investment. In a bid to keep readers informed about global trend in food security and the Bank’s contribution towards economic development through agricultural evolution, FSM met with the Group Managing Director/Chief Executive of Union Bank, Dr. Barth Ebon, OON. The interview focused on the grand achievements of the Bank, and subsequent well-deserved recognitions from the apex bank, the CBN, and other awardees, Dr. Ebong attributed the Bank’s enviable performance to her conviction that vibrant SME and agricultural sector have become very critical to the promotion of sustainable economic growth and poverty reduction in Nigeria, the enduring effective credit program delivery system of the Bank, and above all, the expertise and commitment of the staff. While applauding the CBN for the scheme and the award instituted to drive efficiency in credit delivery, the GMD/CE says the Bank views the current global food crises as a challenge to contribute more to the sector; a confront the bank is facing squarely. Excerpt of the interview session is provided:

We congratulate you on your brilliant performance in consistently emerging Best Agricultural support Bank under the Agricultural Credit Guarantee Scheme Fund of the Central Bank of Nigeria, 1994 to date. What would you describe as the enabling strategies for this feat?

Thank you very much. Our success strategies over time have been a clear mastery of the policies and programs of the apex bank, the Central Bank of Nigeria as well as understanding of the needs of our target group, which includes the farmers, agricultural product processors, marketers, among others. Timely project appraisal and loan disbursement which have been known to minimize loan diversion, are our other key success factors. Efficient advisory services also stand us out. We have a team of experts who research
new findings and subsequently use them to increase the productivity of our farmers.

*What other agricultural product packages does your bank have?*

We have many packages in support of the sector. There is the global limit for micro-credit farmers, which allows individual farmers and institutions access to agricultural facility for any farming project of their choice. There is also Union Bank Trust Fund Model which caters for small scale rural farmers. Under this model, the Bank has disbursed much fund to many farmers in some states of the federation. Also the Presidential Initiative on Agricultural Credit Support Scheme (ACSS) received the bank’s attention at this date, over N1,483 billion has been disbursed for 48 medium and large scale agricultural projects all over the federation. We have special packages to support various zones of the federation in their areas of comparative advantage. Our involvement in poultry production is enormous. We also undertake export financing on a large scale. Union Bank strongly believes in the concept of adding value to raw products, hence we finance, on a large scale, the processing of cocoa butter for export. We are into a lot. Above all, we support new initiatives in the sector.

*What percentage of your portfolio over the years went to the agricultural and food sector?*

According to CBN’s most recent baseline survey, our Bank’s share of the agricultural finance market was about 60 percent. Our exposure to the agro-allied sector is over 20% of our total loans and advances, which I believe is high, judging by other financial institutions’ skepticism towards lending to this sector which they
consider high-risk. We are able to scale through this, and, in fact, we are planning on higher exposure.

*What area of the agricultural sector activity such as crop and animal production, processing, storage, marketing etc., does UBN have special interest in?*

Our Bank encourages production in all the sub-sectors. As I said before, we have special packages for enterprises of comparative advantage in particular agro ecological zones. For instance, we have the work Bull Financing Scheme in the rural parts of Northern Nigeria where they use work-bulls for land preparation. There is the livestock fattening scheme for farmers who rear cattle, sheep and goat. We support the Fadama Farming Scheme, for farmers who grow assorted arable crops, with the aid of irrigation, during the dry season. Most of the loan beneficiaries of this scheme are under the Trust Fund Model of Intermediation in Rural Agricultural Financing. Under this scheme, our Bank is collaborating with the CBN, Nigerian Agricultural Insurance Corporation and the State Governments. Presently we are already collaborating with nine states of the federation. There is also the Poultry Production Scheme, which is readily accessible all over the country. In fact, Union Bank is presently financing not less than 20% of the entire medium and large scale poultry projects in the country, including about 34 large scale poultry farms. We have all it takes to finance these projects successfully. On the area of value addition, our Bank encourages entrepreneurs who are involved in agro-processing. And they are financed mostly through equity investment under SMEEIS.
Considering the enormous role of women in the food sector, especially at household level, do you have any gender considerations in your credit disbursement?

Our Bank’s agricultural lending policy is strictly not gender-biased and our products could be accessed by any able-bodied Nigerian, whether male or female. It however, in appreciation of the contribution of women in agricultural development, we have developed strategies not just to include them but also to encourage them. Most women in the rural areas are already organized into self-help groups, or Multi-purpose Cooperative Societies, and the registered groups and societies benefit from our loan schemes. Also, many states’ Ministry of Women Affairs are working with us to finance women farmers. So far, some, including the Akwa-Ibom State Ministry of women Affairs and Social Welfare, have been successfully in guaranteeing loans for women farming groups in the state. I also recall that at the last entrepreneurship Award Ceremony, organized by Union Bank for the farmers who won awards, three of the awardees were women from Sokoto, Kogi and Ondo States. Besides, we are presently addressing, under our Micro finance scheme, the funding of off-farm/off season micro enterprises engaged in by women.

*Infrastructural support is critical for the development of agricultural sector. Is UBN Plc thinking along this line?*

Agriculture can only thrive where there is adequate provision and sustained management of infrastructural facilities in both rural and urban areas. Provision of feeder roads, electricity, delivery and product evacuation and processing but for the development of the
rural economy in a developing nation such as ours. In response to this, Union Bank is currently working out some viable and implementable modalities with some state governments, to develop and finance some of these facilities, under the Public-Private-Partnership scheme (PPP). Management is positively considering collaboration with some parastatals and states to the tune well above N5 billion in already identified key areas of need.

*Would you consider the ACGSF and Micro Credit Scheme effective, in relation to the goal it is set to achieve?*

I consider the scheme effective in view of the policies which the Central Bank of Nigeria has put in place and the goals they set out to achieve. Under the CBN/ACGSF Interest Drawback Program, farmers are refunded 40% of the interest charged, and paid on a facility that is fully repaid. This is very encouraging, and with an average recovery rate of 98% and a 58.4% of the market share, and having been adjudged the Best Agric Support Bank under the ACGSF from 1994 to date, we consider the ACGSF scheme a huge success.

*Sir, what is your reaction to the much held belief that agriculture is a high risk sector?*

As you may recall, our Bank, has been financing the agricultural sector right from the days of the produce buyers located all over the country, and we are increasing our portfolio to meet the rising need of the sector, and along with this, fine-tuning our strategies. Our lending in the last seven years, for instance, is outstanding, I must say, increasing remarkably. Our rate of recovery is very high. Over time, our recovery rate, which oscillates between 97 and 99 percent,
has encouraged us to lend more. The risk factor is commensurate with the efficiency in its management. We have embraced agricultural support as a core area of our work. In fact the sector is grouped under the Special Products Department of the Bank. This explains the importance we attach to it. With such level of attention and efficiency in management from where will risk manifest?

Sir, many years of professional efficiency in agricultural finance administration and management speaks well of your organisation before your tenure and presently. How was this possible; how do you ensure it is sustained after you?

This is by no means a chance performance. Definitely, every successful program should outlive the initiator, or prime mover and our experience with agricultural lending has not been different. Our Bank had a good structure of project assessment, fund disbursement and management from the beginning. Understanding the needs of our clients is a veritable asset. Our Bank’s large branch network – over 400 in number, most of them in the rural areas, helps us reach the farmers all over the country. This was at a time when most of other banks could not risk venturing into the rural areas. Since funding needs keep changing, we keep re-assessing our roles and fine-tuning our strategies to meet present day needs and to remain on top of the ladder as the farmers’ bank. Not only has our performance won our bank several awards and laurels at both local and international levels, we have become a reference point in agricultural lending. African Agricultural Rural Credit Association (AFRACA), an international organisation of repute, has sent staff of the banks and financial institutions on their membership list to study our agric lending scheme as well as our products under a capacity-
building program. Union Bank has not just set standard in agricultural financing, we offer standards to others. Also, the Bank is committing huge investment in training and capacity building of its staff. Our goal has always been to be the lead bank in micro finance disbursement and agricultural financing. So far, we have achieved it.

What strategies, if any, do you have to assist further increase in food production in view of the present global food crisis, which among other things, calls for increased private-public sector collaboration.

We here consider global food crisis a wake-up call for the developed, and more especially, the developing nations of the world, to look inwards and device means and strategies to increase domestic food production. We believe new research findings in science and agricultural technology should be appropriately translated to the benefit of mankind through more effective communication together with other packaged assistance. And we are doing just that.

Do you have the capacity to contain an imminent surge in demand considering the need to increase domestic production to counter soaring food prices in a consistent manner?

With a balance sheet size of over N907 Billion, Union Bank can definitely accommodate more requests for more investment emergencies in the agricultural sector. In fact, the bank plans to increase funds for agricultural lending in the shortest time possible through direct lending, Public-Private Partnership in agriculture, among other initiatives already in place. Management is positively considering higher volume of funding. I must say the prospect for year 2008/2009 farming season is quite bright.
Speaking on Federal Government policy on agriculture, what would you say about this year’s policy?

Laudable. Besides just production, the policy dwelt extensively on the various components of the sector that is touching on each sub chain such as storage, value-adding through processing etc. It stressed the much needed infrastructural support such as irrigation systems for water supply particularly for off season farming, delivery, road network timely input delivery etc. It also emphasized the involvement in the development of the sector through public-private sector collaboration. It also, more than previously, emphasized livestock, fisheries, alongside cropping, which in the past, to dominate discussions in agriculture. I believe it is more encompassing and if well implemented will take the nation’s agricultural sector to a greater height.

Sir, in what ways would your bank furthers these government policies?

We are already furthering it. By agreeing with the policy and its various programmes and strategies for attainment and fashioning our own strategies to assist in achieving the goal of agriculture sector development. We will continue to partner with the Federal Government to boost agricultural production in particular by increasing the exposure to farmers from N4.5 billion to N6.2 billion this year. Also, as earlier stated, through our various programmes and services and improved technical assistance to the farmers. By these awards and commendations, we are most supportive of government policy and we would continue to be. We invite people
from all works of life to embrace farming through accessing our loans. This sector’s development is a direct fight against poverty since it involves the masses.

Sir, you are an advocate of better strategic partnership between tertiary institutions and banks. How would this impact on agriculture development for the students?

A lot of ways. In fact, this will have a direct impact on the life of the students through development of better and more functional curriculum, students’ acquisition of better practical skills, self mastery and employment and assured financial support. The modalities are being worked out and we believe it will enhance agric sector development.

Sir, would you like to speak more on the numerous awards of the bank in this sector?

I must say the CBN initiative in putting this award together is very commendable. The Best Agric support bank under ACGSF award was instituted in 1994 and if I may recall, the criteria, are number of loans granted, number of loans guaranteed, spread over the country, number and volume fully recovered. Our bank won the maiden edition and has continued to win it to date. We are the lead bank in agricultural financing. We excel in all the criteria used for assessment. It is very encouraging when an apex body such as the CBN singles you out and commends your effort. Then there are other awards from other reputable bodies. We appreciate these recognitions. It is invigorating. It encourages us to do more and that we are poised to do.
Finally, what advice would you like to give to other financial institutions that need to breakthrough and excel in similar venture?

Thank you, once more, I will like to advise banks to support agricultural entrepreneurs, especially as the sector impacts directly on the lives of ordinary masses particularly in the rural areas of the country. Although, largely considered an expensive project to manage, and of a high-risk nature, the recovery rate is high when we articulated and managed. The sector is very profitable and the venture rewarding if well conceived; packaged and properly managed, as we in Union Bank, have done all these years. Nigerian farmers have credibility and integrity, and there is also the willingness to pay back, particularly when they have been well guided through investment.

SUPPORT FOR WFP FUNDING, FAO LAUDS US COMMITMENT
The Heads of the Secretariat, the Agencies, Funds and Programmes, the United Nations Secretary-General and the Director-General of FAO, fulfilled their obligations by jointly appointing the Executive Director of the World Food Programme and also strongly appealing for full funding of the emergency requirements of US$755 million for the World Food Programme to enable it fulfill its purposes of resolving the immediate humanitarian crisis by providing the food aid urgently needed by poor people around the world. This appeal was carried to the United States Government to seek its support in addressing the crisis of soaring food prices and resulting social and political consequences. The plea
received a very positive response on the part of President George W. Bush who has asked congress to approve an additional US$770 million in food aid and assistance to agriculture to address the food price crisis. It is believed that this, together with resources expected from other the donors, should enable countries affected to overcome the constraints resulting from high market prices, says the FAO boss, Jacques Diouf. Mr. Diouf says, in conformity with its mandate, the FAO will focus on food production in low-income food-deficit countries, in particular raising productivity, which requires that relevant inputs, whose prices have also increased sharply, (seeds, fertilizer, animal feed etc) reach the farmers in time to allow them to have a successful production in 2008 and 2009. To this effect FAO will use its technical knowledge and expertise to assist member nations to ensure that these inputs are adapted to the different types of crops and animals, but also environmental conditions (soils, water, temperature etc) capacity building will also need to be included in such assistance programmes to allow the respective countries to increase their food supply sustainably.

Annan Lauds EU Initiative to invest in African Farmers

The Alliance for a Green Resolution in Africa (AGRA) welcomes the European Union’s intention to channel 1 billion Euros to African farmers. The commitment reflected in this announcement is critical to solving the global food security crisis. Increasing agricultural productivity in Africa through the immediate provision of inputs from seeds and fertilizers to finance is an important step in generating a strong and rapid response to boost agricultural productivity and increasing economic development. The support of the EU at this critical time is an important step towards improving food security across Africa and a welcome show of solidarity with African smallholder farmers.
HONOUR YOUR PLEDGE FOR AFRICA, UN CHIEF PLEADS.

United Nations chief has appealed to the G8 countries to honour their pledge to more than double heir aid to Africa. This commitment to boost their aid to Africa with an extra $25 billion by 2010 was made at the end of 2005 summit in the Scottish town of Gleneagles.

Although several revisions have lowered the figures to $21.8 billion, development aid has only increased by 25 percent of that amount and at the current rate he also noted that the total net aid from organisations for economic growth and development countries fell short of UN target of 0.7% standing at 0.28%. The UN Chief therefore warns that Millennium Development Goals might not be met by the target date of 2015, particularly in Africa. He told the meeting that Africa is lagging behind the rest of the world in efforts to meet key poverty reduction goals by 2015. He said all have a good idea of what is needed and therefore appeal to all donors to implement the 2005 pledge.

It will cost about $72 billion per annum in external financing to achieve the MDGs in Africa by 2015 deadline. This price tag may look daunting. But it is affordable and falls within existing aid commitments. The Director General of Food and Agriculture Organisation (FAO) of the United Nations, Mr. Jaques Diouf, has commended the government of Italy for its prominent role in the fight against hunger and poverty. He made these observations while addressing the Senate foreign and agricultural committee. He recalled that in the last six years, Italy had paid US$87 million into the FAO food security trust fund, financed 29 projects in 41 countries plus 15 regional projects in the Caribbean community and Common market (CARICOM) and another 15 in small Island Developing States (SIDS), making Italy one of the largest contributors to FAO’s Trust funds in 2008.

The food crisis situation increases the need for global partnership to improve the world food situation. This was the remark of the Director General of
FAO, Mr. Diouf, when he addressed the Senate Foreign and Agricultural committee of Italy. Presently, FAO is working with G-8 and other international communities on creating Global partnership on food security and agriculture and the position Italy will be assuming as the next president of the G-8 by 2009, is expected to greatly enhance this, Mr. Diouf observed. FAO has sensitized Italian authorities on the need to create a world network of food and agricultural experts in other to assess future needs and tasks. According to Jaques Diouf, we are facing a challenge of enormous proportion. We must mobilize US $30billion a year in order to double food production so as to cope with the feeding of a growing world population estimated at 9million by 2050. However, experts see the figure as modest compared with agricultural subsidy by OECD countries, which stood at about US$76 billion in 206 and the US$1203 billion spent by the world on arms that year.

Anticipating price hike/the onset of global food crisis, FAO in December 2, 2007 launched initiatives in soaring food prices aimed at helping the world’s poorest countries increase their food production. Under the initiative on soaring food prices, FAO will provide inputs such as high quality seeds, fertilizers etc to help poor farmers grow more food for their families and over the nest 2 seasons. A total of 79 member countries have so far requested assistance and so far 54 have received assistance.

Initiatives on soaring F/prices launched in 2007, continuous to expand to about 54 countries, especially targeting the most vulnerable population. Working primarily with small farmers to ensure success in planting season in the short term and increasing food production through increasing seeds and fertilizers in the while increasing infrastructure in the long run.

Many donors announced firm financial contribution to affected counties with the G7 nations pledging to fight crisis by doubling their contribution towards the sector.
GATES FOUNDATION GRANT TO STRENGTHEN AGRICULTURAL STATISTICS IN AFRICA

Recent report by FAO indicates that grant from Bill and Melinda Gates Foundation to 17 Sub-Saharan Africa countries will drastically improve the quality of their statistical information on food and agriculture. The US$5.6 million grant over two years will allow the 17 countries identified, through the FAO country statistics information system (country STAT), to substantially improve the quality, accessibility, relevance and reliability of their national statistics on food and agriculture. In so doing, it will facilitate planning and decision-making by policy makers and analysts, particularly in the push to reduce hunger and poverty. “Ensuring reliability of country data is crucial both to governments and to those working with countries to reduce undernourishment and strengthen agricultural and rural development. With good and reliable data it is much easier to pinpoint where assistance is working, where it may be weak and understanding possible future needs”, says Hafez Ghanem, FAO Assistant Director-General for the Economic and Social Development. The countries involved in the two-year project are: Angola, Benin, Burkina Faso, Cameroon, Ethiopia, Ghana, Ivory Coast, Kenya, Malawi, Mali, Mozambique, Nigeria, Rwanda, Senegal, Tanzania, Uganda and Zambia.

The statistics gathered in country STAT centre around the following areas;

- Food – Its production, utilization, trade (imports, exports, prices) and consumption;
- Resources, notably availability, use and trade (imports, exports, prices); and
- Economics, namely inputs and their prices, production and output prices.

To date 20 countries and regions are involved in the development of countrySTAT with different degrees of implementation and coverage. The grant from the Gates Foundation will allow FAO to enhance the depth and spread of its country information in 17 countries, nine of which currently
use country STAT in some capacity, as well as its regional and global information databases.

According to Dr. Rajiv Shah, Director of Agricultural Development for the Bill and Melinda Gates Foundation’s Global Development Program. “Reliable data will help national governments, donors, researchers and the agricultural development community set priorities and policies that will ensure small farmers can access the supplies and support they need to boost their yields and incomes and build healthy, productive lives,” speaking further, he said “quality data will help us make better decisions so that our investments in agricultural development throughout Sub-Saharan Africa can be as targeted and effective as possible.’

The foundation’s Agricultural Development Initiative is working with a wide range of partners to provide millions of small farmers in the developing world, most of whom are women, with tools and opportunities to boost their productivity, increase their incomes and build better lives for themselves and their families. The foundation invests in efforts across the entire agricultural value chain, from seeds and soil to farm management and market access.

BOOSTING FOOD PRODUCTION IN AFRICA’S
June 4th 2008 marked a turning point in agricultural food production in Africa bread basket areas, as key players in agricultural development signed a new collaborative agreement in Rome. The partnership agreement which is between Rome-based UN Agencies and AGRA is aimed at significantly boosting food production in Africa’s “breadbasket regions,” linking local food production to food needs, and working across Africa’s major agricultural growing areas to create
opportunities for smallholder farmers. This agreement marks a significant transformation in the way major global agencies work with smallholder farmers to assist them in solving African’s chronic hunger and food problems. The ‘Memorandum of Understanding’ was signed today by the Alliance for a Green Revolution in Africa (AGRA), the food and Agriculture Organisation of the United Nations (FAO), the International Fund for Agricultural Development (FAO), and the World Food Programme (WFP) at the FAO High-level conference on World Food Security.

**Multiple Challenges**

Among the challenges facing accelerated food production in Africa are poorly developed markets, lack of investment, and poor infrastructure in rural areas. Despite this, there exist opportunities that can be tapped to help end chronic hunger and food problems. This new partnership aims to make a difference by optimizing food production in areas with relatively good rainfall, soils, infrastructure, and markets or “breadbasket areas”.

The new partnership will work closely with other stakeholders in these breadbasket areas to rapidly improve food production, food security and rural incomes. Careful environmental monitoring and conserving biodiversity, water and land will be given high priority. The agreement also calls for coordinating and sharing agricultural development innovations across diverse ecological zones and associated crops. At the country level, the partnership will support the efforts of governments and work with farmers and other stakeholders to rapidly boost agricultural productivity and farm incomes. Each agency will deliver unique expertise towards achieving an environmentally and economically sustainable green revolution that will end the continent’s perennial food crisis.

According to the chairman of boards of AGRA, Mr. Kofi A, Annan, “this collaborative initiative is part of AGRA’s strategic vision to build partnerships that pool the strengths and resources of the public and private sectors, civil society,
farmers organizations, donors, scientists and entrepreneurs across the agricultural value chain. Speaking further Mr. Annan said “we must implement immediate solutions for today’s crisis and do so in the context of a long-term concerted effort to transform smallholder agriculture, to increase productivity and sustainability, and to end poverty and hunger. Per capita food production has declined in Africa for the past 30 years and farm productivity in Africa is just one-quarter the global average. Today, more than 200 million people are chronically hungry in the region, and 33 million children under age five are malnourished. To turn things around, there is need for urgent focus on raising agricultural productivity. More investment is needed to improve soil and water management of rain-fed and irrigation agriculture, more adaptable new crop varieties, improved access to seeds and fertilizers, environmentally sustainable integrated pest management practices, reduction in post-harvest losses, and improvement of rural infrastructure, especially roads and communication infrastructure. These will need to be bolstered by bold pro-poor policies to help transform smallholder agriculture.

Unlocking Africa’s Potential

Contributing to this development, the FAO Director-General Mr. Jacques Diouf said, “Unlocking the potential of agriculture in Africa is a huge challenge, but it can be done. This initiative is an important contribution to reduce the number of more than 200 million hungry people in sub-saharan Africa by boosting food production and productivity, and improving the livelihoods of millions of people in rural areas. FAO will actively participate in this important initiative by assisting in stimulating local food production, providing technical input, and developing new agricultural investments. AGRA will develop and promote higher yielding, locally adopted seeds, soil fertilizer options, water management systems, and market development to aid small holder farmers and
pro-poor policies that will catalyze farm productivity growth in the breadbasket zones. “we hope to spur a green revolution in Africa which respects biodiversity and the continent’s distinct regions and great variety of crops – from millet and sorghum in the sahel, to the root and tuber belts that cut across humid west Africa, to maize in the high and lowland areas of Eastern and southern Africa, “said Mr. Kofi A. Annan, chairman of the Board of AGRA.

IFAD President Mr. Lennart Bage said, “Smallholder producers constitute the largest group of economic actors but are often the poorest segment of the population in Sub-Saharan Africa. IFAD, by working in collaboration with AGRA and the Rome based UN agencies, will help lift the rural poor from poverty by expanding their production capacity, strengthening their institutions and voice, and improving their access to critical markets.”

As a major buyer of food in Africa and the developing world, WFP pledged to use its purchasing power to contribute to a green revolution in Africa and to market development which is a powerful incentive for agricultural production. This agreement assures farmers a market, without which many well-meaning efforts to increase farm production have failed. Last year, WFP purchased a record amount of food worth US$612 million was in Africa, most notably in Uganda, Sudan, Kenya, Zambia and Malawi. From 2001-2007, WFP purchased more than US$1.2billion of food on domestic markets in Africa. This new partnership could result in millions more being spent in potential breadbasket areas where surpluses exist. On his own, the WFP’s Executive Director, Josette Sheeran said “WFP is delighted to work with AGRA, a critical player in agricultural development who will help stimulated agriculture production, “together with FAO and IFAD, we can bring major improvement to the lives of small-scale products and food-insecure farmers all across Africa and help reduce hunger and vulnerability” This new partnership will help to advance the goal of the comprehensive African Agricultural Development Programme (CAADP) of the
New Partnership for African Development (NEPAI) towards achieving at least 6 percent annual growth rate in agricultural production by 2015.

EXTRA-ORDINARY MEETING OF MINISTERS OF FINANCES AGRICULTURE AND TRADE ON FOOD PRICE HIKE IN WEST AFRICA

The Economics Community of West African States (ECOWAS) has initiated measures to curb the food price hike in West Africa in the short term, and avoid, in the medium and long-term, the risks of food crisis in the sub-region. In an extra-ordinary meeting of Ministers of Trade, Agriculture, Economic Affairs and Finance of ECOWAS member states, called at the instance of the ECOWAS commission, which held at the Commission Headquarters in Abuja, Nigeria, on 19 May, 2008.

In the opening address, Dr Shamsudden Usman, Federal Minister of Finance of Nigeria enjoined member states to develop and invest in agriculture in order to increase agricultural productivity and exports. In his own address, Dr Mohammed Ibn Chambas, the Commission President, drew the attention of the Ministers to the need for more active communication with the populations in order to enlighten them on the causes of the crisis and the efforts the states and the commission are making to cushion its effects. Mr. said Djinnit, Special Representative of the United Nations Secretary-General for West Africa, urged the countries of the region of revitalize the agricultural sector and turn their back on the current paradox: “the region consumes what it does not produce and produce what it does not consume”.

In the opening address of Mrs Minata Samate Cessouma, the chairperson of the council of ministers, asked the participants to develop long-lasting solutions to ensure that sufficient food was available and accessible to all the populations. A body of experts was constituted to deliberate extensively on the
problems and formulate recommendations. Chaired by Mr Seriba Quattara, Director comrade of Burkina-Faso, the following was deliberated upon:

The International context was characterized by a sudden price increase. Between April, 2007 and April 2008, the price of a tone of rice shot up to over US$200 from $300 reaching a highest level of $1000 in early May. Between March 2007 and March 2008, the price of wheat climbed to $397/tone, up from $176 powered milk rose from $2125 in April 2006 to $3850 a year later reaching $4550 in April 2008. These hikes are occurring within a contest of crisis d financial markets year general increases in the prices of raw materials, particularly at the price of a barrel of oil jumped from 63 to 120 dollars over the last 12 months due to the slump in the value of the dollar $1 was worth one euro as at 1 January 2000 0.75 as at 1 April 2007 and 0.6 into a year later. West Africa was hard by the re-percussions of the global crisis, although the situation varies form country to country. Here prices are more moderate in the countries of the region’s centre and higher in the country the region’s centre and higher in the countries which have had a poor crop season and are highly import dependent. The prices of rice and wheat are higher than those of other cereals. They are higher in Nigeria’s sphere of influence as a result of the poor planting season in that country and the high demand for livestock feeds. The responses provided by states are, on the whole, of two types; emergency measures and measures focused on the 2008-2009 crop season. The emergency measures include: I suspension of customs duties (CD) and in some cases, the value-added tax (VAT); ii) fixing and control of prices of some essential goods; iii) subsidization of consumer prices; iv) suspension of cereal exports, and v) interventions in food markets (sales at affordable/moderate prices).

With regard to measures on the 2008-2009 crop season, many countries have prepared and adopted, or even implemented strategies for developing off-season farming, as well as programmes for developing crop production, particularly rice, through reforms and supply of inputs and seeds.
They drew attention to the potential impacts of the soaring prices and the scope and limitations of the measures taken. Attention was drawn especially to the following:

- Possible return to the stabilization policies of the 80s and 90s (decades lost for development);
- Return to restrictive monetary policies (inflation control with negative repercussions);
- Loss of the achievements made in the construction of the community; call into question of the efforts being made for the establishment of the CET and for achieving macroeconomic convergences;
- Possible erosion of regional solidarity as a result of the ban on exports imposed some countries;
- Long-term unbearable character of the suspension of taxes on food imports.

The ministers stressed that the crisis is of a structural nature and may linger on. They recalled the enormous potentials that West Africa is endowed with; mobilisable abundant land and water resources; a market with over 255 million consumers. They underscored the need for the region to take a bold and concerted initiative to address the situation in sustainable manner.

In view of this state of affairs, the ministers acknowledged the relevance of the short, medium and long-term actions, measures and policies put forward by the ECOWAS Commission to curb the effects of the rising prices on the populations and the economics of the States. They therefore adopted the regional offensive for food production and the fight against hunger focused on:

- Three thematic actions (i) accelerated and sustainable food production to minimize dependency on imports and roll back poverty in the rural environment; (ii) structuring of value chains and regulation of markets to
ensure secure outlets for products, stabilize markets, adapt products to demand (processed and standardized products); (iii) food and nutritional security for the vulnerable sections of the populations the establishment of appropriate safety nets in the rural and urban areas;

- three time horizons: (i) immediate emergency measures; (ii) measures to ensure rapid agricultural growth and elimination of hunger in the medium-term; (iii) long-time measures;

- Three levels of governance and responsibility through concerted and coherent actions: (i) at national level under the responsibility of States in conjunction with stakeholders; (ii) at regional level under the responsibility of ECOWAS and other integration institutions and organisations (iii) at international level: United Nations, WTO, etc; In this regard, the ministers recommended:

- An emergency intervention fund be established to quickly address the current situation. The fund should be lodged with EBID and provided with a rapid intervention mechanism for the benefit of all countries according to specific criteria;

- regional solidarity be strengthened, though, inter alia:

- voluntary contribution by some countries in the emergency intervention fund;

- Immediate lifting of the ban on exports in their ECOWAS sub-region;

- promotion of fertilizer production within ECOWAS through the development in particular of phosphate resources found in most countries. To this on BID announced its readiness to lend support to the countries concerned;

- emphasis be placed on local and regional initiatives in the agricultural and agri-food sector;
• strengthening and extension of the CILS earn warning system. To this end, this institution should be endowed with financial resources and transformed into a specialized institution of ECOWAS;
• establishment of a system for preventing and combating the desert locust and other cross border crop enemies (for instance, provision of equipment and phytosanitary products to frontline countries); development of research and dissemination of research findings;
• Facilitation of free movement of food products, persons and capital within the ECOWAS sub-region;
• the development of rural production, processing, packaging and preservation, storage and marketing infrastructure and equipment;
• that the countries be encouraged to consume what they produce and produce what they eat. In this context, an awareness campaign on the slogan ‘consume West Africa’ should be launched. In this regard, steps should be taken to promote production and ensure their processing to meet the taste of consumers (local rice, dry cereals, roots and tubers, short cycle animal products, fishery products);
• an inventory of the irrigable potential that can be tapped to meet community needs;
• the establishment of a market regulation mechanisms to:
  • facilitate the pooling of market information systems;
  • facilitate the management of shortfalls and surpluses;
  • ensure support to agricultural production;
  • ensure solidarity within the ECOWAS sub-region;
  • The subsidization of agricultural inputs, if possible, for poor small farmers;
• the development of an agricultural insurance system for better management of agricultural activity-related risks in order to ensure loan repayment and renewal and to involve the banking system;
• the preparation and implementation of a regional programme for improving rainfalls through cloud seeding;
• the preparation of an action plan with specific time frames for the implementation of the meeting’s recommendations;
• preparation of a periodic report on the food situation within the community. Furthermore, the ministers recommended to the ECOWAS commission to mobilize the international community:
• for the conduct of a regional initiative for group purchase of some foodstuffs (rice, wheat and wheat flour, milk and dairy products, vegetable oils). ECOWAS should, by July through the regional consular chamber, organize a meeting of chambers of commerce of member states to explore possibilities of creating a trading company in order to benefit from the effects of economics of scale in the purchase of food products;
• To provide emergency budgetary support to cushion the effects of government budget deficits;
• for the establishment of a financial support fund for the implementation of emergency measures in the ECOWAS members states;
• to cover the input and small equipment needs of small farmers for increased and accelerated staple foodstuff production: rice, dry cereals, root and tubers and short cycle animal products, fishery products;
• underpin interventions on vulnerable populations’ access to food (safety nets, food aid, canteens, food for work).
Finally, the ministers recommended the following specific short, medium and long-term measures:
A. To Member States
• **Short-term: 2008-2010**
• Programme and conduct intervention targeted at access to foodstuffs and nutrition for vulnerable populations;
- Design national producing for-consumption programmes for production of staple food stuffs; rice, cereals, grain legumes, tubers, vegetables, short cycle livestock products;
- Facilitate immediate access to quality seeds, fertilizers, phytosanitary products, etc;
- facilitate access to seasonal credit facilities in the major production basins;
- Set up a special fund, to be financed with internal and external resources and facilitate the funding of the national programme;
- Development of the private sector through (i) identification and strengthening of groups, and (ii) acknowledgement and building of their capacities;
- Facilitate producers groups access to credit facilities, training and inputs;
- Initiate post-harvest programmes such as storage and preservation of commodities;
- Increase infrastructural facilities i.e. construction of silos and seed multiplication, etc;
- Improvement of extension services to farmers;
- Engage in extensive research and development.

**Medium term: 2008-2012**

- Set up programmes for the sustainable growth of the production of strategic foodstuffs: seed production system, provision of fertilizers, structuring of the agricultural council and building the capacity of professional organisations, rehabilitation of irrigation scheme, water management, access to credit and land reforms, etc.;
- Strengthening and expansion of market information systems;
- Establishment of support programmes for the organisation of efficient processing, storage and marketing value chains, including incentives to reduce post-harvest losses;
• **Long Term: 2008-2015**
  • Implement the national investment programmes provided for under ECOWAP/CAADP;
  • Increase national budgets allocated to agriculture.

**B. To the ECOWAS Commission**

• **Short term: 2008-2010**
  • Ensure that the prohibition on local food exports within the ECOWAS sub-region is lifted but maintained on those that are subsidized;
  • Strengthen the surveillance mechanism at the borders;
  • Acquire resources (financial, consultation and monitoring evaluation mechanism) for concerted implementation of the strategy and all measures
  • Set up a special cooperation mechanism between ECOWAS and its partner within the frame work of the implementation of the measures proposed under the regional offensive.

**UNITED NATIONS SYSTEM CHIEF EXECUTIVES BOARD (CEB) MEET**

We consider that the recent dramatic escalation in food prices world wide has evolved into an unprecedented challenge of global proportions that has become a crisis for the world’s most vulnerable, including the urban poor. This crisis has multiple causes, including rapidly increasing energy prices, lack of investments in the agricultural sector, rapidly rising demand for food, trade distorting subsidies, recurrent bad weather and environmental degradation, subsidized production of biofuels that substitute food production, and the imposition of export restrictions leading to hoarding and panic buying. This
challenge is having multiple effects with its most serious impact unfolding as a crisis for the most vulnerable. Mounting hunger and increasing evidence of severe malnutrition is evident and the capacities of humanitarian agencies to meet these needs is under severe strain, particularly as pledged funding remains undelivered. This situation is increasingly resulting in social tension as governments, who find themselves powerless to address this global crisis, come under mounting pressure. Inflationary pressures are rising and trade deficits are widening in a number of countries.

The Executive Heads of the United Nations specialized agencies, funds and programmes and Bretton Woods institutions, meeting in Bern under the chairmanship of the UN Secretary-General, agreed on a common strategy in support of developing country governance to confront the global food crisis and have decided the following:

First, we must FEED THE HUNGRY:
The rapidly escalating price of food is severely impacting the poor in developing countries, resulting in heightened vulnerability, reduced levels of nutrition with serious health impacts, and rising social tensions. The CEB calls upon the international community to urgently and fully fund the emergency requirements of US$755 millions for the World food Programme and deliver on its pledges and provide maximum flexibility to target the most urgent needs. Without full funding of these emergency requirements, we risk again the spectre of widespread hunger, malnutrition and social unrest on and unprecedented scale.

Second, we must ensure FOOD FOR TOMORROW:
Action must be taken to provide developing country farmers with the support required to ensure the next harvest. Escalating energy fertilizer and input prices are leading farmers to plant less in the coming season will lead to even more severe food strategies in the coming year. The FAO emergency initiative on soaring food prices called for US$1.7billion in funding to provide low income food deficit countries with funds and inputs to boost production. IFAD taking available
US$200 million to poor farmers in the most affected countries to invest food production by providing essential products while the World Bank is exploring on its Board the creation of a rapid financing facility for grant support to specially fragile, poor countries and more flexible financing for farmers. 

Need to address multi-faceted challenges be short; medium and long terms.

**Short to Medium term:** The UN will cooperate in crisis response, the development of emergency safety nets and protection of the most vulnerable and employment and income generation programmes will fully deploy its capacity in monitoring, quick assessment and crisis of the rapidly evolving food price crisis and their impact on vulnerability to support the response of affected national governments. At the country level, UN president and humanitarian coordinators, levels of the world bank missions, and the country teams will urgently meet with and other humanitarian agencies in United countries, to draw up support agencies for national governments and vulnerable populations and seek national support for their implementation. The IMF will propose to its Executive Board, additional financial support for countries facing serious balance of payment gaps as a result of higher food and oil prices. The CEB calls upon countries that have imposed export restrictions on food leading to reduced supplies and price hikes to urgently reconsider those policies.

**The Medium to Long Term:** The UN system will bring together its technical and analytical capacities to fill research and knowledge gaps in order to support governments with the best information for agricultural decision-making to boost production and productivity. As assessment of the diverse I impacts of the crisis, the development of sets of tailored policy instruments and implementation capacity is required to underpin an effective policy response. Domestic policy measures that correct distortions and do not jeopardize the supply response need to be put in place, together with budget support measures and balance of payments support for the most affected countries. The CEB calls for a rapid
conclusion of the Doha Development round resulting in scaling down trade distorting subsidies that have damaged developing countries production capacity. **The Long-Term:** The CEB underscores the urgent necessity to address the structural and policy issues that have substantially contributed to this crisis, and the challenge posed by climate change to productive systems. Further research must be undertaken on the impact of diversion of food crops to biofuels production and all subsidies to food-based bio-fuels should be reviewed. We must make special effort to address the specific needs of Africa as the most affected region, including through relevant African programmes such as CADEP. To this end, we must put in place the requirements to realize the promise of a Green Revolution in Africa for which the UN Africa MDG steering group has estimated US$8 to 10 billion annually. The World Bank, IMF, IFAD and Regional Development Banks and relevant agencies of the UN system will collaborate to develop a long-term strategy, including the required macro-economic measures for increasing productivity, production and marketing in agriculture and ensure availability of ad access to food.

**Immediate action:** In order to create a prioritized plan of action and coordinate its implementation, the CEB has decided that a Task Force on the global food crisis be established immediately under the leadership of the Secretary General and bringing together the Head of the United Nations specialized agencies. Fund programmes, Breton woods institutions and relevant parts of the UN Secretariat. Forthcoming Meetings forthcoming high-level gatherings, including the meetings of TICD, of the Economic and social council, the G-8 Summit and the September High-Level Event of the General Assembly on MDGs, the ILO International Labour Conference on Rural Employment, all provide opportunities to strength in political commitment to meet the challenge of this crisis. In this regard, the UN Secretary General calls on world leaders to make every effort to participate in the High-level conference on food Security in Rome on 3 to 5 June 2008.