



## 9 | Technology transfer for cotton by-products development in eight African LDCs

A request from the Cotton Four countries (Benin, Burkina Faso, Chad and Mali) led to the launch of a joint initiative to develop the economic potential of cotton by-products.

Cotton is a vital cash crop for many African LDCs, as it provides income for an estimated 4 million farmers and their families, where 17 per cent of those farmers are women.<sup>1</sup> Sub-Saharan African countries export more than 90 per cent of the raw cotton lint they produce; these countries earned approximately US\$ 15.5 billion in 2018 for over 1.5 million metric tonnes of lint.<sup>2</sup>

In Africa, cotton is grown mainly for its fibre or lint, which is the raw material in cotton textiles. However, other parts of the cotton plant, such as the stalks, husks, cottonseed and short-staple fibres, can also be processed into value-added products, such as edible oil,

animal feed, heating fuel, absorbent cotton wool and soap, to name just a few. All in all, the family of cotton by-products can be divided into two main subgroups: the products derived from seed cotton processing operations, and the products derived from the stalks.

While processing these other parts of the cotton plant is an established and sustainable economic activity in various cotton-producing countries, such as Brazil, China, India, Turkey and the United States, it is estimated that markets for cottonseed by-products could grow and constitute a potential source of complementary revenues for the cotton sector in Africa.<sup>3</sup> Such complementary revenues are

particularly important in the context of the price volatility of cotton lint in international markets, and could thereby help smallholders to manage price fluctuations better.

While Africa produces about 2.5 million tonnes of cottonseed, only 75 per cent of the seed is crushed for oil and seed-meal, leaving 25 per cent of cottonseed produced in Africa unused. The estimated value of that unused seed is about US\$ 237 million, most of which is in West Africa.<sup>4</sup> Some African countries are already benefiting from exporting unprocessed cottonseed by-products, such as oilcake and other solid residues from oil extraction processes, which are considered to be the most valuable by-products based on price-to-weight terms. For instance, in 2018 Benin recorded the highest value of exports among African LDCs of oilcake and other solid residues, which were worth a total of US\$ 14.6 million and were exported to India, South Africa and Turkey.<sup>5</sup>

Cotton stalks also have attractive properties as a fuel, with a high caloric value and low ash content. Densified into briquettes or pellets, stalks can be a smoke-free substitute for dirtier solid fuels. For example, an UNCTAD evaluation in Zambia estimated that a biomass briquetting or pelleting operation – using cotton stalks and other agricultural biomass – could compete in price with charcoal, generate jobs and pay farmers up to US\$ 25 per tonne for their stalks, which constitute two-thirds of the weight of an average cotton plant (Hamusimbi, 2019).

Against this background, at the November 2018 “cotton days”,<sup>6</sup> the Cotton Four countries (Benin, Burkina Faso, Chad and Mali), together with Mozambique, Tanzania, Uganda and Zambia, formulated a request to the WTO, UNCTAD and ITC for technical assistance and transfer of technology to develop local cotton by-products processing, industry and value chain integration at the local, regional and global levels. This request led to the launch in 2018 of a joint initiative to develop the economic potential of cotton by-products,<sup>7</sup> consisting of two main components: feasibility assessment

work in partner LDCs to test the viability of projects, and the mobilization of resources for the implementation of technical assistance and capacity-building activities.

Operational work in the context of this joint initiative started in August 2019 with the support of the EIF. This project, coordinated by the WTO Secretariat in consultation with UNCTAD and the ITC, has delivered country-specific feasibility studies in the eight pilot African LDCs which requested assistance. The purpose of these studies is to collect updated comprehensive data and assess the potential for investments and technology transfer to create additional revenues from the local processing of cotton by-products, particularly for smallholder farmers and processors.

The early results are encouraging, demonstrating, for example, in one cotton-producing LDC estimated annual revenues above US\$ 250,000 from artisanal soap production derived from cottonseed oil extraction plants. This activity generates employment opportunities for about 400 people, many of them women, with important growth margins, as demand for natural soap appears to be increasing steadily at the local and regional levels, which also opens the door for potential future overseas exports.

1 Source: International Cotton Advisory Committee data. Available at <https://icac.gen10.net/>.

2 Source: International Cotton Advisory Committee data. Available at <https://icac.gen10.net/>.

3 Proceeding of a WTO workshop on cotton by-products, 7 June 2019 – see [https://www.wto.org/english/tratop\\_e/agric\\_e/workshopcottonday07062019\\_e.htm](https://www.wto.org/english/tratop_e/agric_e/workshopcottonday07062019_e.htm).

4 Proceeding of a WTO workshop on cotton by-products, 7 June 2019 – see [https://www.wto.org/english/tratop\\_e/agric\\_e/workshopcottonday07062019\\_e.htm](https://www.wto.org/english/tratop_e/agric_e/workshopcottonday07062019_e.htm).

5 Source: WTO statistics.

6 The WTO organizes twice a year, since the 2013 Bali Ministerial Conference, “cotton days” consisting of dedicated discussions and rounds of development assistance.

7 See [https://www.wto.org/english/news\\_e/news18\\_e/cott\\_07dec18\\_e.htm](https://www.wto.org/english/news_e/news18_e/cott_07dec18_e.htm).