



# 75<sup>th</sup> Plenary Meeting of the INTERNATIONAL COTTON ADVISORY COMMITTEE

## MINUTES

### THIRD OPEN SESSION

### Reducing the Water Footprint of Cotton

11:00 hr. Tuesday, November 1, 2016

In the Chair, Mr. Hammad Naqi Khan, Director General/CEO, WWF, Pakistan

The Chair introduced Dr. Shafiq Ahmad, Country Manager, Better Cotton Initiative (BCI), Pakistan. Dr. Ahmad highlighted the importance of cotton and water management in cotton production. However, cotton production has challenges related to water management, soil depletion, working conditions and improper use of pesticides. In Pakistan 50% of applied pesticides is wasted, 10,000 farmers are poisoned annually and in several countries 10% of labor used in cotton cultivation comes from children. Per capita water availability in Pakistan has declined drastically from 5,300 cubic meters in 1947 to less than 1,000 cubic meters in 2016, and Pakistan is among the “water hotspots” of the Asia-Pacific region. Globally, 71% of water withdrawals are used in agriculture, while in Pakistan this figure reaches 94%. World temperatures are rising and the Himalayan glaciers could disappear in a few decades. The answer to these challenges is sustainable production practices. In 2012 BCI accounted for 2% of world cotton production, while organic cotton was responsible for 0.5%. In 2015 sustainable cotton production accounted for 16% of world cotton production, of which BCI reached 12%. By 2020 BCI aims to increase its share to 30% based on recent growth rates. The organization aims to make global cotton production sustainable and better for farmers, the environment and the sector's future. BCI participation reached 1.6 million farmers in 21 countries, and the goal is to reach 5 million farmers and 30% of world production by 2020. In Pakistan BCI has 12 projects in 16 districts, 125,000 participating farmers and covers 550,000 hectares with production reaching 300,000 tons of lint. BCI is working in Pakistan on increasing efficiency in water use, enhancing biodiversity and empowering women, while stimulating collaboration between all stakeholders across the cotton supply chain, public and private. BCI is working in partnership with Cotton Australia and the Australian government, with Water Stewardship Program, Helvetas-SDC, Ikea, WWF, ILO, other organizations and universities on sustainable cotton production.

The Chair introduced Dr. Hassan Ahmed, of the Agriculture Research Corporation, Sudan. Dr. Ahmed covered ways to reduce water footprint in an environment of water scarcity, increasing global population and demand for water and climate change with rising temperatures. To reduce cotton's water footprint it is necessary to improve water use efficiency and productivity in cotton production. For greater efficiency in water usage, runoff should be minimized, deep drainage should be avoided, soil water holding capacity should be improved and agronomic practices for higher yields should be adopted. Currently agriculture consumes more than 90% of water in Sudan, humans and animals account for 5%, and 1% goes to industrial uses, while demand for water is growing. Water requirements for the production of extra-long staple cotton in the Gezira scheme are the highest of all crops, while productivity in kg per cubic meter of water is the lowest. Water productivity for medium staple cotton, especially GMO cotton, is much higher. He indicated that precision agriculture, including satellite imaging, crop and soil color maps, soil sample collection and spatial variability could be a solution for better water management. In addition, irrigation scheduling models can be useful. For better water management, one needs to assess the performance of irrigation systems and reduce conveyance losses, while using deficit irrigation, irrigation scheduling models, precision agriculture, high-yielding varieties and genetic engineering. The price of water should be based on the volumes used, not area.

The Chair introduced Mr. Arif Makhdum, WWF, Pakistan. Mr. Makhdum stated that the WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans are able to live in harmony with nature. The organization has more than five million supporters all over the world. He highlighted the importance of cotton and textiles for Pakistan and noted that 95% of total available fresh water resources in the country is used in agriculture. With the growth of population, water resources are shrinking. About 56 million-acre feet (MAF) of water is diverted every year into the Punjab irrigation system, and there are substantial losses in the

system. WWF runs the Sustainable Agriculture Program in Pakistan's seven regions, with 92,350 farmers engaged in five BCI projects in an area of 355,600 hectares. The objective is to train and build capacity to enable sustainable cotton production. These programs resulted in a 24.7% reduction in water usage, a 31.5% reduction in pesticide use, 27% less synthetic fertilizer use and an increase in net profit of 24.4%. He noted that 115,366 tons of BCI cotton were produced in Pakistan and that leading brands are expressing an interest in this product. Cotton water footprint is one of the most comprehensive impact indicators. Indicators identify three tips of water footprint. The green water footprint is water from precipitation that is stored in the root zone and is particularly relevant for agricultural, horticultural and forestry products. The blue water footprint is water that has been sourced from surface or ground water. The grey water footprint is the amount of fresh water required to assimilate pollutants in order to meet specific water quality standards. In Pakistan, cotton is 100% irrigated and the blue water footprint is estimated to account for 56% of the total water footprint. The water footprint assessment helped in identifying potential and important cotton production zones and indicating ways to increase water use efficiency, while reducing contaminants in water caused by fertilizer/pesticide applications.

The Chair introduced Mr. Danilar Andakulov, of Helvetas, Kyrgyzstan. Mr. Andakulov reported that Helvetas is implementing six projects in four countries (India, Pakistan, Kyrgyzstan and Tajikistan) in rice and cotton. The main donor to the projects is the Swiss Agency for Development and Cooperation (SDC). Life cycle assessments of cotton fiber and fabric show the benefits of cotton, although high water use is identified as a weak point. Water productivity is identified as a "leverage point" for food security in other reports. Helvetas uses a push-pull approach in its projects. The push component is the promotion of efficient water management practices, technical support and campaigns to increase knowledge of water use efficient methods. The pull approach provides incentives. Buyers demand and support water-saving products and provide pricing incentives to producers. Implementation policies must focus on good water governance. Technologies promoted in project countries include using short furrows, irrigating every second furrow, alternating furrow irrigation, laser leveling of furrows, and soil humidity measurement. Improved methods of irrigation have resulted in 33% less of water use and 35% better yield compared with traditional methods. Innovative methods of irrigation led to substantially higher income per hectare of production.

A delegate of Taiwan asked Dr. Shafiq Ahmad about the premiums paid by spinners for BCI cotton and what share of this was transferred to farmers. Dr. Ahmad answered that the organization discourages any premiums on BCI cotton, but farmers benefit from improved productivity and yields.

The delegate of Sudan asked what pest control measures are used in BCI production in Pakistan. Dr. Ahmad answered that BCI is encouraging the introduction of beneficial insects to control harmful bugs and also mechanical methods of control.

The delegate of Burkina Faso asked Mr. Andakulov if water conservation technologies used in Kyrgyzstan could be used in smallholder rain-fed production in Africa. Mr. Andakulov replied that producers in Kyrgyzstan are also smallholders, so from the point of view of scale these water-saving technologies could be used in Africa. However, since he was not an agronomist, he was unsure about applicability to rain-fed production.

The Executive Director asked Dr. Hassan Ahmed to rank the most important measures for promoting water use efficiency. Dr. Hassan Ahmed replied that matching water requirements to the needs of the plant at different stages in its growth cycle is the most important for all stages of crop development. He also noted the importance of developing stress-tolerant varieties and reducing wastage of water in order to increase water usage efficiency.

The Chair summarized the session and adjourned the session at 12:40PM