**Innovation for the Bottom of Economic Pyramid: The Role of Manufacturing SMEs in Sri Lanka**

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**Abstract**

Small and medium-sized enterprises (SMEs) are important players in the national innovation system of any country with its degree of influence depending on the policy support by the governments (Frietsch, 2012). The role of SMEs in poor economies is very crucial as they are directly dealing with economically weak customers and employees from poor communities. As in many other countries, SMEs in Sri Lanka employ a large number of people and contribute considerably to the GDP. However, they show lower innovation activities than larger enterprises and are less attractive in drawing the attention in the face of global competition. Further, their share of R&D expenditure and R&D engagement is low on average and often R&D and innovation processes are not conducted formally and continuously (Stokes, 2003).

This study attempted to determine the innovative behavior in SMEs in Sri Lanka where National Innovation System (NIS) remains weak and fragmented, characterized by poor technology catching-up abilities. Empirical evidence has been drawn from data gathered through a survey based on a survey instrument specifically designed for developing countries. The sample, comprising 140 manufacturing SMEs in the Western province of Sri Lanka, is drawn using a stratified random sampling method from the statistical data base of the National Enterprise Survey conducted by Department of Census and Statistics in 2003 and updated annually. The survey was backed with focus group discussions with 15 selected owners of SMEs. The collected data was analyzed descriptively with frequencies and percentages to draw policy implications that engender innovativeness of the SMEs. It was found that SMEs are moderately engaged in product/service and process innovations and improvements but almost all recorded innovations as being new to the firm. Further they work in isolation and many firms are inward oriented with limited linkages and information channels. Hence, the need to promote the SMEs through closer links and supportive infrastructure with the active involvement of government institutions, research and technical support centers and the universities was recognized. Further, foreign trade and foreign employment policies of the country should be revised for the purpose of supporting SMEs in the country. The study will extend in the future to investigate the roles of those parties that promote innovations in the SMEs enabling poor communities to enjoy the benefits.

**Key Words:** Innovation, SMEs, Sri Lanka, Resource Constrained

**Introduction**

Contemporary discussions on innovations have now turned slightly to examine innovative practices, processes, initiations and issues in resource constrained developing or emerging economies such as China, India, Thailand, Malaysia in the Asian region, and some African and Latin American countries (Zeschky et al., 2011; Christensen,1997; Aghion et al., 2009; Oyelaran-Oyeyinka and Sampat, 2005; Intarakumnerd, 2002). The orientation of these studies has changed from the “pull” factors, which are based on introduction of new science and technological solutions mainly led by basic research and applied research conducted in well equipped and resource enabled laboratories and research institutions in public and private sectors, to “push” factors which can be seen in poor economies when the economy is struggling to find out cost effective and inquiring after resource-less solutions for their sufferings (Berdegué, 2005). Further, Berdegué (2005) argues that the “push” strategy does not aim *so much as how grow and expand the capabilities and opportunities of the rural poor, but rather how to suffer the least damage (p7)* or good enough innovations that provide basic needs at low-cost and thus high value to the poor customers (Zeschky et al., 2011). These innovations are also called resource constrained innovations (Ray and Ray, 2010) and cost innovations (Williams and Van Triest, 2009; Williamson, 2010). Hence, there is a need for studying what is happening in the resource constrained economies aiming at encouraging innovation for the betterment of the people. The majority of them are extremely poor and at the bottom/base of the economic pyramid, who can spend only around 2$ to13$ per day according to purchasing power parity prices in 2005 (Prahalad, 2010).

Researchers in this field have already sufficiently paid their attention to observed innovative attempts in poor/ severely resource constrained economies under different headings such as Frugal innovation (Woolridge, 2010: Zeschky et al., 2011), Jugaad innovation (Birtchnell, 2011), Bricolage innovations ([Baker](http://asq.sagepub.com/search?author1=Ted+Baker&sortspec=date&submit=Submit) and [Nelson, 2005:](http://asq.sagepub.com/search?author1=Reed+E.+Nelson&sortspec=date&submit=Submit) [Andersen](http://aas.sagepub.com/search?author1=Ole+Johan+Andersen&sortspec=date&submit=Submit), 2008), Pro-Poor innovations (Berdegué, 2005), and innovation at the bottom (base) of the economic pyramid (Anderson and Markides, 2007: Anderson and Billou, 2007). As a result of resource unavailability the actors and based on the consumers’ inability to pay higher prices for innovations in these economies there is a tendency to find simplified solutions for existing problems with existing knowledge rather than investing in the creation of new knowledge. The products of these innovations often look substandard to existing solutions because they provide limited functionality and are often made of simpler with cheaper materials (Zeschky et al., 2011) even though they have tagged in different terms in different contexts.

**Sri Lanka as an Emerging Country**

The Sri Lankan economy, recovering from long time stagnation, indicates positive economic growth underpinned by improved confidence in both consumers and firms arising from the peace that ended thirty years war, favorable macro economic conditions, increased capacity utilization, expansion of infrastructure facilities, and renewed economic activities in the Northern and Eastern provinces (Central Bank of Sri Lanka, 2011). As a result, macroeconomic indicators as given in the Central Bank annual report of 2011 recorded very positive trends in economic and social performance during the last three years. GDP growth rate has been attractive, averaging close to 7 percent per annum over the past three years even though most other economies experienced economic difficulties because of economic recession and world political disputes during the same period. Sri Lanka recorded the highest growth rate after independence (in 1948), in 2011viz 8.3 percent which was mainly contributed to an increase in industry and service sector growth, ant the agricultural sector rebounded from output loss due to bad weather conditions. Further, the per capita income of the country had remarkably increased from $871 in 2000 to $2836 by 2011, nearly doubles that of average of South Asia, indicates that the country’s rising economic status as a middle-income country (Dutz and Connell, 2013). Based on this progress, the government of Sri Lanka has set a target to achieve $4000 per capita income by the end of 2015. Other economic indicators such as, one digit inflation rate during the past five years and low unemployment rate (4.2% in 2011) are also favorable. According to Dutz and Cornnell (2013) *there has been sustained optimism for the prospect of accelerated economic growth and poverty reduction during the anticipated post-conflict years* (p1). However, the Gini index (0.49 in 2011) and the difference between mean house hold income (Rs. 36, 451) and median house hold income (Rs. 23, 746) show considerable disparity in income distribution. Still many people in the country spend very small amounts for their day to day needs. Further, the currency rate still shows unstable and continuous depreciation due to the negative foreign trade balance experienced over the past two decades and the unfavorable world economic conditions and continuous increase in prices of crude oil.

The population was recorded at approximately 20Mn in 2011 and has shown a very low population growth rate as 1 percent in the same year. The total labor force of the country is 8Mn which included 1,232,000 government employees in 2011. Employment percentages according to the three sectors as agriculture, industrial and service recorded 32.9%, 24.3% and 42.8% respectively in the same year. A high dependency rate at 48.4% of total population shows that buying ability is limited to around half of the population. The total area of the country is 65,610 square kilo meters resulting in a high population density of 333 persons per square kilo meter indicates that there is a limited availability of the land and natural resources for a long period.

**SMEs and Resource Constrained Innovations**

The role of SMEs towards economic development was not duly recognized in the early stages of the industrial economy as the role of management of large organizations with consideration of sophisticated technology, mass production and mass marketing were prioritized as the main focal point of policy makers, academics and researchers in the field of economic development (Thirkawala, 2008: Stokes, 2003). However the importance of SMEs was recognized in the 1970s and 1980s attracting the attention of the main key players in the field. The economic growth of developing countries is directly correlated with the success of the private sector, and recognized as the engine of economic growth (Dutz and Connell, 2013). These private sector enterprises mostly consist of SMEs which play a crucial role in modern economies attracting the attention of policy makers and researchers towards the need of accelerating SMEs for sustainable economic growth. SMEs were neglected and large enterprises were prioritized in the initial stage of transforming agricultural economies to industrial economies in the 1950s and 1960s. The sector was considered as an outdated economic activity and the owners/managers of SMEs were labeled as the lesser flame running with inadequate resources and backward technologies (Stokes, 2003). Government policies were more oriented to encouraging FDI and were more liberalized to attract large scale investments. The role of the SMEs was recognized in the 1970s and 1980s as the new rescuers of industrialized economies attracting the attention of researchers and scholars who started to study the various aspects of SMEs and their behavior.

A significant role in the economy is played mainly by the SMEs scattered worldwide today (Philip, 2010; Islam et al, 2011). The vibrant SME sector is recognized as the engine of economic growth, innovation, employment generation and poverty reduction (Stokes, 2003; and Prasad, 2004). Micro, small, and medium-sized enterprises in the European Union provide around 75 million jobs and represent 99 percent of all enterprises as playing a central role in the region (European Commission, 2003).

More liberalized economic policies which enabled Sri Lanka to open up her import and export markets were introduced in 1977. However, economic performance of Sri Lanka is still far behind compared to her counterparts in the region such as Korea and Taiwan (Dutz and O’Connell, 2013). Shortage of capital, poor infrastructure, low technology based labor intensive production, less potentiality to mobilize and divert financial resources in the economy, influence and the impact of neighboring countries, inadequate entrepreneurial talent and spirit, and the influence of large organizations can be considered as critical factors affecting the growth and development of SMEs in Sri Lanka (Gamage, 2003). SMEs in Sri Lanka need to be dynamic, robust innovative and technology driven for the purpose of improving competitiveness in domestic and global markets (White paper, 2002).

SME sector accounts for around 80 to 90 percent of the total number of enterprises and 75 percent of employment in the private sector in Sri Lanka (ADB Report, 2007). The banking survey conducted by the International Finance Corporation in 2006/2007 has revealed that 80 to 90 percent of total establishments are SMEs and they generate 70 percent of employment opportunities in the country. Moreover the contribution of the SME to the GDP of Sri Lanka has increased from 40 percent in 2010 to 52 percent in 2011 (Ministry of Finance and Planning, 2011). Paying attention to this increased importance of the SME sector, the Sri Lankan government formulated a SME policy in 2002 to provide institutional support for the growth of SMEs (Gamage, 2003).

However SMEs are challenged by globalization of trade and the growth of Internet and information technology (Prasad, 2004). Further, inadequate access to capital and finance, inadequate industrial infrastructure, lack of market based information, obsolete technology; lack of modern management skills and lack of labor training restrict the growth of the sector (Antonio and Gregoria, 2005). More than 85 percent of SMEs face significant survival challenges and more than 75 percent fail within five years of startup (Asian SME Summit, 2009). Being proactive and innovative is necessary for addressing the challenges and long term survival and growth of SMEs.

**Research Problems and Objectives**

There is a dearth of sufficient studies on the field of innovation even though some researchers (Dassanayake, 2009; Gamage, 2003; Gamage, 2004; Pushpakumari and Watanabe, 2009; De Silva et al., 2012; Karunanayake and Senadheera, 2006; Thrikawala, 2011; Wijethunga, 2013) have studied entrepreneurship and SMEs in Sri Lanka.
Recently, Dutz and Connell (2013) also suggested that it is more important than ever to identify and assess existing constraints to investment, productivity, innovation and growth in the Sri Lankan economy. Hence, there is a need of an intellectual and policy making discourse about the contribution of SMEs towards development and diffusion of innovation for the benefit of the resource constrained environment. This study answers what are the innovative activities which can be observed in manufacturing SMEs in the Western province of Sri Lanka where innovative capability is very low compared to large organizations and also constrained by resources and poor technology catching-up abilities. It will further focus on investigating the resources employed by the sector for the development and diffusion of innovations, different knowledge sources they use and interactions maintained for this purpose. Finally, it will identify the problems that the sector faced in relation to innovations. The results of the study will provide a clear understanding of innovative attempts of SMEs considering their inability to employ resources. Finally the study suggests policy directions that will promote innovativeness among manufacturing SMEs in Sri Lanka.

**Methodology**

This is a survey type study designed to examine the role of manufacturing SMEs in the Western province of Sri Lanka that develop resource constrained innovations to the bottom of the economic pyramid. Basically this study employs the deductive method. The descriptive nature of the research problem requires a combination of descriptive and explanatory research designs. The operational population of the study consists of manufacturing SMEs in the Western province of Sri Lanka. The main reason for selecting the manufacturing sector was that SMEs account for 96 percent of the manufacturing sector in Sri Lanka (White Paper, 2002). The enterprise survey database (2003) maintained by the Department of Census and statistics of Sri Lanka was used as the sample frame of the study due to its wide coverage and reliability of data. Further, the Western province, which includes main three districts of the country: Colombo, Gampaha, and Kaluthara and populated with 28.8 percent of total population, was selected as approximately 42 percent of SMEs are located in the province (Department of Census and Statistics, 2010). Due to practical difficulties such as money and time constraints the sample was restricted to 280 firms selected through the stratified random sampling method. The sample size for large sample in a similar study conducted by the World Bank (2009) was 120, and it was justified with 7.5% precision and 90% confidence.

Hence, 280 firms with 5 to 100 persons employed were selected from the database of the Department of Census and Statistics (DCS) following the sufficient percentage for non-responses. Small and medium scale was determined as firms with 5-100 employees according to the definitions of the Department of Small Industries and the World Bank Country Study in Sri Lanka (Dassanayaka, 2009). Considering the added values to the Gross Domestic Product from the SME sector, four leading industries namely; Manufacturing of food products and beverages, Manufacturing of textiles, Manufacturing of wearing apparel, dressing and dying, and Manufacturing of Rubber and plastic products are selected (Department of Census and Statistics, 2010). The sample consisted of firms of the four industries are distributed in three Districts in the Western province of Sri Lanka as shown in table 1.

**Table 1: Manufacturing SMEs in the Western Province; Sample Stratification**

|  |  |  |  |
| --- | --- | --- | --- |
| **Sector** | **Total number of Establishments** | **Added value to GDP (Rs.)** | **Sample** |
| **Colombo** | **Gampaha** | **Kaluthara** | **Total** |
| Manufacturing food products and beverages  | 4407 | 140 Billions | 46 | 55 | 12 | 113 |
| Manufacturing of wearing apparel, designing and dying  | 1852 | 134 Billions | 42 | 24 | 15 | 71 |
| Manufacturing of rubber and plastic products  | 391 | 57 Billions | 15 | 11 | 10 | 36 |
| Manufacturing of textiles  | 2084 | 35 Billions | 14 | 29 | 07 | 50 |
| **Total establishments in the sample according to the district** | **117** | **119** | **44** | **280** |

*Source: Data base obtained from DCS, 2003; and DCS, Annual survey of industries, 2010*

The survey instrument to collect primary data was developed based on innovation surveys conducted by the European Union (CIS), African countries (NEPAD) and the National Science Foundation (NSF) in Sri Lanka (The NSF failed to collect the data even though they prepared and distributed the questionnaire in 2011). In the present study data was collected through face to face interviews spending around one hour per interview based on the structured questionnaire. The survey is followed by a focus group discussion inviting 15 SME owners for the purpose of identifying and proving the innovative orientation and the barriers for innovation experienced by manufacturing SMEs in the Western province of the country.

**Data Analysis**

As a result of personal involvement in collecting data through the interviewing mode, 145 completed questionnaires were collected. Even though the original sample size was 280, many organizations were not in existence as the original survey has been conducted in 2003 by the DCS and the rest of firms were not accessible due to their unwillingness to reveal data as commonly experienced by researchers in Sri Lanka. However, responses were sufficient for analysis as justified by the World Bank Industrial Survey in Sri Lanka (2009). Out of 145 completed questionnaires 5 were removed from the analysis as they exceeded 200 employees, showing the characteristics of large firms. There were 6 firms with 100-200 employees as they had grown after the original survey conducted by DCS in 2003; however they were not excluded from the analysis as there was no considerable deviation from other responses. As a result, data analyses have been carried out with 140 responses which represent 50% of the originally designed sample.

The geographical dispersion of the sample shows its representation in the three districts in the Western province of Sri Lanka, reporting 73 responses from the Colombo district, 58 responses from the Gampaha district and 9 responses from the Kaluthara district. Firms engaged in manufacturing food products and beverages was recorded as 56 firms (40%) while 28 firms ( 20%) manufacturing wearing apparel, designing and dying were included in the analysis. 15 firms (10.7%) and 20 firms (14.3%) were engaged in two sectors, manufacturing rubber and plastic products and manufacturing textiles respectively. The rest (21 firms) were doing their business in other related manufacturing industries such as manufacturing wood products and furniture, manufacturing food processing machinery and equipment. Table 2 shows the distribution of the sample according to the number of employees in the firms.

**Table 2: Frequency of firms in the sample according to number of employees**

| **No. of Employees** | **1 - 20** | **21 - 40** | **41 - 60** | **61 - 80** | **81 - 100** | **Above 100** | **Missing** | **Total** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Frequency** | 81 | 30 | 11 | 4 | 7 | 6 | 1 | 140 |
| **Percent** | 57.9 | 21.4 | 7.9 | 2.9 | 5.0 | 4.3 | .7 | 100.0 |

*Source: Survey Data, 2013*

According to the distribution in table 2, a majority of the firms represented an employment level of 1-20 with 57.9 percent from the total sample adhering to the ordinary distribution of the population with the properties of exponential distribution.

One of the main objectives of the survey was to reveal the innovative activities engaged in by the firms during the three-year period of 2009 to 2011. Engagement in the four main innovative activities namely, introducing new product(s)/service(s), improving existing product(s)/service(s), introducing new processes and improving existing processes, has been presented in the table 3.

| **Table 3: Innovative Activities Recorded in the Firms** |
| --- |
| **Response** | **New Products/Services** | **Improved Products/Services** | **New Processes** | **Improved Processes** |
| **Frequency** | **Percent** | **Frequency** | **Percent** | **Frequency** | **Percent** | **Frequency** | **Percent** |
| **Valid** | **Yes** | 62 | 44.3 | 74 | 52.9 | 54 | 38.6 | 68 | 48.6 |
| **No** | 76 | 54.3 | 63 | 45.0 | 84 | 60.0 | 69 | 49.3 |
| **Total** | 138 | 98.6 | 137 | 97.9 | 138 | 98.6 | 137 | 97.9 |
| **Missing** | 2 | 1.4 | 2 | 1.4 | 2 | 1.4 | 3 | 2.1 |
| **Total** | 140 | 100.0 | 140 | 100.0 | 140 | 100.0 | 140 | 100.0 |

*Source: Survey Data, 2013*

Accordingly, their involvement in innovative product and process development processes are considerable ranging from 38.6 percent to 52.9 percent from the total observed firms. Even though this percentage is considerably high it has been revealed that 95% of the innovative activities are new to the firm and there was no considerable innovation in the category of ‘New to the world’. Further, it was revealed that the results of these innovations haven’t brought big financial gains to the firms. Instead they could just survive facing competition and customer needs with these incremental innovations. In addition to the above four main areas innovations in the areas of non-production but related to management, operations, marketing, and daily routines were discovered under different headings as summarized in table 4.

**Table 4: Other Innovative Activities**

| **Response** | **Changes in Management** | **Change in Routines** | **Change in production location, layout etc.** | **Innovations in Marketing** |
| --- | --- | --- | --- | --- |
| **Frequency** | **Percent** | **Frequency** | **Percent** | **Frequency** | **Percent** | **Frequency** | **Percent** |
| **Valid** | **Yes** | 33 | 23.6 | 37 | 26.4 | 53 | 37.9 | 34 | 24.3 |
| **No** | 105 | 75.0 | 101 | 72.1 | 85 | 60.7 | 103 | 73.6 |
| **Total** | 138 | 98.6 | 138 | 98.6 | 138 | 98.6 | 137 | 97.9 |
| **Missing** | 2 | 1.4 | 2 | 1.4 | 2 | 1.4 | 3 | 2.1 |
| **Total** | 140 | 100.0 | 140 | 100.0 | 140 | 100.0 | 140 | 100.0 |

*Source: Survey Data, 2013*

Accordingly, many firms were not actively involved in the innovative activities in the above mentioned non-production areas of organization. Most of organizations still rely on traditional management, marketing, operations and daily routines instead of finding new cost effective innovative solutions. Few firms were identified as good in management and marketing innovations in the selected industries but many are stagnating in the same level and sometimes recorded experiencing downturns due to poor marketing and management practices. Further, 57 respondents (40.7%) have found new markets in the home country, while just 14 firms accessed foreign markets during the last three years. This indicates that many organizations still focus on traditional markets in the domestic area, rather than finding more attractive new markets in the global market.

It was found that most of the organizations rarely appreciate external information sources such as suppliers, competitors, consultancies from outside firms, government ministries and programs, trade exhibition and conferences, business and industry associations, universities and research institutes, and technical, industry, or service standards for their innovative activities (percentage responses categorized as low importance of the above information sources ranged from 57.6% to 80.8%). Instead they highly rely on internal data sources (percentage of responses for high importance was 54.2%) resulting insufficient innovations with limited innovative capability.

Just around 10% of companies had good relationships with outside organizations such as consultancy firms, research institutes, universities and government institutions. However 29.2 percent of the respondents had formal relationships with their suppliers, 24.3 percent of organizations maintained linkages with clients or customers while 16 percent of firms had linkages with their competitors and firms in the same industry. This was also a reason for their limited openness to innovation through knowledge spillovers from the places where new knowledge is generated.

According to the present study it was revealed that a few organizations invested money for creating and acquisition of new knowledge during the period 2009-2011. Out of 136 respondents only 19 organizations have acquired new machinery and equipment locally or from abroad. Just 14 organizations allocated funds for in-house R&D activities and only 12 organizations spent money to acquire external knowledge such as purchasing patents, designs and paying for consultancies. Frequencies for other activities such as acquisition of R&D knowledge, employee training, marketing innovations, and organizational innovation are recorded as ranging from 7 to 10. Generally there was insufficient allocation of funds for innovative activities as they believe that it is very difficult to recover these investments. As a result they have engaged in low cost, mainly trial and error (incremental) methods and low cost reverse engineering as de-assembling old machinery and equipment for improvements and obtaining technical know-how. It was found that many organizations involve in frugal innovations in their production process improvements and have considerably extended the life time of some machinery with a ‘mend and use approach’. Further, machinery acquired by some firms are from large companies that deciding those as outdated and sold out for old steel or scrap. SMEs have purchased and replaced them with small repairs and work them for10-15 years more. Machinery and equipment used in many firms in the food and beverage industry are still low-tech and locally developed following the reverse engineering technique, as the final product (mainly bread) should be sold at controlled (by government) and affordable prices.

As a result of the low level of innovative activities, limited knowledge access, and low level of investment for innovation the innovative output measured with patents, industrial design, copy rights, and trade mark registrations recorded very insignificant level with the frequencies of 2, 3, 1,and 7 for the above four categories sequentially out of the 136 respondents. However, this does not represent the correct picture about the innovations in selected SMEs as many of the respondents do not have confidence in the local process of patenting and have no clear idea about patentable or other types of protectable innovations. Respondents blamed the long procedures and the time taken for the process suspecting that there is a possibility of leaking their information to the competitors.

Finally, the study aimed to investigate the obstacles which suppress innovative attempts of the manufacturing SMEs in the Western province of Sri Lanka. According to the survey, the factors such as high cost of innovation, lack of funding sources internally and externally, lack of skilled personnel, lack of information on technology and the poor economic condition of the country restricting the purchasing power of the people, act as mostly relevant restraints for innovations. Focus group discussions conducted following the survey revealed that the affordability, adhering to the 4As model (Anderson and Billou, 2007) of the domestic market is highly influential in making investment decisions for innovation while the other three A’s (accessibility, awareness, acceptability) are not very influential in Sri Lanka, being a small country and having good infrastructure facilities like transport, electrification and telecommunication. Many customers are not ready to pay for advanced innovations; instead they see the low cost solutions and easily accept the products that come from China and India. Those products are very cheap, but substandard, as the producers in India and China have mass market seeking low cost by local poor markets. They conveniently enter Sri Lanka with the linear trade policy and capture the poor customers in the country thus being a threat to emerging local SMEs who try to address the need of poor communities. It was further explored in the focus group discussions that the poor assistance extended by frontline officers of the government institutions and financial institutions is very influential in discouraging SMEs to be innovative even though government rules, regulations and policies are very supportive sometimes.

**Implications**

This study argues that Sri Lanka is still a resource constrained country even though there are some positive trends after the 30 years internal conflict. Still the domestic market seeks low cost simple solutions for their day to day problems with very limited and unstable purchasing ability. As Christensen (1997) clearly described a similar situation prevailing in Sri Lanka, in an emerging market however resource constrained, consumers do not seek high quality but conscious about price as many of them have only recently shifted from being non-consumers to consumers with little excess income. As a result the low quality, but very cheap in price, products from countries like India and China have a good market in Sri Lanka. Hence, the role of SMEs in Sri Lanka is crucial but not convenient to meet the growth targets of facing the global challenges and staying close to the low cost seeking customers in the bottom of the economic pyramid in the country. Further, it is not just suggested that SMEs here limit themselves to the highly competitive and small domestic market but instead they need to reach the high value added market niches in the world by being innovative with available resource in the country rather than just exporting them as non-value added raw materials.

With the responses and the feedback obtained through focus group discussions it can be concluded that there is a very good tendency and potential to being innovative in products/services and open to process introductions and improvements among manufacturing SMEs in the Western province in Sri Lanka. Even though it is imposed by competition and market driven and for their survival, the key players in SMEs have recognized the importance of innovations and have shown very good performance among those who have already got involved in innovations. As Dutz and O’Connell (2013) clearly mentioned the potentiality of the Sri Lankan firms is still underutilized. Hence, there is a good opportunity to encourage them to be more innovative in their products, services, process and markets, especially addressing the requirements of the low income majority and so resulting in the creation of good employment opportunities, contributing to the economic growth targets of the country. The survey revealed that the main barrier for effective innovations in SMEs is unavailability of sufficient linkages with government institutions, R&D firms, universities and funding organizations for the accessing new knowledge, information and funds needed for investments. There is no rationality in blaming SMEs for this weakness as they are in a struggle to survive under global pressure. Therefore, there is a need to move the relevant government institutions, R&D firms and universities closer to the SMEs with more sensible people moving out of their traditional boundaries. Intermediaries such as technology centers, business development centers and incubators (Galli and Tuebal, 1997; Intarakumnerd and Virasa, 2002) may be some forms of closing up mechanisms to SMEs for triggering their innovations but still these are almost absent. The availability of financial institutions and their spreading to all communities is appreciated but there is a problem with the role of the people in the frontline. Respondents in SMEs have shown their tension with frontline officers with regard to their inabilities and having no real intentions and practical knowledge for an effective service. This sector needs a more realistic mechanism for the implementation of government decisions and policies more realistically while being context sensitive.

Protection of the domestic producers with foreign trade policies, supporting to find out the marketplaces in the global market, providing common innovative infrastructure facilities, assistance and closeness of the university and research firms are also the expectations of SMEs. Further, they are now suffering with the problem of finding new and skilled labor for their industries as many young people prefer to find foreign employment with high salaries or prefer to join large firms with good names than working in SMEs. Therefore, recruiting new and young employees is a difficult task for emerging SMEs and the labor cost is also unbearable. SMEs expect government intervention for this through revising foreign employment policies rather than just promoting the migration of raw physical labor for lower level jobs in other countries.

Another very important implication found through the survey is the poor involvement of the knowledge creation and protection by the SMEs. Dutz and O’Connell (2013) also agree with the insufficient knowledge creation by the private sector in Sri Lanka. SMEs should get involved with the process of research and development for improvement of products, services, processes and markets. Academics and research workers are responsible for identifying their needs and collaborating with them to find solutions which have good commercial value. These firms are not strong enough to invest money in these research and development activities, but are ready to purchase commercial research outcomes. However many of them are not sound and progressive enough to discuss their issues with formal bodies like traditional universities and research institutions. As a remedy, knowledge workers need to go to their door step and pay attention to their issues beyond traditional and formal ways of researching to reveal what is happening at the grass root level and find sensible solutions. All the actors of the innovation system are responsible for building a culture which promotes open communication and knowledge sharing while showing true commitment for effective innovations. Knowledge protection is also a crucial factor and SMEs are not happy with the existing procedures. There should be simplified procedures that can be understood easily and a very close friendly environment should be maintained in the related government institutions to create confidence in the legal process. Processes should be transparent enough to make sure no information is leaked to competitors in the process. Further, the system should be strong enough to prevent issues related to the trust of the applicants and make provisions for taking legal action against misbehaviors.

**Conclusion**

The main objective of this explorative study was to identify the innovative behavior of manufacturing SMEs in the Western province of Sri Lanka, enabling to arrive at policy implications for promoting innovativeness among this sector as they closely work with and cater to poor communities in the country. It was found that the innovative activities in developing and improving products/services and processes are moderate but satisfactory as it is their nature that innovativeness is not a characteristic of all SMEs. The findings have not supported to conclude that their marketing, organizational and managerial activities are sufficiently innovative. There is a need for sufficient knowledge and information infrastructure and assistance being provided by the government, universities, technical education firms, and R&D institutions. Further there should be a mechanism to stay closer to SMEs through intermediation and friendly liaison officers. Moreover, SMEs also need to seek options to collaborate with other firms, universities, technical centers and R&D firms to bring new knowledge into the firms and share information about new products/ services, technology, and markets.

This study emphasizes the need of the supportive policies in foreign trade and foreign employment to safeguard SMEs from global competition especially from China and India and enabling SMEs to find young and skilled labor for the growth of their firms. Financial assistance from the banking system and government projects will help resource constrained SMEs to trigger innovations as they are not capable enough to allocate needed funds themselves. Existence of a transparent and simplified process of protecting innovations will increase the level of involvement in innovations among SMEs to finally come out with more patents, copyrights, registered industrial designs, trademarks and other forms of innovation outputs.

The current study did not focus on the demand-side factors such as customer perception on local products and services and government procurement which will directly influence the innovativeness of the SMEs especially in the resource constrained environment. Further, it did not inquire into the innovation infrastructure provided by government institutions, universities, technology centers, R&D firms etc. Further, existing government policies related to SMEs and innovations were not examined. It is recommended that future researcher in this field investigate these areas for improving innovative performance of SMEs and, hence, their positive contribution towards national economic targets.

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