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Traditional crafts and supply chains: Lessons from the Syrian silk craft

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ABSTRACT: Using a supply chain conceptual framework, this paper examines the traditional Syrian silk industry and measures and projects undertaken by governmental and non-governmental and international organizations and agencies in the past 50 years, with the aim of safeguarding or developing it. It concludes that using a supply chain orientation is central to planning and implementing successful interventions for traditional crafts and not using it could lead to unintentional harm.

1 INTRODUCTION

Cultural heritage could be considered the fourth pillar of sustainable development, functioning as a potential source of employment, confidence-generation, social capital, cultural diversity, and energy savings (Grefe 2012). The European Union recently commissioned a literature review on this topic, concentrating on Europe. The reviewers go through substantial evidence on the social and economic impacts of cultural heritage, and highlight its role in the context of “smart, inclusive, and sustainable growth” (Dumcke & Gnedovsky, 2013: 141).

Traditional crafts are an important part of this heritage, and using them in the developmental process is encouraged due to their ability to overcome problems of shortage of capital, technology, and skilled workers, especially when they are produced at a relatively advanced level of refinement (Minkes, 1952). This is related to their small overheads, traditional attachments, mostly low-cost, locally originating raw materials, and survival in the face of falling income. As such, it is suggested that they are highly viable for economic investment, especially in underdeveloped regions (Minkes, 1952). Also, they are also more likely to be environment friendly than industrial production (Grefe, 2012).

When governments and national and international development actors seek investment in traditional crafts for preservation purposes, or economic or social ones, it is important that they consider in their planning and intervention the economic mechanisms that have led to the existence of those crafts and their expansion and continuity. Important questions to ask include ones about demand and quality, and the processes and peoples involved in production, plus raw materials, and the availability and exchange of information.

It is argued in this paper that supply chains as business phenomena and a philosophy to think about business, are useful as a conceptual framework to think about those questions and achieve better planning and interventions for the sustainability and increased productivity of traditional crafts. Using a supply chain orientation, it is accepted that changes happening in one stage of production affect activities and outcomes in other ones before and after it. Not only can supply chain-centered planning achieve lower costs, improve customer satisfaction, and increase competitive advantage (Mentzer et al. 2001), but in the case of cultural heritage related businesses,

as suggested by this paper, it ensures that efforts aimed at preservation and continuation of traditional crafts are well targeted and do not cause unintentional harm.

The history and current status of traditional crafts related to silk production in Syria have been studied to test the hypothesis that conducting a supply chain analysis and using a supply chain orientation are central to planning and intervention related to traditional industries. This paper starts by defining supply chains and presenting the traditional Syrian silk industry, followed by illustrating undertaken efforts to invest in or save that industry by governmental bodies and local non-governmental and international organizations within the past 50 years. After that, the traditional industry is conceptualized as a group of supply chains, which are used to discuss the undertaken interventions.

Data for this study were collected in 2009 via extensive interviews with cocoon producers, thread producers (reelers, spinners, and thread processors), weavers and other fabric producers, brocade factory owners, silkscreen dyers, and relevant government and international organizations' representatives, in addition to conducting a phone survey with 28 families who produce cocoons'. Primary and secondary sources about the history of silk production in the Levant region were also examined, in addition to doing fieldwork in several locations of production.

2 SUPPLY CHAINS

Mentzer et al. define a supply chain as a "set of three or more entities (organizations or individuals) directly involved in the upstream and downstream flows of products, services, finances, and/or information from a source to a customer" (2001:4). They differentiate between, on the one hand, supply chains as phenomena in business and a philosophy adopting a systems approach to viewing the supply chain as a single entity rather than a set of fragment parts, and on the other hand, supply chain management, which includes a set of processes to improve businesses based on a supply chain orientation (Mentzer et al., 2001).

Supply chains exist whether they are actively managed or not, and supply chain management theory suggests that performance improves for individual entities that are involved and the overall supply chain when there is active management of relationships within the chain (DeWitt et al., 2006). The literature also differentiates between primary and supporting chain members, noting that the nature of those may change over time. For instance, a supplier of equipment may be a primary member of a supply chain when equipment is being sourced, but turns to a supporting member when the equipment is available to the firm (Lambert & Cooper, 2000).

Supply chains could also be referred to as production chains, value chains, commodity chains, activities chains, or production pipelines (Sturgeon, 2001).

3 THE TRADITIONAL SYRIAN SILK INDUSTRY

Silk-making consists of both agricultural and handicraft or industrial activities. In general, the main production stages are silkworm eggs production, cocoon production, thread production and processing, and fabric production and processing. Processing activities for silk yarn may include twisting and combining several threads to make them stronger, plus dyeing them in different colors. Those for fabrics may include sewing and different methods of dyeing. Different production activities are carried out by different groups of people, each with an established tradition. Those include farmers who carry out silkworm rearing and cocoon production, reelers, weavers, and dyers whose practices range from simple to tie-die, and silkscreen dyeing traditions.

A multitude of traditional crafts activities are included under the label of "traditional silk industry" in this article. The consideration of all of them as cultural heritage is guided by UNESCO's and the International Trade Center's definition of crafts or artisanal products as "those produced by artisans, either completely by hand or with the help of hand-tools or even mechanical means, as long as the direct manual contribution of the artisan remains the most substantial component of the finished product," adding that "the special nature of artisanal products derives from their distinctive features, which can be utilitarian, aesthetic, artistic, creative, culturally attached, decorative, functional, traditional, and religiously and socially symbolic and significant" (UNESCO & ITC, 1997 in UNESCO Institute for Statistics, 2009).

Silk was first woven in Syria in the 1st century AD in Palmyra, while cocoons were first reared there in the 7th century during the Umayyad Caliphate (Shehab, 1968: 13-20). From the mid-19th century up to the beginning of World War I, silk was the main cash-crop of Ottoman Syria, where silk yarn and cocoon exports averaged almost 30% of the value of exports shipped from all Syrian ports, heading mostly to Europe (Firro, 1990), and where white mulberry trees constituted one of the main elements of the landscape of Mount Lebanon and Syria's Western or Alawite mountains. Silk production was a main character of the Levant region at that time and influenced its politics, land ownership systems (Firro, 1990), and the everyday traditions of its peoples (Al-Atrash, 1996: 129-130).

During the First World War, the decline of the silk industry in France, who was the main importer, marked the start of the major decline in cocoon production in the Levant, which went down from 5,900 metric tons in 1893, to 360 in 1970, and only 2 in 2009 (Firro 1990: 156; Sa'oud et al. 2000: 8, 14; M. Sleiman, personal communication, November 15, 2009). However, while the local cocoon production was decreasing, already and newly established workshops and small factories in the region for the production of silk yarn and fabrics persisted in existence and increased in number, satisfying local and regional demand for silk items (Al-Atrash, 1996: 98-110).

In 2009, when data for this study were collected, cocoon production was present in 16 Syrian villages, in addition to the existence of 3 workshops for traditionally produced thread, and multiple workshops and small factories for fabric production, which uses local as well as imported yarn (Alkateb, 2010: 20).

4 INTERVENTIONS THAT DID AND DID NOT WORK

Interventions towards the traditional Syrian silk industry include governmental subsidies for cocoon production, tax exemptions, taking over a stage of production, and providing shops in touristic areas. In 2008, the Syrian Council of Ministers took a decision to protect the silk industry as a craft and not an industrial activity, exempting all crafts and businesses that use local silk thread from tax on profit, subsidizing cocoon crops with 250 Syrian Pounds for every produced kilogram of cocoons for the period 2009-2013, which amounted to 100% of the price of cocoons on the market at that time, reeling silk yarn for farmers for free, and allocating shops in crafts' markets operated by the Ministry of Tourism to craftspeople who make silk products using local thread (Syrian Council of Ministers, 2008).

Governmental agencies have been giving consultations to farmers who are involved in silkworm rearing at least since the French Mandate (Surveillance Office on Silkworm Seeds and General Steroids for Everything Related to Mulberry Trees and Silk in Countries under the Mandate, 1931), moving onto the United Arab Republic's time, when Syria and Egypt were united in the late 1950s, and 2009, when data for this study were collected. To protect local production, the United Arab Republic prohibited silk importation in 1959 (S. Othman, personal communication, August 8, 2009), a measure that is not valid today (Syrian Ministry of Economy, personal communication, June 9, 2010).

In recent decades, the Syrian Ministry of Agriculture started selling seedlings of mulberry trees, whose leaves are necessary for silkworm rearing, for very cheap prices, and since 2006, it has helped farmers raise silkworms by taking over the early stages of that activity, doing the job for them (Alkateb, 2010: 36). Also, the Ministry of Tourism has been inviting producers to exhibit and sell silk products during outreach activities it holds nationally and in other countries, in addition to offering subsidized workshop and store space for traditional silk reeling and weaving craftspeople at a tourist market in Hama, through a call that received no applications (S. Sayyaleh, personal communication, August 1, 2010).

In 2009, two microcredit projects were targeted at current and potential future cocoon cultivators and were started by the Women's and Farmer's Unions in two villages, with funding by the Small Grants Program, a partnership between the United National Development Program (UNDP) and the Global Environment Facility (GEF) (The GEF Small Grants Program, n.d./a). According to its website, GEF is an international development organization aiming at addressing global environmental issues while supporting national sustainable development initiatives (Global Environment Facility, n.d.).

Finally, a few enthusiastic individuals have helped producers in marketing and branding.

5 THE SUPPLY CHAIN OF THE TRADITIONAL SYRIAN SILK INDUSTRY

Silk production is related to the life cycle of the domesticated mulberry silk moth *Bombyx Mori*, which develops from an egg, to a silkworm that feeds on white mulberry leaves, to a larva inside a cocoon, to an adult moth that begets eggs again, in about a month. This means that cocoon production is a seasonal job related to the availability of white mulberry leaves in the spring. While labor, knowledge, and equipment could be available in different locations for cocoon production, the availability of a suitable environment for growing mulberry trees binds production to a limited number of localities internationally.

Farmers get silkworm eggs from laboratories or preserve them at home from the previous season. The laboratories' work may include breeding to obtain the best varieties. Through the Ministry of Agriculture, Syrian farmers import mono-generational silkworm eggs, which give good cocoons for one season only, resulting in a need to buy new eggs every season. What is referred to locally as the native moth has been extinct for at least 14 years (Alkateb, 2010: 12).

Using knowledge obtained from family and the community, and with much care, silkworms get reared by Syrian farmers from small to adult worms over about a month, after which these are supported with handmade mountages made out of shrubs as scaffolding, and on which the worms build their cocoons. Cocoon cultivation is labor intensive as the silkworm needs leaves to be brought fresh to it, and this cash crop is associated with high risk as the worms could get sick easily, which affects the final product.

Cocoons need to be dried quickly after maturation or else they will be destroyed by the adult moths eating their way out of them. If dried, they could be reeled (unraveled) into thread anytime. Otherwise they need to be reeled within a few days. Reeling is a process in which cocoons are boiled and several of their individual filaments are unwound and joined into thread. This thread varies in thickness based on the number of individual filaments contributing to it at a single point of time, and in quality based on how often the boiling water of the cocoons is changed, plus the consistency of its thickness along its length, which is related to controlling the number of cocoons contributing to it at every point of time.

An alternative method used to obtain silk thread is spinning, which results in losing qualities of length and strength of silk filaments and the associated ability of producing very thin thread. Spinning silk is normally done using damaged cocoons that cannot be reeled, and is similar to spinning wool. In Syria, silk thread used to be obtained through manual reeling and spinning, in addition to semi-mechanized and fully mechanized versions. When data for this study were collected, only manual reeling and spinning were present.

Several processing steps take place towards silk thread once it is available. They may include bobbin winding, twisting and throwing, re-reeling, and dying. Silk fabric production in Syria is done with either locally produced silk (natural, reeled, or spun) or imported one (natural or synthetic). Before the shutdown of all semi-mechanized reeled silk factories in the 1980s and the only and last fully mechanized one in 2008², local thread was the one mostly used. Also, fabrics are either woven or crocheted, and weaving either follows a simple weaving technique on a handloom or a more complicated one on a jacquard loom for brocades. Fabrics may be dyed with different techniques later, such as simple dying, tie-die, and silkscreen methods, except for brocades, for which the thread is dyed before weaving.

When the mentioned different activities are organized together, they result in several supply chains illustrated in Figure 1, which does not claim to include them all. The supply chains also include distribution and retail, up to reaching the final customers. Silk products in Syria are either sold directly to consumers who visit production homes or workshops, or through retailers. Brocade fabrics are either sold through retailers in the country or abroad, and may be exported for use in upholstery manufacturing. They could also be processed into clothing and personal accessory items. In the figure below, parts of the supply chain that take place outside Syria are not elaborated.

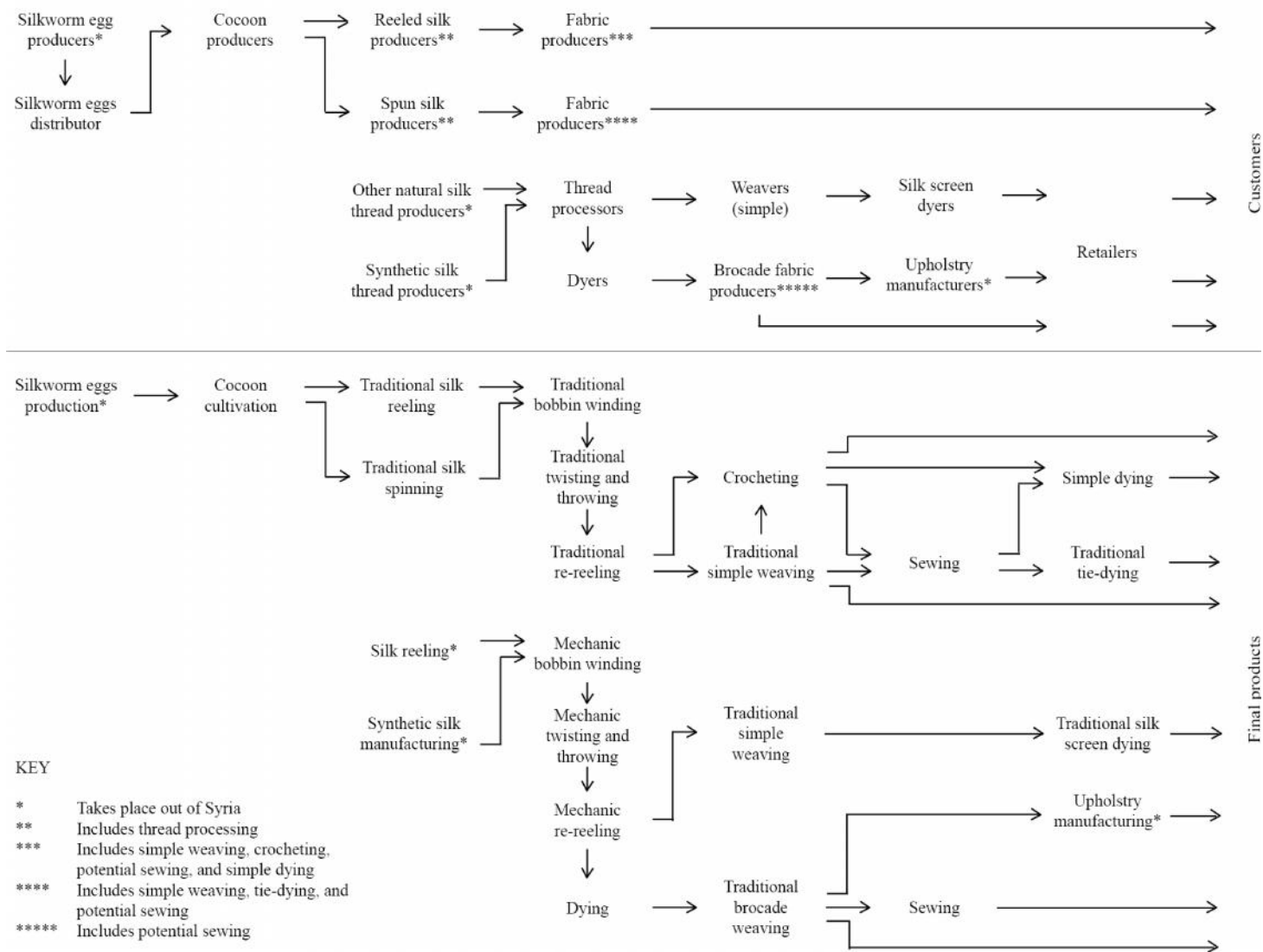


Figure 1. Supply chains of the traditional Syrian silk industry, and production processes composing and framing them

6 DISCUSSION

There are several supply chains for the traditional silk industry in Syria. Change in a stage of production affects other stages before and after it but not necessarily other stages in other chains, other than, possibly, through the brand image of Syrian silk. Most of the previously mentioned interventions to invest in or save the Syrian silk craft do not seem to have been built on an understanding of the involved supply chains, jeopardizing the impact of some, and leading to negative results for others.

For instance, while the tax exemption on producing silk items is beneficial for brocade textile producers who export out of the country and sell in shops in Syria's big cities, it is less so for small producers of cocoons, hand-made silk yarn, and hand woven and crocheted fabrics, who sell mostly from home and directly to consumers, surpassing the loosely implemented tax system in the country. Furthermore, it is difficult to estimate the true cost of a tax incentive in general, and it may be a costly way of support compared to other means (Schuster, 1999).

The time-bound subsidy on cocoon production may be beneficial as a temporary measure until increased demand raises their price as a basic raw material. However, if the temporary subsidy is implemented without parallel efforts to increase demand, which seems to be the case here, it is not a sustainable measure. Also, since 2006, the Ministry of Agriculture has been rearing silkworms for the first few weeks of their lifetime before handing them over to farmers, reducing the duration of the silk working season for farmers by half. While this may give further encouragement to farmers, such measure hurts the sustainability of the traditional practice.

The supply chain, the policy decision by the Syrian Council of Ministers to reel for farmers for free at best only moves the problem from one production stage to another. It is expected that the basis of this policy is that the selling value of silk thread is higher than that of cocoons and that the increased earnings by farmers are expected to increase cocoon production. However, after the farmers' cocoons are given back to them in the form of thread, we face several problems: 1) The farmers may not have the ability or interest in selling the thread and may prefer to sell cocoons, 2) they may not have the ability, time, or willingness to process the thread themselves through embroidery, weaving or crocheting into sellable products, 3) there is no guarantee that this newly produced thread would compete with the quality of that produced by traditional reelers, or that traditional weavers would want to buy it from the farmers rather than from traditional reelers, and 4) if final fabric products are indeed produced by the farmers themselves, those they employ, or those who have bought the thread from them, and with good quality, those products would face the same problems that existed before the reeling for free policy was introduced. Those problems include having obsolete designs, lack of capital to store and market products, loss of traditional markets, and lack of access to new markets.

Therefore, this policy does not achieve the sought out results and presents its beneficiaries with a different set of problems rather than helping them solve theirs. If the supply chain had been considered, a different policy would have probably been in place. More importantly, this policy poses a direct threat to the subsistence of the silk reeling craft because it offers the same service for free.

Moving to the failed call for applications by the Ministry of Tourism to rent out subsidized workshop and store space in the crafts' market in Hama, where tourism tour operators are required to take their tours by the Ministry, the call that did not receive any applications had the condition that applicants demonstrate their craft in the workshop in front of visitors. It is likely that this request was not based on an understanding that traditional reeling in Syria is mostly practiced as a seasonal craft linked to the availability of fresh cocoons, and that the weavers, who practice year round, live at least an hour and a half's commute away each way from the proposed shop place. This would make the offer of little to no value for them as a financial and time investment. If the offer had been targeted at another stage of the supply chain, such as distribution or retail, it would have been more beneficial.

The two microcredit projects were initiated in 2007 with a planned end date of December 2010 and are still under execution according to the Small Grants Program's website (The GEF Small Grants Program, n.d./b; n.d./c), including in 2011 before the unrest in Syria had started. The projects' means of support, which is giving microcredit loans to cocoon producers, is not

well selected because cocoon cultivation, when not involving the purchase of land, needs minimal capital for production. A better target group to approach would have been farmers who had recently quit cultivating cocoons and may still own mulberry trees. This group represents 97% of the total number of cocoon producing families in 1999, whose number was 1600 then, before declining to about only 50 in 2009, in just 10 years (Sa'oud et al. 2000: 15-18; Alkateb, 2010: 18).

If new farmers decide to take loans and start cocoon production, they can plant mulberry trees at minimal cost, but would also need to wait three years until the trees give enough leaves for production (Firro, 1990). Finally, those grants are managed by the Farmers' and Women's Unions in two targeted villages by the projects. These organizations in Syria are linked to the political party in power and follow the bureaucratic management system of the government³, making them more prone to corruption and their day-to-day business management more difficult due to bureaucracy.

It is clear that the need for capital is not the reason why farmers were not participating in or quitting cocoon production. If the programs had the aim of increasing farmer income, micro-credit loans to increase cocoon production should not have been picked as a method. If the goal is to increase farmer income related to silk making, it is not necessarily most efficient that farmers be targeted by the program, as it may be that investment in later stages of the supply chain, such as retail and marketing, better achieves the set objective.

Finally, the governmental agencies that have been involved in silk production in Syria in recent decades are the Ministry of Industry, up to the closure of the governmental silk thread factory in 2008, the Ministry of Agriculture, and the Ministry of Tourism. There is no structured means of collaboration between them and collaboration does not seem to have happened regarding the setup and implementation of different policies related to silk. Rather, it seems that each focuses on the relevant part of the silk supply chain to their scope of work, and mostly without regard to the final customers.

7 CONCLUSION

Using a supply chain orientation in policy planning is important. If a policy that aims at increasing local cocoon production incentivizes the production of silk shawls with a traditional loom without addressing other stages of the supply chain, it is not guaranteed that the weavers will use local thread produced with local cocoons, and if they do not, the policy would fail. On the other hand, if a policy incentivizes the production of local thread with local cocoons without considering other stages of the supply chain, it is not guaranteed that the produced thread will be bought by actors in the next stage of production.

Considering that several supply chains exist for the traditional silk industry in Syria helps planners be alert that marketing brocade fabrics for example, which have in recent years been made mechanically and with imported thread, will have no effect on the production of traditional thread and on that of local cocoons. Intervention in one of the stages, such as the farming, without paying attention to implications on other ones could be highly negative, such as in the case of reeling for farmers for free. However, efforts directed at later stages of production will trickle down to earlier producers if pragmatic protection measures are adopted.

In terms of power and leadership structures, there needs to be a firm that assumes the leader role in the supply chain (Mentzer et al., 2001), which may in our case be the policy setter or development organization addressing investment in the craft, or one of the individual businesses in each chain. According to Mentzer et al., the success of supply chain management is directly correlated to the presence of constructive leadership capable of stimulating cooperative behavior between participating firms. However, forced participation will encourage exit behavior (2001). In our case, such leadership was missing.

The principal recommendation of this paper is that policy planners or development organizations intervening in relation to traditional crafts first investigate the presence of supply chains related to those crafts and find out who their members are. Lambert & Cooper (2000, in DeWit, 2006) suggest three steps for achieving active management of a supply chain: 1) Identifying key supply chain members, 2) identifying the processes that should be linked with key chain mem-

bers, and 3) determining levels of integration and management that should be applied to each process link (active management or only monitoring the link).

When a supply chain orientation is adopted, it follows that the customer is regarded as an integral part of process (DeWeitt, 2006; Mentzer et al. 2001), meaning that this approach is also keen towards a focus on marketing.

One limitation of using a supply chain orientation for interventions regarding traditional crafts is that such orientation assumes that whoever has the relationship with the end user in the chain has more power (Lambert & Cooper, 2000), and it mostly portrays power of early and intermediate actors in the chain in a passive sense rather than that of ownership over the final product, which should not be the case when this orientation is employed in the service of enhancing the profitability and sustainability of traditional crafts.

It should also be acknowledged that there may be conflict between the goals of different stages of the supply chains (Otto & Kotzab, 2003). Decisions of which place to focus on in the traditional craft supply chain, and whether to require one or more stages to get their supplies from traditional sources or not are ultimately up to policy makers and hopefully relevant producing communities. It is recommended that support or investment decisions related to crafts take into consideration the position of the craft in various supply chains and the implication of such intervention on other stages before setting policy or making changes.

The 2009 UNESCO Framework for Cultural Statistics includes within craft objects ones produced industrially if they have a traditional character, such as pattern, design, technology, or material (UNESCO Institute for Statistics, 2009: 26). With this definition, it is possible for an artisanal product to still be considered one even if its production substitutes one of the traditionally made components with a synthetic one, or if its production is mechanized. Supporting such products is therefore viable within programs aimed at preserving or investing in traditional crafts, and may be the only means to economic sustainability of some of them. However, assessments before making decisions to support such an artisanal product should take parallel losses into consideration.

The call of this paper should not be understood as one to integrate and manage all members of a traditional craft supply chain, as that would be counterproductive in most cases according to Lambert and Cooper (2000), but to manage those who are critical to achieving the well planned goals of the policy or program.

In industrial organization economics it is generally taken as a given that the ultimate purpose of a company is to maximize economic profits (Conner, 1991). However, Sable & Kling discuss a model where cultural conservation is considered a double public good, which encompasses benefits to individuals and to the general public at the same time (2001). Positioning their model in a social welfare equilibrium, they argue that, in addition to private market values, “many types of cultural assets or activities produce multidimensional nonmarket social benefits, particularly when they serve as communicators of social identity, forces for change, and evidence of cultural continuity” (Sable & Kling, 2001: 78).

Traditional handicrafts can decrease poverty through direct sales and indirect ones via increased tourism, in addition to empowering communities that make them, including women and youth, and creating participation occasions to help civil society to emerge, as they have the potential of transcending to the producing communities values such as appreciation of competition, sharing knowledge and working together, being courageous and innovative, and taking initiative and not waiting for the government’s help. Additionally, material culture, present through arts and crafts, could serve as a tool for stressing human commonalities and promoting understanding, respect, and appreciation between people who belong to different ethnicities and generations, especially in conflict and post conflict situations.

For these reasons, investing in traditional crafts and in cultural heritage in general is important. It is advised that when that is the goal that planning efforts include an economic assessment that looks at supply chains in which the targeted cultural heritage exists, so that policy and program planners are well aware of results and repercussions of various alternatives and are well informed before selecting the best course of action.

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ENDNOTES

- 1) The survey was performed in 2009 towards 28 families who produced cocoons the previous year. Phone interviews guided by a list of questions were conducted with one of the household heads, a man or a woman, in each family. 48 families who produced cocoons the previous year had registered with the Ministry of Agriculture to be eligible for a newly introduced cocoon-related subsidy, and the list was obtained from the Ministry of Agriculture. 28 of those were reachable by phone at the time when the survey was conducted, and no further attempt to contact other families was done due to reaching saturation with the answers. Full responses could be read in (Alkateb, 2010).
- 2) All private silk reeling factories in Syria, which were semi-mechanized, closed in the 1980s due to monopoly over purchase of cocoons by the government-owned fully mechanized factory. This last one closed in 2008 due to decline in cocoon production (Syrian Council of Ministers, 2008).
- 3) As indicated by their websites, which include various supportive statements, articles, and imagery related to the Baath Party in Syria (www.alfalachen.org; www.gwu.gov.sy).

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