
Research question

Cotton is one of the world's major cash crops and is grown on 33 million hectares in some 80 countries by 50 to 100 million farmers [2]. A total of 250 million people depend directly on employment opportunities in the cotton sector, while an additional estimated one billion gain their livelihoods through textiles and apparel production [1]. With an annual cotton production of 1.2 million tonnes, Africa has been only a marginal player with little or no influence on the global cotton market [2]. Yet, cotton is of great importance for Africa and often seen as one of the key drivers of poverty reduction. It has the potential to provide a link into the global economy and delivers families with cash income to invest in children's education, their health and additional food [2].

Nonetheless, the cultivation of conventional cotton comes with a number of social and environmental issues including excessive use of pesticides, inefficient water-intensive production methods, and poor working conditions such as child labour [2]. The conditions in which conventional cotton production takes place are particularly challenging for smallholder farmers in Africa [2].

Sustainable cotton initiatives have been introduced to provide solutions. These are characterized by reduced environmental impact, ensuring the system is both economical and profitable as well as enhancing the quality of life of all workers [4]. Despite achieving significant benefits within specific project settings, programmes such as the Better Cotton Initiative (BCI) have not been able to kick-start a sector-wide transformation process towards sustainability. Sustainable cotton accounts for only 3 per cent of total African production [4]. However, this situation could be about to change. A unique window of opportunity for large-scale change seems to be opening now, as there is a fast increasing interest in Africa as a new sourcing destination among the largest global apparel brands, along with an ambition to implement sustainable cotton in their value chains. Yet, global apparel brands, sustainable cotton initiatives and development organisations lack insight in what is required to achieve a breakthrough of sustainable cotton on a large scale, and how to manage the dynamics of the transition process.

In this thesis I will generate knowledge on the requirements for achieving a breakthrough of sustainable cotton production in Africa. To this end, I will research the opportunities for, and bottlenecks to a transition towards sustainable cotton production within the coming years. The research will have its primary focus on Ethiopia and will be carried out in collaboration with the Dutch NGO Solidaridad and at the request of H&M, the first large apparel brand with aspirations to switch completely to sustainable cotton. Solidaridad will act as expert advisor to H&M in this process, in view of their extensive experience in sustainable cotton cultivation in, and socially and environmentally responsible sourcing from developing countries. The thesis is designed to inform Solidaridad's advisory work for H&M, thereby contributing to the design of a feasible strategy for H&M to transform the cotton production for its supply chain.

What are the main requirements to achieving a radical breakthrough of sustainable cotton production in Ethiopia, and how can major apparel brands such as H&M manage this transition process successfully?

- a) *Which opportunities exist for a breakthrough of large-scale sustainable cotton cultivation in the Ethiopian cotton sector and its context?*
 - b) *Which bottlenecks exist hindering a breakthrough of large-scale sustainable cotton cultivation in the Ethiopian cotton sector and its context?*
 - c) *How do the opportunities and bottlenecks interrelate with each other and what is the impact on a breakthrough of large-scale sustainable cotton cultivation in Ethiopia?*
 - d) *How can the opportunities/bottlenecks and their interrelation be strategically utilized/conquered for inducing a breakthrough of large-scale sustainable cotton cultivation in Ethiopia?*
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Scientific and TIW relevance

This research clearly fits within the Innovation Sciences domain as it revolves around a multi-disciplinary radical innovation problem: the large-scale transition from conventional to sustainable cotton production which involves a range of actors from multiple backgrounds embedded in various institutions and structures, and driven by different interests.

In this research a particular socio-technical transition approach, namely the Technological Innovation Systems (TIS) approach [3] will be used to identify the key requirements for breakthrough. The decision is made to use the TIS approach as it has a strong focus on *emerging* change, provides clear guidelines for managing transition and offers a strong emphasis on the interrelation of the dynamics of transition.

By using this transition framework in a developing country context my thesis will also contribute to the TIS body of research [3] by providing insight into the applicability of the framework in a poor, non western setting, which is quite different from the western European contexts in which it has been used so far. Its implementation in a developing country context allows me to critically reflect upon the framework in two ways: (a) its ability to help identify critical bottlenecks to, and potentials for a sectoral sustainability transition, as well as (b) its ability to provide useful guidelines for managing a transition in such contexts.

Method (261 words)

I will conduct a case study in which the Ethiopian textile and apparel value chain of H&M will serve as case. The decision is made to focus on the Ethiopian textile and apparel value chain as H&M has announced to start sourcing apparel from Ethiopia any time soon along its expression of specific sustainable cotton targets that require a transformation of the cotton sector in Ethiopia. Data will be collected through a field study of three months in Ethiopia. I will use a stakeholder mapping to identify the key stakeholders of the cotton and textile value chain in Ethiopia. The results will be used to arrange 30 semi-structured interviews in which all stakeholder groups are covered. Additional documents, websites and reports will be used to complement the results of the interviews. This literature study, carried out in the first month of research, will be used to guide the subsequent collection of primary data in terms of main issues and challenges in (sustainable) cotton cultivation and sustainable sector transformation. I will analyse the data according to the TIS approach. The approach identifies seven functions namely; *entrepreneurs, knowledge development, networks, guidance of search, market formation, resource mobilization, and creating legitimacy*. The transformation of the innovation system requires the presence of all functions [3]. The requirements for breakthrough of sustainable cotton will be defined by the functions described into the approach and according to the principles underlying Better Cotton (BCI). I will structure the collected data according to the functions and from here draw conclusions on the requirements for breakthrough and propose a strategy on how H&M can manage this transition.

References

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