India-Africa Cooperation: The Cotton Factor

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Introduction

With Africa emerging as a global business destination, leading world powers are eyeing the continent for its natural resources, which includes cotton, one of the continent's key cash crops.

The world's top Cotton Producers are China, USA, India, Pakistan, Zone Central Africa Franc (CFA), Uzbekistan, Brazil, Turkey, Australia and European Union and top Cotton Exporters in the world are USA, Zone CFA, Uzbekistan, Australia, Brazil, European Union, Syria and China (Source: ICAC. 2004). The three groups of exporters such as USA, Central Asia and Francophone Africa account for more than two-thirds of global cotton exports. Sub-Saharan Africa's (SSA) share in world cotton trade has increased from 7 percent in 1960 to 15 percent in 2006. Cotton has not, however, participated in the commodity price boom that began in mid-2004, despite record consumption of cotton worldwide.

Cotton is a major source of foreign exchange earnings in more than 15 countries across all regions of Sub-Saharan African (SSA) countries and a crucial source of cash income for millions of rural people in these countries. The major nine countries are Benin, Burkina Faso, Cameroon & Mali in West and Central Africa and Mozambique, Tanzania, Uganda, Zambia & Zimbabwe in Eastern and Southern Africa. The crop is therefore critical in the fight against rural poverty. The World Bank and other development institutions are currently dominating many cotton exporting countries of SSA through projects supporting investment, as well as policy and institutional reforms. These reform programs are respecting World Trade Organization (WTO) guidelines and generally entail redefining the role of the state, facilitating greater involvement of the private sector and farmer organizations, ensuring greater competition in input and output markets, improving productivity through R&D, extension, and technology dissemination, and seeking value addition through market development and processing of cotton lint and by-products.

In recent years, world cotton prices have declined significantly. Small-scale cotton farmers in West and Central Africa (WCA), whose livelihoods depend on cotton, have borne the brunt of this decline. The main actors causing the drop in prices are the cotton production and export policies of the United States (US) and the European Union (EU). Along with it, China, as the world's leading major cotton producer, can have a strong influence on world cotton prices. China has committed to reduce subsidies to its cotton sector in the context of its WTO accession. These policies sit uncomfortably with the letter and spirit of WTO rules, as recently confirmed by the WTO Dispute Settlement Body in relation to some US cotton subsidies. It is less well known that these policies are also contrary to the letter and spirit of international human rights law. This Policy Brief provides an overview of the impact of US and EU cotton production and export policies on the lives of farmers in West and Central African countries.

Also, the changes in processing (i.e. spinning) technology have driven increasing demand for quality in cotton lint, with a parallel sharp increase in the penalty for cotton contaminated with non-organic matter that put negative impact on African agricultural labourers. The Intrinsic characteristics of African cotton typically place it above the A Index in quality; the fact that nearly all African cotton is hand picked helps preserve these intrinsic qualities. However, an inability to control contamination has led to a situation where hand-picked African cotton now trades at a discount to machine-picked cotton. Reducing contamination in African cottons could bring price premiums as high as US$0.10 per pound over the Cotlook A Index or about 20 percent at typical world price levels. Capturing this premium requires effective coordination throughout the local supply chain, and the ability to achieve such coordination depends crucially on sector structure and governance.

Colonial Parallel

The historical contradictions and irony of cotton/textile trade during the colonial times were cogently interpreted by Mahatma Gandhi. In his analysis, Gandhi identifies the whole process of the trade, which, in the ultimate analysis, hardly ever benefited the producer- the poor Indian cotton farmer. Cotton, picked by India labourers/farmer s at around seven cents a day, was shipped to London on board British vessels. The freight and the arbitrage thereof, accrued to British commercial liners. The cotton would be turned into cloth in Lancashire by English workers who were paid better than their Indian counterparts. In tandem, the steel companies of England profited by building the factories and machines required to produce cloth. The wages and the profits were thus spent in England. This is the policy of continuation of colonial policies. The finished product is sent back to India at European shipping rates, once again on British ships. The captains, officers, sailors of these ships, whose wages must be paid, are English. The only Indians who profit are a few lascars who do the dirty work on the boats for a few cents a day. The finished product is sent back to India at European shipping rates, once again on British ships. The captains, officers, sailors of these ships, whose wages must be paid, are English. The only Indians who profit are a few lascars who do the dirty work on the boats for a few cents a day (Fisher 1932: 154–156).

Cut back to the present aspects of global trade often assume neo-colonial characteristics. If the largely illiterate and poor African farmers were to use machines to pick cotton to help avoid contamination, expect a vicious circle to kick in, with the additional costs thus incurred risking subsistence and food security.

The right to food is also protected by a number of international and regional human rights treaties, including the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), and the Convention on the Elimination of Racial Discrimination (CERD). A detailed guide to what the right to food requires of States, non-State actors and the international community is discussed in the General Comment on the Right to Food adopted by the UN Committee on Economic, Social and Cultural Rights in 1999.

Criticizing it, Delhi Declaration 2008 of Indo-Africa Summit added, “Agriculture remains the key to the conclusion of this round. We are convinced that any acceptable agreement must adequately protect the livelihood, food security and rural development concerns of developing countries. Any outcome must also bring about significant and effective reductions in trade-distorting domestic support and subsidies provided by the developed countries. There are equally important issues also to be addressed on Non-Agricultural Market Access (NAMA) services and rules. We are convinced that the process to be adopted to reach convergence in the WTO negotiations requires focus on content and not artificial timelines. The promise of a development round must be fully realized. There is also need for a closer look at the Intellectual Property Rights (IPR) regime to ensure cost-effective transfer of appropriate and advanced clean technologies to developing countries” (Delhi Declaration. 2008).

The Delhi Declaration affirm that cooperation between Africa and India has been, from its inception, a useful example of South-South cooperation. It has been our endeavour at this Summit to devise ways and means of enhancing this South-South partnership, taking into account the new capabilities that have emerged in Africa and India. Bearing this in mind, we have drawn up and adopted a Framework for Cooperation that would provide the avenue for further and dynamic development of the Africa-India partnership. Delhi Declaration have agreed that Africa and India will strengthen not only their bilateral linkages, but that India will also progressively strengthen its partnership with the African Union and the Regional Economic Communities of Africa. The Indo-African Chamber of Commerce & Industries (IACCI) initiative of utilizing cotton & textile opportunities likely to open up more bargaining power to Africa choosing either existing colonial/traditional powers or Indian investors. This cotton partnership will widen India's genuine responsibilities of development towards Africa that will save the continent from the existing hobnoxious policies of World Bank and multinational textile companies. This paper will also highlight the efforts of India and African countries to implement their international human right commitments are undermined by these policies and recommends that human rights should be used more proactively by developing countries and human rights and development advocates as part of advocacy and reform strategies. This initiative of India and Africa as part of south-south cooperation will highlight the discriminated policies of US and EU cotton production supported by China policy makers and their impact on livelihoods and human rights in WCA.

Historical Exploitation of Cotton Crop

The exploitation of cotton as a cash crop began with the European industrial revolution started in 1738 and beginning of slavery system in Africa. This revolution brought changes about mechanical inventions in the 18th and early 19th century in England. As a result, the slaves in

Africa
were frequently engaged in cultivating cotton for the weaving industries and women slaves were useful as spinners.
The colonial era inaugurated several trends of agricultural innovation, especially involving industrial crops, primarily oil crops like cotton. During the American Civil War, American cotton exports slumped due to a Union blockade on Southern ports because of a strategic decision by the Confederate government to cut exports, hoping to force
Britain
to recognize the Confederacy or enter the war, prompting the main purchasers of cotton,
Britain
and
France
to turn to Egyptian cotton. British and French traders invested heavily in cotton plantations and the Egyptian government of Viceroy Isma'il took out substantial loans from European bankers and stock exchanges. After the American Civil War ended in 1865, British and French traders abandoned Egyptian cotton and returned to cheap American exports, sending Egypt into a deficit spiral that led to the country declaring bankruptcy in 1876, a key factor behind Egypt's annexation by the British Empire in 1882.

During the years of post colonial Africa (1950-1990), cultivation and trading of cotton came to be governed by the World Bank supported by Structural Adjustment programme (SAP) under multinational companies. It integrated all critical services (extension, input supply, credit and to some extent infrastructure) that helped further exploit cotton farming to the advantage of the big companies.

Contemporary World Bank Model and Cotton Crop

The World Bank proposes a typology of cotton sectors in SSA based (see Table-1 & 2)on the structure of the market for seed cotton and of the regulatory framework in which the multinational firms operate. This proposal favours the open market concept ignoring the human rights values that support WTO guidelines. This model is has been criticized by the cotton producing African countries and, not surprisingly, has rarely found with medium-scale cotton farmers.

Current Challenges before Cotton Crop

The story of cotton in Africa is a contrasted one. The performance of SSA exporters has been remarkable at a time of globalization of markets and its share of cotton trade rose by 30 percent. But, the number of cotton sectors in Western Africa is facing severe financial crises and are anxious about their survival. The stagnating productivity and rising costs began to generate recurrent financial crises for many cotton companies. The farmers have borrowed from their cotton fertilizer supplier for years and used these over-extra quantities to enhance their food crop production. Consequently, in order to compensate for any shortfall in their expected cotton production these same farmers bring additional and commonly more marginal land under cotton cultivation. Such practices not only enhance the susceptibility of the already marginal lands to erosion, but also reduce the effectiveness of the fertilizer used on cotton. The World Bank model may have become a victim of its own success as the cotton sector's huge size in national economies led to political corruption. The cotton companies failed to put in place the management tools required for such large enterprises and governments failed to exert their responsibilities as main shareholders.

The major challenges with the coming of market economy are mentioned here such as:

1.

1. The market economy in order to bring flexibility and reduce financial risks, most WCA countries have reformed their pricing systems with a two-tier payment linked to world prices: a base price negotiated at the beginning of the cropping season and a price complement calculated on the actual value of lint sales to be paid at the end of the season. But the issue of subsidization in the western countries and USA and the regulations of WTO create discrimination in the fixation of prices.

2. The liberal market reform structures led to the collapse of input and extension systems (particularly in Tanzania and Uganda). African countries eliminated competition in the output market to facilitate input supply and extension assistance by ginners and has maintained a vigorously competitive output market and used innovative approaches (such as the passbook system) to provide some minimal level of inputs to farmers. Along with it, Africa has performed much better on input provision and cotton quality (in Zambia and Zimbabwe). However, each has faced substantial structural instability that has threatened input credit supply. This has been most pronounced for e.g. in

Zimbabwe since 2003, with the dramatic increase in the number of seed cotton buyers and a similar phenomenon occurred in Zambia in the late 1990s and is now recurring.

3. Two new technologies may potentially address the needs of resource-constrained cotton growers in Africa through (i) genetically modified (Bt) cotton and (ii) low-volume herbicides. Bt cotton has arguably been the major source of yield gains and cost reductions in rain fed cotton in India and China over the past five years. While the technical, organizational and public policy challenges to introduction of Br cotton are real, such varieties may introduce with the consensus of governments in Africa .

4. The higher proportion of cotton producing households is found in the higher producing groups in WCA than in ESA. Value added is calculated using two different definitions of non-labor production costs. In the first case, input costs are deducted from the gross value of seed cotton production. In the second case, costs of animal traction and motorized services are also deducted, although the latter are extremely rare. The most appropriate definition can be debated. The argument for deducting animal traction costs from value added is that they include rental or amortization of equipment, plus veterinary and feeding costs for oxen. These intermediate inputs account for around 80 percent of the estimated animal traction costs in WCA sectors. The argument for not deducting animal traction costs is that oxen (and indeed equipment) are assets that farm households have accumulated in large part through their engagement with cotton production. Deducting animal traction costs would have the perverse effect of lowering the estimates of the value added generated by WCA sectors, because these sectors have proceeded further with animal traction than ESA – when this progress owed much to cotton. This difference reflects investments made over the years promoting animal traction and use of fertilizer. The greater use of animal traction for both ploughing and weeding, labor use is lower in WCA than in ESA. Meanwhile, weighted average returns to both family labor and to all labor are higher in WCA than in ESA. This finding holds true even if we use “break even” prices in place of the unsustainable producer prices paid in the WCA region in recent years. Zimbabwe is the best performer in ESA from a farmer’s perspective. Although competitive sectors within ESA have outperformed more coordinated ones on seed cotton pricing, from a farmer’s perspective they have not done so such to an extent as to outweigh their disadvantages in terms of service provision.

5. Ginning costs are sharply lower in market based systems (Zambia, Zimbabwe, Tanzania)

than in monopoly or hybrid systems (WCA, Mozambique, and Uganda). Notably, ginning costs in Mozambique and Uganda are comparable to WCA only because these two countries operate at about 20% of capacity. Total net cost from farm-gate to Free on Truck (FOT) are also lower in market based systems, be they competitive or concentrated, due to lower ginning costs, lower overhead, lower financial costs, and higher sales value of seeds. The WCA monopolies thus perform especially poorly in terms of company efficiency.Value added at the ginnery stage can be estimated by subtracting all non-labor and non-tax costs for purchase and collection of seed cotton, and for processing and marketing of lint cotton from the total FOT value of lint and seeds. The two value added figures are then summed and the result is converted to per capita figures by multiplying by production and dividing by total country population

6. Due to these high costs, and to only average performance on quality, the WCA sectors are also the least competitive, either barely breaking even (Cameroon) or generating large deficits (Mali and Burkina Faso). All the ESA sectors appear to be highly competitive in world markets. In Mozambique, however, a key reason for this result is the exceptionally low prices paid to farmers.

Cotton is a major source of foreign exchange earnings in more than 15 countries across the continent and is a crucial source of cash income for millions of rural people. Despite that, the issue of food security has become more prominent and as a result, farmers transferred some of the technology of cotton-growing to cereal-growing. These developments have worked simultaneously to expand the area under cultivation and to eliminate fallowing. This, in turn, it has placed increasing pressure on spontaneous vegetation. As a result, the continuing use of fertilizer on the same fields-an increasingly common practice in the absence of fallowing land-increases soil acidity and depletes the soil of organic matter. This is the principal reason why yields continue to stagnate and in some cases decline in the older cotton regions throughout west and Central Africa. In addition, the availability of fertilizer engenders further environmental degradation that tends to be acknowledged usually by only those working at the grassroots. Following suggestions needs to introduce dealing with these challenges such as:

1. Achieving greater value through improved quality, marketing, and valorization of by-products.

2. Bridging performance and competitiveness gaps through farm-level productivity and ginning efficiency, and

3. Improving the sector's sustainability through institutional development and capacity-building of stakeholders, as well as strengthening of governance structures and management systems.

4. The small countries are having only one cotton company and one farmer organization (such as Cameroon), there is a need to create an Inter-professional committee involving common farmers in the decision making been deemed necessary to achieve the supply chain and formulate high degree of cooperation in the decision making process on all sector issues. The case of Zambia where kwacha appreciated rapidly (but temporarily) prior to the 2006 election, limiting the prices that companies could pay for seed cotton. This, however, occurred at a time when farmers were already dissatisfied with prices, compounding their sense of dissatisfaction and making them willing to switch allegiance to new players.

5. There has been an intermittent debate about a new regulatory framework for the cotton sector when the cotton price side selling in 1997 (in Zambia). The major points of contention have been enforcement of contracts and prompt resolution of disputes when they occur. There have been suggestions of establishing fast track courts to for this purpose, and of amending the Agricultural Credits Act. However, the main stakeholder focus has been on ensuring passage of a revised Cotton Act keeping the market liberalization in mind.

6. Cotton ginning is not by nature a heavy industry. Hence there are numerous examples of farmers grouped in associations, as well as farm-based agribusinesses that are engaged in cotton production and ginning is seen in Africa such as SICOSA in Cote d'Ivoire, the ginning company established by a cotton farmers union (URECOS-CI) at the end of the 1990s. In other cases, ginning is a service provided on a fee basis (toll ginning) to farmers, who retain ownership of the final products (lint and seeds).

7. The organization of cotton sectors in Africa faces specific challenges due to the combination of two factors: 1) the high input intensity of cotton production, and 2) the weakness of markets for inputs and arguably even more important, given the lack of capital of most African

smallholder households seasonal finance in Africa. As long as the seasonal finance constraint remains, the issue of the optimal form of cotton sector organization in Africa will continue to be a complicated one and convergence with forms of cotton sector organization observed in other parts of the world will remain partial.

8. Poulton et.al. (2004) identified four main challenges facing smallholder-based African cotton sectors such as: • Provision of input credit to producers, • Maintenance of quality control, • Maintenance of a high quality research system and effective extension of resulting research knowledge and products and • Giving an attractive seed cotton price.

9. These suggestions will work for SSA governments and stakeholders to settle the euro/$ exchange rate and slow progress in reducing market distortions due to OECD subsidies.

WTO Debate and Indo-Africa (South-South Cooperation)

In recent years, world cotton prices have declined significantly. Small-scale cotton farmers in West and Central Africa, whose livelihoods depend on cotton, have borne the brunt of this decline. The main actors causing the drop in prices are the cotton production and export policies of the United States (US) and the European Union (EU). These policies of WTO as recently confirmed by the WTO Dispute Settlement Body in relation to some US cotton subsidies. It is less well known that these policies are also contrary to the letter and spirit of international human rights law. This Policy Brief provides an overview of the impact of US and EU cotton production and export policies on the lives of farmers in West and Central African countries. India and Africa under South-South Cooperation put their efforts to implement their international human rights commitments are undermined by the WTO policies, and recommends that human rights should be used more proactively by developing countries and human rights and development advocates as part of advocacy and reform strategies.

Cotton production in WCA can enable farmers to earn a livelihood, including access to food and health. But low cotton prices in recent years have increased poverty levels in WCA, making it more difficult for WCA governments to fulfill their human rights obligations to their own people and making enjoyment of human rights more of a distant prospect for hundreds of thousands of African farmers and their families. The elimination of US and EU trade distorting subsidies on cotton is the only solution to have balanced approach in cotton sector that will strengthen South-South Voice and beneficial to India and WCA producers working for their welfare benefits.

Along with it, India and Africa expressed that it would not in itself guarantee lasting changes because the issue of over-production and dumping would remain. Indo-Africa Delhi Declaration put caution that elimination of subsidies needs to be accompanied by long-term policy changes that manage supply-side problems in cotton producing countries worldwide and mechanisms that guarantee fair and stable prices. The US in particular should implement policies and prohibit harmful practices by large agribusinesses that dominate cotton markets, including export dumping. Enforcing anti-trust laws would be one such step. In addition, more attention needs to be given by governments as well as by development and human rights advocates to the inconsistencies between current US and EU cotton policies and international commitments to development cooperation and respect for human rights.

Indo-Africa use international human rights obligations in defense of their development interests and should test the value of such arguments both within the framework of reporting to UN human rights treaty monitoring bodies and at the WTO. The primary responsibilities of US and EU governments for the human rights of their own peoples must also be kept in mind. Some small farmers in the US and the EU presently benefit from subsidies, while other taxpayers lose out from the generous subsidies directed to already-rich agribusiness. Any reforms in the US and EU cotton sectors should not discriminate against the poorest sectors of society, and should be mindful of the fact that those affected will need to find other productive livelihoods.

Importance of south-south cooperation between India & Africa

India started Africa Focus Program in 2002 started with the seven countries (South Africa, Nigeria , Mauritius , Tanzania ,

Kenya
,
Ghana
and
Ethiopia
) and later on it was extended to all the other sub-Saharan countries such as
Angola
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Botswana
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Ivory-Coast
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Madagascar
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Mozambique
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Senegal
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Seychelles
,
Uganda
,
Zambia
,
Namibia
and
Zimbabwe
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North Africa
viz.
Egypt
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Libya
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Tunisia
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Sudan
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Morocco
and
Algeria
. Under this program, the Government of India extends assistance to exporters, Export Promotion Councils, etc to visit these countries, organize trade fairs and invite African trade delegations to visit
India
. In order to boost the trade, the Government of India has decided to take the following

measures: (1) Preferential Trade Agreement/Free Trade Agreement, (2) Enhanced Interaction with important trading partners (3) Institutional Mechanisms such as Joint Trade Committees (Joint Trade Committees already exist with Senegal, Kenya, Zimbabwe, Ghana, Uganda, Ivory Coast, Namibia, Ethiopia and Tanzania and Joint Economic Commissions with Algeria, Egypt, Libya, Morocco, Sudan and Tunisia), and Joint Business Councils.

Along with it, Africa-India Forum Summit is held each year started from 2005 to discuss different projects including agriculture (food security, eradicating poverty and improve people's livelihood) and rural development, pilot project on establishment or micro, small and medium enterprise and science and information, communication and technology for development among others. The Research & Development part of agriculture sector is connected to Pan-African Network to strengthen Indo-Africa development goals.

Regarding cotton & textile industry, the Cotton production and ginning activities are very seldom integrated with downstream industries such as spinning, weaving and textile manufacture, except in India. India offers this expertise to cotton producing African countries that will initiate the Non-Farm Employment opportunities for African local peoples. One of the best features of African cotton is that it is relatively homogeneous in fiber characteristics, due to similar growing conditions and the low number of varieties planted in most countries. Indian investors appreciated this feature and assess the seed cotton quality and grade of lint likely to be produced after ginning and offer good price. Indian cotton investors are not bothering about the issue of Contamination and are not taken into account and suggest little care (by using hand gloves) is given to the cleanliness of cotton before it reaches the gin. The price of African cottons on world markets is penalized by the World Bank sponsors but Indian textile does not discriminate on this account. India offers the g
rowing fewer varieties in a particular country makes it easier to maintain homogeneity of quality, though proper controls and good classification can ensure good performance for Indian textile industries either settle in Africa or in India. The Indian cotton & textile industry along with agriculture institutes particularly R & D sector doesn't have any policy to use instrument testing of African seed cotton grades.

Investment opportunities for African & Indian Investors

Trade agreements between certain African countries and India extend over many years. But the competition is strong as other developed and developing countries seek to get into the African markets, which is not as easy as it may seem. Various trade agreements exist between certain African countries and India and due to these fruitful relationships, India has been keen to invest in cotton & textile by extending its expertise. Indian investors seek opportunities in this sector that is based on such as:

(1) Achieving greater value through improved quality, marketing and valorization of by-products.

(2) Bridging performance and competitiveness gaps through farm-level productivity and ginning efficiency.

(3) Improving the sector's sustainability through institutional development and capacity-building of stakeholders, as well as strengthening of governance structures and management systems.

African cotton has two comparative advantages in the world market: the intrinsic quality of its fiber (the fiber properties) and the fact that it is handpicked. Indian investors are attractive towards it. Greater awareness and a general mobilization are necessary to reestablish Africa's main comparative advantage stemming from the manual harvesting of seed cotton. Indian investors R & D sector initiate a concerted efforts to improve fiber characteristics through research and better production practices, reduction in variability of lint quality through more rigorous seed cotton grading and lint classification, control of contamination through capacity building and price incentives in Africa that will optimize quality management in ginning. The Indian R & D efforts must also be made to generalize the use of cotton cloth wrappers for bales, develop container loading at the gins and optimize export logistics.

Along with it, Indian investors should coordinate with independent ginners in SSA to improve marketing performance. The investors should adopt the features like forward sales, the most common marketing method in the cotton business, are the easiest and most effective marketing strategy to cover risks. Indian investors should initiate direct sales from ginners to spinners that can improve the quantity and quality of market knowledge available to the ginners and benefiting economically to the ginners.

Indian investors may start with the farmer organizations and work to the advantage of the sector to allow them more systematic contractual trade relationships between them. It will strengthen more bargaining capacity of the farmers to negotiate a pricing approach that is tied to world prices on the one hand and the textile companies will get quality on the other hand. Considerable institutional strengthening and training will be required first to reinforce producer organizations.

Indian cotton & textile sector in Africa will share knowledge and Indian experience by explaining research techniques to the farmers in different ways such as: effective (timely) management of pests (weeds and insects) on both their food and cotton crops, soil fertility management and share the capability of soils for cotton production. Improved cotton production technology therefore needs to be embedded in sustainable cropping systems to be socially and economically viable in the long run.

Conclusion

The improvements in all of the above will depend on strengthening internal and external linkages between research and extension. Internal linkages are those that help articulate demands from the users of improved cotton technology (farmers on the production side and spinners on the consumption side), establishing relations with common farmers and deliver technologies to users (ginning companies, extension workers). Indo-Africa governments can also contribute to these changes by promoting new investment by offering more prices to farmers by establishing co-operative societies (as it is working in the rural areas of India
). Such change may improve mind set to the farmers and strengthening production in the longer terms.

Overall, Indian investor should initiate the education on the impacts of agrochemicals on human and environmental health. According to a global study, cotton uses 22% of all insecticides applied in agriculture and 11% of all pesticides. Because of these economic pressures, many African smallholders are being driven to the margins of economic viability or out of cotton altogether with few alternative cash crops. There is a need to introduce bio-environment friendly fertilizers and may be given on credit (deducted from a farmer’s earnings after harvest) and introducing a crop insurance in this sector. The small holder farming should strengthen through cooperative farming as it is practiced in different part of India (South India). Finally, Indian investors should promote handpicking of cotton balls while encouraging African farmers to wear gloves to help stave off contamination.

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