

Ready-made garments inclusion: A study on science and technology park of Extremadura, Spain

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Abstract

The ready-made garments (RMG) can have a noteworthy contribution to the economy of a country when it possesses a noticeable application of technology and innovation in its design attractiveness, healthier aspects of body and environment. The primary purpose of this study is to show the relevance of including RMG sector in Science and Technology Park of Extremadura (PCTEx), a prominent member of Association of Science and Technology Parks of Spain (APTE), Spain in Badajoz zone. Based on the study result, it is proposed to include this promising sector in this area that has impact. The conclusion finds that the PCTEx can include the sector in this area that can ensure greater impact in social and financial gain of the economy. The study follows case study method and the result shown based on face to face interview using unstructured open-ended questionnaire. The findings support that if this sector tends to run and is supervised by the PCTEx authority in Badajoz, with the influence of this non-government association, it will flourish with its superior performance and in turn will contribute to the development of the region by creating employment opportunity for a number of unemployed people especially for women and to the country economy as a whole. The availability of low-cost human resources especially high-tech equipment and sector-specific friendly environment all work behind the motivation of the inclusion of this sector in Badajoz, Spain.

1. Introduction

The textile and clothing industries are necessary in economic and social terms, in short-run by providing incomes, jobs, particularly for ladies and in the long-run by providing countries the opportunity for sustained economic development (Keane and Te Velde, 2008). In 2002, textile and apparel manufacturing accounted for €380 billion in global exports, representing 6 percent of world trade where 8 percent of world manufactured goods.

Ready-made garments are factory-made finished textile merchandise of the vesture trade. They are not custom tailored according to measurements rather generalized according to anthropometric studies. They are made from many different fabrics and yarns. Their characteristics rely on the fibers utilized in their manufacture. The first RMG factory was established in New York in 1831. During the American Civil War, the need for ready-made uniforms helped the garment sector grow in the United States. Near the end of the nineteenth century, there were changes in societal views towards RMG. They were no longer seen as only for the lower classes but also for the middle classes. In the late 1860s, 25 percent of Garments produced in the US was ready made where it was risen to 60 percent by 1890. By 1951, 90 percent of clothes oversubscribed within United States were ready made. During the same time, two-thirds of garments sold in France were ready made (Wikipedia Contributors, 2014).

In the early years of the twenty first century, the largest importing and exporting countries throughout the world were developed countries including the European Union (EU), the United States, Canada and Japan. The Multi Fibre Arrangement (MFA) ruled the globe in exchange of textiles and clothes from 1974 through 2004, imposing quotas on the developing countries in export to developed countries that expired on 1st January 2005. At the General Agreement on Tariffs and Trade (GATT) Uruguay round, it was decided to bring the textile trade under the jurisdiction of the World Trade Organization (WTO) which is beneficiary arrangement for European and other developed countries to expand this sector (Wikipedia Contributors, 2005).

Many researchers have worked on the RMG sectors and its impacts on national economy (Jahan, Zaman and Kamal, 2013). While China has started losing their attractiveness in, several chief purchasing officers of United States of America (USA) and Europe moved and scrutinized their sourcing decision toward Bangladeshi RMG sector which has achieved a substantial development in this sector for this country (Berg et al., 2011). Bangladesh experienced its worst ever industrial disaster on 24th April 2013, when the Rana Plaza building collapsed, leading to over 1,100 fatalities. After that devastating disaster, several commitments have been made for improved factory standards. However, while systemic reform is taking place in Bangladesh, the improvements are from a low base and significant challenges remain, including funding of factory remediation, labor standards, poor infrastructure and various challenges to the sustainability of doing business in this country (Carlsson-Sweeny, 2014). The freeing of trade in textiles and clothing has created a formidable challenge to the Bangladeshi RMG sector. Dependence on foreign raw materials, political instability, turbulent economy, high bank interest rates, lack of government incentives, poor knowledge of international marketing, port problem, poor infrastructure and labor union are some of the internal problems of this sector. However, in Bangladesh, RMG growth is overwhelming. There was only 5 Garments Company in 1971 which grew tremendously and reached to 12,000 between 2005 and it was found in 2012 with a 6.77 percent growth rate per year. This sector contributes 17.9 percent share to GDP during 2006-2012. According to data from BGMEA (2019), RMG sector acts as the catalyst of the country's development with contributing to 6% in GDP every year on an average as well as to the social and human development.

It is a matter of great interest that RMG sector is healthy and handsome due to the contribution of Bangladeshi women from the beginning of the garments sector. Women in Bangladesh have traditionally been excluded from taking part in social, political and economic activities. The rise of the RMG sector in Bangladesh since the 1970s has provided women with opportunities to work outside the home for wages. This change coincided with changes such as a decline in the rural sector, increased emphasis on girls' education and campaigns to improve women's health and reduce fertility. As a result of these changes, the social exclusion of women has reduced considerably. The impact of the sector on women's inclusion is mixed. Women have bigger economic independence, respect, social standing and 'voice' than before. However, harassment and exploitation persist. Given the necessary changes that this trade helps to bring into women's lives, stakeholders should focus attention on making the sector a more humane and sustainable option for them. In 2012, there was 83 percent female participation in Bangladeshi RMG sector. From the beginning of this sector, poor Bangladeshi women are playing vital role to the prosperity of this sector and national development (Jahan, Zaman and Kamal, 2013; Khosla, 2009). According to Bangladesh Garment Manufacturers and Exporters Association (BGMEA), nearly two million women workers were directly, and more than ten million people were indirectly associated with this sector in 2013. On an average, this sector alone fetches more than 80 percent of the total export earnings of Bangladesh (Ahamed, 2014; BGMEA, 2019). Despite sturdy economic process and large job creation, employment condition is still backward for the workers of this sector. They work for as little as €50 per month that should be at least €133, whereas the living cost of Bangladesh is much higher than that. However, as cheap labor is one of the main factors behind the boost of this sector, too high wage may harm this sector severely (Salam and McLean, 2014).

Contribution of textile industry in Pakistan economy found to be 46 percent share in manufacturing, 54 percent in export earnings, 8.5 percent in Gross Domestic Product (GDP) and 38 percent in employment (Shah, Syed and Shaikh, 2014). 3.25 million tons of clothing and textiles flow through the United Kingdom (UK) each year – approximately 55kg per person. Of this, around half is imported as textile merchandise, a quarter as ‘intermediate products’ (mainly fabric and yarn) and the rest as fiber (imported or produced in the UK). Approximately, two thirds of the imports of fibers, yarns and fabrics to the UK are man-made. The UK exports 1.15 million tons of clothing and textiles each year, comprising fibers, fabric and some completed products – mainly clothing and carpets. One-fifth of the United Kingdom’s annual consumption (by weight) of wear and textile merchandise is factory-made within the UK. Consumers in the UK spent about €1,130 per head per year, purchasing around 2.15 million tons (35kg per person) of which one-eighth is sent for re-use through charities and the rest is discarded. The UK clothing and textile industry employed around 182,000 people in 2004 split evenly between clothing and textiles (Allwood et al., 2006).

The European textile industry has been experiencing a pointy decline in the past 5 decades. The European textile industry has been facing an extended amount of decline, rising international competition and relocation to low income countries. Concerning quality of jobs, high-end fashion and stitching production provide a mixed picture. In the market section of high-end fashion, eco-friendly product and eco-labels perceived as opportunities for niche market methods, however recently not for mass markets, as high social and environmental standards lead to higher production costs (Martinuzzi et al., 2011). Although, around 300 small Spanish manufacturers closed their businesses and other international players reduced their presence in Spain because of the general economic panorama in Spain is worsening, with high unemployment rates, reduced purchasing power and political uncertainty, consumers are likely to continue investing in clothing, both in fast, low-cost fashion or for the big names of international players, although the amount of their savings destined for clothing expenditure is unlikely to increase rapidly (Euromonitor International, 2013). Since the manufacture costs were so low in other countries, this sector has been disappearing day by day from the region. Though large expansion of RMG sector seen in world economy, Spain rarely emphasizes on this sector, but it has the potential to get advantage by allowing and giving investors opportunities and support.

Although, several studies seen in the field of RMG sector in developing countries and some are in developed countries, very few can be found on Spanish economy as the sector gets inferior importance by the policy makers. The Association of Science and Technology Parks of Spain (APTE) is spread throughout the nation, it has tremendous importance in economy that encourage developing, innovating and marketing techno-based products where RMG sectors are omitted. Due to demand of techno based RMG products and the need for innovation in the sector, there is the need of studying to find the feasibility of RMG inclusion in APTE. However, Science and Technology Park of Extremadura (PCTEx) is one of the parks of APTE, thus realizing the socio-economic condition of the region; the researchers chose that arena (Badajoz) to find out the relevance of RMG inclusion at PCTEx.

This study is organized as firstly, the theoretical background in introduction section. Here, the motivation and scope also shown. Then, the next section discusses the general and specific objectives consequently the contrition of the study, then the methodology used in the study described. The remaining parts describe the association of science and technology park of Spain and the science and technology park of Extremadura. In the fifth section, the relevance of including RMG sector in PCTEx is discussed. Moreover, after discussion and data analysis, the final section focuses on the concluding remarks and the actions recommended for the target audience.

2. Research objective and significance

No study found that is based on the proposal for including RMG sector in the Science and Technology Parks in Spain. The researchers tend to show the relevance of adding this prominent

sector in Badajoz region that will produce techno-based RMG products to meet the needs of the age by having opportunity to run their business profitably which can pursue technological innovation in its operation and thus contribute to the economy as a whole that is the primary objective. The specific objectives include: (i) giving guide to the established and emerging RMG companies from home and abroad having chance in doing business in the region of Badajoz province, (ii) creating employment opportunity especially for the women in the specified area, (iii) making wealth maximization by expanding the scopes of the PCTEx, (iv) bringing scopes for expanding business for RMG companies from home and abroad and creating opportunity to bring innovation in RMG products.

There are significant contributions of this study. PCTEx as well as the APTE will have the opportunity to enlarge their strategic plan of innovation. This study would be helpful in playing role by PCTEx, APTE, RMG company policy makers to the development of these areas as well as the country economy.

3. Research questions and methodology

The study seeks to answer two questions. Why should PCTEx include RMG in Badajoz zone? How can RMG sector contribute to the park and the economy? To answer these questions, the study followed a qualitative approach in the form of case study. This is a descriptive study done based on primary data source by interviewing the associate working in the association of PCTEx based on open ended unstructured questionnaire and observation methods. The secondary data are collected from the association website, different journal articles, working papers, internet and government & non-government sources. Thus, the study result is made based on the information gathered from face to face interview and observation as well as from the previous study result.

4. APTE and PCTEx

APTE is a non-profit association where technology-based companies are registered to conduct their business in support of the park authority. According to Apte.org (n.d.), the ins and outs of the association found in their website discussed in this section. The main objective of the parks is to collaborate, through empowerment and dissemination of scientific and technological parks, renewal and diversification of productive activity, technological progress and economic development. It is an important part of the Spanish system of science and technology company. The members of the APTE are science and technology parks located on 17 different autonomous regions in Spain. The companies and institutions located at the parks are the best reference of Spanish system of innovation. 24 of these parks are sponsored by universities and 46 Spanish universities collaborate with them. In 2015 these parks located 7736 entities that billed 24.427 million euros. These companies provide employment to over 158,950 people, of which 31,243 are engaged in R&D. The diversity of the promoting entities (autonomous regions, universities, state-owned and private companies) converts the APTE in a network. It is in the headquarters of the technology park of Andalusia (Malaga) and was created in 1989 by the managers of the first 6 parks that were created in Spain. APTE is an affiliate member of the International Association of Science Parks and Areas of Innovation (IASP). It has 64 member parks scattered throughout the Spanish geography, 48 of them are Full members, 15 are Affiliates that are under development and 1 member is Collaborator. It had 500 member companies, 13,000 employees and 4,777 research and development (R&D) employees with €1,064,000 turnovers in 1997 which reached to 6,452 companies, 151,562 employees and 30,968 R&D employees with turnover €22,327,000 in 2014. During 2014, the APTE have invested 1,112 million euros in R&D activities. The main sectors of the companies located in the parks are (i) Aeronautics and Automotive: 2.6 percent, (ii) Training and Human Resources: 3.8 percent, (iii) Information, Computing and Telecommunications: 22 percent, (iv) Medicine and Health: 6.2 percent, (v) Agriculture, Feeding and Biotechnology: 4.6 percent, (vi) Electronics: 2.3 percent, (vii) Industries: 4.6 percent, (viii) Engineering, Consultancy and Advising: 14.8 percent, (ix) Energy and Environment: 4.1 percent, (x) Centers of Companies: 1 percent, (xi) Technology Centers and R&D: 43 percent.

PCTEx, Badajoz is located at University of Extremadura, Badajoz campus, Spain. Here, they develop new products and processes to be transferred to the market in collaboration with researchers of the University of Extremadura and other technological centers. PCTEx is a community where the interaction and transfer of knowledge between researchers and entrepreneurs, with a clear focus on innovation is enhanced. It works as the generator of wealth and employment in the region of Extremadura. Near 80 companies are registered in this park. These companies employ more than 1200 workers.

According to the article No. 6 of APTE statutes, the physical or legal entities, state-owned or private-owned companies interested in the promotion and the development of Science and Technology Parks, are suitable to become members of the APTE. APTE has two types of members: (i) full members and (ii) affiliated members. The full members are active parks and the associated members are parks in project. The full member admission fee is €1500 plus value added tax (TVA) (only once). These members must pay €3,446.59 plus TVA in two half yearly installments of €1,723.29. The affiliated member's fee is €1,723.29 plus TVA to be paid in two installments of €861.64. The association has achieved an important position in the science and technology system of Spain and in the process of new economy integration and the new society of knowledge. For this reason, APTE invite the companies and institutions with interest in the development of science and technology parks to join the APTE. Organizations, projected parks or institutions interested in developing science and technology parks that wish to become affiliate/associate members of the APTE require submitting a presentation of the project, together with the documents: (i) must have a suitable site for the park, (ii) name of the initiative, (iii) name of the promoters, (iv) articles of incorporation, if drawn up, (v) information about target sectors, (vi) information regarding links with the scientific sector, (vii) non confidential information related to the business plan and others.

One of the most important lines of work of the association is promoting collaboration between parks, their enterprises and other organizations. The objective of APTE R&D experts network project, in which ministry of science and innovation and APTE work together, is promoting knowledge and technology transfer in the science-technology-enterprise system. Five actions to be carried out in this project: (i) Knowledge transfer activities, (ii) Enterprises support activities, (iii) Internationalization of business activities, (iv) Control of project submitted to ministry of science and innovation calls, (v) International excellence program support. The objective of APTE COPIT Project (Cooperation Program between Trading States and Technology Parks) is increasing the competitiveness and the business opportunities of enterprises located in technology parks and trading states by a cooperation program. The Ministry of Industry, Tourism and Trade, EOI Foundation, APTE, Spanish Coordinating Committee of Trading States (CEPE) and ENISA participate in this program. Four actions to be carried out in this project are: (i) Cooperation between enterprises located in technology parks and trading states, (ii) Trading states census and analysis, (iii) Common services supply to trading states, (iv) New enterprises support.

Here it is mentionable that there aren't any textile industry or RMG company in PCTEx till now.

5. Relevance of RMG inclusion in PCTEx

In 2000, the world's consumers spent around €0.92 trillion worldwide buying clothes. Around one-third of sales were in Western Europe, one-third in North America and one-quarter in Asia. Today, clothing and textiles represent about 7 percent of world exports. Globally, clothing and textiles production experienced around 26.5 million workforces in 2000. More than one-fourth of the world's clothing and textiles production is in China, which has a fast-growing internal market and the largest share of world trade. In case of clothing and textiles exporting, western countries are still vital exporters particularly Germany and Italy in clothing and the USA in textiles. Output from the sector is growing in volume, but prices are dropping, as is employment, as new technology and vertically integrated structures support improved productivity. The sector is freer than for many

years following the phasing out of international quota agreements in 2005 that open out facilities for Spain in this sector, but plenty of agreements that distort the free-market still exist—with USA government subsidies of cotton farmers being prominent (Allwood et al., 2006). To gain competitive advantages in European textile and clothing industry, investments in R&D are necessary, requiring financial resources and skilled staff. As a result, the production costs are expected to be decreased, the product quality should be improved and the environmental impact is reduced (Martinuzzi et al., 2011). The PCTEx currently has 64 member companies included in various sectors. It is in 2 different provinces in Badajoz and Cáceres where Badajoz alone has 59 companies and the other has 5 in number. In collaboration with the IASP, the technicians' network promotes the cooperation between Brazilian, Chinese and Eastern Europe enterprises and Spanish enterprises. Brazil is the best access to Latin American trade, China offers great business opportunities to Spanish enterprises and Eastern Europe is the beginning of the collaboration with Estonia, Latvia and Lithuania companies. APTE works with three organizations in each of these countries in order to promote cooperation. This program allows Spanish enterprises make international technology and knowledge transfer, develop new business and achieve trade agreements. APTE is considered as Knowledge Transfer Office (KTO) since 2004 and in consequence, it promotes and makes stronger relationships between R&D organizations and enterprises. The KTO helps enterprises to look for technology offers and demands published by R&D organizations in order to promote cooperation and obtain fiscal benefits related to R&D activities.

In the question of inclusion necessity, the interviewer's opinion is that it could be a possibility, linked with two factors: (i) New designers in the region with very good ideas and with high potential of ready-made scalable products to the international markets, (ii) The generation of our mothers have engaged in sewing and textile industry from their childhood, so there is an experience and know-how in the sector. The following figure (figure 1) shows the growth prospects by RMG sector.

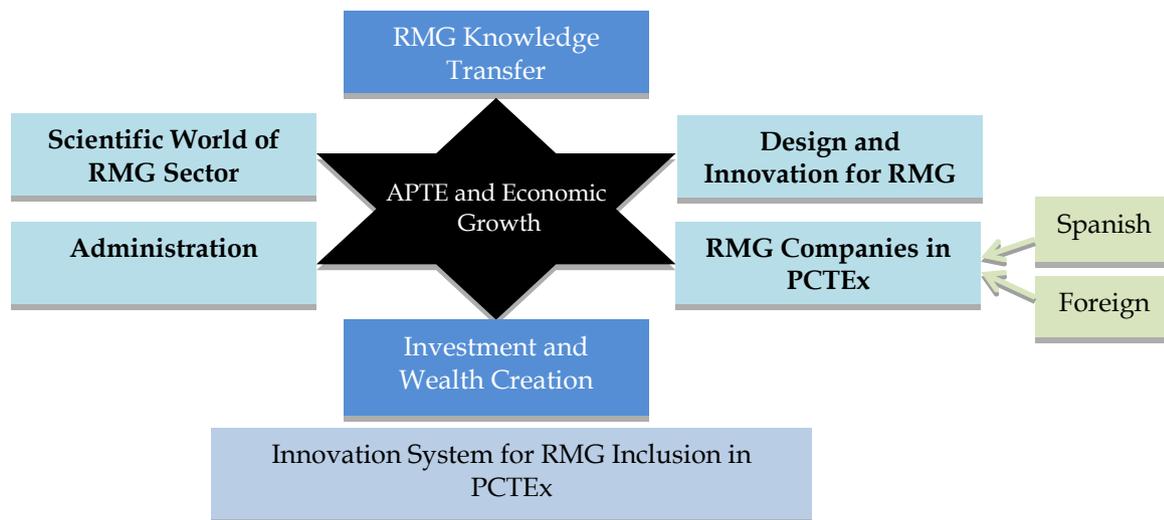


Figure 1: Ready-made garments contribution in the economy by knowledge transfer

Source: Authors

When the RMG firms whether from Spain or from abroad are included, they might foster innovative ideas in the design and in this way knowledge transfer occur in the scientific world of RMG sector. The proper administration of these companies may tend to further investment in this sector which results in wealth creation. All these procedures must foster the promotion of APTE and economic development of the country as a whole. Thus, there are possibilities of gaining if RMG sector is included in PCTEx, Badajoz. The availability of low-cost manpower in Badajoz that helps the garment sector to secure a very strong position is the main factor that can instigate the concept of

RMG inclusion in PCTEx. Again, PCTEx can ensure much capability to ensure proper quality of the product as per requirement of the global buyers of the international garment market. The strong technology base in Spain has the promising power to develop the innovative garments in this area too. The free trade opens the market of collecting intermediate goods too which will in turn provide payoff by exporting the finished techno-based garments products.

6. Discussion and analysis of data

The textile and clothing sector and EU trade policy of 2011, the EU textile and clothing sectors' main competitive challenges involve being flexible, sustainable and remain competitive; adaptation to sector specific standards closely linked with other industries; difficulty in credit assessment and valuation of Euro. The difficulties in financing are linked to investment intensive textile sub-sectors and technical textiles field. In the last decade, this sector experienced fundamental restructuring and double growth of exports and since 2009 has been benefiting from full quota and license free markets. It has also focused on reorientation towards specializing in high end products and more technical and textiles apparel by emphasizing on more and more research and development activities which is referred to as 'smart textiles' that include an additional technical function such as baby romper suit with pulse measuring transmitter fibers. From the report of Euromonitor International (2013), it is found that, the price remains a crucial factor in purchasing decisions for customers as they seek value for money alongside the best prices and deals available. There has been a continuation of companies offering more discounts and promotions to stimulate demand in Spain. Those already present in the country were forced to implement new strategies, according to the changing purchasing habits of Spanish consumers. The most successful companies seem to have found their own strategy to maintain sales and profit and to conquer a stable position. According to many store managers, in 2012 the average discount rate increased by at least 10 percent. Nevertheless, discounting policies change according to the product with trousers, jeans, t-shirts and women's dresses as the most discounted garments.

The choice is generally determined by the fact that these products are used to attract the consumer at least inside the store, increasing the opportunity to sell other products. The most important retailers and manufacturers opened factory outlets to reduce stock and give impulse to demand. Off-price retailers, i.e. retailers selling products which are often premium at lower price points on the internet are also spreading while until 2011, this included mainly international websites. From 2012, the number of Spanish off-price retailers increased enormously. In the long-term, the situation may be hard to sustain for companies. Indeed, consumers are spoiled by low prices and promotions and would have difficulty in accepting that they may have to purchase the same quality for a higher price. On the other hand, retailers and manufacturers may see their margins decrease. Getting ready to face this situation, companies are changing their strategies and structures by customizing their offers, exclusive promotions and attentive communication, especially through the support of mobile devices. According to CMT (Comisión del Mercado de Las Telecomunicaciones), clothing represents 70 percent of the purchases, followed by shoes with 20 percent and leather accessories with 8 percent. According to the Spanish association of shopping centers, fashion online sales are expected to increase again. While in 2011, 52 percent of apparel purchases were through foreign websites, in 2012 the proportion changed in favor of domestic purchasers. The importance of internet retailing is predicted to increase in Spain yet at slower rates. Manufacturers need to overcome some barriers such as the necessity of trying the item before purchasing and to improve the experience of purchasing online. In order to compensate the drop-in consumption of domestic apparel sales, Spanish manufacturers are investing in internationalization to generate new incomes and continue to grow. While imports registered a fall of 9 percent in the fashion industry, exports showed a record performance, growing by nearly 9 percent in value in 2012 and reaching more than €10 billion. Despite Europe coping with 65 percent of Spanish exports, this

market grew by just 7 percent in 2012. They are the markets of Asia and the USA which present the fastest growth rates of more than 20 percent in value terms.

Mexico, Brazil, Morocco, United Arab Emirates, Russia, China, India and the US are dynamic markets for Spanish apparel companies. Parallel to the increment of Spanish exports and the decrease in domestic sales goes for the reduction of imports, especially from China. While this country still covers 47 percent of total import of fabrics and clothing, the importance of European countries, mainly Portugal, Romania and Turkey are rapidly increasing. Zara, Mango and Shana have been pursuing a global marketing strategy. Yet, behind these companies there are important numbers of medium-sized and even small businesses that are clearly oriented towards international markets. At the end of the review period, there were more than 3,000 regular exporters in the Spanish fashion industry. The positive effects of the internationalization strategy of Spanish manufacturers is expected to last in time, due to the solid basis and reputation of Spanish brands overseas. Structural investments would help to restart Spanish economies, creating new working places. New markets, such as the fast-growing economies of South America, mainly Peru and Colombia, represent further opportunities to generate new revenue. According to Nair (2015), it is important to do an extensive research prior to crafting a business plan accordingly.

7. Recommendation and conclusion

Based upon discussion, the recommendation for the PCTEx is to give emphasize on the sector inclusion in the selected zone of APTE. Realizing the growing need of high-tech RMG products, considering the conducive business atmosphere having high-tech infrastructure, low cost labor, it is recommended to include this promising sector in PCTEx. Prior to do that, it is necessary to make in-depth research to see the real situation and the suitability and contribution made by RMG by its inclusion. If research supports this sector's inclusion, PCTEx should permit their entrance of those companies which have world class recognition primarily so that innovation of their operation can be seen. Selected companies that are technically fast and innovative in nature should be allowed. Primarily, national companies should be added. Sequentially, internationally prominent companies with high reputation should be permitted to conduct their business operations from the region. In case of companies which tend to do business here should concentrate on the aspects such as having the utmost interest in technology and innovation. They should also have the capacity to do that. The internationalization of their products is also important. Other attributes that can be added quality for RMG companies may include promotion of commercial counselors, streamline inspection regime, simplify procedures, establish good quality testing laboratories and increase existing laboratory capabilities, develop information services, support trade missions, participation in trade fairs, buyer-seller match making and training, develop financing mechanisms for sustainable training etc. Continuous advocacy and monitoring these companies on regular basis are required by the park authority for bring success particularly for ensuring economic gain.

The concluding remark draws the attention of the primary stakeholder of this study, the authority of the PCTEx, Badajoz take initiative to add the sector as it has the potential to contribute to the economy by solving social issues like unemployment, demand of users, and support of the infrastructure. Realizing the fact, this study can be used as a basis for future study in this related field that has contribution. Studies may be conducted based on country like Bangladeshi science and technology parks to consider this sector inclusion with high emphasize as this sector is the promising sector that needs innovation.

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