

Fertiliser Value Chain Information Flows Tanzania



Final Report



Study initiated by ACT FTP and conducted by Match Maker Associates Limited.



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Acronyms

ACT	Agricultural Council of Tanzania
ASDP	Agricultural Sector Development Programme
ASDS	Agricultural Sector Development Strategy
CAN	Calcium Ammonium Nitrate
CBO	Community Based Organisation
DED	District Executive Officer
DADP	District Agricultural Development Plan
DALDO	District Agricultural and Livestock Development Officer
DAP	Di-Ammonium Phosphate
DC	District Commissioner
ERP	Enterprise Resource Planning
FAO	Food and Agriculture Organisation of the United Nations
FTP	Fast Track Project
FTSP	Fertilizer Transport Subsidy Programme
GPS	Global Positioning System
LGA	Local Government Authority
LGCDG	Local Government Capital Development Grant
MAFC	Ministry of Agriculture, Food Security and Cooperatives
MAI	Manyara Agricultural Initiative
M&E	Monitoring and Evaluation
MKUKUTA	<i>Mpango wa Kukuza Uchumi na Kuondoa Umaskini Tanzania (see NSGRP below)</i>
MLF	Market Linkages Facilitation
MMA	Match Maker Associates Limited
NGO	Non Governmental Organisation
MVIWATA	Swahili abbreviation for National Network of Farmers in Tanzania
NPK	Nitrogen Phosphorus and Potassium
NSGRP	National Strategy for Growth and Reduction of Poverty
PMO-RALG	Prime Minister's Office- Regional Administration and Local Government
RAA	Regional Agricultural Advisor
RAS	Regional Administrative Secretary
RTA	Regional Trade Advisor
SACAs	Saving And Credit Associations
SACCOS	Saving and Credit Cooperative Society
SADC	Southern Africa Development Community
SAP	Software Application Programme
SGR	Strategic Grain Reserve
SMS	Subject Matter Specialist
SONAMCU	Songea Agricultural and Marketing Cooperative Union
TAZARA	Tanzania Zambia Railway Authority
TDV 2025	Tanzania Development Vision 2025
TFC	Tanzania Fertilizer Company
TFP	Tanzania Fertiliser Partnership
TRC	Tanzania Railway Corporation
TSP	Tri- Super-phosphate
UCCS	Unique Consortium of Consultancy Services Limited
VDP	Village Development Plan

VAEO	Village Agriculture Extension Officer
VEO	Village Executive Officer
WAEO	Ward Agriculture Extension Officer
WDC	Ward Development Committee
WEO	Ward Executive Officer
WRS	Warehouse Receipt System

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The Match Maker Associates Limited consultants, Peniel Uliwa and Edmond Ringo, were the principal authors of this report. The views expressed in this document therefore, are those of the authors and do not necessarily reflect the views of the ACT.

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EXECUTIVE SUMMARY

Increased agricultural income is central to reducing poverty in Tanzania, and is a key component in the National Strategy for Growth and Poverty Reduction (MKUKUTA in Swahili acronyms). Agriculture is the largest sector of the economy contributing about 45 percent of GDP and employing approximately 80 percent of the labour force. Agriculture accounts for most of the economic activity in rural areas. The sale of agricultural commodities accounts for 70 percent of rural incomes. Most Tanzanian farms (over 50 percent) are smallholder plots of less than one hectare. Almost all of Tanzanian agriculture depends on rainfall, productivity is very low and yields fluctuate widely from season to season due to a number of reasons.

Despite its importance in the economy, the agricultural sector has not maximised its potential in contributing to the poverty reduction goal. Previous poorly functioning agricultural cooperatives, led to mismanagement and inefficiency in agricultural marketing systems. Despite the privatisation of state companies, the private sector has not expanded fast enough to fill the vacuum left by defunct cooperatives and state companies in supplying farm inputs, processing, marketing and export of crops. Many farmers face serious problems in: identifying reliable sources of inputs and markets for their crops; understanding how to meet market standards; and essentially find it difficult to access inputs, extension advice, and credit.

There is a pressing need to reconcile and integrate the requirements of crucial inputs and accessing reliable output markets for long-term economic growth and poverty alleviation. Achieving this balance requires attention to among others, reliable business information flow as a means to improve efficiency with which inputs are made available to Tanzanian scattered farmers and timely accessing output markets – local, regional and international. By facilitating Tanzania to attain such a balance, significant results can be achieved at farmer level by enhancing their capacity to take sound and informed business decisions in agricultural ventures. One of the crucial areas that require improvements is undoubtedly in information flows along input supply channels and is the main subject matter of this study.

Study objectives and methodology

This study was initiated to shed light on two main outputs. The first one was to review and design, using the Value Chain approach, a regular reporting system and formats for fertilizer and other farm inputs. The second was to develop a proposal for establishing a district agricultural input-output network. The study was undertaken in two districts (Songea and Kilombero) where Fast Track Program (FTP) is operational and focused on paddy and maize commodities.

Current situation

This study has established that the main channel for fertiliser supply to farmers is through the government subsidy program. However, in the two districts, different distribution systems are in place. While in Songea the supply goes through SACCOS, in the Kilombero they are using selected local stockists. Despite the difference constraints on the information flow to and from farmers remain more or less the same. In Songea the main source of supply of inputs in 2006/07 has been through subsidy program whereas in Kilombero both subsidy and commercial supplies are available. During the study it was noted that there is a substantial imbalance between supply and demand of fertiliser. This was evident through extremely low productivity at farm level. Poor agronomy practices have led to low usage of fertiliser and it impacts on productivity.

The subsidy program seems to be able to meet only 30% of the perceived needs. This may be accounted for by the low usage and incorrect assessment of the actual needs. This does not however mean that all the subsidised fertiliser has been used by farmers. During the study some stockists still had large stocks towards the end of the season. One possible fact was that subsidised fertiliser arrived late due to bureaucratic and administrative processes.

Furthermore, it was observed that there is Information asymmetry/gaps; for instance at farmer level the essence of using information as a tool for business decision is not well articulated. The information that flows to them is open ended, not analytical and packaged to assist the farmer to make informed business decisions. Information about options, opportunities and risks etc is often not demanded and hence not made available. The study further established the stockists and wholesalers are the weaker links in the fertiliser supply chain. They generally have weak financial and managerial capability to handle their function in the chain effectively.

Essentially, analysis of the whole chain revealed that the more upstream you move along the supply chain from farmers, information flows is more efficient and effective. Whereas at farm level, information is fragmented and not well packaged, at importer-manufacturer level- the information flows is systematically and continuously captured, analysed, packaged and disseminated using Information Communication Technology (ICT).

Ideal value chain information flows

Value chain approach assists to organise information flows along the chain. Current information flow practice in Tanzania is not yet well organised along the value chain principles. This study emphasised that the focus should be therefore, to identify weak links and device upgrading strategies to strengthen them. It was noted that the local stockists and distributors seem to be the weakest links in the emerging value chain. It therefore suggests that the other actors in the chain and support organisations should develop this weak link.

An interesting finding was the fact that farming household is the centre piece of input-output information flows management. Farming households are at pressure to cope with different information requirements. Agricultural input and output information flow is among many information needs and flows that the smallholder farmer is exposed to. It was emphasized that in order to be effective in fertiliser value chain, understanding the real needs of information for all actors in the chain is the prerequisite for designing appropriate packages and dissemination mechanisms.

At farmer level it has been recognised that what they need is a full package of information, tailored to their agricultural calendar and disseminated in a combination of training, extension and using various media. Leaflets, fliers and brochures have been singled out as the best means to disseminate technical and long lasting information. Information flow can only be effective in the fertiliser value chain if the infrastructural related facilities are improved (Port handling, transport system, and joint strategy to interface roads, railways and ports).

Way forward for information flow management

The districts in Tanzania are increasingly being recognized as the hubs for agricultural development agenda. In the ASDP districts would be expected to develop short and long-term agricultural development plans which would justify investments into the sector and a basis for collaboration between public and private sector actors. During this study the necessity and value of

district input networks for information management was often mentioned by farmers and stakeholders of fertilizer supply. Focused group discussions in Songea and Kilombero recommended significant private sector involvement, bolstered by close collaboration with the public sector. A system of interlinked forum could provide basic inventory and information at the local level, with linkages to district, regional and national and international levels.

In the design and analysis of the position of district input network a number of potential policy directions and other business principles are considered vital. The role of public extension in a liberalized, commercially-oriented sector needs to be clarified, and support given to enable extension workers to act more as unbiased facilitators of information from other sources. In order for farmers and others to have reliable access to good information from the private sector, the accountability and professionalism of input and service suppliers must be strengthened through the activities of professional and industry bodies. Advertising standards implementation should also be improved, both through enforcing existing legislation and through self-regulation.

Ongoing activities to promote and strengthen farmer and stockists groups should continue, with increased emphasis on how they can improve members' access to information. Access for all actors to a sustainable and relevant information could be improved by effective partnerships (input networks) between existing public resources and private sector actors. The particular information needs of the predominant local stockists (small enterprises) and smallholder farmers need to be addressed in innovative ways, with the district input network taking a lead role.

It is necessary to build on what exists in the districts in terms of information management, rather than reinventing the wheel. Fast Track Program (FTP) and other agricultural development initiatives have drawn different actors in the district and regional levels and this is a good base to start with. For instance in Manyara Region an initiative called Manyara Agricultural Initiative (MAI) has just been launched to bring together actors involved in market linkages facilitation. This would be a good platform to build upon when initiating District Agricultural Input and Output Network (DAION). It seems therefore, there is sufficient justification to establish a network as an information hub taking the fertilizer value chain as an entry point and agricultural sector development at large. DAION should in principle be responsive to stakeholders' interests and should have a capable and dedicated network coordinator, preferably paid by stakeholders at the end of the day.

What should TFP do?

This study revealed that information flow constraints are intertwined with infrastructural constraints. It was also established that for information flow to be effective, certain upgrading strategies of the weaker links have to be pursued. TFP who is spearheading implementation of fertiliser value chain approach in Tanzania should facilitate that a holistic view of these areas is taken into account and coordinated at various levels. The following information flow related interventions are recommended:

- Given the presence of a dual fertiliser supply system in Tanzania, TFP should facilitate assessment of actual needs for inputs in order to ascertain the role that subsidy program is playing. Furthermore the information about subsidy program should be well packaged and disseminated to all actors in the value chain in order not to raise wrong expectations.
- TFP should contribute to establishing a more accurate system for assessing production and input requirements in the country. This information should become available timely and

disseminated to the government and all actors in the value chain in order improve usage and productivity. Options to engage private sector service providers in this area should be explored.

- TFP should facilitate packaging and rolling out a training and capacity building program to farmers to underscore the role of information in farming as business. Farmers and local extension officers (VAEO, and WAEO) should be trained to identify which information and from which sources is crucial along the agricultural calendar.
- Districts will be the hub for information flow management. Current arrangements for knowledge management and information dissemination at District level leaves a lot desired. At national (radio programs exist with RTD (Kilimo market information, MVIWATA weekly program, and cell phone commodity information flow has also been initiated), and local (Local radio's in Songea – Radio Maria, etc) level, these media of information dissemination should be assessed with respect to its relevance in each district. TFP should take interest and support establishment of district based input and output information management by building on existing situation.

TFP should also play a role in the following chain upgrading strategies:

- *At farm level:* Accurate information should be captured as a basis for informing actors upstream the chain. What is also equally important is to device mechanisms (training, extension, voucher schemes etc) to trigger more usage of inputs as required by good agronomic practices.
- *At stockist's level:* These are SMEs whose immediate need is business and entrepreneurial training and support. With increased skill base these SMEs are able to be responsive to the demands of farmers. Experience shows that skilled stockists can manage to arrange financing from local MFIs and credit facilities from wholesalers.
- *At wholesale level:* The immediate intervention at this level (weakest link) is to facilitate availability of appropriate working capital.
- *At importing level:* At this level there is no serious information constraint. As long as information flow from downstream actors is improved, they are able to respond. What is holding them back from efficient and effective supply of fertiliser in the country is infrastructural constraints. Upgrading expected at this level has to deal with lobby and advocacy for favourable policy support and infrastructural upgrading.

CHAPTER ONE: INTRODUCTION

1.1 Background

Increased agricultural income is central to reducing poverty in Tanzania, and is a key component in the National Strategy for Growth and Poverty Reduction (MKUKUTA in Swahili acronyms). Agriculture is the largest sector of the economy contributing about 45 percent of GDP and employing approximately 80 percent of the labour force. Agriculture accounts for most of the economic activity in rural areas. The sale of agricultural commodities accounts for 70 percent of rural incomes. Most Tanzanian farms (over 50 percent) are smallholder plots of less than one hectare. Almost all of Tanzanian agriculture depends on rainfall, productivity is very low and yields fluctuate widely from season to season due to a number of reasons.

Despite its importance in the economy, the agriculture sector has not maximised its potential in contributing to the poverty reduction goal. Previous poorly functioning agricultural cooperatives, led to mismanagement and inefficiency in agricultural marketing systems. Despite the privatisation of state companies, the private sector has not expanded fast enough to fill the vacuum left by defunct cooperatives and state companies in supplying farm inputs, processing, marketing and export of crops. Many farmers face serious problems in: identifying reliable sources of inputs and markets for their crops; understanding how to meet market standards; and essentially find it difficult to access inputs, extension advice, and credit. Currently, there are few functioning cooperatives following the new cooperative principles and producer organisations, but they are not yet able to provide the institutional capacity that smallholder farmers require to have in order to be a credible partner in agricultural value chain. While the nation's research and extension systems are in place, the delivery of services is weak and this has led to slow development of business services market in Tanzania. Other constraints to the agricultural sector are high transaction costs associated with poor infrastructure, especially rural roads and electricity. Multiple local taxes, unstable policies, bureaucracy and corruption increase the costs and risks of accessing crucial inputs, national, regional, and international markets.

Fortunately, the Government of Tanzania is taking steps to strengthen the country's agricultural sector. Agricultural reforms in 90s are showing results. During 2001-2005, agricultural sector grew at 5 percent, which is slightly below the economy (GDP) growth rate of 6 percent but definitely a positive step compared to the past years. In the same period the share of agriculture in total exports declined from 40 to 20 percent as exports from other sectors, such as mining, grew much faster. Major agricultural exports are coffee, cotton, cashew nut, tea and sisal. Although the performance of the agricultural sector has been positive, the growth rate is not sufficient to have a significant impact in reducing poverty.

There is a pressing need to reconcile and integrate the requirements of crucial inputs and accessing reliable output markets for long-term economic growth and poverty alleviation. Achieving this balance requires attention to among others, reliable business information flow as a means to improve efficiency with which inputs are made available to Tanzanian scattered farmers and timely accessing output markets – local, regional and international. By facilitating Tanzania to attain such a balance, significant results can be achieved at farmer level by enhancing their capacity to take sound and informed business decisions in agricultural ventures. One of the crucial

areas that require improvements is undoubtedly in information flows along input supply channels and is the main subject matter of this study.

Fertiliser and seeds have been singled out by many development practitioners and policy makers to be crucial inputs for smallholder farmers in Tanzania. The Fast Track Initiative is a special pilot and demonstration program, introduced to promote the effective distribution and use of fertiliser in Tanzania. The overall goal of the program is to promote agricultural development in Tanzania to address the twin problems of income poverty and food insecurity, especially in rural Tanzania. The program has just started as a pilot strategy which will later be scaled up to cover the whole country. The program is being implemented in five selected districts in the southern highlands of Tanzania and on the basis of lessons learnt it will be replicated in other parts of the country in the near future.

The program is implemented in Mafinga, Mbarali, Songea Rural, Kilombero and Mbeya Rural districts. The selection of these districts was based on the following criteria:

- Very well functioning Farmers Associations
- The availability and reliability of Warehouses
- The availability and reliability of SACCOS
- Effective demand and use of fertiliser
- Good level of infrastructure development both physical and financial

The program promotes Public-Private Partnership (PPP) between different actors and aims at promoting the use of fertiliser to ultimately increase production in the country. In 2006/2007 year's budget, the Government of Tanzania has set aside 21 billion Tanzanian shillings a subsidy for fertiliser in order to increase usage and thus increase production of both food and cash crops. This initiative is in turn expected to achieve food security while alleviating poverty in Rural Tanzania. Yara¹, the leading fertiliser manufacturer in the world, is involved in this program. Other partners such as NORAD, NORFUND and Rabobank are also involved to different degrees.

Since the effective use of fertiliser is influenced by a combination of many elements, the Fast Track program has been seeking to promote or address the following issues:

- To increase the availability and supply of fertiliser at national to village level
- To improve infrastructure for smooth distribution of fertiliser to village level
- To promote marketing of farmers products
- To promote and strengthen the potential and actual financial institutions such as Farmers Associations, SACCOS and others
- To provide credits to farmers
- To empower district agricultural officials for better planning, monitoring and evaluation of the program
- To support output and marketing in order to avoid collapses of prices that occur during bumper harvesting of both food and cash crops

¹ Yara is the world's leading producer and marketer of mineral fertilizers that are being supplied to markets around the globe to provide growers with essential plant nutrients required for sustainable food production. In addition to fertilizers Yara have gases and chemicals, mostly in the form of upgraded co-products from the fertilizer production plants. More information is available on www.yara.com

- To monitor and evaluate the short term effectiveness of the track program.

The Tanzania Fertiliser Partnership's Fast Track Initiative is currently undertaking a number of studies between December, 2006 and the end of April, 2007. The work is mainly coordinated by the Agricultural Council of Tanzania (ACT) using funds provided by NORAD. There are some activities; however, which are funded separately, and some that have been identified, but not yet funded.

The main funded activities (studies) include:

- District-level training in Fertiliser Value Chain Operation
- Farmers' Groups, Stockists, SACCOs and Commercial Banks
- Output Marketing Support
- Fertiliser Data Management
- Pilot for the National Agricultural Inputs Database
- Value Chain Information Flows
- Dockside Handling Improvements
- Commercial Banks' Awareness and New Product Development
- Strategic Environmental Assessment
- Monitoring and evaluation

Activities that are considered to be important, but which have not yet received funding include analysis of the tax on fertiliser, development of a Voucher System for Fertiliser Subsidy Management and Farm Input Promotions (FIPS).

This report is in about fertiliser supply chain information flows in Tanzania - a study conducted by Match Maker Associates (MMA) Limited².

1.2 Study objectives

The main objectives and deliverables of this study included the following:

- To review and prioritize appropriate information needs for agro-dealers, farmers and others in the fertilizer value chain.
- To analyze the gap in the present system of information flow in determining the demand and supply requirements.
- Where possible, to determine broad demand and supply figures and broad prices for various fertilizer types and other agricultural inputs in two selected districts and analyze any possible trends
- To abstract from the output marketing study the main market trends and current opportunities in the selected end markets, and provide a checklist on key success factors and sources that should be used by respective chain actors to determine market conditions
- To review and design, using the Value Chain approach, a Regular Reporting System for fertilizer and other farm inputs through radio, newspapers and other mass media outlets. This

² Match Maker Associates Limited (MMA), specialises in private sector development and business services consultancies. Value chain analysis and development is its specific focus.

might include fertilizer and seed wholesale and retail prices by location, spot prices and selected crop output prices.

- Develop a proposal for establishing a District Fertiliser Network: *The aim of the Network will be to facilitate more effective and relevant information flows related to agricultural input markets. This will include expanding the initial informal group working on Fast Track planning by identifying other potential Network actors. The objectives would be establish linkages for (i) the circulation of information, (ii) discussion of issues related to fertiliser, (iii) a focal point for problem identification and solving, and (iv) a resource for advice and assistance to public and private sector institutions and farmers.*

1.3 Approach and Methodology

This study was conducted in close collaboration with the key stakeholders of fertiliser in Tanzania. A participatory approach was utilised. Insofar as practicable at district level, the study was undertaken with logistical support of TFP District Coordinators.

Constrained by time and budget, field visits to Fast Track Project Districts were limited to 12 man-days and these were complemented by e-mail, telephone and few face-to-face interviews with key stakeholders based in Dar es Salaam. Further a review of Fast Track Project secondary data enriched the understanding of the needs at national and district levels. The selection criteria of districts to be visited considered;

- Coverage of a good number of key stakeholders and
- Presence of two focus crops (paddy and maize).
- Other considerations included accessibility and cost of travel and availability of focal persons from TFP.

The chosen districts for this exercise and their corresponding crops were Songea (Maize) and Kilombero (paddy). The study team used interviews as a main tool complemented by focus group discussions (FGDs), direct observation and review of secondary materials and references. Due to their important linkage to information generation, management and dissemination, farmers (in groups) were interviewed both in Songea and Kilombero Districts. LGA DALDO's office staff were interviewed. Furthermore LGAs current general internal organisational systems (management style, staff motivation, systems, organisation structure) and individual performance discrepancies were observed. Respondents were given opportunity to make a self-assessment of information needs to facilitate them making correct decision in regard to acquiring inputs and accessing output markets. A checklist/guide questions which were used in these interviews and FGDs is attached as Annex 1 below.

Respondents for FGD include:

- 10 input stakeholders - Songea
- 12 farmers in Lilambo A village – Songea
- 11 farmers in Peramiho village – Songea
- 16 input stakeholders and farmers Ifakara – Kilombero
- 6 farmers – members of Vijana Farmers Group Ifakara - Kilombero

During the field work, one-to-one interviews and FGDs with farmers, stockists and NGOs staff provided more in-depth understanding of the information needs as well as other factors that affect availability and accessibility of inputs. Such FGDs also provides opportunities to validate observations and findings derived from the observations and secondary sources. Combined with interviews and FGDs, direct observation provided broader and more incisive insights on information flows along the supply chain. The detailed names of FGDs and interviews programme is attached as annexes 2, 3 and 4 at the end of this document.

1.4 Limitations

The field study time was obviously a challenge. The team had fourteen days to accomplish the field visits to Songea and Kilombero. Secondly the quality and completeness of secondary data was inadequate, particularly non availability of time series demand data was a main challenge in generating the picture over a period of time. The district officials who are supposed to compile data on production and input demand are not keen on keeping comprehensive, accurate and updated data. Limited knowledge of farmers and stockists on business skills and entrepreneurship made it difficult to bring out their really information needs for effective and efficient input/output information flows. Smallholder farmers do not have a culture and practice of demanding business information as an input into decision making. This study therefore is based on limited primary data and therefore had to rely mostly on secondary information generated during the study on good practice in value chain information flows and management.

1.5 Structure of the Report

The report is organised in five chapters. Chapter one highlights the background and introduces the study. In this chapter objectives of the study are highlighted. The adopted methodology is also explained. Chapter two presents the situation analysis of Songea and Kilombero districts. The chapter highlights the socio-economic profile with emphasis on current agricultural production challenges facing the districts. This chapter highlights the current fertiliser supply channels, information flows and productivity situation.

Chapter three introduces the concept of value chain approach and information flow management between actors is highlighted. Using the conceptual framework the ideal fertiliser supply channels with a map, actors and factors are identified. Furthermore the dynamics and interrelationships of actors and support organisations are explored. The cost structure and infrastructure analysis is analysed in this chapter to see the dynamics of the emerging Tanzania fertiliser value chain. This chapter also discusses how input and output information should be captured, analysed, packaged and disseminated.

Chapter four explores strategies and critical services to improve the information flows. In this chapter, prime service providers and fertilizer information flow stakeholders are identified for the development of district input network as a primary information hub in the fertilizer value chain. Essentially, chapter five highlights main conclusions and the way forward for the Fast Track Programme (FTP) with regard to facilitation of value chain information management.

CHAPTER TWO: SITUATION ANALYSIS – SONGEA AND KILOMBERO

In this chapter, the current situation is assessed in the two chosen districts for this study. The assessment starts with highlights of the districts socio-economic profiles, and then the current information flow status in regard to input supply – especially seeds and fertilizer. The analysis focuses on essentially highlighting information gaps and reasons for low productivity in maize and paddy farming.

2.1 Socio-economic profiles

2.1.1 Songea District

Songea District is one of the four (4) districts of Ruvuma region, others being Namtumbo, Mbinga and Tunduru. Songea rural district land is estimated to be about 33,825 kilometre squares (52.4 % of total land in the region). The arable land in Songea district is estimated to be 1,615,000 ha (i.e. 1,316,000 ha for Songea Rural and 335,000 ha for Songea Urban); however, only 138,546.4 ha are currently cultivated – 129,046.4 ha in Songea Rural and 9,500 ha in Songea Urban.

There are two main rain seasons in Songea, the main one being long rains '*masika*' from March to May and short rains '*vuli*' from October to January – the quantity of rains in Songea is between 1000mm to 1500mm annually. Despite good rains, Songea soil has lost its fertility and thus farmers rely heavily on industrial fertilizer. The main crops in Songea district include paddy, maize, cassava, bananas, round potatoes, sunflower, sugar cane, tobacco and sesame. Maize production and productivity in Songea is very low compared to targets when applying proper agronomic practices. It has been established that on average a farmer in Songea harvest 10 – 15 bags of maize per acre instead of possible 25 – 30 bags per acre due to poor crop husbandry and improper agronomic practices which is only between 40%-50% of the potential. Proper agronomic practice in maize farming include i) appropriate planting time, ii) spacing between seeds when planting, iii) type of seeds, iv) proper weeding regimes, v) timely application of fertilizer, i.e. during planting and during weeding, vi) disease and pests control and vii)harvesting and post harvest handling (storage).

From a study undertaken in Songea district in 2004, it was established that fertilizer requirements based on agronomic practices include; 2 bags (50 Kg) of fertilizer (TSP) per hectare during planting of maize, 2 bags - Urea(46% N) and 3 bags of CAN (26% N)– per hectare during weeding. However, the current practice revealed that farmers are applying less that 50% of the recommended agronomic practices.

2.1.2 Kilombero District

Kilombero District is one of the five (5) districts of Morogoro region, others being Ulanga, Kilosa, Morogoro and Mvomero. Kilombero district has an area of estimated 14,918 kilometre squares of which 445.9 kilometres squares are suitable for farming. About 120 kilometre squares are suitable for livestock pastures while the remaining area is swampy.

Politically, the district is subdivided into five (5) divisions, 19 wards and 81 villages. There are two main rainy seasons in Kilombero, the main one being long rains '*masika*' from March to May and short rains '*vuli*' from October to January. The main crops in Kilombero district include paddy, maize, cassava, bananas, round potatoes, sunflower, sugar cane and sesame. However, just as it

was observed in Songea, the production and productivity of these crops are significantly lower compared to potential and optimal production when proper agronomy practice is applied. This is further elaborated in Table 1 below.

Table 1: Current productivity level – major crops Kilombero District - 2005/6

Crop	Current production (ton/ha)	Potential production (ton/ha)	% potential production achieved
Paddy	1.90	5.00	38.00
Maize	2.25	3.75	60.00
Bananas	12.50	35.00	35.71
Cassava	15.00	25.00	60.00
Round Potatoes	12.00	20.00	60.00
Sunflower	0.90	1.50	60.00
Sugar Cane	56.00	80.00	70.00
Sesame	0.60	1.20	50.00

Source: Kilombero District – March 2007

Paddy productivity in Kilombero district leaves a lot to be desired. Although most farmers currently harvest 5 – 8 bags of paddy per acre, good agronomy practices guarantee possibility of harvesting 25 – 40 bags. A number of reasons have been sighted to cause this low productivity and the main reasons being;

- Poor agronomy practices and absence of appropriate agro-technologies
- Low fertiliser usage - Farmers unaware of usefulness of fertiliser – limited capacity and knowledge of VAEO to raise awareness at farm-level
- Fragmented farmers cannot receive extension service efficiently – there is need for farmers to be more organised – but Kilombero has only 3 cooperative officers to serve 81 villages. SHIWAMUKI is an organisation of paddy farmers which has the potential to improve productivity of its members
- Farmers who are aware cannot afford fertiliser and other inputs due to limited access to financial services – despite mushrooming of SACCOS – the financial capacity of most SACCOS in Kilombero are limited. For instance IPASACCOS is one of the largest SACCOS in the district, but out of 1,300 loan applications, due to financial limitation IPASACCOS managed to give loans to 32 applicants only.
- Low economies of scale - Absence of warehouse receipt system (WRS) force farmers to sell their harvest to premature market outlets at a very low price and make them trapped in the poverty vicious circle.

2.2 Fertiliser Supply Channels

There are two parallel systems of fertiliser distribution in Tanzania. There is government subsidy system and non-subsidized system. This section highlights both systems in the districts where this study focused. In 2006/7 season a total of 108,702.94 tonnes of fertiliser were distributed in the country through government subsidy programme. Table 2 below highlights the tonnage per region.

Table 2: Tanzania Subsidy Fertiliser Distribution 2006-7

Region	allocation (tons)	% of total country
IRINGA	23,570.01	21.68
MBEYA	18,250.66	16.79
RUVUMA	17,734.01	16.31
RUKWA	5,309.91	4.88
KAGERA	880.00	0.81
MWANZA	650.00	0.60
MARA	500.00	0.46
SHINYANGA	770.00	0.71
TABORA	13,192.00	12.14
KIGOMA	4,460.00	4.10
DODOMA	130.00	0.12
SINGIDA	820.00	0.75
ARUSHA	6,150.00	5.66
MANYARA	2,445.00	2.25
KILIMANJARO	7,158.35	6.59
D'SALAAM	440.00	0.40
COAST	750.00	0.69
MOROGORO	4,765.00	4.38
TANGA	428.00	0.39
LINDI	150.00	0.14
MTWARA	150.00	0.14
TOTAL	108,702.94	100.00

- Southern regions (Iringa, Mbeya, Ruvuma and Rukwa) received almost 60% of the subsidy. These regions are suitable for maize production and rationale for government to push more fertiliser (food security).
- In Ruvuma region, Songea is the largest producer of maize in the region – thus most of urea, CAN and DAP were for maize production.
- Morogoro received only around 4% of subsidy fertiliser, and most of it was for sugarcane plantations. Paddy farmers use urea and SA although SA was not distributed under the subsidy system. Of the 520 tonnes of urea distributed in Kilombero District, 450 tonnes (about 87%) were given to Kilombero Cane Growers Association (KCGR); the rest was shared by paddy, maize and horticulture farmers.
- Private sector estimates that the subsidy supply was barely about 30% of country demand if farmers will adopt good agronomy practice.

Source: Kiongozi newspaper, October 7-13, 2006, pages 16 - 17.

Eleven importers were involved in distributing subsidy fertiliser to the regions. These include Premium Agro-Chem, Export Trading Company, Shival Tanks (STACO), DRTC, Alliance One and Mohamed Enterprises (T) Limited. Others include TFC, Tanzania Leaf Tobacco Company Limited, NUTRICARE Limited, Nyiombo Investments (T) Limited and CHAPA MELI (T) Limited (Government circular – MAFC, dated 23rd August 2006).

2.2.1 Songea District Supply Channels

Supply of fertiliser in Songea for the 2006/7 season has been mainly through the subsidy program. The District Commissioner (as per government guidelines) supervises the exercise. Unlike in other districts including Kilombero, Songea fertiliser was distributed through local SACCOS and not local stockists as per government regulation. The Songea District Commissioner's office felt that most

local stockists are not trustworthy and might not expedite fertiliser to reach smallholder farmers efficiently. Most SACCOS however, failed to distribute the fertiliser efficiently and effectively due to a number of reasons, main ones being;

- Financial constraints (lack of capital to buy large volumes of fertiliser)
- Incompetence in input supply function - Input supply is not core business of SACCOS
- Decision of some SACCOS management not to be 'involved' after receipt of caution letter from DUNDULIZA³

The demand for fertiliser was established by Songea District Council Office through its Village and Ward Agricultural Extension Officers (VAEO and WAEO respectively). VAEO and WAEO were requested by District Agriculture and Livestock Officer (DALDO) to inventorise the demand for fertiliser for their areas and these figures were consolidated at District level before being forwarded to regional authorities and to the Ministry of Agriculture, Food and Cooperatives (MAFC). The accuracy of these data is questionable in regard to the methodology adopted by VAEO and WAEO in the collection exercise.

During the field study it was established that VAEO and WAEO use estimates from farmers on the expected cropping calendar and acreage. Without any means of verification the estimates of acreage and average application of fertiliser following agronomic practices gives the estimated needs for the year. Obvious shortfalls of this methodology include the apparent overestimation that farmers give particularly because of the subsidy element, but also the acreage are not accurate, e.g. acreage is not measured by simple GPS⁴ devices but rather by estimation.. At DALDO level further re-estimation is done. This is often based on trend figures from last seasons, the expected availability of subsidised fertiliser and the like.

Information flows upwards has been mainly from farmers to VAEO and WAEO and no systematic information was flowing back to the stockists and farmers except the government subsidy pre-set price of fertiliser and the name of nominated SACCOS which will distribute the fertiliser on behalf of the government. According to data from Songea District Council, it is apparent that distributed fertiliser did not exceed 30% of the demand at district level for 2004/5 season. This is further elaborated in the table 3 below;

Table 3: Fertiliser distribution in Songea District in 2004/5 season – in tonnes

Fertiliser type	Demand	Subsidy fertiliser	Commercial fertiliser	Total distributed	% of total demand
UREA	4,360	1,300	45	1,345	33.0
CAN	2,970	50.45	145.55	200	6.7
NPK	1,090	-	304	304	28.0
DAP	-	13.7	-	13.7	
SA	-	-	10	10	
Minjingu	10	7.7	-	7.7	77.0
Manure	700	1,3	150	151,3	21.4
TOTAL	9,130	1,371	658.55	2,032.7	22.2

³ Dunduliza is the name for a Tanzania-wide network of savings and credit co-operatives (SACCOS), which are owned by their members and which provide financial services to households and small businesses. The individual co-operatives are able to access money, personnel and other resources from Dunduliza.

⁴ GPS, which stands for Global Positioning System, is a radio navigation system that allows land, sea, and airborne users to determine their exact location, velocity, and time 24 hours a day, in all weather conditions, anywhere in the world. The capabilities of today's system render other well-known navigation and positioning "technologies"—namely the magnetic compass, the sextant, the chronometer, and radio-based devices—impractical and obsolete. GPS is used to support a broad range of military, commercial, and consumer applications.

In 2005/6 season the fertiliser demand for Songea district was estimated to be about 7,355 tonnes; however, the distributed fertiliser in the district during 2006/7 season was only 3,670 tonnes by February 2007, which emphasise the imbalance between demand and supply. This anomaly is serious because the subsidy program has blocked the private sector initiatives in bridging the gap between demand and supply. In Songea farmers have taken for granted that it is unusual to buy non-subsidized fertiliser and the slogan is that there is enough subsidised fertiliser to meet the requirements. The figures above do not confirm this picture, but to the contrary it seems that farmers are now limiting their productive activities according to the subsidy they are promised to get. Subsidy program should not necessarily replace private sector initiatives and especially when it is clear that the government cannot sustain provision of fertiliser to meet he needs and even encourage further exploitation of utilised land potential.

2.2.2 Kilombero District Supply Channels

Supply of fertiliser in Kilombero for the 2006/7 season has been through subsidy and private supply. The District Commissioner (as per government guidelines) supervises the exercise. Unlike Songea fertiliser was distributed through local stockists as per government regulation. However, stockists in Kilombero failed to distribute the fertiliser effectively and efficiently due to a number of reasons, main ones being;

- Financial constraints (lack of capital to buy large volumes of fertiliser)
- Poor road infrastructure caused transport costs from Morogoro town or Dar es Salaam to be very high and thus making selling price to farmers unaffordable
- Absence of local stockists in remotes wards of Mlimba and Mgeta some 150km and 80 km from Ifakara respectively.
- Some stockists do not rely on DALDO office input demand data and at times proceed to Dar es Salaam to buy fertiliser from private suppliers
- The subsidised fertiliser do not offer attractive margins to the stockists

Like Songea, Village and Ward Agricultural Extension Officers (VAEO and WAEO respectively) established fertiliser and other input demands in their areas. These are consolidated at District Agriculture and Livestock Officer (DALDO) office before forwarded to regional authorities and finally to Ministry of Agriculture, Food and Cooperatives (MAFC). The accuracy of this data is equally questionable in regard to the methodology adopted by VAEO and WAEO in the collection exercise. Furthermore, there was re-estimation done at DALDO office. Limited number of WAEOs and VAEOs was also mentioned by DALDO office to contribute to the inaccuracy of input demand data collected. Although Kilombero District has 81 villages, there are only 45 VAEO.

Information flows has been mainly from farmers to VAEO and WAEO and no systematic information was flowing back to the stockists and farmers except the government subsidy pre-set prices of fertiliser and the nominated stockists which will distribute the fertiliser on behalf of the government.

In Kilombero district it seems both systems of commercial supplies and subsidy have coexisted. For instance in 2006/7 season parallel supplies of fertiliser of different kinds were available at stockist's shops. SA was only available from private sources.

According to stockists based in Ifakara, the private supplied fertiliser sales were much higher than subsidy supplied fertiliser in 2006/7 season because the supplier of private fertiliser gave stockists fertiliser on credit including transport and requested them to pay once sold. This credit facility assisted many stockists to have good volume which was highly demanded by farmers. The subsidy supplied fertiliser did not sell well because there was no credit facility to support stockists to buy large volumes. Furthermore, SA was not supplied through subsidy system. The prices differences at Ifakara stockists are shown in the table 4 below;

Table 4: Fertiliser price range at Ifakara town centre – Kilombero District – TShs per 50kg bag

Fertiliser type	Subsidy price	Private supply price	Difference
UREA/CAN/DAP	20,250	30,000	9,750
SA	-	22,000	

Most Ifakara stockists buy non subsidized fertiliser from Export Trading Company in Dar es Salaam and they get at better profit margins (in this case SA) as shown in table 5 below;

Table 5: Profitability of stockists Kilombero District – TShs/50kg bag Ex- Dar es Salaam

Description	Subsidy fertiliser (UREA/CAN/DAP)	Private fertiliser (SA)
Buying price	17,000	18,000
Transport	2,000	2,000
Sub-total	19,000	20,000
Handling	250	250
Total buying costs	19,250	20,250
Selling price	20,250	22,000
Profit per bag	1,000	1,750
Gross margin	5%	8%

Although SA is more profitable for stockists in Kilombero, paddy farmers use one 50kg bag of SA per acre whereas they are better off financially using one 50kg bag of Urea in 2 acres i.e. most farmers buy urea and not SA. However, for the stockists, selling SA (unsubsidized) gives more margins that selling subsidized fertiliser.

2.3 Information flows – current situation

This chapter attempts to answer the question on how information is currently captured, analysed, packaged and disseminated. During this study it was observed that:

- The dominating information regarding inputs revolves around prices and availability of different types of inputs.
- With respect to outputs, the dominating information is about prices and market destination.
- Due to this nature of perceived information needs by farmers, the information that flows to them is open ended, not analytical and packaged to assist the farmer to make informed business decisions. Information about options, opportunities and risks etc is often not demanded and hence not made available.
- Farmers are open to any source of information irrespective of its authenticity. The sources are as diverse as the information itself.

2.3.1 Farmers' information flows – current sources and channels

Farmers' access to and use of information channels were explored during field interviews and focused group discussions. One of the highlights was that farmers seem dependent on government institutions and NGOs as channels for information and knowledge from outside the community. The essence and cost of accessing information is not well comprehended by farmers. Most of them perceive that information should be given for free by the government. However, the link between farmers and government as far as information needs is concerned is the village agriculture extension officer (VAEO).

When farmers need to contact the district based actors like district agricultural officer (DALDO), they usually do it through the VAEO. Farmers often do not get timely and accurate response because VAEOs lack transport and basic data collection skills and equipment. Information available about key inputs is also limited. Farmers, for instance, in Songea and Kilombero districts have received advice on how much fertiliser to use per hectare for grain crops, but do not feel they have enough knowledge to optimise the use of fertilizers. Training has also been given on plant protection and good husbandry; however, farmers do not get packaged agricultural advice or information from VAEO. The information provided by the media is not timely and at times outdated. The little information which could come through the local contact farmers (who are at times supported by various development projects) have no incentive to provide it.

Farmer-to-farmer exchange of information is important to them: it is easy to access and communication is continuous. However, it may not always be accurate. The overall impression gained in Songea and Kilombero is that the district council (specifically DALDO/DED/DC office) is regarded as a highly placed source of information and advice, but is very difficult to access it directly. Apart from farmer-to-farmer communication, most flows of information were described as 'low/less frequency'.

In both districts visited during this study, farmers have access to a wider range of formal organisations (governmental, NGOs and private organisations). In addition, they can get information and advice from local and more distant markets and from staff at the churches and schools in the village. Farmers are not necessarily well informed about linkages among the other primary and secondary actors in the input/output information flows along supply channels. For example, in Kilombero district, Plan Tanzania community development workers are somehow involved in the flow of information relating to increasing productivity in paddy and other crops, but it was not clear how these efforts were linked to other organisations supporting the same farmers.

2.3.2 Opportunities for increasing effectiveness of information flows

During field study, farmers identified few sources and channels of information with which farmers in the village have direct contact. In their narrations, they did not include sources with which they did not themselves have direct contact, apart from those within the district council (DALDO, DED and DC) and the local/village administration. It was apparent that most farmers are not aware of or interested in indirect links e.g. making a phone call directly to the fertilizer distributor (inputs), or buyer based in Dar es Salaam market (outputs). The following features of sources/channels of information are worth noting:

- Farmers have access to many institutions which are potential sources of information: these include markets (local, district and national), church-based institutions and individuals, the agro-technical school and farmers organisations including SACCOS.
- in addition to farmer-to-farmer exchange of information within the village, interviewees reported interaction with farmers in other villages

However, findings based on value chain concept indicate that farmers need more information and advice: availability of and access to channels does not guarantee that all information will be accurate and adequate to meet their needs.

Farmers' decisions and their use of information can only be understood in the context of their resource base and the place that farming occupies in their livelihood strategies. Households which rely on their farm for most of their food supplies but earn cash income in other activities are likely to need different information and make different decisions from those whose farm represents their main source of cash as well as food. Very poor households with small areas of rain-fed land, few livestock without regular source of cash income face different sets of constraints and opportunities from those who are better endowed in terms of natural and financial resources.

In response to an open question on what are their main sources of advice and information on farming, six sources were mentioned: the DALDO/DED/DC office, local/village administration, other farmers, NGOs/church, other villages and the political party. In both districts; however, the DALDO/DED/DC office is the source cited most frequently. There is notably absent of the mass media (radio, TV, newspapers) and farmers' organisations or groups as source or channel of information. When asked where they would get information or advice on inputs and output farming matters, two additional sources were mentioned traders (outputs) and stockists (inputs).

In order to gain a fuller picture of the use people make of the various information sources identified earlier in the study, the FGDs moved from open-ended to closed questions. The respondents were asked how frequently (if at all) they get information about farming from the source, how easy it is to access or contact it and how reliable and useful they find the information they get from it. The responses highlight again the predominance of the DALDO/DED/DC office, local/village administration and other farmers as primary sources and channels of information, together with relatives. The study found that poorer households and women are less likely to get agricultural information from the radio. This may indicate radio ownership is skewed but several respondents also pointed out that there is no regular agricultural programming on the radio so it is difficult to use it systematically as an information source.

For instance in Songea, a radio programme by TechnoServe/AMSDP through Radio Maria (church based local radio station) was aired between 7.00pm to 7.15pm – women could not access the agricultural information which was aired by this programme because it was aired during the time most of women are busy preparing supper for the family; most men are in local pubs having a drink. Moreover; Muslim segment of the community do not tune to Radio Maria because the radio is owned by Christian/church organisation. Several of the other sources mentioned are not primarily involved in agriculture-related activities (e.g. church organisations, NGOs, etc): the fact that farmers recognise that they get information relevant to their farming from such sources suggests that they have considerable potential for improving the overall flow of information within

the primary and secondary actors who support input/output information flow. The village and ward agricultural offices could consider how they might use such sources – for example by providing information to church organisations and local schools.

Local sources within the social system (farmers in the same and other villages, and relatives, VAEO and WAEO) are easily accessible and respondents are in frequent contact with them; however their information is not always reliable. DALDO/DED/DC office, on the other hand, are less accessible and have less frequent contact, but their information and advice are more reliable and useful; although farmers get this information from VAEO and WAEO who have limited skills in capturing, analyzing, packaging and dissemination of information. Traders are recognised as important sources of information from which those farmers who are selling produce have quite frequent contact, but are seen as less reliable than most other sources. Some respondents added comments to the effect that traders are ‘untrustworthy’ or ‘selfish’ or that they ‘don’t care’.

These points suggest input/output supply channel actors could look for ways of increasing the reliability of information flowing within the social system, and of providing education and incentives to traders to improve the quality and credibility of the information they give to farmers.

2.3.3 Stockists

Stockists respond similarly to farmers although they are more proactive to identify distributors with more competitive prices. The entrepreneurial drive of most rural stockists in the areas where subsidized fertilizer is high on agenda is often suppressed. Their profit margin is set without necessarily taking into account their operational costs and volume of business that they could generate. It may seem that the subsidy program is designed more from the point of view of farmer savings and not necessarily taking onto account long term interest and benefits of the stockists. Table 6 below shows the potential farmer savings through subsidy program. Lack of pre-financing arrangements was highlighted to be one of the constraints limiting the extent to which small scale stockists could participate in the program.

Table 6: Farmer savings through subsidised fertiliser supply channels from regional centres – TShs per 50kg bag

Description	Regional Commercial (private) Supply		Regional subsidy Supply	
	DAP	UREA	DAP	UREA
Buying price	28,200.00	25,700.00	17,500.00	17,500.00
Transport	1,000.00	1,000.00	1,500.00	1,500.00
Sub - total	29,200.00	26,700.00	19,000.00	19,000.00
Farmer saving	-	-	10,200.00 (35%)	7,700.00 (29%)
Average saving			32%	

Source: Simulations by Chapa Meli (T) Limited and Match Maker Associates Limited, April 2007.

2.3.4 Distributors – wholesalers

There are not many independent distributors country wide; and because of this underdeveloped function, most importers have undertaken vertical integration into distribution function in the fertilizer supply chain. Most importers (e.g. Export Trading) hire godowns at regional and in some areas at district levels depending on demand. During the study, importers emphasized that for the chain to work effectively they would wish the distributorship model to be further developed.

2.3.5 Importers

There is no systematic information flows between eleven importers who were involved in distributing subsidy fertiliser to the regions in Tanzania. Each importer is in constant communication with their suppliers and transporters. Most of these importers have their own transport fleet for volumes distributed by road and relied on TRC and TAZARA for their volumes through rail system.

2.4 Summary

The current situation regarding fertiliser information flows in Songea and Kilombero districts has the following characteristics:

- There is no conformity to government subsidy guidelines in Songea district. Despite the difference in the distribution mechanisms in Songea (using SACCOs) and Kilombero (using Stockists as per government guidelines), constraints on the information flow to and from farmers remain more or less the same.
- In Songea the main source of supply of inputs in 2006/07 has been through subsidy program whereas in Kilombero both subsidy and commercial supplies are available. During the study it was observed that there was a substantial imbalance between supply and demand of fertiliser. This was evident through extreme low productivity at farm level. The subsidy program seems to be able to meet only 30% of the perceived needs. This does not however mean that all the subsidised fertiliser has been used by farmers. During the study some stockists still had large stocks whilst the season was coming to an end. One possible reason was that subsidised fertiliser arrived late due to bureaucratic and administrative processes.
- There are few financially strong stockists and wholesalers, hence a weaker link in fertiliser supply chain.
- Poor agronomy practices have led to low usage of fertiliser and it impacts on productivity.
- There is Information asymmetry/gaps. At farmer level the essence of using information as a tool for business decision is not well articulated. At providers level the information provided is scattered, incomplete and often outdated.
- There are opportunities for improving effectiveness in information flows.
- The more upstream you move along the supply chain from farmers, information flows is more efficient and effective. Whereas at farm level, information is fragmented and not well packaged, at importer-manufacturer level- the information flows is systematically and continuously captured, analysed, packaged and disseminated using Information Communication Technology (ICT).

CHAPTER THREE: INFORMATION FLOWS IN A VALUE CHAIN

This chapter presents what the authors perceive as an ideal framework for fertilizer value chain development in Tanzania. It is based on the theoretical underpinning of value chain development which is being used to analyze the emerging practice in Tanzania.

3.1 Value chain concept

The terms production chain, supply chain, market chain and value chain are often used interchangeably, but in fact there are some important differences. In its simplest definition, the terms production chain, supply chain, market chain are synonyms used to describe all participants involved in an economic activity which uses inputs and services to enable a product to be made and delivered to a final consumer.

A value chain is understood as a strategic network between more than one independent business organizations. According to Hobbs et al. (2000)⁵, a value chain is differentiated from a production / supply chain because:

- Participants in the value chain have a long-term strategic vision.
- Participants recognize their interdependence and are disposed to work together to define common object, share risks and benefits, and make the relation work.
- It is oriented by demand and not by supply, and thus responds to consumer needs.
- Participants have a shared commitment to control product quality and consistency.
- Participants have a high level of confidence in one another that allows greater security in business and facilitates the development of common goals and objectives

Table 7 presents other comparisons between a supply chain and a value chain.

Table 7 : Enterprise relations: Supply chain versus value chain.

Factors	Supply chain	Value chain
Information flow	Little or none	Extensive
Principal focus	Cost / price	Value / quality
Strategy	Basic product (commodity)	Differentiated product
Orientation	Led by supply	Led by demand
Organizational structure	Independent actors	Interdependent actors
Philosophy	Competitiveness of the enterprise	Competitiveness of the market chain

Source: Hobbs et al. (2000).

This guide seeks to provide a practitioner with a better understanding of a production chain and facilitate sufficient negotiations between participants to lay the groundwork for the formation of a value chain. The resulting value chain will most likely involve a smaller group of the participants than the production chain.

Not all participants in the fertilizer supply chain in Tanzania are interested or willing to enter into a value chain arrangement given the negotiation, information exchange, risks, and changes in the

⁵ Hobbs, J; Cooney, A; Fulton, M. (2000) "Value market chains in the agri-food sector: What are they? How do they work? Are they for me?" Department of Agricultural Economics, University of Saskatchewan, Canada.

relations along the market chain implied by this focus. Generally, the process of change and added responsibility within a value chain also adds costs. The advantages of a value chain are that complex strategies of product differentiation and innovation are easier to achieve, and thus contribute to building sustainable competitive advantages over time.

3.2 Tanzania Fertiliser Supply – Is it a supply chain or value chain?

How do we identify a value chain?

The basic characteristic of value chain is market-focused collaboration; that is the situation where different business enterprises are working together to produce and market products and services in effective and efficient manner in order to meet the needs of targeted consumer (s).

The value chain; therefore, provides a framework for conducting business transactions, while being responsive to the needs of the consumer; and involves trust and open communication between its participants (primary actors); resulting in mutual beneficial outcomes for all participating parties.

The essence of value chain is thus to create and manage a vertical alliance or strategic network between a number of independent business organizations in order to meet the needs of targeted consumer(s). This strategic alliance is formed to meet specific market objectives and often is created when organizations have a shared vision and common goals. It allows for mutual decision-making as well as the sharing of risks and benefits. It also allows for cooperative intelligence: costing, marketing, and organizational information is shared enhancing the value chain's profits and competitiveness.

During the study it became evident that such value chains do not yet exist in Tanzania. However, through the Fertiliser Partnership program there are emerging channels for further development into a value chain.

The Yara initiative as one example

Yara has been used to portray emerging fertiliser value chain in Tanzania. As depicted in figure 1 below, the manufacturer/exporter produce, pack and organise shipping and carriers to the destination markets (in this case Tanzania or convenient regional ports). The importers undertake port clearance and offloading the bulk carrier. Importers use their own transport or identify reliable transporters to transfer the fertiliser to pre-determined regional and district centres in the country. In the emerging fertiliser value chain in Tanzania the importer is Chapa Meli (T) Limited, a subsidiary company of Yara operating independently from Dar es Salaam Tanzania.

Some importers have storage infrastructure in few regions in the country while others rely on local distribution agencies (wholesalers) who put sizeable stock to re-sale to local stockists. Chapa Meli (T) Limited does not undertake distribution function (vertical integration) but rather identifies and uses regional based distributors. Ideally, if there is value chain relationships between these actors – there should be a deliberate need to work together and formalise relationships. These arrangements will also enhance information flow upstream and downstream as depicted in the figure 1 below. Chapa Meli (T) Limited has developed contractual relationships with its distributors and has stipulated in the contract the necessary communication systems between them. Table 8 summarises the emerging distributorship network with contractual agreements with Chapa Meli.

Table 8: Distributorship between Chapa Meli (T) Limited and independent distributors

Region	Independent distributors	Remarks
Ruvuma	STACO (Songea)	Regional centre
Iringa	Mtewele General Traders (Njombe)	District centre
	Rubuye Agrochemical Supplies (Makambako)	District centre
Mbeya	Suba Agro, Mukpa	Regional centre
Rukwa	Mukpa (Sumbawanga)	Regional centre
Kilimanjaro	Kibo Trading, Rafiki Kilimo, Mukpa (Moshi)	Regional centre
Arusha	Suba Agro, Mukpa, Kibo Trading	Regional centre
Mwanza	Suba Agro, Mukpa	Regional centre
Morogoro	Several stockists	Regional centre
Dodoma	-	
Tabora	-	
Kigoma	-	

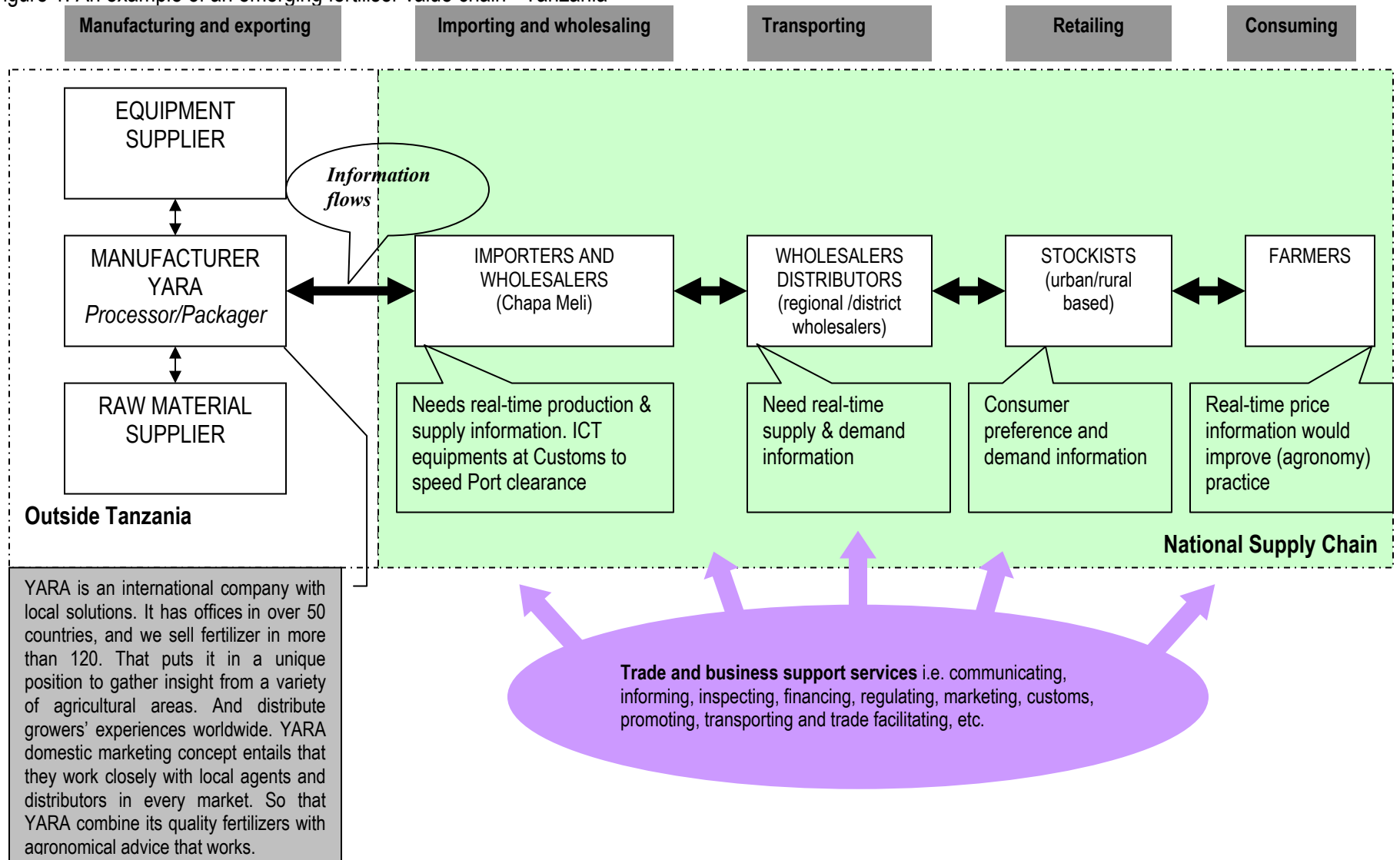
Due to demand in Iringa region, Chapa Meli found it cost effective to develop district based distributors specifically in Njombe and Makambako town centres. It has not been easy though to find reliable distributors in Dodoma, Tabora and Kigoma as their climate and agro ecological zones do not attract high volumes of fertiliser. In Morogoro, due to its proximity to Dar es Salaam where Chapa Meli is based, local stockists buy directly from importer.

Distributors are supposed to sale to local stockists in their vicinity. Although subsidy fertiliser and seeds are sold at pre-set price by government, the distributors need to establish lasting relationships with their customers (local stockists). This relationship is starting to build up but not very well developed as the relationship between distributors and importers. This is difficult due to a number of reasons but main ones being;

- Local stockists are not well organised to attract large volume from distributors
- Local stockists have limited entrepreneurial and marketing skills which make distributors not to value them as equal business partners
- Lack of or limited capital of distributors and stockists make it difficult for distributors to arrange credit facility to stockists.
- Most local stockists don't have capacity to assess the demand and thus cannot ask a definite order from distributors.

The local stockists and distributors seem to be the weakest links in the emerging value chain. It therefore suggests that the other actors in the chain and support organisations should develop this weak link to address the above mentioned weaknesses.

Figure 1: An example of an emerging fertiliser value chain - Tanzania



Are there significant economic gains among the chain actors in the emerging fertiliser value chain?

For a value chain to develop and become sustainable there should be economic benefits of all actors. Assuming the CIF price gives manufacturer reasonable profit margin, we should assess the economic gains (benefits) of other actors which will give them incentive to collaborate in a value chain. During this study profitability analysis was conducted to see viability of primary actors in the fertiliser value chain in Tanzania. Most local stockists put a profit margin of not less than 5% depending on scarcity of the fertiliser at their area; it was realised that the transport quotation for subsidy fertiliser is set at TShs 1,500.00 per 50kg bag while market rate is on average TShs 1,000 i.e. giving distributors and stockists extra TShs 500 profit per bag when selling subsidised fertiliser. At district level the stockists have varied transport costs and profit margins depend on the condition of the access roads or rail.

Transporters are not part of primary actors in the fertiliser value chain because they are not interested to be locked in the relationship with importers and or distributors. They move with the market demand and can transport any product from one point to another in the country; however, in order to increase economic benefits of primary actors and remain market focused (reaching the customers as efficient as possible) distributors and stockists should have access to useful information on various transport options and make informed choice accordingly. It is vital to know where savings are made and identify the best transport choice. Tables 9 and 10 below analyse the rail and road transport for various destinations in the country.

Table 9: Upcountry rail versus road cost analysis – where road infrastructure is good : USD per ton

Example 1: Dar es Salaam - Mbeya				
	ROAD		RAIL	
Loading	-		-	
Cross-haul	-		3 – 4 + VAT	4.20
Unloading/loading	-		0.75 + VAT	0.90
Main carriage	2,200.00 – 2,400.00 (TShs/50kg) +VAT		32 – 35 + VAT	
Average	2,300 + VAT		33.50 + VAT	
Carriage in USD	55,200.00 TShs/ton		44.16	
Offloading in Mbeya	-			0.60
Cross-haul	-			2.40
Final-offloading		0.30		0.30
		44.46		48.60
Remarks:	<ul style="list-style-type: none"> • Road and rail transport costs are fairly equal when handling small volumes • Road is a better option: <ul style="list-style-type: none"> ○ For product care (fertiliser is hygroscopic) ○ Safety and door-to-door delivery ○ Timeliness of road versus delay and unavailability of rail wagons 			
Source: Simulations by Chapa Meli (T) Limited and Match Maker Associates Limited, April 2007.				

Table 10: Upcountry rail versus road cost analysis – where road infrastructure is bad TShs per 50kg bag

Example 2: Dar es Salaam - Mwanza				
Mode	ROAD	ROAD-RAIL ●	RAIL	Remarks
Transport cost per 50kg bag	7,000.00	4,400.00	2,800.00	Unavailability of rail wagons.
● - by road to Dodoma and transfer to rail to Mwanza				
Source: Simulations by Chapa Meli (T) Limited and Match Maker Associates Limited, April 2007.				

The tables above indicates that there substantial savings between options. However, the issue is not only about potential savings, but it has more to do with timely delivery (e.g. wagons availability at the desired time) and handling of hygroscopic products.

During this study it was observed that subsidised fertiliser was distributed through regional administration, hence distribution decisions are guided by political administrative boundaries and not economic viable routes. For instance whereas farmers at Mgeta and Mlimba divisions; (80 and 150 kms from Ifakara respectively) in Kilombero district would have economically access fertiliser from Njombe or Makambako which is much closer.

Is there room for infrastructural upgrading?

Although effective and efficient information flow is vital along the chain for effective and efficient operations of the chain – infrastructural upgrading has been seen to be vital to make Tanzania fertiliser value chain efficient. The main infrastructural areas of concern include;

- Road and railways
- Port infrastructure

At the port – there is room to upgrade port infrastructure to be in line with other regional ports. During this study it was established that;

- Importers can process all importation documents prior to carrier arrival – most fertiliser cargo arrive for 1 importer consignment between 30,000 – 40,000 tonnes.
- The bagging at Dar es Salaam Port takes 10 – 14 days – then stored in the Port storage before being transferred by importer/wholesaler to their storage premises outside the Port – from there it is distributed to the respective regions/districts depending on order.
- Most importers are importing/exporting/selling other products and fertiliser is just for spot markets (current supply in Tanzania is 150,000 tonnes per annum – i.e. about five bulk carrier per annum).
- Information flow is not a problem at the Port – and transport side but rather more infrastructural problems.
- The experience in Kenya and elsewhere in Africa shows the infrastructure in Kenya and SA is much better and reduces fertiliser costs as a result of handling costs. Comparing Kenya and Tanzania, time lag is 12 days in Tanzania – before counting on delays (demurrage costs, interchange costs, etc) – pictorial presentation is provided in figure 2 below;

Figure 2: Handling of fertiliser at Dar es Salaam Port

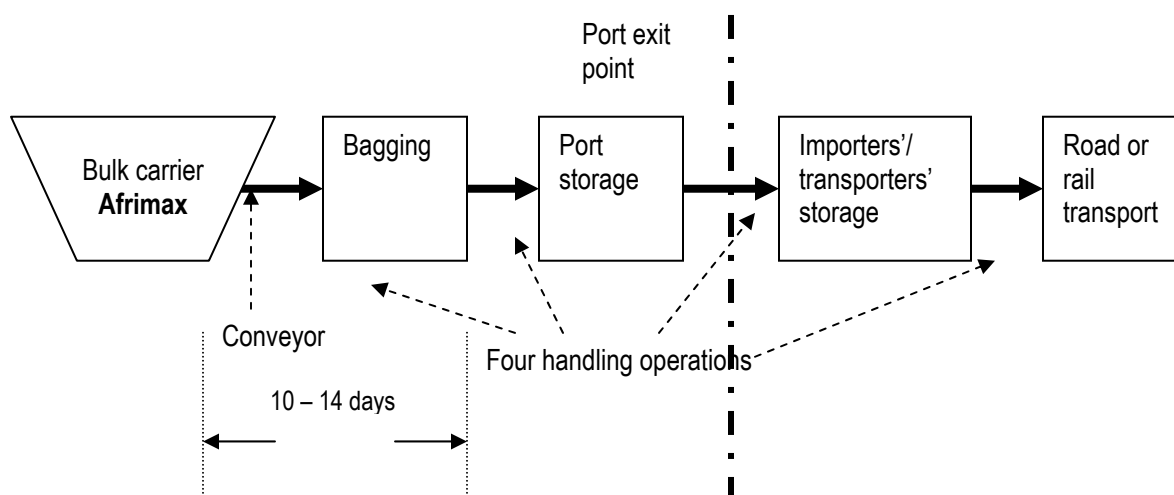


Table 11 below show costs reduction if the port infrastructure will be improved.

Table 11: Cost analysis- Port handling costs in USD per ton

Description	USD	Saving if infrastructure improved	port is	Remarks
Bags	12-15	15.00	-	<ul style="list-style-type: none"> On average if the port is in line with other ports, the saving will be 10.00 USD per ton. In Tanzania currently port charges range from 50 – 55 USD per ton
Stevedoring + bagging		12.50	5.00	
Shore handling	4.00 + VAT	4.80	1.00	
Wharfage – 1.7% CIF	5 - 6 + VAT	6.60	1.10	
1% Loss	3 –4 + VAT	4.20	2.00	
Agency fees	1.50 – 2.00	1.75	1.00	
Cross-haul	5.00 + VAT	6.00	1.80	
Tally	2.50 + VAT	3.00	-	
		53.85	11.90	

Source: Simulations by Chapa Meli (T) Limited and Match Maker Associates Limited, April 2007.

During this study it was noted that there are a number of gaps at enabling environment level; - transport infrastructure (Ports, Tanroads, Railways, Ministry of Infrastructure)

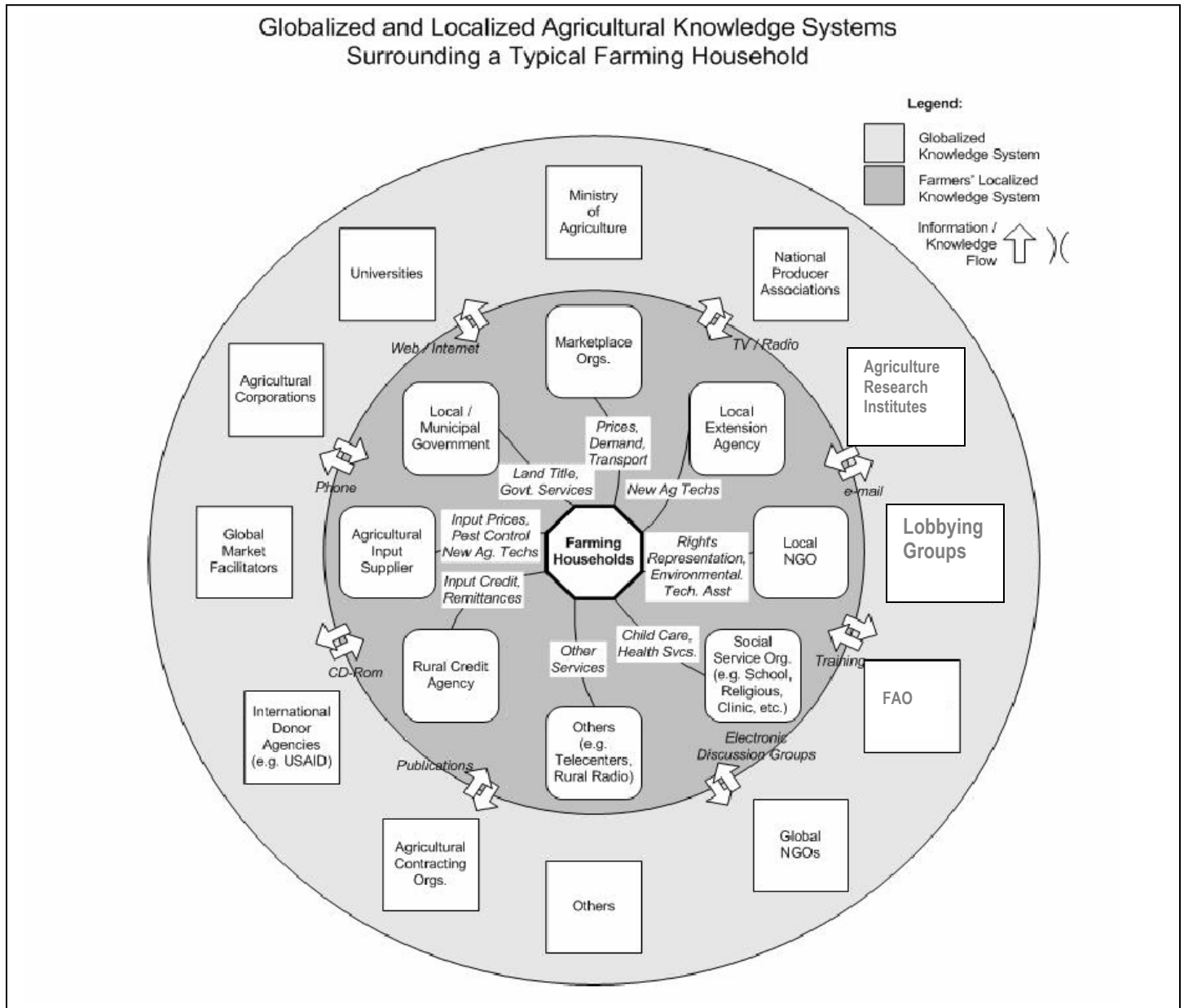
- At the top level there is very little joint strategic planning to improve infrastructure and reduce handling costs. There is limited communication and information flow between these key actors.
- At middle management (operational level) there is very little understanding of each other operations – hence less appreciation of interdependence and synergy which can be realised through effective information flows among all actors in the transport infrastructure.
- This further confirms that information flow can only be effective in the fertiliser value chain if the infrastructural related facilities are improved (Port handling, transport system, and joint strategy to interface roads, railways and ports).

3.3 Information needs of actors

Once the value chain actors are in place, the next agenda is to make information flow among them as effective as possible. In this case for fertilizer supply chain to function effectively and efficiently all actors, whether importers, distributors, stockists or consumers (farmers), need good information

on a variety of subjects. During the study it became apparent that it is the farmer household that is the central to information flows. Input and output information flow is among many information needs and flows that the smallholder farmer is exposed to. The complexity of information management at farmer level is depicted in figure 3 below;

Figure 3: Farming household and information flows



Source: USAID (2003); Background Paper - Future Directions in Agriculture and Information and Communication Technologies (ICTs) at USAID - Prepared for USAID/Economic Growth, Agriculture, and Trade/Agriculture and Food Security, page 8.

The farmers are expected to be able to make decisions not only about farming but also about other socio-cultural and economic issues. The complexity is compounded by the fact the farmer is expected to deal with a variety of sources (local, national, international) and media (word of mouth, radio, TV, newspaper, phones, emails, publications, training events etc).

Realising this broader context within which the farming household operates, the study has concentrated on information flows with respect to input and output markets. The starting point was to underscore the information needs of actors in the fertilizer value chain. Table 12 below presents a synopsis of these information needs. Facilitating the flow of such information presents a particular challenge in Tanzania, where there are parallel supply of fertiliser (subsidy and commercial) and majority of consumers are fragmented smallholder farmers throughout the country.

A large number of private, civil society and public actors are involved in generating and making this information available; however linkages between actors are complex. Linkages between these actors are often weak, and almost all actors in the study had own ways of accessing and passing on information. Particular constraints were identified as follows:

- Lack of awareness of sources: Several actors, such as small-scale farmers and stockists, were unaware of where or how to access information. Organizing them in groups/associations of small-scale stockists, may help them to access information
- Inability to access sources: It is difficult, for example, for individual farmers to link with the wide range of actors who could provide technical information on fertilizer application and handling. Public researchers and extension workers have limited resources or opportunities for accessing and passing on information.
- Information gaps: There is a lack of information provision as a package in such areas as markets and prices, credit, finance and legal services, business services and effective group formation and management.
- Weak links in the chain: Formal public research-extension linkages exist but are often ineffective. Some of the most effective sharing of information was based on informal links between individuals, including spread of information between farmers.

Problems may arise when both public and private sector actors provide information within a recently liberalized agriculture sector:

- Inconsistent quality of information from private and public sector: farmers have no means of judging the accuracy of this information. In addition, there is little effective regulation of the quality of this information e.g. through enforced advertising standards.
- Lack of information on proper usage of fertiliser: stockists are generally viewed by farmers as service providers rather than sources of information. Smallholder farmers often lack timely support from government extension officers towards providing a service in which information is valued.
- Low appreciation of the value of information: smallholder farmers show greater willingness to pay for inputs and services than to pay for information. This may be because of limited farmer capacity to convert information into tangible benefit; or because it is felt that information should be provided free. Private and public sector roles are not clearly differentiated by all actors along fertilizer supply chain in the country.

- Limited public sector resources: Public extension workers (WAEO, VAEO) were seen as sources of good, unbiased information, but were rarely met by individual farmers. National policy recognizes a reduced role for public extension in the agriculture sector, and resources are increasingly stretched.
- For the fertilizer value chain to work, the primary private sector actors shown in figure1 need to develop long term strategic collaboration, but equally important is to have the secondary actors (NGOs, public sector, etc) coordinating their support package including information dissemination.
- Agricultural sector information flow should follow agricultural cropping calendar. Information should be timely and relevant for the decision to be made at the right time (before farming season, during farming season and during harvest and post harvest period).

Table 12: Input and output information needs of actors in the fertiliser value chain

Stakeholder	Season (Timing)	Activity	Information needs	Issues	
Smallholder farmers	Before farming season	Land preparation	Simple gross margins + markets of potential crops	<ul style="list-style-type: none"> • Frequent shifts from one crop to another e.g. from maize to paprika • Highly politicized maize farming (SGR – for food security) • Changing farmers' mind-set on dependency on subsidy 	
			Weather forecast and best choice of crops		
			Types of fertilizer required for entire season		
			Sources – availability of improved seeds		
			Soil testing + Planting timing and spacing		
			Sources – availability of fertilizer and pesticides		
			Application procedures for fertilizer and pesticides		
			Inputs prices		
			Policy and regulatory environment – e.g. subsidy		
	During farming period	Planting		Weather forecast	<ul style="list-style-type: none"> • Extension service not adequate in most places (shortage of extension officers). • More services are embedded in contract farming arrangements. • Timely and adequate application of fertilizers could make big difference
				Appropriate planting timing and spacing	
				Appropriate improved seeds	
				Appropriate planting fertilizer – volumes and types	
				Germination checks – tests	
				Alternative improved seeds	
Weeding				Good agronomy practice	
				Weeding regime and fertilizer requirements	
				Appropriate fertilizer – volumes and types	
			Fertilizer and pesticides prices		
Harvest and post harvest period	Harvesting		Appropriate harvesting time	<ul style="list-style-type: none"> • Warehouse receipt system with link to strong SACCOS will empower farmers (purchasing power) 	
			Appropriate post-harvest handling		
			Information about warehouse receipt system (WRS)		
			Market options and market prices		
	Marketing				WRS - SACCOS
Urban and rural based stockists (SMEs)	Sourcing fertilisers, pesticides and improved seeds	Before and during farming season	Actual needs of the farmers – types, volumes, timing	<ul style="list-style-type: none"> • Entrepreneurial skills urgently needed • Organisation of stockists is vital for bulk purchasing to reduce transport costs. 	
			Buying prices including transport (main inputs)		
			Appropriate selling prices		
			Policy and regulatory environment – e.g. subsidy		
			Appropriate pesticides and herbicides		
			Marketing options – e.g. through WRS - SACCOS		

Stakeholder	Season (Timing)	Activity	Information needs	Issues
Wholesalers – Distributors	Before season starts	Distributing	Data base of potential stockists	<ul style="list-style-type: none"> • Few financially stable distributors. There is need for a critical mass of financially sound distributors. • Most importers have vertically integrated the distribution function through hiring or buying godowns at regional and district levels • Minimum information flows between transport sector actors (TANROADS, TRC, and TPA) make it difficult to plan an effective distribution system.
			Demand volumes, types and delivery timings	
			Supply volumes, types and delivery timings	
			Inland transport options and costs analysis	
Importers	Before season starts	Importing	Data base of existing and potential distributors	
			Demand volumes, types and delivery timings	
			Reliable transporters data base	
			Supply volumes, types and delivery timings	
			Off -loading details – date, time, arrival, volume	
			Ship transport options and costs analysis	
Manufacturers – Exporters	Before season starts	Manufacturing	Demand volumes, types and delivery timings	
			Shipping	Data base of potential carriers (carriers info)
				Carriers slot preferences and reservations
		Subcontractors data base (subcontractors info)		
		Despatching	Carriers slot booking	
			Licences and details of subcontractors	
			Carriers transport planning information	
			Carriers transport execution information	
			Loading details – date, time, arrival, departure	

3.4 How should the information be packaged and disseminated?

3.4.1 Farmers' information management

Table 13: Input, Output Information Reporting system – Farmer level

Information needs	Packaging (content)	Means of dissemination
Farmers		
Simple gross margins of potential crops	Records of sales and direct costs of all potential crops	Participatory training with farmers' groups
Weather forecast and best choice of crops	Predicted local weather patterns	Telephone, SMS and e-mail
Types of fertilizer required for entire season	Crop specific technical information on recommended types of fertiliser	Fliers, leaflets or brochures and training in Swahili
Sources – availability of improved seeds	Crop specific technical information	Fliers, leaflets or brochures and training in Swahili
Appropriate planting timing and spacing	Crop specific technical information	Fliers, leaflets or brochures and training in Swahili
Sources – availability of fertilizer and pesticides	Information about distributors and local stockists – subsidy and commercial sources	Fliers, leaflets or brochures, radio, public rallies, VAEO, WAEO
Application procedures for fertilizer and pesticides	Crop specific technical information	Fliers, leaflets or brochures, training, FFS, VAEO, WAEO
Inputs prices	Input specific price breakdown and options available	Fliers, leaflets or brochures, radio, public rallies, VAEO, WAEO
Policy and regulatory environment – e.g. subsidy	Government policy relevant guidelines and procedures	Fliers, leaflets or brochures, radio, public rallies by DALDO Office
Appropriate planting fertilizer – volumes and types	Crop specific technical information	Fliers, leaflets or brochures, radio, VAEO, WAEO
Germination checks /Alternative improved seeds	Crop specific technical information	Fliers, leaflets or brochures, radio, public rallies by DALDO Office
Good agronomy practice	Crop specific technical information	Fliers, leaflets or brochures, training, FFS, VAEO, WAEO, private sector
Appropriate harvesting time/ post-harvest handling	Crop specific technical information	Fliers, leaflets or brochures, training, FFS, VAEO, WAEO, private sector
Information about warehouse receipt system (WRS)	Information on how WRS work; its benefits and challenges/risks; experiences elsewhere	Training by WRS specialist
Market options and market prices e.g. linkages with Contract farming schemes	Information on market trends and requirements(quality, quantity, timing), price determinants (transport and handling costs), etc	Telephone, sms, local radio and word of mouth (from traders, relatives, NGOs, others)
Appropriate selling prices	Break even prices (minimum price)	Participatory training with farmers' groups

3.4.2 Stockists' information management

Lack of human resources management and financing capabilities are still key issues for rural and urban stockists. From more detailed observations on stockists during this study, weaknesses were recognized in quality management, information management, and marketing and sales. They are also short on abilities in planning and inventory management for procurement and operation, and in financial administration and cost analysis for financing. As a result there is insufficient IT usage by stockists since most of their problems can be addressed by using IT effectively. This lack of technology receptiveness among SMEs in Tanzania is one of the factors preventing development of the local IT sector which could have improved efficient and effective information flows among themselves and upstream with importers and distributors. In addition the heavy burdens imposed by transport costs erode price competitiveness in distant markets.

3.4.3 Distributors – wholesales information management

Good practices in the industry suggest that a distributor is expected to have capacity (financial and technical) to promote and market product in the locality easily reachable by retailing outlets within a small radius. During this study it was established that it was difficult to identify capable and specialised inputs distributors/wholesalers. Most of distributors in Tanzania handle a large portfolio of products – inputs being among them. They, therefore manage diverse information flows from wide range of their clientele. In order for the distributors to play an effective role in fertiliser value chain, they need to be carefully selected and supported (trained, credit facilities) by importers. Distributors should actively market their products and establish the demand downstream the chain. At this level use of ICT is expected to be much higher than downstream.

3.4.4 Importers - Manufacturers – Exporters

At the exporter-importer levels – the information flow is smooth, efficient and effective. There is substantial use of Internet, telephones and data system. For instance Yara use Transwide communication system. The main features of the system are;

- Paperless communication is perfectly possible, simple and transparent
- Essential for the ADR⁶ 2005 / site security compliance
- Solid basis for efficiency improvements carrier and shipper
- Relationship with the carriers and customers is more efficient
- End-to-end integration with external parties
- Efficient system i.e. speed, right first time, new communication platform

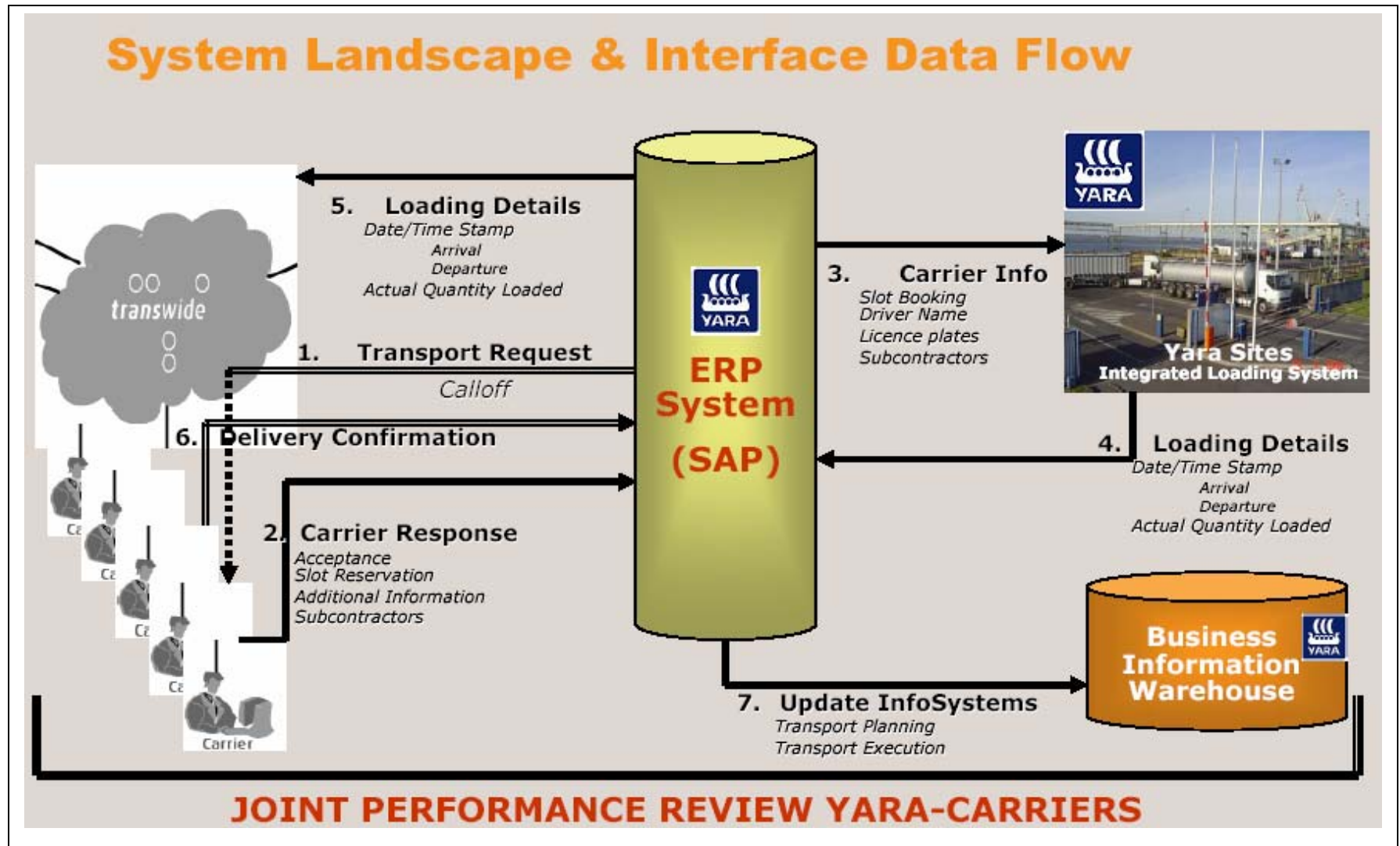
Transwide Implementation Notebook emphasise that;

- Implementation is managed by objectives not user demands
- Set targets but also monitor them closely and regularly
- Managing Change is permanent: Use an expert
- Diversified way of working demands thorough preparation and data collection
- Carriers are positive, but at different speeds
- Systems need to evolve to cope with demands for functionality
- Do not let the exceptions become the norm

⁶ ADR - Aeroporti di Roma S.p.A. was incorporated in 1974 as exclusive concessionaire for the operation and development of Rome Airport System

Monitors published internally are part of top management follow-up. Figure 4 below is a pictorial presentation of the Transwide system at Yara. Specific forms to capture and disseminate required information at farm level is proposed in annex 6.

Figure 4: Transwide communication system at Yara



3.5 Summary

- Value chain approach assists to organise information flows along the chain. The focus should be therefore to identify weak links and device upgrading strategies to strengthen those links.
- The local stockists and distributors seem to be the weakest links in the emerging value chain. It therefore suggests that the other actors in the chain and support organisations should develop this weak link⁷.
- Farming household is the centre piece of information flows management. It is the farmer household that is central to information flows. Farming households are at pressure to cope with different information requirements. Input and output information flow is among many information needs and flows that the smallholder farmer is exposed to.
- In order to be effective in fertiliser value chain, understanding the real needs of information for all actors in the chain is the prerequisite for designing appropriate packages and dissemination mechanisms.
- At farmer level it has been recognised that what they need is a full package of information, tailored to their agricultural calendar and disseminated in a combination of training, extension and various media. Leaflets, fliers and brochures have been singled out as the best means to disseminate technical and long lasting information.
- Information flow can only be effective in the fertiliser value chain if the infrastructural related facilities are improved (Port handling, transport system, and joint strategy to interface roads, railways and ports).
- The thrust of information flow management in fertiliser value chain should be viewed as a three tier process as visualised below:



Right information should address the following challenges

- Data privacy – classification of information is necessary -won't or can't share
- Lack of data standards: Information should use legally accepted standards
- Outdated, redundant and incomplete data should be properly acknowledged
- Manual data entry should ensure that accuracy is cross checked
- Information equals power – access. Public utility information should have equal access.

Right time challenges

- Multiple steps, rules or levels of bureaucracy to make decisions may deter timing and relevance
- Paper-based environment – lack of ICT enterprise architecture slows information processing
- Detailed data analysis is a prerequisite not “gut feel”
- Knowledge of where to get the information is crucial.

Right decision challenges

- Not aware of the wealth and value of information available
- Limited time and resources to analyze information

⁷ Rockefeller/AGRA planned support to Tanzania is expected to address this issue and hence the need to linkage and coordination.

- Inadequate tools to support decision making
- Lessons learned not considered in making new decisions
- Decisions made based on the way it has always been done.

CHAPTER FOUR: DISTRICT INPUT NETWORK – INFORMATION MANAGEMENT

The districts in Tanzania are increasingly being recognized as the hubs for agricultural development agenda. In the ASDP districts would be expected to develop short and long-term agricultural development plans which would justify investments into the sector and a basis for collaboration between public and private sector actors.

During this study the necessity and value of district input networks for information management was often mentioned by farmers and stakeholders of fertilizer supply. Focused group discussions in Songea and Kilombero recommended significant private sector involvement, bolstered by close collaboration with the public sector. A system of interlinked forum could provide basic inventory and information at the local level, with linkages to district, regional and national and international levels.

In the design and analysis of the position of district input network a number of potential policy directions and other business principles are considered vital:

- The role of public extension in a liberalized, commercially-oriented sector needs to be clarified, and support given to enable extension workers to act more as unbiased facilitators of information from other sources.
- In order for farmers and others to have reliable access to good information from the private sector, the accountability and professionalism of input and service suppliers must be strengthened through the activities of professional and industry bodies. Advertising standards implementation should also be improved, both through enforcing existing legislation and through self-regulation.
- Ongoing activities to promote and strengthen farmer and stockists groups should continue, with increased emphasis on how they can improve members' access to information.
- Access for all actors to a sustainable and relevant information could be improved by effective partnerships (input networks) between existing public resources and private sector actors.
- The particular information needs of the predominant local stockists (small enterprises) and smallholder farmers need to be addressed in innovative ways, with the district input network taking a lead role.
- It is necessary to build on what exists in the districts in terms of information management, rather than reinventing the wheel. Fast Track Program (FTP) and other agricultural development initiatives have drawn different actors in the district and regional levels and this is a good base to start with. For instance in Manyara Region an initiative called Manyara Agricultural Initiative (MAI) has just been launched to bring together actors involved in market linkages facilitation. This would be a good platform to build upon when initiating a DAION.

It seems therefore, there is sufficient justification to establish a network as an information hub taking the fertilizer value chain as an entry point and agricultural sector development at large. Table 14 presents a proposal to that effect.

Table 14: District Agricultural Input and Output Network

The proposed name	District Agricultural Input and Output Network (DAION)
The aim	<i>To facilitate effective and relevant information flows related to agricultural input and output markets</i>
The specific objectives and tasks	<ul style="list-style-type: none"> • Aggregate information needs of farmers (analyse – quality, realistic information) and other chain actors at the district level. • Receiving and analyse information (input and output) from

	<p>regional and national level – and analyse it in the context of the district</p> <ul style="list-style-type: none"> • Sourcing, packaging and dissemination of information (to assist stakeholders to make right decision). • Provide a discussion forum of issues related to agricultural inputs e.g. fertiliser subsidy program • Act as a focal point for problem identification and solving • Become a resource pool for advice and assistance to public and private sector institutions and farmers. • Act as a district reference point for dissemination of agricultural research findings and other agricultural program evaluations
Mandate	<ul style="list-style-type: none"> • To be recognised platform by district and regional authorities with respect to national agricultural development agenda – e.g. DAION should be formally recognised in ASDP which could be a source of funding for some network activities. • The network will be essentially operate virtually and has to run in commercially-oriented manner. If there is a need for a specific budget e.g. to outsource specific expertise e.g. of a coordinator through members contribution. • DAION should be the custodian of knowledge management (KM) in agricultural input/output in the district. • DAION will have a working relationship with Regional Business Council and Agricultural Council of Tanzania (at national level).
Membership representation	<ul style="list-style-type: none"> • The District Council through the DALDO's Office should be the focal point for the public sector in the district. • Private sector actors in agribusiness i.e. distributors and buyers of agro-produce, stockists, etc. • Networks of farmers and traders e.g. farmers organizations, MVIWATA. • Business advocacy and lobbying organizations e.g. TCCIA, District Business Council, ACT local chapters (once activated) • Other Non State Actors (NSA) and civil society (NGOs, CBOs) active in agricultural development • Financial institutions (MFI, SACCOS, SACCAS, Banks) • Local public and private media organizations (e.g. Radio, TV, newspaper, etc)
Action plan	<ul style="list-style-type: none"> • DED's Office / TFP to take initiative of calling a first meeting • Nomination of a network Coordinator⁸ by the initial founding members. • Preparation of code of conduct and an action plan and budget (Facilitation by Fast Track Program may be necessary in a number of pilot districts and linkages with ASDP) • Inaugural workshop to profile the network in the district.

Figure 5 below sketches the interrelationships and linkages of the proposed DAION.

⁸ The core competency of the Network Coordinator (which could preferably be a private sector service provider -person or an organisation) should be among others that the coordination work fits the organisational mandate; they have an ICT capacity and track record, command respect for their contribution to agricultural development in the District.

Figure 5: District Agricultural Input and Output Network (DAION) - Generic

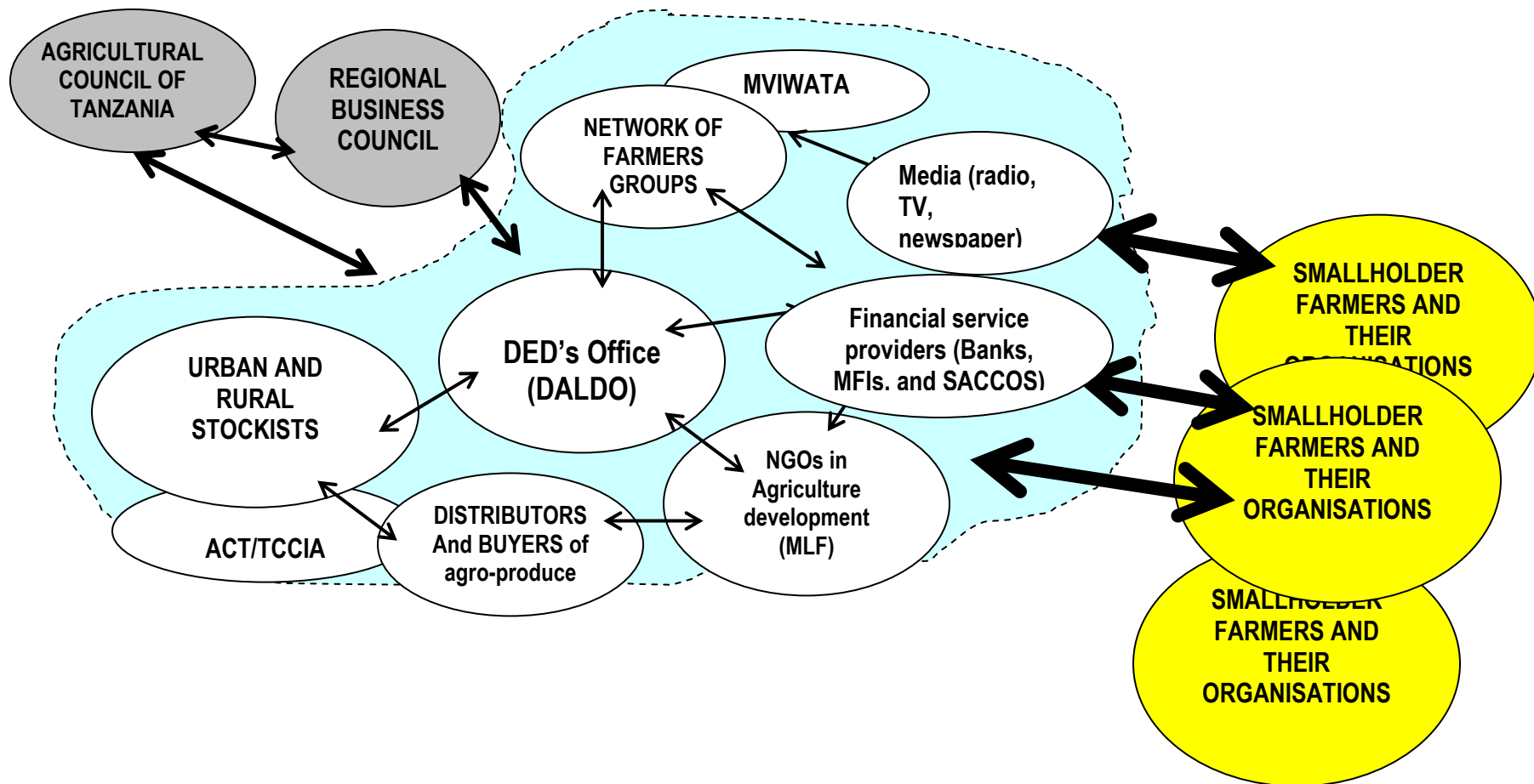


Figure 6: Proposed Songea District Agricultural Input and Output Network (SDAION)

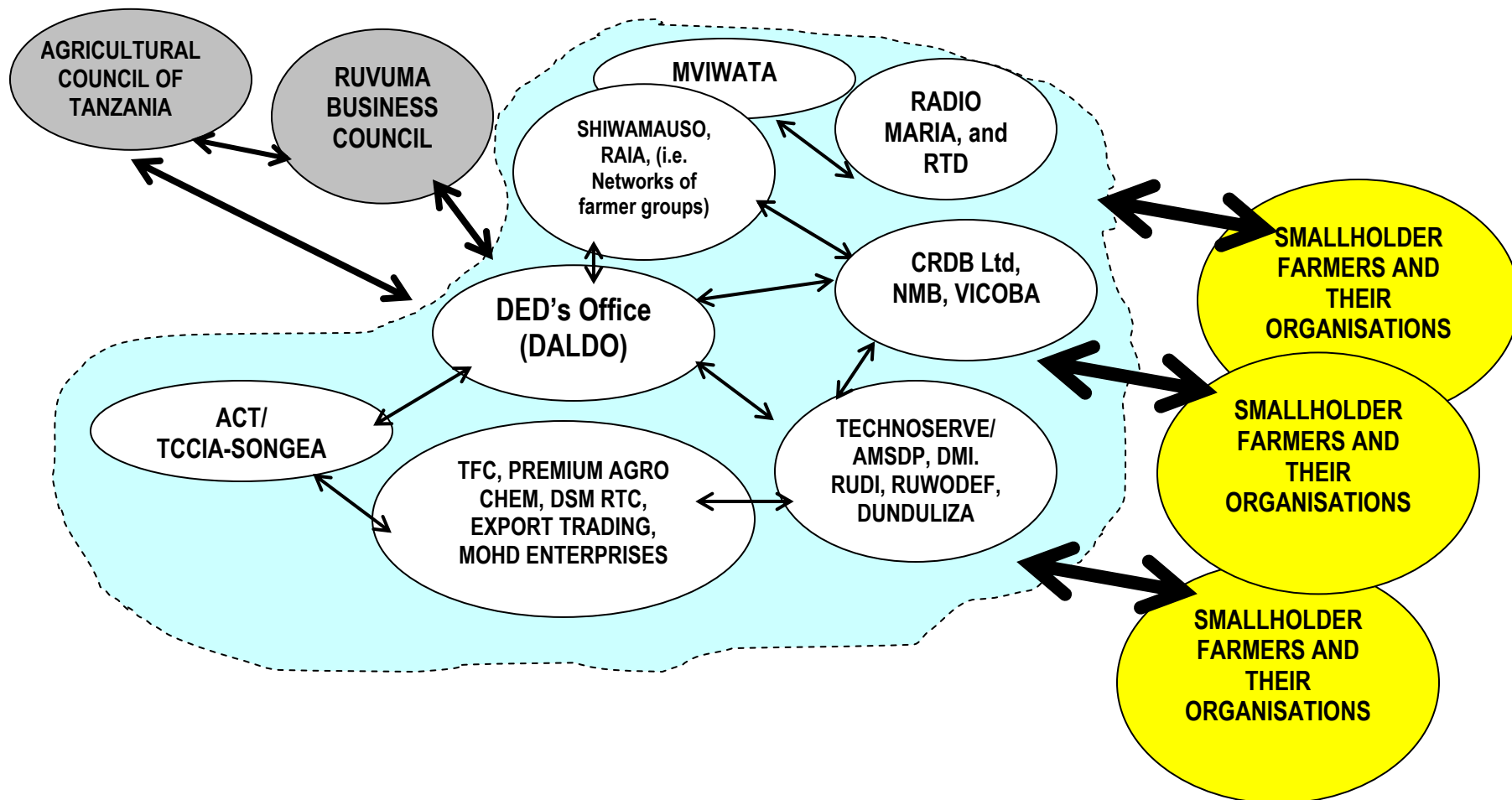
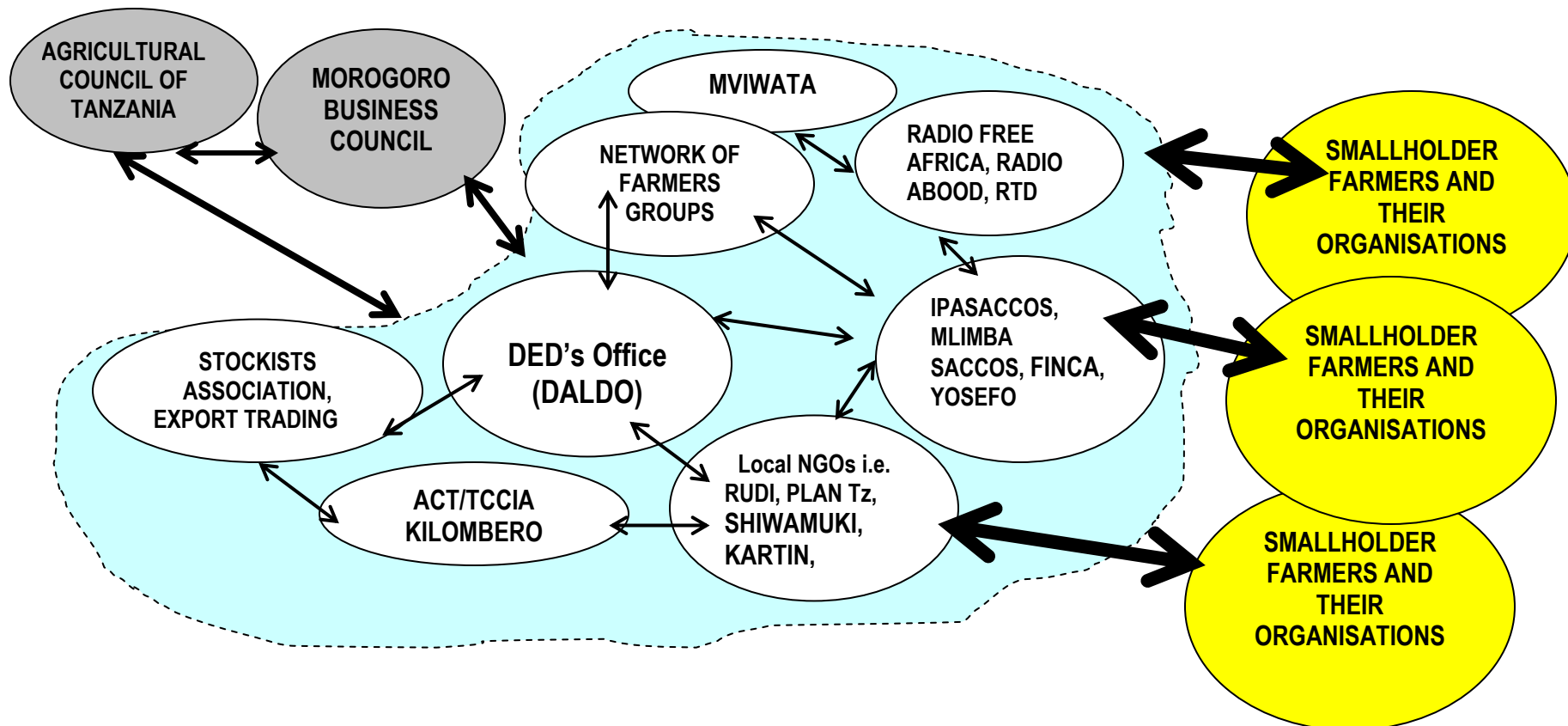


Figure 7: Proposed Kilombero District Agricultural Input and Output Network (KDAION)



CHAPTER FIVE: CONCLUSION AND THE WAY FORWARD

Implementation of the findings of this study rests essentially with the fertiliser value chain primary actors and the facilitators. One of the main facilitator who is there to stay is the District Councils linking upwards with relevant government authorities and the Agricultural Council of Tanzania representing stakeholders at the national level. The ASDP is the main framework around which agricultural transformation in Tanzania is expected to revolve. The Districts are the centres of action and a source of proposals for ASDP to finance. ASDP therefore is a great source to be counted upon in the future rolling out of TFP initiatives. The Tanzania Fertiliser Partnership is understood to have plans to roll over its activities under the umbrella of ACT. ***It has however to be underscored that the mandate and role of TFP is not to directly implement activities (doing), but rather to coordinate, facilitate and support and whenever needed develop models and knowledge for further dissemination. This is the context around which the proposals for the way forward and the role of TFP in this report should be construed.***

In order to facilitate a paradigm shift in the value chain information flow as highlighted in this report, it is anticipated that ACT as a coordinator of the roll over of TFP would have to play a pronounced facilitative role at least in the formative stages. Below are the main conclusions and proposed way forward in the information flow management and the roles of ACT.

- The Fertiliser value chain flow in Tanzania is based on a dual system (subsidised and commercial) all under the same primary actors. The subsidy system is taking an upper hand in some districts than others. The system of subsidy if not well managed and since it cannot meet the needs; it is detrimental to the long term sustainability of private sector initiatives.

Way forward: From information flow perspective, TFP should facilitate assessment of actual needs for inputs in order to ascertain the role that subsidy program is playing. Furthermore the information about subsidy program should be well packaged and disseminated to all actors in the value chain in order not to raise wrong expectations.

Proposed actors to be involved include: District Councils by accessing ASDP resources, TFP by supporting on technical know-how, Private Sector service providers / consultants.

- There is unreliable information flow about the actual needs for fertiliser and other agricultural inputs in the country. During the study it was established that the actual needs are much higher than what is currently made available through the subsidy program and private sources. It was estimated that the subsidy program is currently meeting only 30% of actual needs. This means there is a scope to increase fertiliser utilisation if a system of estimation is improved and communication along the chain is made smooth and effective.

Way forward: TFP should contribute to establishing a more accurate system for assessing production and input requirements in the country. Districts Councils have been assessing input needs but it was established that the exercise was rather adhoc for lack of adequate facilities like GPS, transport for acreage assessment and resources (human and financial). Whilst districts could take a lead in assessment, other actors like research institutions (e.g. students/ Lecturers from Sokoine University of Agriculture) should be facilitated to augment the districts' efforts. This information should become available timely and disseminated to the government and all actors in the value chain in order improve usage and productivity.

Proposed actors to be involved include: District Councils accessing ASDP funds, TFP for coordination and linkages with resource institutions, Agricultural University experts

- There seems to be an overemphasis at farmer level on information revolving around prices, market destination and sources of input supplies. There are several initiatives in Tanzania to offer what we may call price information services and to a limited extent market information services. The usefulness of this information flow to the farmers is minimal. The main reason is that the information is not sufficiently packaged to support farmers' business decision. On the other hand the mindset of most farmers to proactively demand critical business information before taking decision is not articulated.

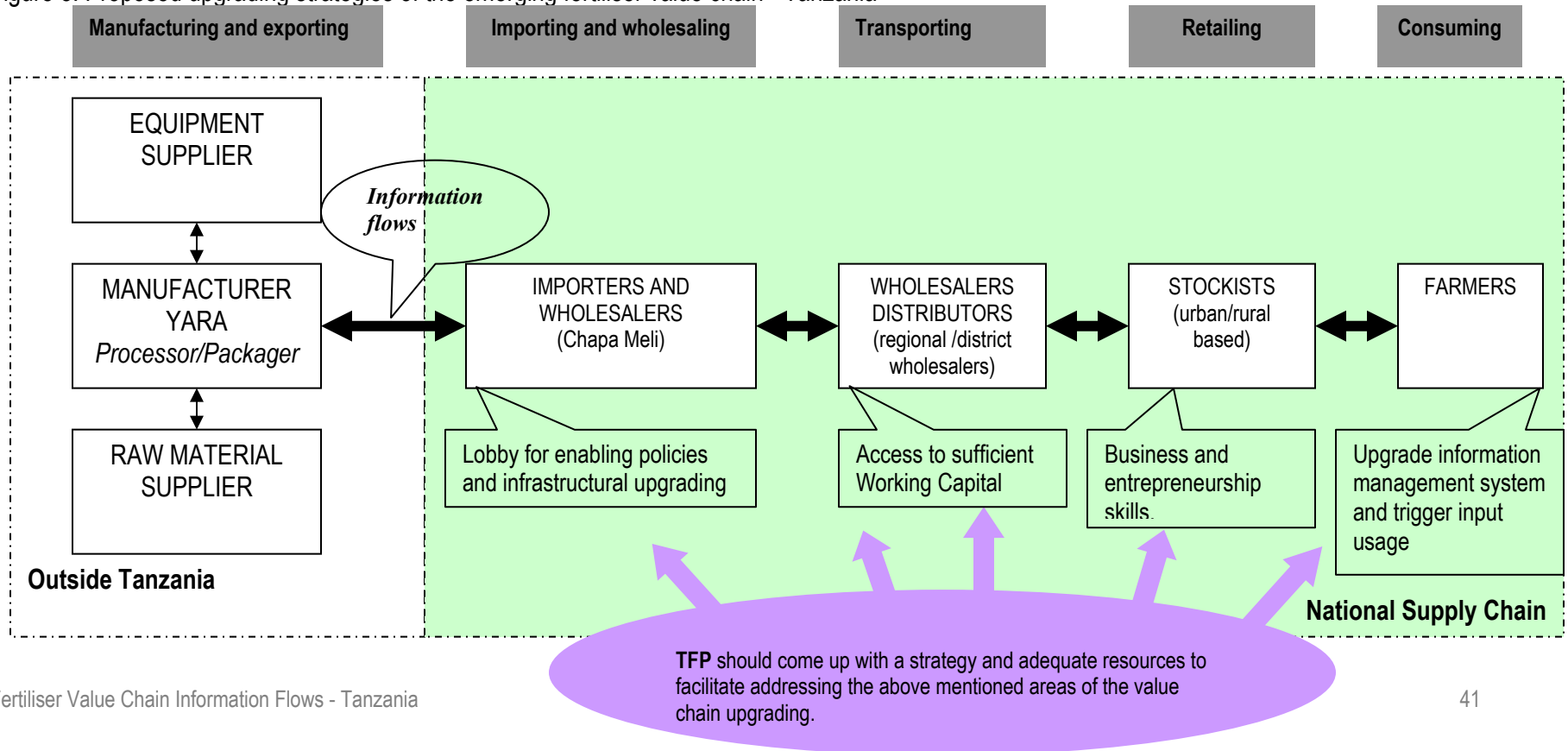
Way forward: TFP should package a training and capacity building program to farmers to underscore the role of information in farming as business. Value given to information in business decision at farm level is minimal. This attitude has to change and will need time of demonstration of the difference, by working with role models. ASDP in principle has resources at District level that could be used for this purpose. On the other hand at national level radio programs exist with RTD (Kilimo market information x 3 weekly, MVIWATA weekly program, Cell phone commodity information flow has also been initiated, Local radio's in Songea etc). All these media of information dissemination should be assessed with respect to its relevance in each district. Farmers and local extension officers (VAEO, and WAEO) should be trained to identify which information and from which sources is crucial along the agricultural calendar.

Proposed actors to be involved include: TFP for coordination and supporting scaling out of FT experiences, Districts Councils through ASDP funds, Media Institutions, Farmer's umbrella organisations, Private service providers.

- Value chain approach is not yet developed for input supply. TFP has made an interesting stride in the right direction, but more needs to be done. In this study an example of an emerging YARA driven supply channel has shown how a value chain that has long term win-win collaboration between actors could be developed. Part of the value chain development strategy is to support the distributorship (wholesalers) and retailers (stockists) which are the weakest links. Furthermore, farmers who are source of demand and recipient of fertiliser and other inputs should also receive special focus to be able to increase usage and generate accurate information about their needs.

Way forward: TFP should support the upgrading of the emerging YARA initiative depicted in figure 8 below **as a pilot fertiliser value chain**, whose lessons could be used to scale up in the country. It should be clear here that there are many other suppliers (more than 10) operating in Tanzania. What this recommendation means is to develop a business model for dealing with upgrading weak links for drawing lessons for out and up scaling with many others in future. YARA in collaboration with TFP (rolling out, and selected districts) should be responsible for soliciting funding, monitoring and evaluation for this pilot initiative.

Figure 8: Proposed upgrading strategies of the emerging fertiliser value chain - Tanzania



- For information flow to be effective in the this chain, four major foreseen upgrading strategies include:
 - *At farm level:* Accurate information should be captured as a basis for informing actors upstream the chain. What is also equally important is to device mechanisms (training, extension, voucher schemes etc) to trigger more usage as required by good agronomic practices. Only relevant information (see table 12) for decisions by farmers at this level should be filtered and disseminated preferably by the District Information network.
 - *At stockist's level:* These are SMEs whose immediate need is business and entrepreneurial training and support. With increased skill base these SMEs are able to be responsive to the demands of farmers. Experience shows that skilled stockists can manage to arrange financing from local MFIs and credit facilities from wholesalers.
 - *At wholesale level:* The immediate intervention at this level (weakest link) is to facilitate availability of appropriate working capital.
 - *At importing level:* At this level there is no serious information constraint. As long as information flow from downstream actors is improved, they are able to respond. What is holding them back (from efficient and effective supply of fertiliser in the country) is infrastructural constraints. Upgrading expected at this level has to deal with lobbying and advocacy for favourable policy support and infrastructural upgrading.
- Districts will be the hub for information flow management. Current arrangements for knowledge management and information dissemination at District level leaves a lot desired.

Way forward: TFP should take interest and support establishment of district based commercially-oriented input and output information management by building on existing situation as presented in chapter four.

Proposed actors: Whilst district councils have a crucial position in this network, the actual technical work should at best be outsourced to private sector service providers, who would act as coordinator and preferably be paid by stakeholder's contributions. ASDP should be approached to provide some funding, whilst other private and civil society led- programs operating in the sector in the Districts could include some funding in their programs. .

Annex 1: Checklist/ guide questions – fertiliser supply chain information flows

A: DED and District Office team

These questions will target Local Government Officials but other informed people (in NGOs and private sector) might propose the role of LGAs in facilitating effective information flows upstream and downstream.

1. What core information services do fertiliser stakeholders expect from LGA?
2. Do LGA have processes in place to provide those services?
3. How can LGA gain operational efficiencies in providing information services?
4. Do LGA know the sources of inefficiency—root causes?
5. What are the current costs of the process?
6. What are the benefits of improvement? Are they linked to strategic areas of concern (knowledge and access of inputs and markets to farmers/stockists)?
7. Do LGA have integrated action plans to address this process across departments?
8. Who is the target audience for this process? How do we include this audience in this decision?
9. Do LGA have the power to act on all aspects of this process?
10. How can LGA work with the private sector and civil society?
11. What are the risks if this process is not improved? (Risks of not doing.)
12. What are the risks of improving this process? (Risks of doing.)
13. How will LGAs know if and when they are successful (benchmarking, M&E)?
14. How will LGA fund this initiative? What innovative funding models are available?
15. Are there policies and programs that exist that prohibit certain collaborative approaches?
16. Do LGA possess the right skills, personnel, time and understanding to undertake a task of this scope?
17. What cultural issues must be managed to facilitate collaboration?
18. Do LGA have the management strength and system to facilitate adopting the desired scope?
19. What kinds of cross-functional skills do LGA employees have (or need) to support our desired scope?
20. Do LGA have effective communication and awareness programs that can incorporate the communication needs of our desired scope?
21. Do LGA have open technology systems that can support the level of information sharing required by your scope?
22. If a District Input Network is established – who should form the network in your district?
23. What activities should be conducted by this District Network?

B: Wards and village chairpersons/ Farmers' organisations representatives and farmers

- What information do you need in regard to fertiliser, seeds and other inputs?
- How do you normally get this information?
- Is the information flow efficient? If not what do you want to be improved? Who should give such information?
- When is the right time to get which information?
- How detailed do you want the information to be?
- Are you ready to pay for particular information? If yes which information?
- How do you use this information?
- What activities should be conducted by this District Network?

C: Fertiliser (inputs) stockists and distributors

- What information do you need in regard to fertiliser, seeds and other inputs?
- How do you normally get this information?
- Is the information flow efficient? If not what do you want to be improved? Who should give such information?
- When is the right time to get which information?
- How detailed do you want the information to be?
- Are you ready to pay for particular information? If yes which information?
- Which information do you give to farmers (customers)?
- When do you give such information and why?
- If a District Input Network is established – who should form the network in your district?
- What activities should be conducted by this District Network?

D: Banks/FIs

- What information do you need in regard to fertiliser, seeds and other inputs in order to be able to lend to farmers and or stockists?
- How do you normally get this information?
- Is the information flow efficient? If not what do you want to be improved? Who should give such information?
- When is the right time to get which information?
- How detailed do you want the information to be?
- Are you ready to pay for particular information? If yes which information?
- How do you use this information?
- If a District Input Network is established – who should form the network in your district?
- What activities should be conducted by this District Network?
- (ask questions in regard to LGAs, farmers and stockists as listed B, C and D above)

E: NGOs (development agencies, local and international NGOs)

These questions will target NGOs Officials but other informed people (in Local Government and private sector) might propose the role of civil society in facilitating effective information flows upstream and downstream.

- What information do you need in regard to fertiliser, seeds and other inputs in order to support stockists and or farmers?
- How do you normally get this information?
- Is the information flow efficient? If not what do you want to be improved? Who should give such information?
- When is the right time to get which information?
- How detailed do you want the information to be?
- How do you use this information?
- Are you ready to pay for particular information? If yes which information? If not, who should pay for such information?
- If a District Input Network is established – who should form the network in your district?
- What activities should be conducted by this District Network?
- (ask questions in regard to LGAs, farmers and stockists as listed B, C and D above)

F: ACT – FTP Consultants: Output Marketing Support – Component 2

- What information do farmers need in regard to output prices and markets?
- How do they normally get this information?
- Is the information flow efficient? If not what have you suggested to be improved? Who should give such information?
- When is the right time to get which information?
- How detailed do you want the information to be? What is the best media of transmission (radio, TV, newspapers, etc)?
- How do farmers use this information?
- Are they ready to pay for particular information? If yes which information? If not, who should pay for such information?
- If a District Input Network is established – who should form the network and why?
- What activities should be conducted by this District Network?

G: ACT – FTP Consultants: Dockside Handling Improvements – Component 5

- How is the upstream chain actors organised in the fertiliser supply chain until transporters pick up from the Port?
- What is key information required by each actor?
- What are prevalent information bottlenecks? How can these bottlenecks addressed in future?
- What is the role of government (Port Authority, Customs TRA, etc) and private sector (Clearance Agencies, Transporters, Wholesalers, etc) in facilitating efficient information flows along the upstream supply chain?
- What information will transporters need to make their duty efficient?
- How do they get such information now? How can this improve in future to improve efficiency?

H: ACT – FTP Consultants: CNFA – Stockist Capacity building and improve fertiliser subsidy management system

- What information do you suggest to be vital for stockists in fertiliser supply chain?
- When such information should be obtained?
- In your opinion, who should give that information and how?
- How will stockists use this information?
- Do you think stockist will be ready to pay for such information? If yes which information? If not, who should pay for such information?
- If a District Input Network is established – who should form the network and why?
- What activities should be conducted by this District Network?

Annex 2: ACT TFP - Schedule of activities – 19th March to 5th April 2007

Date	Time	Interview with	Contact
Tuesday 20 th March	11:00 am	Mr. Tony Hughes Marine Logistics <i>(Component 5: Dockside Handling Improvements)</i>	+255 755 955 955 Ada Estates, Dr. Andrews Plot 252 Manara Road
	4:00 pm	Mr. Jeffrey Lewis <i>TFP Lead Consultant</i> Korongo	+255 753 321 914
Thursday 22 nd March	02:00 pm	Dr. Hamisi Saadan MAFC – TFP Contact	+255 754 916 087 Kilimo II Building Room No. 3
		Mr. Philemon Kawamala MAFC Input Unit	+255 22 286 5369 Kilimo II Room No. 2
Wednesday 4 th April	03:00 pm	Mr. Simon Girdlestone Chapa Meli /Yara	+255 787 555 100
Thursday 5 th April	09:00 am	Mr. Hebron Mwakalinga	
Description – March 25th – 31st 2007			
Sunday 25 th	06:00 am	Travel to Songea	Mr. Thomas Ngapomba
Monday 26 th and Tuesday 27 th	2 days	Interviews in Songea	+255 784 629 796 +255 25 260 0877
Wednesday 28 th	07:00 am	Travel to Kilombero	Mr. Seuta Lukulunge
Thursday 29 th and Friday 30 th	2 days	Interviews in Kilombero	+255 784 402 325
Saturday 31 st	07:00 am	Travel to Dar es Salaam	

Annex 3: Detailed District Programmes

Date	Time	Activity	Responsible
Sunday 25th March 2007	06:00	Travel from Dar es Salaam to Songea	MMA Consultants, Driver
Monday 26th March 2007	08:30 – 09:00	Briefing with FT District Coordinator	Thomas Ngapomba
	09:00 – 10:30	Meeting with DC/DED/DALDO	MMA Consultants Thomas Ngapomba
	10:30 – 11:00	Break	
	11:00 – 12:30	Meeting with reps from Banks, SACCOS, MFIs, NGOs and Private Sector	MMA Consultants Thomas Ngapomba, DALDO
	12:30 – 14:00	Lunch Break	
	14:00 – 16:00	Meeting with farmer groups (2 groups)	MMA Consultants Thomas Ngapomba
	16:00 – 18:00	Synthesis	MMA Consultants
Tuesday 27th March 2007	08:30 – 09:00	Briefing with FT District Coordinator	Thomas Ngapomba
	09:00 – 11:00	Focused Group Discussion (FGD) on formation of District Input Network – TFC, Premium AgroChem Limited, Stockist (Mr. Mubarak Ibrahim)	MMA Consultants Thomas Ngapomba, DALDO
	11:00 – 12:30	Synthesis	MMA Consultants Thomas Ngapomba, DALDO
	12:30 – 14:00	Lunch Break	
	14:00 – 16:00	Synthesis with DED	MMA Consultants Thomas Ngapomba, DALDO
Wednesday 28th March 2007	06:00 am	Travel from Songea to Kilombero	MMA Consultants, Driver
Thursday 29th March 2007	08:30 – 09:00	Briefing with FT District Coordinator	Seuta Lukulunge
	09:00 – 10:30	Meeting with DALDO and Districts Statistician	MMA Consultants Seuta Lukulunge
	10:30 – 11:00	Break	
	11:00 – 12:30	Meeting with reps from Banks, SACCOS, MFIs, NGOs and Private Sector (FGD)	MMA Consultants Seuta Lukulunge
	12:30 – 14:00	Lunch Break	
	14:00 – 16:00	Meeting with DALDO and Districts Statistician	MMA Consultants
Friday 30th March 2007	16:00 – 18:00	Synthesis	MMA Consultants
	08:30 – 09:00	Briefing with FT District Coordinator	Seuta Lukulunge
	09:00 – 11:00	Focused Group Discussion (FGD) on formation of District Input Network – TCCIA, Plan Tanzania	MMA Consultants Seuta Lukulunge
	11:00 – 12:30	Synthesis	MMA Consultants Seuta Lukulunge
	12:30 – 14:00	Lunch Break	
Saturday 31st March 2007	14:00 – 16:00	Focused Group Discussion (FGD) on formation of District Input Network – Vijana Farmers Group	MMA Consultants Seuta Lukulunge,
	06:00 am	Travel from Kilombero to Dar es Salaam	MMA Consultants, Driver

Annex 4: List of Interviewees and participants of Focussed Group Discussions (FGDs)
Annex 4a: Participants of FGD – Songea District Council 26th March 2007.

S/No	Name	Designation	Contacts
1.	Gloria Sam	Changanyikeni SACCOS	+255 757 166 260
2.	Gilbert Simba	Rosterus Investments	+255 754 646 583
3.	Mays Mkwembe	SHIWAMAUSO	+255 754 626 052
4.	John G. Oisso	TFC	+255 754 619 590
5.	Emmanuel Jagga-Di	TechnoServe/AMSDP	+255 755 759 892
6.	Genfrida Haule	ARUWOSAC	+255 754 918 665
7.	Juma Nyumayo	VICOBA	+255 755 448 177
8.	Fidelis Lubinza	DUNDULIZA	+255 754 397 370
9.	Cosmas Ngimba	CRDB	+255 754 644 575
10.	F. Thomas Ngapomba	Tanzania Fertiliser Partnership	+255 784 629 796

Annex 4b: Participants of Farmers Meeting – Lilambo A Village Songea 26th March 2007.

S/No	Name	Designation
1.	M.M. Shirazi	Village Agricultural and Livestock Officer
2.	John P. Ndelule	Secretary – KIULU
3.	Michael Z. Mgwilanga	Chairperson - KIULU
4.	Adam Fussy	Village Chairperson – Lilambo A
5.	Hilary S. Mbunda	Farmer (maize) – group member KIULU
6.	Butiam O. Mzila	Farmer (maize) – group member KIULU
7.	Lucia Luoga	Farmer (maize) – group member KIULU
8.	Adelhelma Mwingira	Farmer (maize) – group member KIULU
9.	Luciana Duwe	Farmer (maize) – group member KIULU
10.	Imelda Mpangala	Farmer (maize) – group member KIULU
11.	Andrew Kihwili	Farmer (maize) – group member KIULU
12.	Illuminata Zenda	Farmer (maize) – group member KIULU

Annex 4c: Participants of Farmers Meeting – Peramiho Village Songea 26th March 2007.

S/No	Name	Designation
1.	Lulu Hassan	Farmer (maize)
2.	Domitila Luambani	Farmer (maize)
3.	Peter Ngonyani	Farmer (maize)
4.	Julius Duwe	Farmer (maize)
5.	Joseph Mapunda	Farmer (maize) - Ward Extension Officer
6.	Esther Jimmy	Farmer (maize)
7.	Koroala Milinga	Farmer (maize)
8.	Unidentified	Farmer (maize)
9.	Unidentified	Farmer (maize) – village stockist
10.	Unidentified	Farmer (maize)
11.	Unidentified	Farmer (maize)

Annex 4d: Participants of FGD – Kilombero District Council 29th March 2007.

S/No	Name	Designation	Contacts
1.	John Bosco Mvunjapole	Stockist - Ifakara	+255 784 226 208
2.	Ramadhani Kiombile	Stockist - Ifakara	+255 787 630 454
3.	Sudi Ramadhani Mindu	Stockist - Ifakara	+255 755 501 541
4.	Abrahamani Kapilima	Stockist - Ifakara	+255 753 445 634
5.	Isidori Bandisa	Farmer (paddy) - Lumemo	-
6.	Germanus Msonti	Stockist - Ifakara	+255 784 784 486
7.	Geofrey O. Gamuya	Farmer (paddy) – Michenga	+255 756 667 952
8.	Shabaan Waziri Mtimbi	Stockist – Ifakara – Vijana Mbasa	-
9.	Salum Bohari	Stockist - Ifakara	+255 754 754 463
10.	Hiyari Mwinyimvua	Stockist - Ifakara	+255 752 564 349
11.	Beatus Ligogoderi	Stockist - Ifakara	+255 784 456 956
12.	Caroline Chelele	Farmer (paddy) – Kikwawila	-
13.	Christina Magari	Farmer (paddy) – Mbasa	-
14.	Zaina Lukwaro	Farmer (paddy) – Mbasa	+255 755 831 296
15.	Salma Shungu	Farmer (paddy) – Mbasa	-
16.	Amiri B. Chuma	Stockist – Mang’ula	+255 787 833 763

Annex 4e: Participants of Farmers Meeting – Vijana Farmers Group Ifakara 30th March 2007

S/No	Name	Designation
1.	Ramadhani Mayawa	Farmer (paddy)
2.	Salum Kanungila	Farmer (paddy)
3.	Shaaban Mtimbi	Farmer (paddy)
4.	Edna Likoko	Farmer (paddy)
5.	Mustapha Kanungila	Farmer (paddy)
6.	Sadiq Ujuma	Farmer (paddy)

Annex 4f: Other face to face meeting conducted during field visits

S/No	Name	Designation	Meeting date
1.	Mr. K.A. S. Maswaga	DALDO – Songea District Council	26 th March 2007
2.	Mr. Mussa	Depot Manager – Export Trading Songea	27 th March 2007
3.	Mr. Shiu	Ag. DALDO - Kilombero District Council	29 th March 2007
4.	Mr. Stanford Masige	Chairperson – IPASACCOS - Ifakara	29 th March 2007
5.	Mr. Samson Ngwila	Chairman – TCCIA Ifakara	30 th March 2007
6.	Mr. Silvester Kasunga	Treasurer – TCCIA Ifakara	