

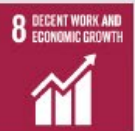


Promoting cotton BY-PRODUCTS in Eastern and Southern Africa

Project: 1617K - Funded by the United Nations Development Account - 2016-2019

Commercial products from cotton stalks

77th ICAC Plenary, Fourth Breakout Session
5 December 2018, Abidjan, Côte d'Ivoire





Outline of the presentation

- Overview of the project
- Project activities and deliverables
- Cooperation with CIRCOT
- By-products selected for development
- Financial projections for cotton stalk-based businesses
- Supply chain considerations
- Policy advantages
- Conclusions
- Project next steps

Overview of the project

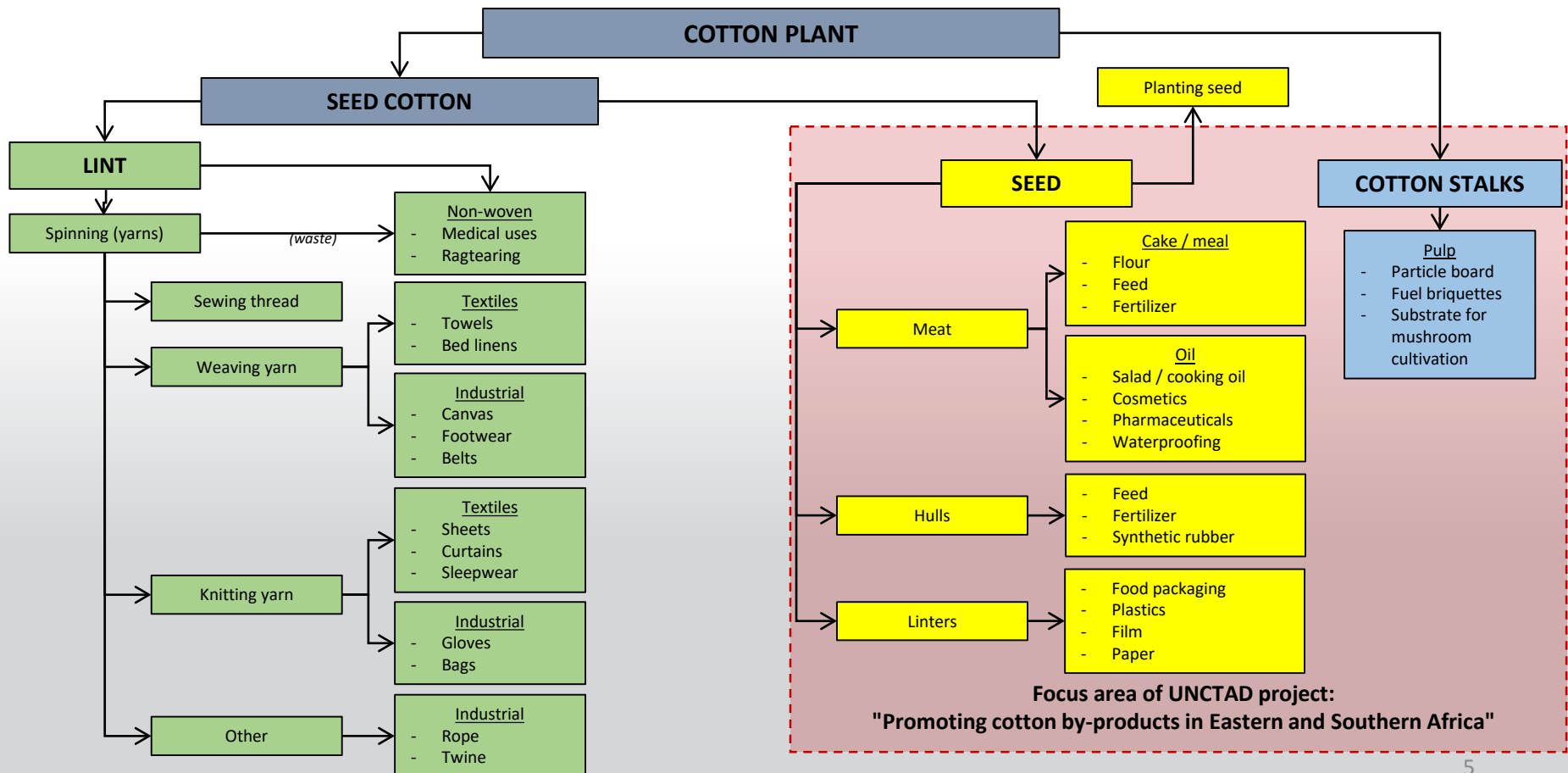
Title	Promoting cotton by-products in Eastern and Southern Africa (ESA)
Funding source	United Nations Development Account (Project 1617K)
Countries	United Republic of Tanzania, Uganda, Zambia and Zimbabwe
Start date	March 2016
End date	December 2019
Total budget	US\$ 591,000
Implementing agency	United Nations Conference on Trade and Development (UNCTAD)
Partners	United Nations Economic Commission for Africa (UNECA) Common Market for Eastern and Southern Africa (COMESA)



Overview of the project (cont)

- Expected Accomplishment 1:
 - Improved capacity of cotton value chain stakeholders (government officials, the private sector and farmers) to assess the potential value, market situation and prospects for cotton by-products.
- Expected accomplishment 2:
 - Improved capacity of policymakers to (a) formulate evidence-based policies that improve the value added of cotton by-products; and (b) devise investment profiles to attract potential investors.
- Focus on new / pre-commercial opportunities, e.g. applications for cotton stalks, rather than upgrading opportunities, e.g. replacing obsolete oil extraction technologies.
- Approaches:
 - Process-based, not expert-based
 - Build capacity of country experts
 - Inclusive participation, with an emphasis on farmers and women
 - Inter-agency collaboration
 - South-South cooperation

Our project on by-products looks at “products derived from the non-lint parts of the cotton plant”.



Source: Adapted from Cotton Development Organisation, Uganda

Project activities run from 2016 until mid-2019, followed by an evaluation by end-2019.

Complete

- Surveys
- National capacity-building workshop (National Action Plan)

Underway

- Investment profiles
- Study visit

Remaining

- Draft pilot project plans and funding proposals
- Regional workshop
- Evaluation



The collage features three main documents:

- UNCTAD Banner:** UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT UNCTAD
- Survey Report Cover:** COTTON AND ITS BY-PRODUCTS in Zambia ANALYSIS OF COTTON BY-PRODUCTS SURVEY
- National Action Plan Document:** PROMOTING COTTON BY-PRODUCTS in Eastern and Southern Africa. Uganda National action plan. Agreed by consensus at the multi-stakeholder national workshop Golf Course Hotel, Kampala, Uganda, 15 March 2018. Validated by the Cotton Development Organisation 4 October 2018.

Cooperation with India's Central Institute for Research on Cotton Technology (CIRCOT)

- UNCTAD selected India as an example for project countries, due to:
 - Similarities between the production models and geographic densities;
 - India has revived its cotton sector by developing local value addition technologies and businesses, adapted to the rural context.
- CIRCOT researches, designs technologies and incubates businesses for post-harvest processing of cotton and its by-products.
- Close link with processors and machine fabricators.



CIRCOT participation in project activities:

- At each national workshop, presented its work on cotton applications for cotton by-products.
- Will host a study visit for project participants in January 2019.



All four project countries chose to develop a new value chain for cotton stalks.

Cotton by-products selected for National Action Plans

Raw material	End product	Tanzania	Uganda	Zambia	Zimbabwe
Stalks	Briquettes and pellets	👍	👍	👍	👍
Stalks / hulls	Mushrooms		👍		
Cottonseed cake	Gossypol-free cake	👍	👍		👍
Short staple cotton	Absorbent cotton wool	👍	👍	👍	



Using cotton stalks for briquettes, pellets and mushrooms can be a profitable, low-capital business.

Financial projections, selected stalk-based businesses

Item	Briquetting plant	Pelleting plant	Mushroom farm
Capacity	20 MT/day	4 MT/day	3,600 kg/yr
Total capital investment (US\$)	69,000	25,000	14,850
Total revenues / year (US\$)	350,000	59,000	5,832
Net profits / year (US\$)	35,000	8,000	3,644
Net profit margin	10%	14%	25%
Return on investment, annual	53%	32%	25%
Investment payback period (months)	23	38	49

Sources: Estimates by UNCTAD, CIRCOT and Uganda Industrial Research Institute



An effective supply chain is prerequisite for mounting successful stalk-based businesses.

Raw material and logistics

- Commercializing stalks would require modifying any pest management rules requiring their destruction
- Briquette and pellet plants require a supply chain organized around mobile chipping machines
- Briquette plants must source other biomass raw material outside the 3-4-month cotton season
- Briquetting plant of 4 MT/day requires approximately 1,000 MT/year of biomass, equivalent to 300-400 ha, on average, or a catchment radius of 25-30 km

Scale and scope

- Pelleting plant, mushroom farm: multi-family cottage business
- Briquetting plant: commercial business with employees
- Pelleting plant can produce fuel, animal feed and fertilizer pellets

Markets

- Pellets (fuel): households and restaurants
- Briquettes: industries and institutions with large boilers
- Mushrooms: local markets, hotels and restaurants



In project countries, selected cotton stalk-based products respond well to policy priorities.

Policy priority	Biomass briquettes / pellets	Mushrooms from cotton stalks
Income opportunities for farmers	Y	Y
Small-scale, rural business opportunities, including for women	Y	Y
New business opportunities for entrepreneurs	Y	Y
Improved nutrition		Y
Substitution of fossil fuels	Y	
Substitution of wood charcoal (deforestation)	Y	
Reduced pollution	Y	



Conclusions

- Accessible commercial technologies exist to establish a value chain for cotton stalks, based on small-scale, low-capital, rural businesses.
- Briquette, pellet and mushroom businesses can be profitable and scalable – from multi-family cottage activities, to SMEs.
- Farmers can invest directly (pellets and mushrooms) in these activities or earn additional income by selling chipped stalks to entrepreneurs.
- The main challenge is to establish a cost-effective supply chain for raw material, based on mobile chipping machines.
- Biomass fuels respond to policy priorities on forest conservation, emissions reduction and substitution of wood charcoal and fossil fuels.



Project next steps

- Remaining project activities:
 - Complete investment profiles for priority cotton by-products;
 - Study visit to CIRCOT in Nagpur, India, 14-18 January 2019;
 - Regional workshop, May-June 2019;
 - Project evaluation, by end 2019.
- Work with country focal points to draft selected initiatives into project plans and funding proposals for next phase of work.
- Propose a similar project to other cotton-producing countries in Africa.
- Coordinate with joint WTO-UNCTAD-ITC initiative on cotton by-products.



For more information

- Project site, including all project documents:
<https://unctad.org/en/Pages/SUC/Commodities/SUC-Project-1617K.aspx>
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