



REPUBLIC OF ZAMBIA
MINISTRY OF AGRICULTURE AND COOPERATIVES

AGRICULTURAL INPUT MARKETING PLAN

Final Draft

September 2005

1. INTRODUCTION

This document is a framework for the development of Agricultural Input Markets (AIM) in Zambia. It highlights the overall vision for AIM, critical issues, and specific strategies to deal with the issues. The document takes a broad perspective and a long view on AIM. Therefore, the plan clearly defines the direction that guides and supports the governance and management of agricultural input markets. Given that the sector is dynamic, the implementation of the proposed plan needs flexibility.

The plan has been developed for agricultural inputs including all forms and types of seed, fertilizers and agriculture chemicals and products. Inputs such as land, labor, farm machinery and equipment are not included in this plan.

The structure of the document is that it first evaluates the critical constraints throughout the marketing chain. On the basis of these constraints, goals are developed and strategies and actions needed to achieve these goals are identified. Both constraints and strategies have been prioritized to reflect the sequence with which activities have to be implemented to produce the desired outcomes.

2. MISSION AND VISION STATEMENTS

The mission statement communicates the essence of agricultural input markets in Zambia while the vision statement provides a guiding image of what success for these agricultural input markets looks like.

2.1 Mission

The mission is to improve productivity for farmers through a marketing system that delivers affordable, good quality inputs in an efficient manner. This mission sets the coherent and shared idea of what the plan is to achieve.

2.2 Vision

The vision for AIM is to develop a competitive, efficient and transparent AIM system. This vision is consistent with the values espoused in the National Agricultural Policy.

2.3 Steering committee

Following the successful convening of the “National Stakeholder Workshop on Developing Zambia’s Agricultural Input Markets”, 27 – 28 April 2004, agricultural input market development strategies were developed. As a follow-up to that workshop, a committee was set

up to formulate the agricultural inputs market development action plan. First, critical institutions were identified and representatives of these institutions identified. The institutions and representatives are listed in Table 2.1 in Annex A.

3. AGRICULTURAL INPUT MARKETING CONSTRAINTS

Marketing constraints have been categorized into two: (a) input specific constraints and (b) cross-cutting constraints. The input specific constraints are presented first but this does not reflect any order of priority. Each category is further divided into two sub-categories, namely: (i) policy and legal environment and (ii) organizational. Since it is policy that provides the framework, structures and guides the operation of the market, in this plan, policy issues have higher priority than organizational issues. Within each sub-category, the constraints have been ordered by priority. The prioritization reflects the possible sequencing of activities to address individual constraints.

3.1 Fertilizer Products

3.1.1 Policy and legal constraints

An improved enabling policy environment is necessary for a strong commercial fertilizer industry to emerge and grow in Zambia. Perceived policy barriers are identified.

3.1.1.1 Weak inspection and enforcement of standards

Many government agencies lack technical capacity to effectively regulate the activities of the private sector. The coming of new fertilizer products onto the market over the past few years makes an independent quality assurance system essential. Farmers need to be assured of the efficacy and conformity to specifications of the product available in the markets.

The legal and regulatory framework which provide for the regulation and control of the manufacture, processing and importation and sale of fertilizers and minimum standards of effectiveness and purity of such fertilizers is inadequate, fragmented and out-dated. Issues of registration are handled by ECZ while ZARI handles quality assurance and ZBS handles standards in labeling and repacking. Confusion is inevitably inherent in the enforcement of rules and regulations pertaining to the fertilizer industry. The functions of different government agencies are not clearly and consistently spelled out. Furthermore, there is no mechanism to coordinate and allow information to be shared within the regulatory agencies and the public. If investors lack clear procedural information on where to go first and next, entering the business or introducing new products on the market become cumbersome. Therefore, policy reforms are needed to ease the procedural constraints traders encounter when entering or expanding their fertilizer business.

3.1.2 Organizational constraints

3.1.2.1 Outdated technical information

The use of fertilizer in Zambia has been based on recommendations which were developed in the early 70s and based on a limited range of fertilizers. The heavy reliance on blanket recommendations particularly in the small scale sector has denied farmers the full benefits of applying fertilizers and caused soil degradation. Blanket recommendations do not take into

account the available rainfall and soil type. Adjusting recommendations to respond to rainfall and soil conditions is an under-researched area.

3.1.2.2 Inadequate distribution networks

Fertilizer retailers are concentrated along the line of rail and mostly at district centers. As a result, outlying areas are not serviced. The expansion of the networks to the outlying areas is constrained by the bulky nature of fertilizer, low trading margins, seasonality of demand and the long distances of production centers from supply points.

3.1.2.3 Absence of fertilizer traders association

The absence of a fertilizer trader association has led to uncoordinated development of distribution networks.

3.1.2.4 High cost of fertilizer

The bulk of fertilizer manufacturing ingredients and finished products are imported. Due to macroeconomic factors coupled with Zambia's landlocked position, the landed cost of these materials is high. This results in high fertilizer prices.

3.2 Seed products

3.2.1 Policy and legal constraints

3.2.1.1 Weak enforcement of standards

Seed is a living product with a limited shelf life. Poor handling and storage can have an adverse effect on the viability of the seed. Quality assurance from production to marketing is critical. The inadequate funding and staffing levels at Seed Certification and Control Institute (SCCI) have compounded the weak enforcement of quality and labeling standards in the country by both the public and private sectors.

3.2.1.2 Centralized licensing system

For an entity to distribute commercial seeds, they must be licensed by SCCI. SCCI has an on-going program to decentralize issuance of licenses but this process is slow making it difficult to suppress unlicensed distribution of seed.

3.2.1.3 Weak public sector breeding programs

Local public breeding institutions have weak breeding programs due to limited funding and staffing. As a result, breeding programs for non-industrial crops have had less attention. Improved varieties for crops such as millet, cowpeas and others are not available. Farmers save planting seed from previous harvest making it less attractive for seed companies to invest. Furthermore, producing seed for these other crops requires considerable time because of the slow multiplication factor.

3.2.1.4 Lack of plant breeders rights

The absence of a Plant Breeders Act to protect plant breeders has adversely affected investment in the industry. The lack of this legal framework will delay the utilization of new inventions in developing updated production technologies.

3.2.2 Organizational constraints

3.2.2.1 Unpredictable effective demand

The seed production cycle is a year behind effective demand. This creates potential for stocks running out especially when more players enter the market within the same season. Other factors can complicate this position, for example, changes in the weather patterns creates changes in demand for either late or early maturing varieties. Furthermore, the diversity of farmers' preference for particular seed varieties and brands compounds the problem. The industry finds it difficult to know the quantity of seed varieties demanded in a particular area or by a particular buyer.

3.2.2.2 Inadequate distribution networks

Seed distribution networks are not well developed especially outside the line of rail. The seed industry is struggling to produce and distribute seed in outlying areas. The marketing of seed is complicated by the short planting time available to farmers, particularly for maize seed. This makes it difficult for suppliers to make the right variety of seed available at the right time of the season.

3.2.2.3 High cost of seed

Seed is perceived by most farmers as a high cost input relative to the low levels of farm income. Despite farmers having knowledge of the benefits of growing improved varieties, they cannot afford to purchase the improved seed. The greater share of area planted by smallholder farmers is planted to recycled seed.

3.3 Agriculture and Veterinary Chemicals and Products (AVCP)

This section deals with constraints in distribution of crop chemicals and veterinary drugs. This encompasses biological control products for both livestock and crop production.

3.3.2 Policy and legal constraints

3.3.2.1 Weak regulatory body

Government institutions have limited capacity to monitor and regulate the importation, distribution and use of products. Enforcement agencies are actively present on two out of a possible eight border and entry points. As a result, unregistered AVCPs are imported into the country. Regulatory bodies do not have an active data base of what products have been registered

for use on which crops. This lack of capacity makes it easier for farmers to purchase unregistered chemicals leading to unsafe AVCP stewardship.

3.3.2.2 Poor implementation of rules and regulations

The government bodies charged with responsibility to enforce regulations are not collaborating with each other. The registration of products, issuance of import permits and regulation of their use is not coordinated. Some products are controlled under the pharmaceutical Act and other products are being controlled under other Acts. This fragmentation creates gaps leading to difficulties in regulating products especially ones that have just been launched.

3.3.2.3 Inappropriate classification of diseases of national economic importance

A number of livestock and crop diseases and pests have devastated the agricultural industry but despite significant economic impacts, these diseases have not achieved the status of having national importance. The current international criteria used to classify diseases of national importance have not served the local interests well. The policy position is unsatisfactory.

3.3.2.4 Increased risk of unregulated re-packing

Unauthorized re-packing or decanting of AVCPs is common in Zambia. The required legislation exists but the capacity to enforce is limited. The uncontrolled re-packing does not follow the FAO code of conduct on product stewardship. As a result, the safety of farmers and consumers is risked.

3.3.1 *Organizational constraints*

3.3.1.1 Inadequate technical and market information

There is very little literature, studies and analysis done in the past years. The industry does not have a consolidated booklet showing the following information: list of registered businesses; list of registered chemicals; approved chemicals per crop or animal; rates and methods of application and a list of traders. Information on biological/organic control products and agents is also not consolidated and is not readily available.

3.3.1.2 Inadequate retail networks

Most retailers are concentrating their service along the line of rail and provincial centers. This limits access to chemical products and basic safety information for small scale farmers in outlying areas. The distances to cover are prohibitive and volumes demanded are small and scattered. For these reasons, servicing outlying areas is not profitable for the private sector.

Given that many livestock drugs are living products their distribution requires a cold chain network. This cold chain requirement keeps transaction costs for distributors high especially when economies of scale cannot be achieved. Even though positive trade margins may exist, the margins are not high enough to cover direct costs of selling limited volumes of products.

3.3.1.3 Lack of qualified and certified chemical handlers

Lack of a formal course on handling agricultural chemicals allows anybody to give advice to the farmers even if it may not be correct. Sellers cannot be counted upon to supply reliable information about the use of chemicals they sell and are not liable for incorrect information.

3.3.1.4 Weak traders association

Until recently the traders association was weak and fragmented giving room to unethical practices among the players. Suppliers are encouraged to form associations to make it easier for government to assist and regulate the industry.

3.3.1.5 Inadequate use of integrated pest management (IPM)

IPM technologies are crucial in facilitating optimal use of AVCPs. These technologies can give farmers an option to use a biological control or insect control at various stages of the production cycle. Such alternatives are not only environmentally friendly but they also reduce costs to the farmer. These options are not being promoted and have not been commercialized. Judicious use of chemicals in combination with other methods should be promoted.

3.3.1.6 High cost of pesticides

Insecticides are the main agricultural chemicals used by smallholder farmers in cotton, tomato, tobacco and other vegetable production. Access to insecticides by smallholder farmers is limited by the current 15 per cent import duty. Increasing the cost of production of the output reduces international competitiveness for Zambian farmers. Duty on packaging to be used for re-packing chemicals also adds cost to the farmer.

3.4 Cross cutting issues

3.4.1 Policy and legal constraints

3.4.1.1 Unstable macro-economic framework

Although the macro-economic environment has improved over the last two years, interest and inflation rates still remain at unsatisfactory levels. Government continues to crowd out the private sector out of the debt market. The impact is severe considering that rates of return in agricultural investment are relatively low. High interest rates impede credit linkages between suppliers and retailers, as well as the viability of seasonal credit from retailers to producers. Furthermore, the high level of taxes is still a burden for input suppliers.

3.4.1.1 High cost of capital

Lack of a specific financial institution to deal with agricultural related financing is a hindrance to importation and distribution of inputs. This is exacerbated by supplier's lack of collateral. Access to medium and long-term financing becomes difficult when interest rates and collateral requirements are high.

3.4.1.3 Low levels of farm liquidity

The non-existence of credit facilities for small scale farmers limits their capacity to access inputs that are both available and potentially profitable to use. The low levels of income particularly

among smallholder farmers who in most cases do not possess collateral constrain demand for inputs.

3.4.1.4 Poor targeting of input subsidies and un-level playing field for suppliers

The modalities of subsidized input distribution programs have not promoted private firms to extend networks to areas where there is demand. Instead, non-commercial distribution efforts conflict with existing networks of companies operating independent of the former. The dominance of the non-commercial distribution has had a significant effect on the development of the private sector. Rather than facilitate and support private enterprise in a neutral manner, the non-commercial distribution programs have been a formidable competitor for business.

3.4.1.5 Lack of a legal framework to encourage investment in biotechnology

Genetic modification is one of the biotechnology tools that transfer genes of living organisms or substances to improve the traits or characteristics (e.g., resistance to viruses, insects, herbicides etc) of plants or animals. Zambia has taken the position not to allow GM food because of its unknown risks and benefits. After registering its acceptance of the Cartagena Biosafety Protocol, the government drafted a law that takes care of unwarranted proliferation of GMOs. Ministry of Science, Technology and Vocational Training (MSTVT) published a biosafety bill which will set up a biosafety authority responsible for protecting human, animal and environmental health from potential adverse effects of commercial application of GM technology. This bill has not been passed into law. Meanwhile, Zambia lags behind other countries such as Uganda, Kenya, Zimbabwe and South Africa in conducting research on GMOs risks and benefits. This situation will have far reaching consequences on Zambia's food security, the international competitiveness of her farmers, her environment and health of its citizens.

3.4.2 *Organizational constraints*

3.4.2.1 Poor state of infrastructure

The capacity of the private sector to service farmers in Zambia is greatly undermined by the high cost and poor delivery of public services. Essential infrastructure such as feeder roads, rail, port facilities, water and sanitation, telecommunication, banking facilities, security, vocational schools and colleges, airports etc is inadequate and in poor state. Owing to poor or unreliable supply of infrastructure services, private firms pay higher than normal rate of user charges. Farmers pay three times the original price of inputs due to poor road networks and inefficient distribution systems. In other areas this infrastructure is non-existent hindering the extension of private sector services in those areas.

Given Zambia's land-locked position, the cost of transporting exports and imports currently being channeled through South Africa and Tanzania is very high. A rail link project to Malawi and consequently Mozambique has been on the drawing boards for a long time and has never been executed.

The country also has inadequate facilities to issue certificates of analysis on imported AVCPs. Most of the existing laboratories are in a deplorable state. Equipment in the labs is old and need to be replaced urgently. Obsolete equipment is still being used in an era of modern technology.

It is not possible to ascertain whether the quality of distributed products conforms to specifications on the labels. Products are being imported without any knowledge of the level of impurities or their efficacy.

3.4.2.2 Undeveloped output markets

Efforts to increase input use are likely to meet with limited success unless they are embedded within wider market development strategies. Effective demand for these inputs depends on profitable use of them which in turn depends upon market prices for farm commodities. Inefficient commodity markets resulting in lower market prices to the farmers are a barrier to the development of effective input markets. Improving producer prices will help stimulate demand of inputs. Changes in producer prices are more effective in stimulating demand for inputs than changes in the cost of inputs.

3.4.2.3 Poor agricultural extension services

The extent and intensity of adoption of modern inputs by farmers is low. This emanates from poor funding of public extension services and poor coordination and harmonization of the individual efforts of input suppliers and NGOs. While a public extension structure exist, human, operational and capital resources are lacking. Besides the lack of camp officers in a number of farming areas, subject matter specialists are not adequately available to backstop efforts of camp officers. Despite the continued payment of personnel emoluments for all staff, the low allocations for extension operations and capital expenditures have rendered the agency ineffective.

Furthermore, the interaction of extension agents with private input suppliers and NGOs has not helped much to improve the performance of extension system. The individual effort of input suppliers and NGOs is not coordinated and compete against each other. The additional resources committed by NGOs and suppliers to the extension system are not leveraged and activities are not harmonized.

The linkages between technology generation and transfer are non-existent. Research and extension operations are expected to be mutually reinforcing. The current state of low farm level productivity and technology adoption is not surprising.

4. DEVELOPMENT STRATEGIES

Section 3 identified the constraints to developing input markets. This section focuses on identifying the strategies to reduce or remove these constraints. The foundation for the proposed strategies is built on four major areas: accelerating private sector led market development; improving the regulatory framework and strengthening public agencies that support private sector; improving social and physical infrastructure; and improving access to regional and global markets by fully utilizing market opening opportunities.

Practical strategies are identified to address constraints in the individual input sectors as well as constraints that are cross-cutting. This plan has benefited from earlier initiatives directed at addressing similar issues such as the 2004 Agricultural Market Development Plan, the 2004 Private Sector Development Reform Program, the 2004 Financial Sector Development Plan and the 2002 Transport Policy. The challenge is how to coordinate implementation of these strategies in any given location.

In this section, the expected outputs are ordered first to reflect the sequence of achieving them when implementing the plan. The strategies presented to achieve each given output have also been prioritized.

4.1 Fertilizer

4.1.1 Policy and legal strategies

4.1.1.1 Effective inspection and enforcement of standards

The objective of having effective inspection and enforcement of standards is to maintain high quality fertilizer products in the market. The strategies to achieve this goal are:

- a review, rationalize and simplify all classification, registration and licensing/inspection procedures
- b developing an industry code of ethics to allow self-regulation
- c improving funding for equipment and staffing of inspectorate
- d institutionalize public-private sector policy dialogue – a committee set up

4.1.2 Organizational strategies

4.1.2.1 Up-to-date technical information

The objective of having up-to-date technical information is to promote economic use of fertilizer. To achieve this goal, the following strategies will be considered:

- a increase investment in testing capabilities and human resources to obtain quality results;
- b update technical information on soil fertility
- c develop specific principles of soil fertility management and disseminate widely to farmers
- d teach farmers how to recognize nutrient and pH deficiencies

4.1.2.2 Effective distribution networks

Effective distribution networks are necessary in order to increase availability of fertilizer by farmers. The strategies needed to build these networks include:

- a establish wholesalers and build linkages within supply chain
- b training of dealers on marketing/business and technical skills ;
- c sensitization of farmers on group marketing;
- d promote marketing of small input packs;
- e encourage suppliers to diversify into crop marketing

4.1.2.3 Introduce fertilizer trader association

The objective for introducing a fertilizer trader association is to promote ethical business standards and efficient supply and economic use of fertilizer. The following are the strategies:

- a form a fertilizer suppliers association for importers, manufacturers and a separate association for retailers.

4.1.2.4 Reduced prices of fertilizer

The objective of reducing fertilizer prices is to reduce the cost of production. The strategies are:

- a promote cheaper modes of transportation including backhauling
- b promote bulk procurement by farmers
- c promote alternative soil fertility strategies
- d promote establishment of localized blending plants
- e promote use of local materials in fertilizer production

4.2 Seed and planting materials

4.2.1 Policy and legal strategies

4.2.1.1 Decentralized licensing service

Licensing of seed retailers is essential in order to preserve the quality aspects of seed distribution. Accelerating the on-going decentralization program by SCCI will enable more seed retailers operating in remote parts of the country to be licensed. The following strategies will be considered:

- a identify licensing agents in different locations and train them
- b monitor and evaluate role of licensing agents

4.2.1.2 Effective enforcement of standards

The objective of having effective enforcement of standards is to improve and maintain high quality seeds in the market. The strategies to achieve this goal are:

- a enhance staffing and operations of regulatory agencies
- b delegate certification to others

4.2.1.3 Strong public sector breeding program

The objective of having a strong public sector breeding program is to improve breeding and research for neglected crops. To achieve this goal, the following strategies will be considered:

- a increasing allocation to research institutions
- b commit resources for basic research for all priority crops
- c develop research and market linkages

4.2.1.4 Enact plant breeder's rights

The objective of enacting plant breeder's rights is to protect inventions and encourage investment in seed research. The strategy to achieve this goal is:

- a accelerating enactment of the draft plant breeders act

4.2.2 Organizational constraints

4.2.2.1 Predictable effective demand

The objective of having predictable effective demand is to reduce the gaps between supply and demand. The strategies are:

- a sensitize farmers on identifying quality seed
- b improving collection and dissemination of crop production data
- c complete the development a data base for aggregated industry seed sales by seed type
- d improving collection and dissemination of weather forecast data
- e increase investment in irrigation to stabilize seed production such as basic seed

4.2.2.2 Effective distribution networks

Effective distribution networks are necessary in order to increase availability of improved seed by farmers. The strategies needed to build these networks include:

- a establish more seed wholesalers within the marketing chain in outlying centers
- b train more distributors and link them with local extension agents

4.2.2.3 Economic prices of improved seed

The price of improved seed should be economic to make it affordable to a low income farmer. The strategies to achieve this goal are:

- a. encourage entry of small cottage seed companies
- b. decentralize production of seed to reduce distribution costs

4.3 Agriculture and Veterinary Chemicals and Products (AVCP)

4.3.1 Policy and legal strategies

4.3.2.2 Strong regulatory body

The objective of having a strong regulatory body is to regulate all importation and ensure safe use of AVCPs. The strategies are:

- a review, rationalize and simplify all registration an licensing/inspection procedures
- b improve funding and staffing levels for regulatory agencies at all entry points
- c improve linkages and coordination between ministries and government agencies to improve enforcement

- d introduce a veterinary drugs Act

4.3.1.2 Effective implementation of rules and regulations

Effective enforcement of rules is needed to make the environment predictable. The strategies are:

- a. Define roles for government and others
- b. Empower monitors and inspectors with funding and other resources for operations

4.3.1.3 Use local criteria to classify pests and diseases of national economic importance

The classification of pests and diseases of national importance should be based on local criteria to save the national herd and crop from further collapse. Pests and diseases classified as such should be controlled without fail. The strategies are:

- a. Develop appropriate local criteria for classifying pests and diseases of national economic importance
- b. Establish a pests disease prevention and control fund
- c. Establish a pest and disease control strategy

4.3.1.4 Enforce law on re-packing

Enforcing laws on re-packing is necessary in order to reduce unauthorized re-packing of AVCPs. The following are the strategies:

- a provide incentives to encourage use of quality re-packing materials
- b monitoring and certifying re-packing facilities

4.3.1.5 Economic prices for insecticides

The objective of having economic prices of pesticide is to improve access and competitiveness of farmers. The strategies to achieve this goal are:

- a provide incentives to reduce cost of importing insecticides
- b encourage local production of selected products

4.3.2 Organizational strategies

4.3.1.1 Readily available up-to-date technical and market information

The objective of having up-to-date technical and market information on AVCP is to ensure safe economic use of the products. The strategies to achieve this goal are:

- a establishing a data base on businesses and chemicals
- b collaboration on developing a farmer's use guide book
- c disseminating general literature on AVCP

4.3.1.2 Wider distribution network

A wide distribution network is necessary in order to increase availability of ACPs by farmers. The strategies needed to build these networks include:

- a facilitating and establishing wholesalers within the marketing chain in major centers
- b provide suitable cold chain for veterinary drugs and products

4.3.2.3 Qualified and certified chemical handlers

The objective of having qualified and certified chemical handlers is to improve safety and economic use of ACP. The strategies are to:

- a strengthen curriculum in formal training centers
- b introduce appropriate training modules
- c provide a specialized course for handlers
- d certify handlers periodically

4.3.2.4 Strong traders association

A strong traders association is necessary in order to enhance self regulation and expose malpractice. To achieve this goal, the strategies are:

- a build capacity of the association
- b ensure adherence of members to internationally acceptable code of conduct, e.g., FAO
- c form alliances with international and regional bodies

4.3.2.5 Expanded use of integrated pest management

The introduction of IPM will promote environmental sound practices at reduced cost to the farmer as well as improve access to markets. The following are the strategies:

- a encourage IPM strategies
- b promote organic farming

4.4 Cross-cutting strategies

4.4.1 Policy and legal strategies

4.4.1.1 Stable macro-economic environment

The objective of having a stable macro-economic environment is to ensure that agricultural policies are certain and the cost of doing business is reduced. The strategies are to:

- a continue to reduce the level of government domestic borrowing
- b reduce inflation further to single digit levels

4.4.1.2 Capital market development and financial sector reform

- a amend the agricultural credit act to provide for the credit bureau etc
- b encourage emergence of agricultural lending institutions for farmers and traders
- c promote savings mobilization

4.4.1.3 Improve farm liquidity for smallholder farmers

- a encourage acquisition of title on land to create collateral
- b provide incentives to accelerate crop and livestock diversification
- c support provision of in-kind seasonal input credit
- d incorporate smallholder farmers into inventory credit systems e.g., warehouse receipt system

4.4.1.4 Targeting subsidies and leveling field of participation

Targeting farmers with inputs they need and creating a level playing field for suppliers ensures that non-commercial programs complement the commercial activities of the private sector.

Widespread but targeted distribution of input entitlements on smart cards will improve access for food insecure households and stimulate private input markets. To achieve this goal, the following strategies will be considered:

- a coordinate timely and transparently non-commercial demand for inputs
- b introduce a flexible instrument such as an input voucher

4.4.1.5 Put in place a legal framework for biotechnology

The objective of having a legal framework for biotechnology is to ensure safe utilization of biotechnology. The strategies are to:

- a accelerate enactment of biotechnology legislation
- b build capacity to regulate and monitor GM products in accordance with the biosafety protocol
- c build research institutions for biotech to allow scientists study impacts of GM products under controlled conditions

4.4.2 *Organizational strategies*

4.4.2.1 Improve infrastructure

The objective of improving infrastructure is to allow the private sector develop cost effective distribution networks and enable farmers access inputs at reasonable cost. The following strategies are to be considered:

- a develop and implement plans to encourage private investment in infrastructure
- b encourage direct utilization of public storage in support of market development
- c establish livestock marketing and processing facilities in production areas

4.4.2 Developed output markets

The objective is to develop an efficient and functioning private sector driven agricultural commodity marketing system. The strategies are:

- a distribute market information widely
- b enhance the capacity of market players
- c establish calendar based (periodic) marketing system
- d promote and widening use of grades and standards
- e take advantage of regional and international market opportunities
- f expand domestic industrial utilization especially near production centers

4.4.3 Effective and sustainable extension service

The objective of having an effective and sustainable extension service is to provide appropriate technical information to farmers. To achieve this goal, the following strategies will be considered:

- a improve funding for operations
- b recruit extension staff to fill in all established posts
- c strengthen research extension linkages
- d update knowledge and skills of field officers

- e strengthen and harmonize public - private extension linkages
- f adopt participatory extension approach
- g introduce IT solutions to information generation & dissemination

Fertilizer Marketing Development - Logical Framework Matrix

* outputs considered less important

OUTPUTS, STRATEGIES AND ACTIVITIES (Implementation schedule and responsible institution)	ASSUMPTIONS	INDICATORS	MEANS OF VERIFICATION
1. POLICY AND LEGAL STRATEGIES			
1.1 Effective inspection and enforcement of standards			
1.1.1 registration, classification and licensing/inspection procedures reviewed, rationalized and simplified			
<i>Review for rationalization relevant regulatory frameworks (Immediate – PCD, ZARI, ZABS, ECZ)</i>	Cooperation and harmony among agencies,		
<i>Harmonize regional standards in regulatory framework (Medium – PCD, COMESA, SADC)</i>			
<i>Institute an inspectorate composed off all regulatory bodies (Medium – PCD, ZARI, ZABS, ECZ)</i>			
<i>Set service delivery standards (Immediate – ZARI, ZABS, ECZ)</i>	Regulatory agencies accept reform		
<i>Clearly allocate responsibilities (Immediate – PCD)</i>	Legal powers to enforce safety and health regulations given to others		
<i>Information generated, stored and disseminated (Medium – PCD, Fertilizer Association)</i>	information to be shared by all regulatory bodies		
1.1.2 industry code of ethics developed to allow self-regulation			
<i>Write up acceptable code of ethics for suppliers (Medium – Fertilizer Association)</i>	Agreement among suppliers International acceptance	No of suppliers observing specific codes	Conformity checks throughout the marketing chain
1.1.3 funding for capital expenditure and operations increased for inspectorate			
<i>Assess needs and evaluate capacity of existing laboratories (Immediate – ZARI)</i>	Agencies to contract only targeted labs and build their capacities	No. of labs and the services they provide	Inventory report
<i>Recruit and train competent inspectors (Immediate – ZARI, ZABS, ECZ)</i>	Resources available	No. qualified staff on posts. Life span of assets	Annual human resources reports Asset books
<i>Equip facilities with modern equipment (Medium - Long – ZARI, UNZA, NISIR)</i>	Resources available and zero tolerance on abuse	Useful years left on equipment	Asset books
<i>Collect samples at random from factories/warehouses rather than at entry points (Immediate – ZABS, ECZ)</i>	ECZ, ZABS have staff and time to visit factories and warehouses		
<i>Review testing fees and give results to companies and farmers (Immediate – ZARI, ZABS, ECZ)</i>	Capacity to give reliable results	Sample test results	Laboratory test results released
1.1.5 Institutionalize public-private sector policy dialogue			
<i>Set up a committee to coordinate consultations on policy matters (Immediate – PCD, ACF)</i>	Government willing to consult widely		

OUTPUTS, STRATEGIES AND ACTIVITIES (Implementation schedule and responsible institution)	ASSUMPTIONS	INDICATORS	MEANS OF VERIFICATION
2. ORGANIZATIONAL ACTIVITIES			
2.1 Up-to-date technical information			
2.1.1 investment in regional testing capabilities made			
<i>Upgrade equipment in main research stations (Immediate to long – ZARI, UNZA, NISIR)</i>	Resources available	Budget allocation	Annual Yellow book & monthly budget releases
<i>Adopt internationally acceptable testing protocols (Immediate – ZARI, UNZA, NISIR)</i>	Consensus among professionals	Stringency levels	Routine checks in laboratories
<i>Upgrade professional skills for lab technicians (Medium – ZARI, UNZA, NISIR)</i>	Training facility with program	% of Technicians retrained	Annual research station reports
<i>Ensure regular supplies of reagents (Immediate – ZARI, UNZA, NISIR)</i>		Number of nutrients that can analyzed	Lab test results
2.1.2 technical information on soil fertility updated			
<i>Update the old soil maps (Medium – ZARI, UNZA)</i>	Information is available	Information transcribed	Extension programs
<i>Perform comprehensive nutrient analysis of different soil series (Medium – ZARI, UNZA)</i>	Results are accurate	No. of soil series that have been analyzed	Soil survey reports
<i>Conduct fertilizer trials (Medium to long – ZARI, UNZA, Fertilizer Importers)</i>	Trials conducted together with improved seed	No. of protocols No. of sites and parameters	Annual reports from suppliers promotion activities
<i>Broaden the range of products on market (Medium to long – Fertilizer Importers & producers)</i>	Government is seriously committed		
2.1.3 principles of soil fertility management developed & disseminated			
<i>Synthesize extension messages (doses, combinations of fertilizer to be applied major soil types/crop & application methods) (Immediate to long – ZARI, UNZA, Field Services)</i>	Updated information is available A wide range of products supplied	Information transcribed	Extension programs
<i>Disseminate appropriate messages widely to farmers (Immediate to long – Field Services, NGOs and private sector)</i>	Messages acceptable by farmers	No. of feedbacks, requests for info and adopters	Field officers and agricultural surveys
2.1.4 Farmers taught how to recognize nutrient & pH deficiencies			
<i>Disseminate and use leaf color charts (Immediate to long – Field Services, NGOs and private sector)</i>	Institutional support		
<i>Use indicators of vegetation types (Immediate to long – Field Services, NGOs and Private Sector)</i>	Indigenous knowledge exist		
2.2 Effective Distribution Networks			
2.2.1* wholesalers & linkages established in marketing chain			
<i>Appoint wholesalers in major centers (Immediate – Private Sector)</i>	Suppliers operate on consignment basis or with financial instrument	No of fertilizer wholesale agents per province	Seasonal supply points for major importers

OUTPUTS, STRATEGIES AND ACTIVITIES (Implementation schedule and responsible institution)	ASSUMPTIONS	INDICATORS	MEANS OF VERIFICATION
	Wholesalers have financial capacity to guarantee payment to suppliers	No. of contracts and volumes traded	
2.2.2* traders trained on fertilizer marketing & business skills			
<i>Carry out needs assessment (Immediate – PCD)</i>	Resources available Support from suppliers	Amount of funds set aside Survey program developed	Monthly reports from implementing agency
<i>Design courses and deliver them (Medium – PCD)</i>	Resources available Traders identified Support from suppliers	No. of modules developed No. of trainers & trainees	Monthly reports from implementing agency
2.2.3 farmers trained on group marketing			
<i>Assess functional capacity (business orientation) of farmer organizations (Immediate – PCD, NGOs)</i>	Business oriented coops exist Individual benefits accrue to members procuring in groups	No of economic driven coops procuring in groups	Annual reports submitted to Coop Register
<i>Design courses and deliver them (Medium – PCD, NGOs)</i>	Resources available coops identified	No. of modules developed No. of trainers & trainees	Monthly reports from implementing agency
<i>Widely disseminate information about benefits of group marketing (Medium to long – NGOs, NAIS, PCD)</i>	Government is consistent on its desire to build capacity of coops		
2.2.4 pre-packed fertilizer distributed in small labeled bags			
<i>Standards for small input packs developed (Immediate – ZABS)</i>	Standards committee agrees	Standards given to suppliers	ZBS reports and certificates issued
<i>Market survey to verify size of packs to pre-pack (Immediate – Fertilizer industry)</i>	Suppliers will support Capacity by ZBS to enforce standards/consistency	Amount of funds set aside Survey program developed	Minutes of supplier association meeting, survey instruments
<i>Advertise small packs in the media (Immediate – Fertilizer industry)</i>	Commitment and net benefit for suppliers, agents and farmers	Number of small packs traded	Supplier sales records
2.2.5* Suppliers diversify into commodity marketing			
<i>Deliver dual input and output marketing package (Immediate – Fertilizer industry)</i>	Net benefits to suppliers & farmers & willingness to integrate services	Level of vertical integration in marketing chain	Structure of the industry
2.3* Set up fertilizer suppliers association			
2.3.1 association for importers and manufacturers formed			
<i>Convene a suppliers meeting (Immediate – Fertilizer industry, ACF)</i>	Commitment by suppliers and support from government	No of major suppliers participating	Association minutes
<i>Register the association (Immediate to Medium – Fertilizer industry)</i>	Agreed constitution	Registered name	Registration certificate
<i>Establish linkages with other international associations (Medium – Fertilizer Industry Association)</i>	Common vision	No. of alliances formed	Association records

OUTPUTS, STRATEGIES AND ACTIVITIES (Implementation schedule and responsible institution)	ASSUMPTIONS	INDICATORS	MEANS OF VERIFICATION
2.4* Reduced prices of fertilizer			
2.4.1 cheaper modes of freight used			
<i>Utilize rail freight (Medium – Fertilizer importers and distributors)</i>	Rail freight efficient, reliable & has low losses	% volumes rail freighted	Fertilizer association RSZ and TAZARA annual reports
<i>Use back-hauling (Medium – Fertilizer importers and distributors)</i>	Information is available		
2.4.2 bulk procurement by farmers promoted			
<i>Consolidate farmer demand orders (Immediate – Farmer Coops, District Coop Unions)</i>	Cooperation among suppliers and farmers	Number and size of orders	Fertilizer association and wholesalers
2.4.3 alternative soil fertility strategies promoted e.g., legumes			
<i>Incorporate alternatives technologies in extension messages (Immediate – ZARI, Field Services, ICRAF, NGOs)</i>	Alternative technologies exist	% adoption rate and intensity	Annual production surveys
2.4.4 localized blending plants established			
<i>Monitor geographical distribution of blends (Immediate – ZABS, ZARI, Fertilizer Distributors)</i>	Cooperation from operators	No of blending plants and their distribution % share of blended products	Fertilizer association EIA from ECZ
<i>Establish in-house analytical facilities (Medium to Long – Fertilizer producers)</i>	Resources available	No. of plants with facilities	Plant inspections
<i>Conduct routine soil testing prior to blending (Medium to Long – Fertilizer producers)</i>	Facilities available to perform tests	Orders backed by soil analysis	Supplier sales reports
2.4.5 local materials used in fertilizer production			
<i>Use local raw products (Immediate to Long – Fertilizer producers)</i>	Technology to utilize material exist Materials accepted by farmers	Composition of products	Product specification and analysis

Seed Marketing Development - Logical Framework Matrix

OUTPUTS, STRATEGIES AND ACTIVITIES (Implementation schedule and responsible institution)	ASSUMPTIONS	INDICATORS	MEANS OF VERIFICATION
1. POLICY AND LEGAL STRATEGIES			
1.1 Decentralized licensing service			
1.1.1 licensing agents identified and trained			
<i>Identify potential partners in each province (Immediate – SCCI, ZASTA)</i>	Potential candidates exist and are willing to participate for a considerable period	Number of agents trained by province	
<i>Offer candidates training on licensing procedure (Immediate – SCCI, ZASTA)</i>	Resources available for training in several locations	Number of traders licensed	
<i>Design incentive scheme to maintain agents (Immediate – SCCI, ZASTA)</i>	Incentives are attractive and sustainable		
1.1.2 monitor licensing activities of agents			
<i>Stipulate records that agents will keep (Immediate – SCCI)</i>	Records are standardized for comparability		
<i>Evaluate record periodically (Medium to long – SCCI)</i>	Resources available		
1.2 Effective enforcement of standards			
1.2.1 staffing and operations of regulatory agencies enhanced			
<i>Allocate more resources for staff and operations (Immediate – PCD, SCCI)</i>	Resources available and government appreciate its role	Share of budget allocated to research	Yellow book and monthly releases
<i>License some of the services to seed companies (Immediate – SCCI)</i>	Industry can monitor itself	Functions performed by SCCI effectively	Quarterly financial reports of SCCI
1.2.2 certification and licensing delegated to others			
<i>Train staff to assist with certification (Medium to long – SCCI)</i>	Cooperation and harmony exist	No. of personnel licensed	SCCI annual reports
1.3 Strong public sector breeding program			
1.3.1 allocation to research institutions (UNZA, ZARI, NISIR) increased and operations revamped			
<i>Set up committee representing all departments to rationalize allocation (Immediate – PCD)</i>	Politicians and MOFNP appreciate agriculture	Share of budget allocated to research	Yellow book and monthly releases
<i>Increase utilization of positive spill-overs from CGIAR research (Medium to Long – ZARI)</i>	CGIAR centers can collaborate with ZARI	Research protocols	Annual reports from ZARI

OUTPUTS, STRATEGIES AND ACTIVITIES (Implementation schedule and responsible institution)	ASSUMPTIONS	INDICATORS	MEANS OF VERIFICATION
<i>Accelerate process of obtaining treasury authority to appoint staff (Immediate – PCD)</i>	Match skills with positions	No. of staff promoted and retrained	
<i>Continue recruiting for unfilled positions (Immediate – PSC, HRA)</i>	Resources available	No. of positions filled	
<i>Improve conditions of service for staff (Immediate – PSC, HRA)</i>	Acceptability by staff	Salary levels	
1.3.2 Resources for basic research committed for all priority crops			
<i>Add research resources towards crops with limited commercial potential (Medium – ZARI)</i>	Basic research funded	No of crops whose breeding is publicly funded	Annual reports from ZARI
<i>Provide for continuity of research programs (Medium – ZARI)</i>	Government committed to fund research & consider it as investment	No of programs continuing	Annual research reports
1.3.3 research and market linkages developed			
<i>Explore industrial uses for all crops (Medium – ZARI, PCD, ZAM, NISIR)</i>	Relevant experiences exist in the region	Type of on going industrial research	Annual reports from National Institute of Scientific & Ind Res
<i>Explore foreign markets for all crops (Immediate – Export Board of Zambia)</i>	Demand exist or can be created	Countries with potential to import our products	Annual trends in regional COMESA trade flows
1.4 Enact plant breeders rights ACT			
1.4.1 enactment of PBR accelerated			
<i>Draft & enact PBR & community rights separately (Immediate – PCD, SCCI, ZASTA, ZARI)</i>	Acceptable to all stakeholders		
<i>Accelerate the enactment (Immediate – PCD, SCCI, ZASTA, ZARI)</i>	Political will to develop without seeking perfection Farmers and community rights will not create hurdles	Time taken to pass each stage	MACO reports
2. ORGANIZATIONAL ACTIVITIES			
2.1 Predictable effective demand			
2.1.1 farmers sensitized on identifying quality seed			
<i>Mount campaigns on media (Immediate – SCCI, ZASTA, NAIS)</i>	Broadcast coverage is wide Suppliers and government support	Reduction in complaints Reduced presence of fake seed	Field reports SCCI reports
<i>Increase physical enforcement (Immediate – SCCI, ZASTA)</i>	Resources available and security personnel cooperate	Number of inspections & trainees & increase in quality seeds on market	
2.1.2 collection and dissemination of crop			

OUTPUTS, STRATEGIES AND ACTIVITIES (Implementation schedule and responsible institution)	ASSUMPTIONS	INDICATORS	MEANS OF VERIFICATION
production data improved			
<i>Conduct seed demand surveys (Immediate – PCD)</i>	Capacity to analyze PHS, CFS data exist in MACO and CSO	Participation in stakeholder meetings	Participant list
<i>Dissemination of results and follow-ups done (Immediate – PCD)</i>	Resources available for effective dissemination of estimates	No of members on distribution list	Circulation list for CSO & MACO reports
2.1.3 data base of industry aggregate seed supplies developed			
<i>Give mandate to collate seed production & sales statistics (Immediate – ZASTA, SCCI, PCD)</i>	Collaboration within ZASTA, SCCI shares data, Data collected and presented by length of maturity period	No. of companies reporting to ZASTA	ZASTA annual reports
2.1.4 reliability of long-term weather forecasts improved			
<i>Increase funding for staffing and operations for MET (Medium – MET)</i>	Resources available	Quality of assets Staffing rates	Asset books Human resources annual reports
2.1.5 investment in irrigation increased to stabilize seed production especially basic seed			
<i>Give clear and definite energy tariff rate discounts (Immediate – ZESCO)</i>	Cooperation from ZESCO	Tariff rates imposed	Electricity bills
<i>Accelerate electrification of farming areas (Medium to Long - Rural Electrification Fund)</i>	Capital expenditures for ZESCO	Kilometers of KV lines No of transformers installed	ZESCO annual reports
2.2 Effective distribution networks			
2.2.1 more wholesalers established in marketing chain			
<i>Appoint wholesalers and retailers in outlying centers (Immediate to Long – ZASTA)</i>	Suppliers operate on consignment basis or with financial instruments Sufficient # of wholesalers with acumen & financial capacity	No. of outlets wholesaling seed in outlying areas No of contracts and volumes traded	Reports from ZASTA members
<i>Entrepreneurs trained in seed production (Immediate – SCCI)</i>	Its cheaper to produce and bulk seeds locally	Number of new seed growers	Seed company reports
2.2.2 distributors trained & their capacity enhanced			
<i>Carry out needs assessment (Immediate – ZASTA, SCCI)</i>	Resources available Collaboration of SCCI with seed suppliers	Amounts of funds set aside Assessment program planned	Monthly secretariat reports
<i>Courses designed and delivered (Immediate – ZASTA, SCCI)</i>	Resources available Seed retailers identified Include marketing cooperatives	No. of modules developed No. of trainees participating	Monthly secretariat reports

OUTPUTS, STRATEGIES AND ACTIVITIES (Implementation schedule and responsible institution)	ASSUMPTIONS	INDICATORS	MEANS OF VERIFICATION
2.3 Economic prices of improved seed			
2.3.1 Decentralize production of seed			
<i>Appoint seed growers in all major farming zones (Medium – Seed Companies)</i>	Farmers have capacity and skills to grow seed		

Agriculture and Veterinary Chemicals and Products

OUTPUTS, STRATEGIES AND ACTIVITIES (Implementation schedule and responsible institution)	ASSUMPTIONS	INDICATORS	MEANS OF VERIFICATION
1. POLICY AND LEGAL STRATEGIES			
1.1 Strong regulatory body			
1.1.1 regulatory framework reviewed and updated			
<i>Consult stakeholders on regulatory framework (Immediate – PCD, ACF, Livestock Coordinating Group)</i>	Political will and suppliers support	Composition of committee	ECZ progress reports
<i>Spell out clearly the role of each agency (Immediate – PCD, ACF, Livestock Coordinating Group)</i>	Cooperation from agencies		
1.1.2 allocation of funds and staffing levels improved			
<i>Recruit and improve perks (Medium – VET, PSC)</i>	Resources available	Number of qualified personnel on posts	Annual human resource reports
1.1.3 linkages and coordination between regulatory bodies improved			
<i>Set up inter-institutional committee (Immediate – PCD)</i>	Cooperation and harmony among agencies, no mistrust, & unnecessary red-tape	Number of departments represented in committee	Planning reports
1.1.2 Veterinary drugs Act enacted			
<i>Seek cabinet approval (Medium – PCD)</i>	No duplication of services among agencies		
1.2 Effective implementation of rules and regulations			
1.2.1 define roles for government and others			
<i>Spell out terms of reference for VET officers carrying out government functions (Immediate – VET, LDT)</i>	Full compliance by officers Strong supervision	No of officers side-stepping their roles	Quarterly reports
1.2.2 funding for monitors and inspectors increased			
<i>Share of budget allocation improved (Immediate – PCD)</i>	Resources available	Amount allocated	Annual yellow book and releases
<i>Position more monitors in strategic locations (Medium – LDT, ZARI)</i>	Adequate supply of personnel Farmers demand for services	Distribution of staff	Annual reports from Livestock department
1.3 Use local criteria to classify pests & diseases of national importance			
1.3.1 appropriate local criteria developed			
<i>Draw up criteria for diseases & pests of national</i>	Resources available	Diseases & pests covered	

OUTPUTS, STRATEGIES AND ACTIVITIES (Implementation schedule and responsible institution)	ASSUMPTIONS	INDICATORS	MEANS OF VERIFICATION
<i>importance (Immediate – VET, LDT, ZARI)</i>			
1.3.2 pests & disease control fund established			
<i>Set up mechanism to administer the fund (Immediate – VET, LDT, ZARI)</i>	Resources available	Amount set aside	Yellow book and releases
1.3.3 pests & disease control strategy established			
<i>Appoint a team to study and develop a strategy (Immediate – VET, LDT, ZARI)</i>	Political will	Composition of committee	Govt. progress reports
1.4 Enforce law on re-packing			
1.4.1 incentives for quality repacking provided			
<i>Make representations to MOFNP (Immediate to Medium – PCD, ZNFU)</i>	No negative revenue impacts	Level of duty charged	ZRA schedules
<i>Give duty drawbacks to certified packers (Medium – MOFNP)</i>			
1.4.2 repacking facilities authorized, certified and monitored			
<i>Issue certificates (Immediate – ECZ)</i>	Incorruptible safety inspectors Local companies can fluorinate packaging	No. of certificates issued, visits and record of non-compliance	Crop life monthly reports ECZ reports
<i>Conduct unplanned random visits (Immediate – ECZ)</i>	Resources available Punitive clauses put in place	Number of re-packers inspected	ECZ reports
1.5 Economic prices for insecticide			
1.5.1 create incentives to reduce costs			
<i>Recommendations made to MOFNP (Immediate to Medium – PCD, ZNFU)</i>	No negative revenue impacts & local production is not discouraged	Level of duty charged	ZRA schedules
2. ORGANIZATIONAL ACTIVITIES			
2.1 Readily available up-to-date technical and market information			
2.1.1 data base on registered suppliers and chemicals established			
<i>Develop current data base at ECZ & METNR (Immediate – PCD, ECZ, Crop Life)</i>	Cooperation from importers ECZ has data base at HQ	Data available to show who suppliers are and products distributed	Quarterly check on ECZ website
2.1.2 farmer's use guide book developed for each region			

OUTPUTS, STRATEGIES AND ACTIVITIES (Implementation schedule and responsible institution)	ASSUMPTIONS	INDICATORS	MEANS OF VERIFICATION
<i>Allocate resources for developing guideline (Immediate – PCD)</i>	Cooperation among stakeholders to share information	Amount of funds availed	Progress reports
<i>Script developed and printed (Immediate to Medium – ZARI)</i>	Cooperation, sponsorship available	No. of drafts	Production of booklet
2.1.3 general literature on products disseminated			
<i>Literature search to collect available information (Immediate – Crop Life, ZARI, VET, ECZ)</i>	Information on products made available by suppliers and MACO	Products covered compared to those in circulation	Quarterly check on data base
<i>Information compiled giving recommendation per crop per region (Immediate – Crop Life, ZARI, VET, ECZ)</i>	Agreement on recommendations	List of recommendations	ECZ and MACO reports
<i>Dissemination conducted (Medium – Field Services, Crop Life)</i>	Resources available Collaboration of stakeholders	No. of participants reached	Quarterly reports from Crop Life Zambia
2.2 Wider distribution network			
2.2.1 wholesalers established within marketing chain			
<i>Appoint wholesalers in outlying centers (Immediate – Crop Life member, Vet firms)</i>	Suppliers operate on consignment basis or with financial instruments Wholesalers have financial capacity to guarantee payment	No. of outlets wholesaling AVCP No of contracts and volumes traded	Reports from Croplife members
2.2.2 suitable cold chain for drugs provided			
<i>Distribute solar/battery powered refrigerators (Immediate – VET, LDT)</i>	Resources available Traders are there Farmers willing to buy drugs	No. of centers with facilities No of companies participating in cold chain	Govt. quarterly reports
<i>Disseminate information to farmers on benefits of drug use (Immediate – VET, LDT)</i>	Extension service can handle livestock messages	Adoption by farmers	Livestock health management surveys
2.3 Qualified and certified chemical handlers			
2.3.1 curriculum in formal training centers strengthened			
<i>Identify colleges and curriculum (Medium – Crop Life)</i>	Cooperation and support from colleges and suppliers	Additions to curriculum	
<i>Review the curriculum (Medium – Training Colleges)</i>	Local expertise exist	Graduates trained under new curriculum	Quality of graduates and level of demand
2.3.2 appropriate training modules introduced			
<i>Identify needs (Medium – UNZA, Training Colleges)</i>	Resources available Collaboration by input industries	Amounts of funds set aside Assessment program planned	Monthly secretariat reports
<i>Develop training modules and deliver them (Medium – UNZA, Training Colleges)</i>	Resources available ACVP stockists identified	No. of modules developed No. of trainees participating	Monthly secretariat reports

OUTPUTS, STRATEGIES AND ACTIVITIES (Implementation schedule and responsible institution)	ASSUMPTIONS	INDICATORS	MEANS OF VERIFICATION
2.3.3 specialized courses for handlers provided			
<i>Set up short intensive courses (Medium – UNZA, Training Colleges)</i>	Resources available and suppliers support	No. of participants	ZEGA Training Trust
<i>Issue certificates for completion (Medium – UNZA, Training Colleges)</i>	Training respected	No. of certificates issued No of trainers trained	
2.3.4 Handlers certified periodically			
<i>Re-tool handlers and re-certify them (Medium – UNZA, Training Colleges)</i>			
2.4 Strong traders association			
2.4.1 capacity of association members enhanced			
<i>Identify needs and address them (Medium – Crop Life)</i>	Resources available	No. of suppliers receiving support	
2.4.2 adherence of members to code of conduct ensured			
<i>Produce the code and have all members attest to it (Medium – Crop Life)</i>	Commitment by suppliers to live by the code of conduct	Number of suppliers signing and complying with code	Progress reports from Croplife
<i>Carry out compliance inspections (Medium – Crop Life)</i>	Zero level of tolerance on corruption	No. of inspections and disciplinary cases	Croplife Zambia reports
2.4.3 alliances with relevant bodies formed			
<i>Form networks with NGOs involved in AIM (Medium – Crop Life)</i>	Organizations share common goals	List of related organizations	
<i>Form a confederation of input associations (Medium – Crop Life, ZASTA, Fertilizer Association)</i>	Cooperation and commitment by suppliers	Secretariat services shared	Progress report from Croplife Zambia
2.5 Use of IPM expanded			
2.5.1 IPM strategies developed			
<i>Identify and gather organic and biological crop & livestock protection practices (Medium – ZARI, NISIR, VET, LDT)</i>	Practices have scientific basis	No of practices dealing with specific pests or diseases	Production of IPM policy
2.5.2 organic farming promoted			
<i>Develop extension messages and disseminate (Medium – Field Services, VET, LDT)</i>	Resources available	Adoption by farmers	Agricultural surveys

CROSS CUTTING ISSUES

OUTPUTS, STRATEGIES AND ACTIVITIES (Implementation schedule and responsible institution)	ASSUMPTIONS	INDICATORS	MEANS OF VERIFICATION
1. POLICY AND LEGAL ACTIVITIES			
1.1 Stable Macro-economic environment			
1.1.1 Levels of government domestic borrowing declining <i>Continue to reduce the level of government borrowing as provided for in MTEF (Immediate to long – BOZ, MOFNP)</i>	Prudent fiscal discipline continues	Yield rates on treasury bills and commercial lending rates	CSO and BOZ
1.1.2 Inflation levels reduced <i>Accelerate the stimulation of productivity growth in agriculture (Medium – PCD)</i>	Implementation of supportive policies	Monthly changes in rate of inflation	CSO and BOZ
<i>Implement policies that ensure exchange rate stability (Immediate to long – BOZ, MOFNP)</i>	Supply of foreign exchange continue to increase	Changes in kwacha exchange rate	CSO and BOZ
1.2 Capital market development and financial sector reform			
1.2.1 Agricultural Credit Act amended <i>Agricultural Credit Act reviewed & submitted to Cabinet (Immediately – PCD)</i>	Committee overseeing implementation appointed		
1.2.2 agricultural lending institutions established <i>Develop concept paper to lay modalities of operating a lending agency (Medium – PCD)</i>	Feasibility studies have already been done and are favorable		
<i>Set up group schemes so members guarantee each other (Medium – PCD)</i>	Cooperation among farmers	No. of groups and members in each group	Annual reports from coop and societies registrar
<i>Develop partnerships between microfinance and commercial banks (Medium to Long – Micro bankers and BAZ)</i>	Commercial banks have security	Amount of funds directed towards MFI by banks	Quarterly financial accounts for banks and MFI
1.2.3 rural savings mobilized <i>Encourage commercial savings clubs & mobile banking service (Medium – Micro bankers, BAZ and PCD)</i>	There is trust among potential savers	Participants & amount saved	Registrar of cooperatives
1.3. Improve farm liquidity			
1.3.1 traditional land transformed into farming blocks and titled <i>Engage traditional leaders in planning (Medium – Ministry of Local Government)</i>	Land policy pro-development Infrastructure exist to support use	Amount of land transformed	Annual reports from Min of Lands
<i>Demarcate land and process titles quickly (Medium – Ministry of Lands)</i>	Administrators and politicians do not clash & there is transparency in land administration	Backlog of unprocessed titles	Lands register

OUTPUTS, STRATEGIES AND ACTIVITIES (Implementation schedule and responsible institution)	ASSUMPTIONS	INDICATORS	MEANS OF VERIFICATION
1.3.2 crop and livestock diversification encouraged <i>Increase resources for livestock & crops such as cassava, millets, fruits and vegetables (Medium – PCD)</i>	Political will Markets available for products	Trends in production	MACO statistical year book
1.3.3 Provision of in-kind seasonal credit expanded <i>Increase allocation to out-growers under PRP (Medium – PCD)</i>			
1.3.4 smallholder farmers incorporated into credit guarantee schemes e.g. WRS <i>Develop schemes to guarantee credit for smallholders using a wider array of commodities for both local and export markets (Medium – PCD)</i>	Transaction costs not prohibitive Enough marketed surplus	Volumes coming from smallholder farmers	ZACA monthly stock records
1.4 Improved targeting of subsidies and level playing field			
1.4.1 Coordinate non-commercial demand for inputs timely and openly <i>Government and NGO policies on input distribution clarified and made consistent with National Agricultural Policy (Immediate – PCD, NGOs, Pvt Sector)</i>	Suppliers have knowledge of period and scale of specific interventions	Future interventions by government and NGOs	
1.4.2 Introduce a flexible instrument for distributing subsidized inputs <i>Commission study on input vouchers (Medium – PCD)</i>	Fool proof system widely accepted by farmers, banks and suppliers		
<i>Design instrument for targeted input distribution (Medium – PCD)</i>	Fertilizer and maize depoliticized and private sector responds immediately	Distance to retailer	
1.5 A legal framework for biotechnology			
1.5.1 enactment of bio-safety legislation accelerated <i>Lobby Min of Science, Technology and Vocational Training and Cabinet to bring act to parliament (Immediate – PCD)</i>	Political will	Time taken to pass each stage	MACO reports
1.5.2 build capacity to regulate and monitor GM products <i>Train personnel in biotech to handle products in future (Immediate – HRA)</i>	Resources available and training is not expensive & complicated	Number of trained personnel in biotechnology	MSTVT reports
1.5.3 build research institutions for biotech to allow controlled research <i>Identify cooperating partners and private firms who can support (Immediate – PCD)</i>	Well trained scientists available to operate institution	Research agenda	

OUTPUTS, STRATEGIES AND ACTIVITIES (Implementation schedule and responsible institution)	ASSUMPTIONS	INDICATORS	MEANS OF VERIFICATION
2. ORGANIZATIONAL ACTIVITIES			
2.1 Comprehensive rural infrastructure development strategy			
2.1.1 plans to encourage private investment in infrastructure developed and implemented			
<i>Identify infrastructure projects in productive areas that lend themselves to this approach (Medium to Long – MOWS, MLG)</i>	Platform for private sector development will be enhanced		
<i>Develop an appropriate regulatory and incentives framework (Medium to Long – MOWS)</i>	Returns are attractive and competitive		
2.1.2 public storage facilities to support market development			
<i>Review the FRA Act to restrict use public storage to agriculture (Immediate – PCD, FRA)</i>	Cooperation from FRA and MACO	Business of lessees	Monthly property reports
<i>Rehabilitate public storage facilities in communities (Immediate – PCD)</i>			
2.1.3 marketing and processing facilities established in rural areas			
<i>Devise an agreement to ensure no duty is paid on capital equipment and raw materials for agro-processors (Medium to Long – MOFNP)</i>	Investors willing to respond	Amount of money pledged for investment	Monthly reports from Zambia Investment Center
2.2 Develop output markets			
2.2.1 market information widely distributed			
<i>Harmonize marketing formation systems (Immediate – PCD)</i>	Information can be shared		
<i>Fund agricultural surveys timely & adequately (Immediate – PCD)</i>	Government commitment	% of budget released month funds are released	MACO and CSO survey schedules
<i>Introduce IT solutions to market information dissemination (Medium to Long – PCD)</i>	IT companies can support training		
2.2.2 grades and standards placed and enforced			
<i>Sensitize stakeholders on need to adhere to standards (Immediate to Medium – ZABS)</i>	Cooperation among players	No of workshops	
<i>Formalize training of graders (Medium – ZABS)</i>	Training facilities and programs	No of graders trained	ZBS quarterly reports
<i>Develop and gazette credible and internationally recognized certification standards (Medium – ZABS)</i>	Agreed standards	No of crops with grades and standards	Routine inspection checks in major markets
<i>Enhance capacity of ZBS in quality testing to international standards (Medium to Long – ZABS)</i>	ZBS can incorporate others to enforce standards	Market acceptance of Zambian products	

OUTPUTS, STRATEGIES AND ACTIVITIES (Implementation schedule and responsible institution)	ASSUMPTIONS	INDICATORS	MEANS OF VERIFICATION
2.3 Effective and sustainable extension service			
2.3.1 extension operations effectively funded			
<i>Build & renovate houses for extension agents in operational areas & install solar lighting and running water (Medium to Long – Field Services)</i>	NGOs willing to provide resources Strong supervision	% agents posts filled & residing in operational areas	Annual field services report
<i>Supply bicycles & motor-bikes on ownership scheme (Medium to Long – Field Services)</i>	Government commitment	% agents motorized	Annual field services report
<i>Fund maintenance of vehicles and fuel procurement (Immediate – PCD)</i>	Strong supervision and monitoring	Funds allocated	Annual yellow book
<i>Provide attractive rural hardship allowances as incentives (Immediate to Medium – Field Services)</i>	NGOs agree on what top-up levels to award to field officers	Level of allowances paid Funds allocated	Annual yellow book
2.3.2 Field staff positions filled			
<i>Employ additional extension workers (Immediate – Field Services)</i>	Resources available to adequately fund emoluments & operations	Number of additional extension agents	Field services dept HQ reports
2.3.3 revive and strengthen research and extension linkages			
<i>Organize joint planning meetings (Immediate – ZARI, Field Services)</i>	New technologies are being generated	Number of meetings	Quarterly reports
2.3.4 skills of field officers upgraded			
<i>Upgrade syllabi in training colleges (Medium - HRA)</i>	Training facilities and programs exist	No of course upgrades	Annual reports from Agric Colleges
<i>Camp officers attend refresher courses (Immediate – Field Services)</i>	Focus on technology management & agric development – avoid narrowness	% attending refresher course	Annual field services report
2.3.5 public-private extension linkages harmonized & strengthened			
<i>Suppliers and NGOs participate in programming extension activities through DAC (Immediate – FS, NGOs, Private sector)</i>	DAC aware of community needs	No of coordinated demos and field days	Quarterly reports from field services
<i>Develop MOU between MACO and NGOs to cement partnership (Immediate – PCD, NGOs)</i>	NGOs & suppliers willing to cross-pollinate skills		
2.3.6 Adopt participatory extension approach			
<i>Promote farmer-led extension (Immediate to Medium – Field Services)</i>	Critical no. of cohort farmers identified for basic training/camp	Number of farmers identified and trained	
2.3.7 IT solutions to information generation and dissemination introduced			
<i>Introduce information technology solutions services at district offices (Medium to Long – ZNFU, PCD)</i>	Private firms can share facilities Donors support a program similar to CTA one in W. Africa	No. of districts with IT services	Annual field services report
2.3.8 Participation of women in extension system increased			

OUTPUTS, STRATEGIES AND ACTIVITIES (Implementation schedule and responsible institution)	ASSUMPTIONS	INDICATORS	MEANS OF VERIFICATION
<i>Increase entry of female students at tertiary training level (Medium – HRA)</i>	Conditions of service are attractive to keep female staff in the field	No. of students enrolled, graduated and employed	Annual reports from training centers

Annex A

Table 2.1 Proposed members of the input market development plan steering committee

SN	Institution	Position/Title	Name
1	Government		
1.1	Min of Agriculture and Cooperatives	Dep. Director - Marketing	Dr. H Hantuba*
		Dep. Director – Policy & Planning	Mr. J. Shawa*
		FSP – Coordinator	Mr. F. Mushimba*
		Zambia Agricultural Research Institute	Mr Chalabesa
1.2	Ministry of Finance and National Planning	Director – Agriculture Desk	Mr Mulungushi
1.3	Ministry of Industry, Trade and Commerce	Director – Agricultural Trade Desk	Ms. D Tembo
2.	Institutions		
2.1	Livestock Development Trust	Director	Dr Imakando*
2.2	Finance – Bankers Association of Zambia	President	Mr Grant
2.3	Farmers – Zambia National Farmers Union	Exec. Director	Mr. S. Zyambo
2.4	University of Zambia – Fac. of Agriculture	Dean of Agriculture	Dr J. Lungu
2.5	Non-Government Organization	Chairperson NGO FORUM	Ms. H. Samatebele*
3	Business Sector		
3.1	Small business – Input retailers	Director – Hailenge Agro Supplies	Mr. C. Kabeta
3.2	Medium business – Input retailer	Director – Sheni Enterprises	Mr. Y. Patel
3.3	Large business – Importers/Producers	Director – Omnia Fertilizers	Mr. V. Mkuyamba*
		Director – Greenbelt Fertilizers	Mr. R. Coventry
		CEO – Nitrogen Chemicals of Zambia	Mr. M. Mwinga
		Zambia Seed Trade Assoc. - Secretariat	Mr . W. Silwimba*
		Nyiombo Investments	Dr M. Jangulo
		Zambia Crop Chem Assoc. - President	Mr. C Masite*
4.	Facilitators		
4.1	Food Security Research Project (FSRP)		Dr. J. Govereh*
4.2	Zambia Trade Investment Enhancement (ZAMTIE)		Mr. J. Mwale*
4.3	Agricultural Consultative Forum (ACF)		Dr. A. Mwanaumo*

* Member of core team which will meet regularly and be guided in its deliberations by the steering committee.