

SOKOINE UNIVERSITY OF AGRICULTURE

ATTRACTION AND EMPOWERMENT OF
TANZANIANS TO AGRICULTURE

Presented to

MINISTRY OF AGRICULTURE AND FOOD SECURITY
STAKEHOLDERS MEETING

DODOMA, 23 – 24 March 2001

1.0 Introduction

Tanzanian agriculture is mainly characterized by peasant form of production. Large scale agriculture is minimal. Processing is less modernized and the sector faces an inadequately provisioned and responsive institutional environment. Other factors influencing Tanzanian agriculture include a low technology base in production, processing and distribution, dependence on rainfall and poor infrastructure and services. No wonder the agriculture sector is underdeveloped. Given that the sector is also the major economic sector it is no wonder then that the overall economy is also underdeveloped.

This state of affairs is a concern to all Tanzanians. It is also a concern to the rest of humanity in that the existence of large pockets of poverty in the world and within a country is a cause for instability in world relations, a threat to peace and socio-political stability. This situation has albeit received attention in various dimensions and will continue to do so. To repeat experiences in agricultural development interventions in Tanzania and the third world in general to policy makers and practitioners like you would be a repetition of what is known and is therefore probably unnecessary. The objective of this paper to propose a way of thinking necessary for us to attain the prosperity we yearn for. It purports to provide a conceptual framework which among other things presupposes the changing of mind sets. This is the thesis of this paper.

1.1 The boundaries of wealth and poverty: A hypothesis

It is difficult to test the idea that the rationality of individuals in societies makes them achieve their productive potential? To ask this question can even raise 'political' tensions. Even though this question seems empirically intractable there may be one scenario that can provide us with evidence - **the borders of countries**. National borders delineate areas of different economic policies and institutions, and so - to the extent that variations in performance across countries cannot be explained by the differences in their endowments - they tell us something about the extent to which societies have attained their potentials.

At the highest level of aggregation, there are only two possible types of explanations of the great differences in per capita income across countries.

The **first possibility** is that, national borders mark differences in the scarcity of productive resources per capita: a poor country is poor because of short of resources. The scarce resource can be land and natural resources, human capital, equipment that embodies the latest technology or other types of resources (e.g. social capital, financial capital).

The **second possibility** is the fact that national boundaries mark the borders of public policies and institutions, that are not only different, but in some cases better and in other cases worse. Those countries with the best policies and institutions achieve most of their potential, while other countries achieve only a tiny fraction of their potential income. The individuals and firms in these societies may display rationality, and often even great ingenuity and perseverance, in eking out a living in extra-ordinarily difficult conditions, but this individual achievement does not generate anything remotely resembling a socially efficient outcome. There are hundreds of billions or even trillions of dollars that could be - but are not - earned each year from the natural and human resources of these countries. On this theory the poorer countries do not have a structure of

incentives that brings forth the productive cooperation that would lead to high incomes, and that the reason they don't have it is that such structures do not emerge automatically as a consequence of individual rationality. The structure of incentives depends not only on what economic policies are chosen in each period but also on the long run or institutional arrangements: on the legal systems that enforce contracts and protect property rights and on political structures, constitutional provisions, and the extent of special-interest lobbies and cartels.

1.1.1 The Overwhelming Importance of Institutions and Economic Policies

If what has been said so far is correct, then the large differences in per capita income across countries cannot be explained by differences in access to the world's stock of productive knowledge or to its capital markets, by differences in the ratio of population to land or natural resources, or by differences in the quality of marketable human capital or personal culture. Albeit at a high level of aggregation, this eliminates each of the factors of production as possible explanations of most of the international differences in per capita income. The only remaining plausible explanation is that the great differences in the wealth of nations are mainly due to differences in the quality of their institutions and economic policies.

The evidence from the national borders that delineate different institutions and economic policies not only contradicts the view that societies produce as much as their resource endowments permit, but also directly suggests that a country's institutions and economic policies are decisive for its economic performance. The very fact that the differences in per capita incomes across countries – the units with the different policies and institutions – are so large in relation to the differences in incomes across regions of the same country supports this argument. So does the fact that national borders sometimes sharply divide areas of quite different per capita incomes.

1.1.2 A Look at Some Facts

- ◆ The fastest growth countries are never the countries with the highest per capita incomes but always a subset of the lower income countries.
- ◆ At the same time low income countries as a whole fail to grow any faster than high income countries, a subset of the lower income countries grows far faster than any high income country does.

The implications offered here suggest that poor countries on average have poorer economic policies and institutions than rich countries and therefore, in spite of their opportunity for rapid catch-up growth, they need not grow faster on average than the rich countries. But any poorer countries that adopt relatively good economic policies and institutions enjoy rapid catch-up growth: since they are far short of their potential, their per capita incomes can increase not only because of the technological and other advances that simultaneously bring growth to the richest countries, but also by narrowing the huge gap between their actual and potential income. Countries with the highest per capita incomes do not have the same opportunity.

Thus the argument here leads us to expect what is actually observed: no necessary connection between low per capita income and more rapid rates of growth, but much the highest rates of growth in a subset of low income countries – the ones that adopt better economic policies and institutions. During the 1970s, the four countries that (apart from the oil-exporting countries) had the fastest rates of growth grew on average 6.9 percentage points faster than the United

States – more than 5 times as fast. In the 1980s the four fastest growers grew 5.3 percentage points faster than the U.S. – four times as fast. They outgrew the highest income countries as a class by similarly large multiples. All four of the fastest growing countries in each decade were low income countries.

Note also that, as the gap in per capita incomes between the relatively poor and relatively rich countries has increased over time, poor countries have also fallen further behind their potential. Therefore, the argument offered here predicts that the maximum rate of growth that is possible for a poor country – and the rate at which it can gain on the highest per capita income countries – is increasing over time. This is also what has been observed.

Economic growth theories do not lead us to expect either the observed overall relationship between the levels and rates of growth of per capita incomes or the way this relationship has changed as the absolute gap in per capita incomes has increased over time. The present theory, by contrast, suggests that there should be patterns like those we observe.

The best thing a society can do to increase its prosperity is to wise up. This means, in turn, that it is very important indeed that economists, inside government and out, get things right. When we are wrong, we do a lot of harm. When we are right – and have the clarity needed to prevail against the special interests and the quacks – we make an extraordinary contribution to the amelioration of poverty and the progress of humanity. The sums lost because the poor countries obtain only a fraction of – and because even the richest countries do not reach – their economic potentials are measured in the trillions of dollars.

None of the familiar ideologies is sufficient to provide the needed wisdom. The familiar assumption that the quality of a nation's economic institutions and policies is given by the smallness, or the largeness, of its public sector – or by the size of its transfers to low-income people – does not fit the facts very well.

But the hypothesis that economic performance is determined mostly by the **structure of incentives** – and that it is mainly national borders that mark the boundaries of different structures of incentives – has far more evidence in its favor.

2.0 Challenges in Tanzanian agriculture

Tanzania is a country endowed with a lot of arable land, lakes, rivers, swamps, forests, minerals, and the sea. There are variable climatic zones with altitudes of 0-2000 meters above sea level. This range in altitude provides both tropical as well as temperate climate, enabling the production of both tropical and temperate crops.

This endowment is not being put to good use: most producers are inefficient peasant producers, using very poor technology with a very high or absolute dependency on rainfall. This scenario finds itself in a country where **economic infrastructure and services** are weak, and most of all the **structure of incentives** is not conducive to overall economic growth.

2.1 The potential for Tanzanian agriculture

Agricultural products are composed of different species, varieties, breeds of plants and animals. In agribusiness it is required that you know two aspects for the agricultural product in question. Identification of soil, agronomic, husbandry requirements and conditions necessary for the production of quality products, post harvest handling skills and requirements on the one hand, and final marketability on the other.

2.1.1 Specificity of products

In Tanzanian agriculture peasant farmers simply grow or produce a product with less informed technical considerations and little regard or superficial analysis of the marketability of the product or the potential price and overall revenues to be realized. Commercial principles are generally lacking. In the global economy however agricultural products are generally traded by their quality standards and varieties. The market place offers a wide range of opportunities within a product (Table 1). Even with the so-called Tanzanian traditional crops, there is usually more than one tradeable product for the same crop.

2.1.2 Product diversification

Appendix 1 provides a selection of the wide range of products that could be produced in Tanzania. This provides further evidence on the potential available at local and international levels.

Table 1: Selected agricultural product varieties

Product	Variety
Coffee	Arabica, Robusta, Clonal
Banana	Apple banana, matoke, red banana, rice banana, plantain
Passion fruit	Purple, Maracuya (Yellow), Granadilla
Aubergines (Egg plant)	Long purple, Baby Aubergine, Black beauty
Tomatoes	Roma, Marglobe
Oranges	Navel, Valencia late, Hamlin, Oval, Baladi, Shamouti, Salustiana, Delta seedless, midnight seedless, Proteus, seville, tomango, blood, cadenera late, sanguine, seville bitter, Washington navel
Melons	Cantaloupe, Cantaline, galia, Honeydew, Piel de Sapo, water, yellow tendral, Anana, Charentals, Ogen, Viabana, Rock Tiger, Super sprint
Okra	Pusa sawani clemson spineless and round yellow
Karella	Short Karella, Long Karella
Mushrooms	Horn of plenty, Blewitt, chanterrelles, gorlles, grisette, Judas ear, Morells, Mousserous, Pieds bleu, Pieds de Morton, Shii-take, Oyster, Hiratake, nareko (Japan)
Mangoes	Kensington pride, Haden, Tommy Atkins, Van Djik, Irwin, Kent, Zill, Alphonso, Mora, Sensation, Amelie, beverly, smith, Valencia, St. Julian, Apple mango, Boribo, Ngowe, Muyuni, Ataulfo, osten, palmer, carabau, Heidi, Ruby, Totapuri (Sudan)

Source: The Agricultural Economics Society of Tanzania. *Entrepreneurship in Tanzanian Agriculture*. Proceedings of the 4th AGREST Scientific Conference, August/September, 2000.

2.2 Risks and threats in Tanzanian agriculture:

The above presentation of potential prompts a rosy picture for the opportunities available for Tanzanian agriculture. There are however very conspicuous threats and constraints which have restrained Tanzania from developing and realizing her potential.

- ◆ Many risks are associated with the biological nature of agricultural products. Agriculture products are always subjected to pre and post harvest pest attacks. This is even worse for the fresh produce industry as compared to the dried products industry.
- ◆ Market intelligence, the tool used by all successful businesses, is very weak in Tanzania. Peasant farmers are the most vulnerable as their level of human and social capital is basically

low. At the international level the mode and terms of payment for most of the traded products is mostly COD (cash on delivery) or Consignment Basis. Other products are sold on Confirmed and Irrevocable Letters of Credit (the safest way to guarantee payments to the exporter). In practice the exporter uses marketing intermediaries such as Agents or Brokers who will charge a commission of 5 - 10% of the CIF price. Only after establishing reliable buyers can FOB terms be negotiated. In the case of fresh produce airlines like to guarantee the payment of freight before the goods leave the port of shipment. Dried products major criteria for product marketability is the moisture content at the correct Relative Humidity.

- ◆ Improved production methods under different conditions is still anathema. The hoe is the primary and main tool of production.
- ◆ The major source of moisture is rainfall. This applies to both high rainfall areas and semi-arid areas of the country. There are no efforts to realize the potential of the green belt, most producers are tied to a never evolving farming system with only "one" cash crop and/or a food crop for the rest of the rain season. Everybody seems satisfied with the state of affairs with only occasional misguided laments about prices and market opportunities. In the semi-arid areas rain water comes and goes within a very short period of time. Most of this water goes away as runoff and therefore not available for use. The Bubu river catchment in Dodoma is a case in point. Bubu is a seasonal river which drains into the Bahi swamp. It overflows with water and floods fields on its way to the Bahi swamp. Is it impossible to store, pump, pipe and distribute this golden liquid for the benefit of people in this area? Therefore even the semi arid areas of Tanzania have potential. Dodoma for example, is the only place in the world where you can get four harvests of grapes per annum and yet the wine industry has been left to die off being particularly suffocated by high taxation for wine processing.
- ◆ The prevalence of subsistence farming where peasants have to diversify production to produce a bit of everything, leads to low productivity. Consequently farmers fail to mobilize capital resources needed for improvement of productivity. We are therefore left with a self perpetuating subsistence farming system.
- ◆ Poor institutional framework and lack of efficient public infrastructure and services.

3.0 The Way Forward:

3.1 Attraction and empowerment of commercial investors and role of the subsistence sector

Commercialization

Since independence a number of agricultural professionals have been trained and more are being trained. Most of these agriculturalists have been absorbed by the public sector or parastatal sector. A very insignificant number of these graduates have been turned into direct producers such farmers, processors and marketers. Because of this situation the quality of human capital in agriculture has remained low (as mentioned earlier largely composed of small scale peasant farmers). In the developed world agriculture production, processing and marketing is operated by a highly trained managerial cadre. This implies that a well trained managerial cadre in agricultural production, processing and marketing is one of the important factors that led to the level of development we see today in countries in North America, Europe, Japan and Australia.

For these countries this situation did not arise by chance. There were a number of deliberate interventions made by governments in those countries.

An intervention coming to mind at once is the Land Grant College System in the USA. This system made it possible to have most farmers running family farms to be graduates. There are a number of developing countries today that are making deliberate efforts to attract young people with agriculture professional training at various levels to invest in agriculture production. Examples can be cited in Egypt (graduate farmer program), India, Jamaica and Costa Rica. It is thought that Tanzania could emulate these developing countries.

Investment in modern agriculture by highly qualified entrepreneurs requires large capital outlays. The agriculture sector has failed to attract educated manpower due to this reason and other constraints related to the structure of incentives. Lack of formal finance is paramount in this regard. Furthermore, most citizens in the country do not have the necessary collateral to justify borrowing from financial institutions. In addition there has to be an enabling environment to attract professionals in agriculture. Training in business skills is also a pre-requisite and agricultural training institutions may be required to take the lead in this aspect.

The subsistence sector

Being the largest sector in agriculture entails interventions to address its problems. Support to this group should be in terms of the introduction of appropriate technologies that have been proven viable at peasant household level. Farmer groups and associations are still the most viable way for them to compete effectively in the market and to provide services such as input delivery and storage facilities for themselves.

Empowerment:

- ◆ Sokoine University of Agriculture is well placed to take up the lead in this area through the Department of Agricultural Economics and Agribusiness. SUA be supported to strengthen the Agribusiness program primarily geared to offer post qualification experiences
 - ◆ Short course training in agribusiness and business plan development
 - ◆ Operation of a business incubator (business clinic) program
 - ◆ Monitoring and evaluation of business performance.
 - ◆ Support development of agri-business management training at post-graduate level. This degree will be called MBA (Agribusiness). Such graduates will be absorbed by other training and capacity building institutions that are expected to be formed from this empowerment initiative.
- ◆ Promotion of an organized farm lobby that can represent smallholder interests

3.2 Getting the most out of our natural resource base

On the basis of agricultural potential, it is estimated that more than 50% of the land in Tanzania is semi arid or arid (LRDC, 1987). The semi aridity is caused by low amounts of rainfall, high evapo-transpiration rates and erratic temporal and spatial distribution of rainfall. Although semi-arid areas are more vulnerable than the high rainfall areas intervention to improve the efficient utilization of the Natural Resource base is required in both areas for different reasons. However, irrigation and rainwater harvesting interventions are more needed in the semi-arid parts.

Policy focus and implementation was directed to large and medium scale irrigation and land and soil and water conservation projects. To date the major observation with respect to these projects is their un-sustainability. Over time most of these projects ended up being closed at the end of the project cycle. This applies equally to donor funded and locally financed government projects. Since Independence the list of such projects which failed is overwhelming. The rural area of Tanzania abounds with remnants of infrastructure and machinery which used to or belongs to such projects.

It is questionable whether the huge investments that have gone into natural resource conservation and development projects with the banner of helping poor farmers can be said to have brought any tangible benefits. More seriously is the extent to which such projects had any congruence with the economic interest of poor farmers.

Empowerment

- ◆ To realize the benefits of large scale public investment in natural resource exploitation, efforts should be directed to viable entrepreneurs and interest groups.
- ◆ The viability concept can be extended to smallholder farmers through organized farm groups dealing with marketing and input supply.

3.3 Post harvest handling of agricultural products

Processing and storage respond to market forces. These activities are expensive to undertake and therefore the investor must weigh the costs and benefits as a first step. However certain constraints to processing lie in the public domain: lack of information, knowledge and skills of investors. If the public sector can guarantee these incentives the private investor is likely to be attracted.

Empowerment for post harvest handling of produce

- ◆ Sokoine University of Agriculture through the departments of Food Science and Technology, Agricultural Engineering and Land Planning and Animal Science be strengthened to take up the role of empowerment. Such departments should be the sources of methods, improvements and adaptations of processing and preservation technologies.
- ◆ Public control of standards for participation in the international market. Quality standards, grades and other requirements are usually specified and it is the duty of government to safeguard the reputation of products from Tanzania. In this regard it is the role of the government to address quality and standards issues in the whole production-processing-marketing continuum.
- ◆ Promotion of indigenous technical knowledge and appropriate technologies at the farm level.

3.4 Support Policies

The role of government in the new vision is to safeguard the structure of incentives in agriculture. This should be the philosophy behind government participation in the economy and the agriculture sector in particular. Issues of governance, rent seeking behaviors, and

minimization of transaction costs must be the motto behind government involvement. Government interventions that deviate from these ideals are basically detrimental to economic progress. This is the so called "**government failure**" that must be addressed. In order to support agricultural progress the government role should be the provision of those public goods that are critical for economic development and the creation in general of a conducive structure of incentives.

◆ **Market intelligence**

In the international market, (as well as the local market) product prices fluctuate on a daily, hourly, monthly and annual basis depending on the dictum of demand and supply. Participants in the market want to make a profit. The principle of profit is cardinal for any business to be sustainable.

A peasant farmer as an individual can never expect to keep up with the market. A group of peasant farmers can be able to do that but then they are beset with various constraints (chief among which is the lack of skills and knowledge to run the group affairs and analyze opportunities and threats in the market place). It is no use advocating farmer groups and cooperatives if this underlying constraint(s) is not addressed.

Small to medium private traders also face similar constraints and threats. They must be empowered to participate in the market.

Tanzania is generally a weak participant in the international market.

An organization to address these weaknesses is pertinent.

◆ **Legal framework**

A conducive legal framework is a necessary ingredient for successful agribusiness. The agriculture sector is currently operating under a legal framework consisting of outdated laws, contradictory laws, and enforcement problems.

- (1) All laws in the country affecting agriculture must be revisited in light of the new vision.
- (2) Legal aspects of international trade must be made known and understood by stakeholders
- (3) A means to enforce contractual obligations and respect for property rights must be developed

◆ **Fiscal and monetary policies**

Allocation of public expenditure, agricultural credit, trade policy, taxation and the exchange rate are the main issues in agriculture.

(1) Taxation

This is related to the taxation of fuel used by agricultural machinery such as tractors. Many countries in the world assist farmers to pay low fuel prices. Other taxes that affect agriculture include electricity tax, land tax, produce cess. There are a number of other licenses, local government charges, taxes and duties which affect agriculture adversely. A total review is needed in order to reduce the burden on agriculture.

(2) Exchange rate management

When the shilling is overvalued our exports become uncompetitive in the world market. it encourages imports. it discourages investments (even tourists find that Tanzania is a high cost destination), and it increases unemployment.

(3) Financing agricultural production, processing and marketing

The agriculture sector is facing a raw deal in this aspect. Government deliberate involvement is the answer: low interest loans, a well targeted input fund and an agricultural bank will complement this new vision.

(4) Trade policy

Tanzania may not have the ability to subsidize agriculture as happens in the USA, Europe , Japan and Asia but the sad story is that it exposes its agriculture to compete against the subsidized products in the world market. There is a need to impose reciprocating duties on imported products and take deliberate protective measures where necessary. The country needs also to review certain trade restrictions such as internal movements of products and cross border trade.

(5) Government failure - when government bureaucratic roles are at odds with its involvement in direct productive activity.

This vision must endeavor to create a market oriented bureaucracy sympathetic to agriculture and not just pay lip service to it. strengthen delivery of extension services and dialogue with stakeholders and develop a partnership with agriculture to conduct applied research and generally serve a coordination role.

3.5 Conclusion and recommendations:

This paper provides a conceptual framework for the revitalization of agricultural development in Tanzania and the empowerment of stakeholders to effectively participate in the development process of the sector. The potential of the Tanzanian agricultural sector is briefly reviewed. The weaknesses facing the sector which in effect have prevented the attainment of this potential are also identified. Based on this conceptual framework and the identified constraints a number of proposals for intervention to realize the potential are put forward.

The major recommendations emanating from this analysis are as follows:

◆ **Avoid agricultural projects and programs that are not result oriented**

In this regard sustainability be the key word. Sine Independence we have seen a number of projects and programs that have failed. Most of these projects and programs are donor funded, grants or loans. Sustainability of a project/program should be the key decisive factor in undertaking projects/programs availability of funding notwithstanding.

◆ **Encourage commercial approach in managing trade instead of top down control of agricultural trade**

The major role of the government should be to create a conducive incentive structure including the provision of those public goods that cannot be provided by the private sector. These include

necessary infrastructures and various services such as roads and support services of various kinds.

◆ **Strategic alliances and coordination**

Linkages between the government, the private sector and academic institutions are generally weak. A change of mind sets by especially the government bureaucracy is necessary in this case. Stereo-type attitudes need to be changed. There is also lack of coordination between the ministries responsible for agriculture, finance, planning, lands, and natural resources. Donor dependence is also a major issue and donor programs are not coordinated. Such dependence undermines sustainability.

◆ **Underdeveloped livelihood assets**

In addition to financial and physical capital for which some awareness exists, the role of human and social capital in agricultural development is not prominently addressed. This requires efforts to improve the level of health, education, social networks of rural people. These human qualities are instrumental in increased productivity and ability to participate in decisions that shape livelihoods.

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Appendix 1: Commercial Opportunities for Agricultural Products

Product or Product group	Commercial product types	Potential
Fruits and vegetables	Fresh	<ul style="list-style-type: none"> ◆ The Netherlands alone imports about 2 million tons of fresh fruits and about 800,000 of fresh vegetables. The ACP states have zero duty access into this market, as well as all other EU countries.
Spices and herbs	<p>Spices: Pepper, paprika, capsicum, cardamom, anise/badan seeds, fenugreek, nutmeg/mace, ginger, cinnamon, caraway, cumin, Coriander, cloves, turmeric, saffron, vanilla and fennel</p> <p>Herbs: Parsley, marjoram, oregano, thyme, rosemary, basil, bay, mint, savory, dill, tarragon and sage</p>	<ul style="list-style-type: none"> ◆ Herbs and spices are basically very high value products and can be produced in Tanzania
Health foods	<p>Fresh foods: Fruits and vegetables, bread, dairy products, meat and meat products deep frozen products</p> <p>Dry foods: Grains; pulses oil seeds; dried fruit; edible nuts, seeds and pastes thereof; coffee, tea and cocoa, herbs and spices, honey and other sweeteners, fruit/vegetable juices, wine, beer, flavoring, agents etc</p> <p>Food supplements: Vitamins, garlic, herb extracts, spirulin, ginseng, lecithine</p>	<p>EU, North American markets for health foods are growing rapidly. Tanzania is already exporting small quantities to these markets lemongrass, tea, herbs and spices</p>
Dried fruit and edible nuts	<p>Dried apples, apricots, bananas, currants, dates, figs, prunes, raisins/sultanas, mangoes, papayas, peaches, pears, pineapple, groundnuts, almonds, Brazil nuts, cashew nuts coconuts, hazelnuts, pecan nuts, pistachios, walnuts and macadamia nuts</p>	<p>The EU imports about 1.5 million tons of dried fruit and edible nuts, about 1.5 tons of preserved fruits and 3.5 million tons of preserved vegetables</p>

Preserved fruits and vegetables for industrial use	Fruit concentrates, pulps and fruit juice raw materials, dehydrated vegetables, canned fruits and vegetables, provisionally preserved vegetables. They are used for the following industries - soap, salad, bakery, dairy, candied, pet food, health, snack, ice-cream, catering	The EU imports about 1.5 tons of preserved fruits and 3.5 million tons of preserved vegetables
Grains and pulses	Grains: Maize, wheat (including meslin), rye, oats, rice, buckwheat, millet, canary seed, barley, sorghum Pulses: Peas, kidney beans, small red beans, broad and horse beans, grams, lentils, chickpeas	The most traded grains are wheat, maize, barley, rice, sorghum, rye, oats and bmc (buckwheat, millet and canary). The most trade pulses are peas, kidney beans, broad and horse beans, lentils and chickpeas. The EU is also a net exporter of grains and pulses. Tanzania should look for niche opportunities.
Cocoa and cocoa products	There are three species, criollo, forastero, and trinitario. Criollo gives the best quality of cocoa, similar to the Brazilian Catongo and the Indonesian Roenggo; forastero trees account for 95% of the world's cocoa. There two main types - Brazilian (common type) and West African Forastero. Trinitario is a mixture of criollo and forastero. They can have the strong chocolate flavour and in addition some ancillary flavours (including fruity, resin, caramel, molasses and spicy notes).	Depending on the intended use and market to be captured, the type of cocoa tree is chosen. Exports can be in the form of cocoa beans, cocoa waste, cocoa mass, cocoa butter, cocoa powder, cocoa products. The cocoa trade in Tanzania is rather haphazard and the quantities small.
Pharmaceutical raw materials, products and medicinal herbs	Pharmaceutical raw materials: Synthetics, vegetable Allopathic: Proprietary medicinal products, parallel imports, generics, over the counter medicine Homeopathic products and phytopharmaceuticals:	Most ldes except China and India are bystanders in the provision of raw materials for this industry. To exploit this potential requires appropriate researches into our wild bushes. There is need for strategic alliance between the Botany Department of UDSM, the Traditional Medicine Unit at Muhumbili and SUA. This strategic alliance could be forged by the Ministry of Health.
Animal and vegetable oils and a fats	Animal oils and fats: Tallow (from cattle), lard (from pigs) and fish oil	EU produces vegetable fats though some product lines e.g. laurics, castor and palm oil are heavily

	<p>Vegetable oils and fats: Soya, palm, palm kernel, rapeseed, groundnut, coconut, sunflower</p> <p>End uses of these products depend on product characteristics: Human consumption including refined and processed products, processed food stuffs based on oils and fats, vegetable oil such as palm oil processed into hand soap and cosmetics; animal consumption includes processed and re-processed fats of both animal and vegetable origin often added to dry vegetable feed stuffs for dairy and beef cows and pigs; technical end uses includes vegetable oils for lubricant purposes and oils for the manufacture of paint and varnish.</p>	<p>dependent on countries outside the EU. EU imports of protein exceeds internal production capacity. Some raw materials are not normally grown in Europe such as coconuts.</p> <p>In general the EU is self sufficient in vegetable oils and fats and animal fats. International trading standards are a must and Tanzania is weak in this aspect.</p>
Natural food colors and flavors	<p>These include Curcumin (E100) from turmeric, Cochineal, carminic acid, carmine (E120), Chlorophyll (E140), Copper Chlorophyll (E141), Caramel (E150), Carotenoids (E160a-f) including B - carotene (E160a), Norbixin/Bixin (E160b) and paprika extract, capsanthine, capsorubin (E160c) Xanthophylls (E161a/g), beetroot red, betanin (E162) and anthocyanin (E163).</p> <p>The raw materials for these, especially turmeric, carrots and chilies (or paprika) are available or can be properly grown in Tanzania. There are also departments of Food technology and Agricultural engineering at SUA.</p>	
Natural gums and resins	<p>Free exudates and extracts: Arabic, tragacanth, karaya, larch, gharti</p> <p>Seed or root gums: Locust bean, guar psyllium seed, quince seed</p> <p>Seaweed extracts: Agar-agar, alginate (aarrageenan), furcellarann</p>	<p>Gums are polymeric materials that can be dissolved or dispersed in water to give a thickening and/or gelling effect. Since these materials are colloidal in nature, they are also referred to as hydrophilic or hydrocolloids. Of the above gums gum larch, psyllium seed and quince seed are very rarely used</p>

	<p>Others: Pectin, gelatin, starches (tapioca, sago, arrowroot)</p> <p>Special types of gums available in Tanzania are : Gum arabic - also known as gum acacia. It is obtained from the genus <i>Acacia</i> (sub-family <i>mimosoidae</i> and family <i>Leguminosae</i>) Guar gum - is derived from the seed of a leguminous plant (<i>Cyamopsis Tetragonolobus</i>). Tanzania only grows a very small quantity of guar beans and can found at the fresh exotic produce market at Kisutu and along Zanaki street</p>	<p>in the European food industry. Gelatin is also an animal product. Resins are elements in the manufacture of paints. They are also used in balms, natural coatings, cosmetics and glue products. Gum resins are more of importance as they are used in the chemical, paint and ink industries and in the tannery and paper industry.</p>
Essential oils and oleoresins	<p>Essential oils: Aromatic or odoriferous, oily liquids (sometimes semi-liquid or solid) obtained from plant material - flowers, seeds, buds, twigs, bark, herbs, woods, fruits and roots. Essential oils are used for flavoring, perfume industry and pharmaceutical industry</p> <p>Oleoresins: Liquid preparations which are prepared by percolating a volatile solvent through a ground spice or herb. Mainly applied in processed and canned food products and for coloring purposes.</p> <p>The major essential oils and oleoresins are: (1) from citrus fruits - bergamot oil, orange oil, lemon oil, lime oil, other citrus fruits. (2) from other than citrus - geranium, jasmine, lavender, peppermint, other mints, vetiver, clove, niaouli, Ylang Ylang. (3) Others - resinoids, perpenic by-products of essential oils, extracted oleoresins</p>	<p>The EU major importers are UK, France, The Netherlands, Germany, Spain and Italy. In Tanzania there is only one oil extraction plant at Chakeckhake, Pemba for the extraction of cloves and lemongrass.</p>
Floriculture products	Fresh cut flowers:	In Tanzania, the cut flower industry has been

	<p>Roses, carnations, orchids, gladioli, chrysanthemums and others Pot plants: Floering, foliage Young plants and cuttings</p>	<p>developed over the past 16 years and the area under green house production in Arusha and Moshi is more than 100 ha.. One ha of roses produces some 1.2 million cuttings per annum (multiply by 23 US cents to get US \$ 276,000 (Tshs 220.8 million). The Arusha Moshi area has climatic conditions similar to Some parts of Bukoba, Iringa, Mbeya, Rukwa, Kigoma and Morogoro. But flowers do not only mean roses: Many other flowers are available and they not necessarily grow in high altitude areas: chrysanthemum, delphinium,, gerberas, gypsophila, lusianthus, trachelium, soldago, asclepias tub., aster, snap dragon, limonium</p>
<p>Traditional exports</p>	<p>Coffee - arabica and robusta beans Sisal - fibre Cotton - lint Pyrethrum - flowers and prethrin Tea - made tea Cashew nut - unprocessed</p>	<p>Coffee 99% of Tanzanian coffee is sold in the form of greens beans to the roasters in Europe and Japan. The current price is ranging between Tshs 300 to Tshs 1000 per kg for the different grades and types of coffee beans. The export market price has varied between US \$ 3.29 per kg in 1980 to US \$1.17 per kg in 1992, to US \$ 4.01 per kg in 1995 and to US \$ 0.80 per kg in 2000. On the other hand, taking the local example of the TANICA processed coffee, a tin of 100 kg retails at Tshs 2000, meaning that one kg will retail at Tshs 20,000 or US\$ 25 to the same farmer who produced it and was paid between Tshs300-1000 with a lot of difficulties!</p> <p>Sisal At the time of independence Tanzania was the world leader in sisal production and export, producing over 200,000 tons. By 1980 this quantity</p>

		dropped to about 48000 tons and dropped further to 4,500 tons in 1991. Production has recovered a little and is now at 20,000. The sisal crop is only traded for its fiber, but it can have up to 17 different products, including a medicine (aloe) for the treatment of cancer/ulcers. This product is much more valuable than the sisal fibre!
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Source: The Agricultural Economics Society of Tanzania. *Entrepreneurship in Tanzanian Agriculture*. In Proceedings of the 4th AGREST Scientific Conference, August/September, 2000.