Industrial Engineering Letters
ISSN 2224-6096 (Paper) ISSN 2225-0581 (online)
Vol.4, No.9, 2014

The Evolution and Structure of Value Chain Clusters of Soap Industry; A Diagnostic Study of Faisalabad (Pakistan) Soap Manufacturing Clusters

Hasnain Bashir
Phd (Management) Scholar
IAS,PU,Lahore

Abstract:
This paper focuses on two aspects of the evolution and structure of cluster in soap manufacturing firms of Faisalabad, Pakistan namely what gives rise to cluster and what benefits are associated with clustering for small and micro firms. Around 26 soap manufacturing firms were studied by the researcher through personal interview with the owner of the firms. These firms include micro, small, medium and large scale setups. The major benefits studied and observed of value chain clusters from the secondary data are specialization, better procurement, technology up gradation and firms ability towards innovation (through R & D). Unfortunately, Faisalabad soap firms are hardly enjoying these benefits because of old orthodox approach of production. Access to skilled labour in these firms is not reported to be a significant factor from the research.

Introduction:
Soap manufacturing industry is second imperative to contribute towards the national economy after textile industry from Faisalabad. Increasing the national income depends upon the rise of SME sector in developing countries like Pakistan. Economic growth depends upon the continuous development of SME sector. The soap manufacturing industry of Faisalabad regardless of its size contributes individually which ultimately creates impact on national income and growth in terms of economic development. The soap manufacturing sector is one of the most important sectors in the economic growth of Pakistan. It feeds many domains such as chemical industry, steel industry, packaging and service sectors. While soap manufacturing sector of Faisalabad lies in the middle of the economic line of Faisalabad after textile industry and also plays an important role for the job creation and continuity of the soap sectors, This study provides a value chain model in which all important key performance indicators were studied for the development of a value chain model for SMEs sector especially for sector of soap manufacturing in Punjab province especially in the hub of soap Faisalabad. Faisalabad (Punjab) is the top most soap producer of the country and for data collection, factories of Faisalabad and its surroundings were selected having gathered the data and by gap analysis, their performance indicators were studied closely.
This study emphasizes the value chain networks of soap manufacturing units of Faisalabad, Pakistan. The main focus of the study is the soap manufacturing value chain links within Faisalabad with special focus on the quality soap production from small and micro units of Faisalabad as it forms important value chain network but remains unexplored as far as its issues, type and structure, the way they are integrated at forward and backward end and their relationship at horizontal end, are concerned.

There are approximately 400 Factories making Soap. They include micro, small, medium and large enterprises and employing 1, 54,000 workers in Faisalabad. The Total production of Soap is estimated approx. 103000 Metric Ton per year (FSMA).

Research Objectives:
- To create a profile of sample firms in terms of size,
- To explore the characteristics and value chain dynamics of soap industry in Faisalabad,
- To explore the current issues faced by the soap industry of Faisalabad,
- To come up with a model of value chain (clustering) for the specific industry that is useful for efficient operation and to compete with the multi- national giants, and
- To suggest suitable solutions for the problems of the soap industry in a way that they can be transformed in to innovative clusters.

**FSMA: Faisalabad Soap Manufacturing Association (Registered)*

Significance of study:
The purpose of study is to focus on the ground reality on local domestic soap detergent companies that face problems against big multinational giants operating in Pakistan. Local domestic firms in soap industry lack in clustering. They have problems such as manufacturing, technology, quality procedures, supply chain, etc. They are still using old technology and operations due to lack of investment and government support; They have a

very small target market usually based on cost leadership while multinationals firms leading huge competitive advantage against domestic manufacturing firm, they have high technology innovation, they have strong R&D departments and they use value added chain processes very efficiently. The local domestic firms can be competitive through clustering and knowledge of value chain or it can improve through interlink of local domestic firms with multinational firm through the process diffusion of technology will take place and these local domestic firms can export their product effectively.

Literature Review:

Production and distribution along with value added actions is termed as Value chain. Value chain is the major step of value addition actions in manufacturing and logistics trading (Saleem, 2011). The important ingredients of value chain are production and marketing activity, knowledge and design (Kaplinsky and Morris, 2000). Value chain is termed through various different terms such as (Porter, 1985) "value stream". Every action in value chain helps to value addition and makes the value chain in a form of a link and such links are independent in nature (Kaplinsky and Morris, 2000).

Value chain and supply chain are the terms normally mixed with each other or live under the image of each other to increase the confusion about the two different concepts. First the difference among these two broad concepts must be clear to understand the literature of Value chain.

Value chain is termed as a mix of primary and supporting activities (Porter, 1985). The primary activities include inbound and outbound logistics, marketing and sales along with after sale services and operations. Supporting actions include HRM, technology advancement and procurement, organizational design. According to Sorensen (2003) the value chain of Porter with its primary and supporting activities can be reoffered as a corporate value chain but the broader view of value chain is not only to add activities but link the activities and the value in a collaborative manner.

Most of the authors recognized supply chain as a strategy which is based on the two objectives;to reduce the cost of the product from raw material to end consumption and the efficient delivery of the product with an effective service network (Fisher 1997). Uttamrao and Rajashree (2009) consider supply chain a platform where supplier, distributor and customer become a part of a cohesive process. Chopra and Meindl (2001) argue that supply chain is the cross functional flow among and between stages for the maximization of profitability. Sturgeon (2001) concludes the confusion between value chain and supply chain by suggesting that supply chain is split of value chain due to the fact that the value added activities that are involved in supply chain subtracting the activities of the lead firm, if the activities of the lead firm are included in the equation it is known as value chain.

Value chain is such a process as includes both the developed and developing countries in a manner that they share their core competencies. Schmitz (2005) argues that the second world countries add physical value and first world countries add intellectual value and the conclusion is that the later enjoy more gains than the former. This leads the debate towards the globalization and value chain. The global value chain framework has crossed the boundaries of academic origins to become a major paradigm which was recognized by some of the globalized institutes i.e.: World Bank, World Trade Organization, International Labor Organization and US Agency for International Development (Gereffi, 2011).

Kaplinsky and Morris (2000) come up with an argument that value chain comprises of two types i.e.: buyer driven and producer driven value chain. Former is observed in toys, footwear, garments etc and later is observed in capital and technology driven organizations which have application in aircrafts, auto vehicles, heavy machinery, personal computers, etc. Buyer driven value chains are normally led by large retailers, brand manufacturers and producer driven value chains are led by large International manufacturers.

The positive effect of globalization has not only affected the world business to become global but also it has a dominant affect on value chain processes. Most of the countries enjoy the sequence of series via value chain by outsourcing their work from SMEs. Such collaboration among large and small industries generates a cluster. Most of the organizations in developing countries have enjoyed from this benefit by reducing cost, promoting SME network and forming strategic alliance to stay competitive not only in domestic market but also in International competition. Such evidence can be found from following examples: Chiniot furniture industry cluster, Pakistan (UNIDO, 2006), Wazirabad cutlery cluster, Pakistan (UNIDO, 2006), Sialkot surgical cluster (Nadvi, 1999), Value chain in button manufacturing, China (2011), Value chain of rubber wood industry Karela, India (2011).

Mytelka and Farinelli (2000) discussed the types of clusters which are Informal clusters (e.g. Cluster of tube wells, Pakistan), Dynamic clusters (e.g. Cluster of surgical instruments, Pakistan, Nadvi (1999), Innovative clusters (e.g. surgical cluster of Tuttlingen, Nadvi (1999), Spontaneous clusters are those which are innovative in nature and based on level of skill and technology and export performance.

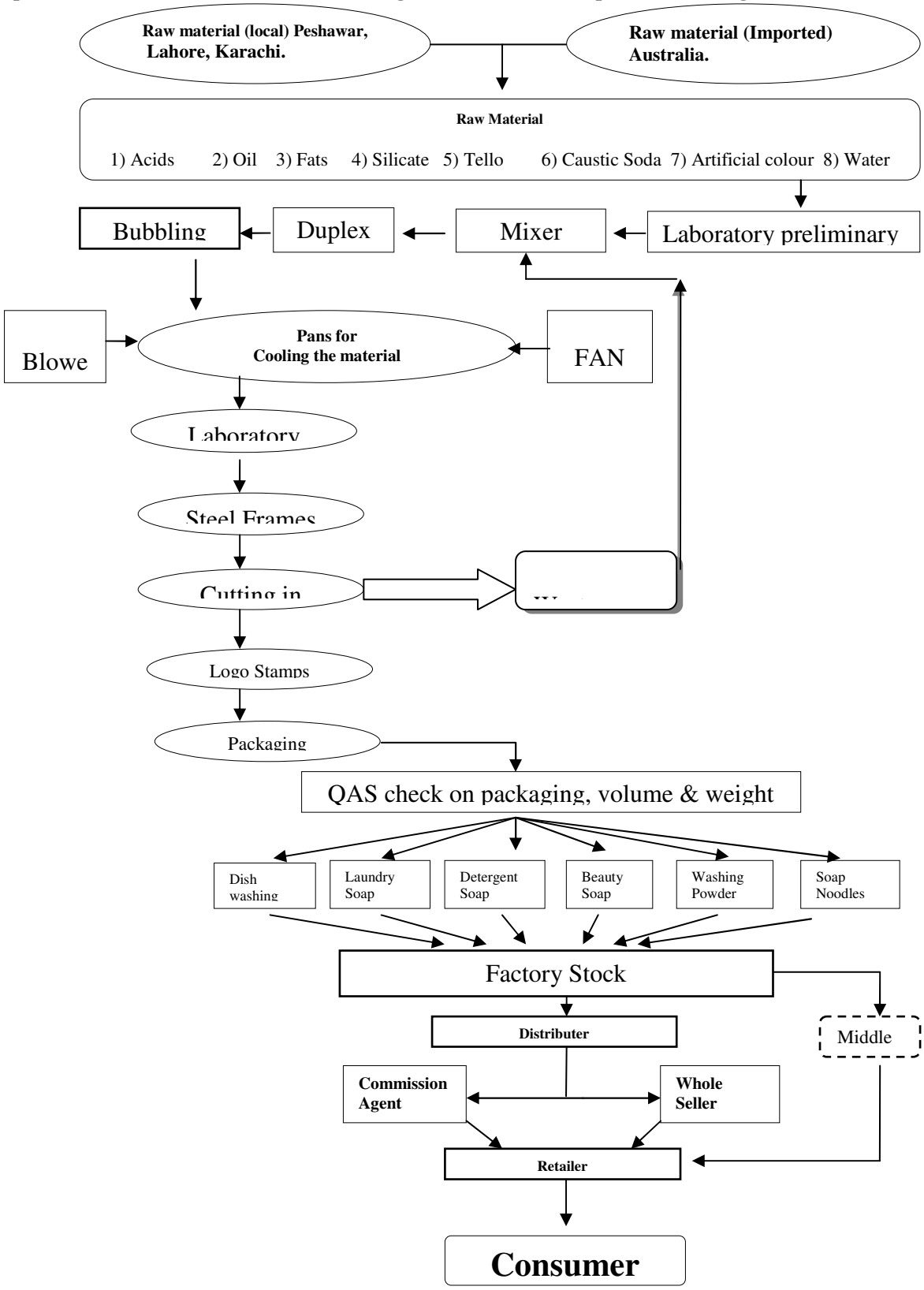
There are lots of advantages of clustering few of them are: it provides a mode of collective efficiency in the process (Marshall, 1920). Cluster firms enjoy the benefits of cooperation and competition (Porter, 1998;

Nadvi, 1999) which leads to intra, inter and extra cluster knowledge and physical linkages. Clustering in modern industry is recommended because it gives various benefits such as employment generation, export performance, enhancing entrepreneurship and innovative productivity. Many critics criticize industrial clustering as it creates a circle of dependent syndrome among setups and they become wholly dependent. Nadvi (1999) argued that the industrial clusters in Pakistan are traditional and they lack innovation such as clusters of sports industry, Sialkot, furniture industry, Chiniot and Gujrat, surgical industry, Daska, Cutlery industry, Wazirabad.

Kaplinsky and Morris (2000) suggest that the focus must be on the up gradation of value chain and those actions which produce revenue and make the barrier of entry high e.g.: Branding and Designing. Also, they suggest the types of up gradation for the firms in value chain i.e.: Process upgrading which includes efficient delivery and low wastage. Product upgrading i.e.: new product development and making the old ones better. Such up gradation is done by the market leaders for SMEs working in domestic clusters which are connected through value chain Internationally (Schmitz, 2005). Functional upgrading i.e.: moving from job processing to real brand manufacturing. Such value chain up gradation is not supported by the lead firms. Chain upgrading i.e.: switching from two color television to multi color monitors is same as switching from already existed value chain towards a new value chain. The up gradation strategy of domestic clusters is based upon the governance of specific type of value chains which they are in use.

Aftab and Rahim (1986:1989) propose that for advancement in SME aggressive policies, formation of technology sharing process, technical and managerial focus may play a role of a trump card. It is further explained by Stamer and Liedtke (2005) that promotion of cluster is a an assorted case from normal policy making of industry as the later deals with new startups and the former deals with the existing ones. They also suggest that the promotion of cluster initiatives are of four kinds i.e.: top-down public and private sector driven, bottom-up public and private sector driven. Nadvi (1999a) comes up with the argument that cluster promotion of SME linked with global value chain is possible through the mix of public-private partnership.

Proposed Model of Value Chain and Clustering for Faisalabad's Soap Manufacturing Units



Soap making process

Faisalabad soap industry takes the raw material from the local and foreign markets. In the local markets the major raw material markets are Lahore, Karachi and Peshawar. The imported raw material is taken from

USA, *New Zealand* and Australia. The author surveyed 32 firms and found 28 of them purchasing the raw material from local markets because the Dollar exchange rate is very high and it makes the import of raw material more expensive than the local raw material markets. Most of the surveyed firms prefer to buy local raw material as it is a convenient way to obtain raw material. The survey made it clear that the competition in soap market of Faisalabad is totally based on price. So, local raw material is a preferred option as compared to foreign buying. Once raw material is entered into the factory the process of soap making starts.

Soap is a combination of animal fats, plant oil and caustic soda. When dissolved in water, it breaks dirt away from surfaces. Besides it, soap is also used as a cleanser or perfume. The alkali most commonly used today is sodium hydroxide. Potassium hydroxide can also be used. Potassium-based soap creates a more water-soluble product than sodium-based soap, and so it is called "soft soap." Soft soap, alone or in combination with sodium-based soap, is commonly used in shaving products. Animal fat in the past was obtained directly from the slaughterhouses. Modern soap makers use the fat that has been processed into fatty acids. This eliminates many impurities, and it produces as byproduct water instead of glycerin. Many vegetable fats, including olive oil, palm kernel oil, and coconut oil, are also used in soap making. Additives are used to enhance the color, texture, and scent of soap. Fragrances and perfumes are added to the soap mixture to show the kettle process of making soap. To Cover the odor of dirt and to leave behind a fresh-smelling scent. Abrasives are used to enhance the texture of soap include talc, silica, and marble pumice (volcanic ash). Soap made without dye is dull grey or brown, but modern manufacturers color soap to make it more enticing to the consumer. A soap is the sodium or potassium salt of a long chain fatty acid. The fatty acid usually contains 12 to 18 carbon atoms. Solid soaps usually consist of sodium salts of fatty acids whereas liquid soaps usually are potassium salts of fatty acids.

After the required ingredients of soap, mixer machine is used to mix soap raw material with additional ingredients like color, perfume, preservatives, additives, etc. Mixing is done by the specially shaped "Z" blades set on parallel shafts mounted with close clearance in a double 'U' shaped trough. With the help of blades the mass is rolled and folded back and pushed down to join the separate layers. This action is repeated until desired uniformity is obtained. The rotational speeds of each blade are different and adjusted according to requirement for better result through heavy-duty reduction gear box system and electric motor. The electric motor can be switched on-off by automatic heavy-duty electric panel board when required. Design of mixer bucket, design of blades and suitable rotational speed of blades gives extremely good results of mixing. The process of a batch takes normally about a few hours. The modern soap making uses a duplex vacuum plodder for the final refining, compacting and air free extrusion of a continuous bar especially in soap. The plodder or duplex is a crucial piece of equipment in the entire soap plant. It plays a major role and gives final shape in bar form to soap mass. In the first stage soap is compressed, refined and supplied to the vacuum chamber in the paste format. The soap is refined by means of a refiner worm press. A noodle cutter is fitted very near to same disc format which is used for cutting of soap noodles. When the soap mass passed through the same perforated disc it is transferred into noodles form. The noodles fall into the vacuum chamber, where they are taken up by the main extrusion worm press, again compressed continuously and then extruded in the form of bar. Distinctive design of die is provided with the mouth piece of extrusion barrel to achieve a particular size of bar and then bar cut into a fixed size of length. End of the conical compression head is heated by electrically heated oil bath chamber under the control of a temperature controller to get glossy surface on the soap bar. The next stage is to cool the soap paste most of the soap industry uses blowers to get more accurate shape of the product but in Faisalabad fans are used more than blowers. After this the secondary and final check up from laboratory happens to see the proper amount of each ingredient into the soap, the ph value of the soap become according to the required rate. After this all the material passes through the steel frames according to the shape and length of the soap the steel frames are commonly manufactured in Faisalabad and its manufacturing is base on make to order concept. Then the cutting machine cuts the soap bars according to the required size. Then it vacuums with sucker punch and picks the each soap cake and passes it through the stamp and logo machine embedding the monogram on the face of the cake. During the phase of cutting there is waste of left-over solid paste which firms again use in the mixer and so in this way they cover the waste and use it efficiently. Other usages of waste are the laundry and open selling in market in kg's. After successful completion of this stage the soap is ready for the packaging. The final stage of the soap manufacturing process is the packaging. In this stage, the finished product is packed through cellophane or card box for final supply to the consumer. During the packaging stage, bar soap are either wrapped or cartooned in single packs or multipacks. Detergents, including household cleansers, dishwashing cleansers and laundry cleansers are packaged in cartons, bottles, pouches, bags or cans. After packaging, the quantity check is done to take the sample of manufactured product and check their weight and volume. All kind of soap are sent to the factory stock houses after their packaging and are placed according to their brands.

This leads towards distribution setup of the firm. Normally firms prefer direct retailing relationship with their customers as most of the firms belong to SME so they can't afford distribution network. The large firms prefer distribution networks as they rank it their success in the market. As the final product is sent to the distributer where the commission agent and wholesaler take the product and supply it to the retailers of the city

and allocated areas.

Conclusion:

The paper has provided an overall view of evolution and structure of soap manufacturing firms of Faisalabad. The emergence of soap clusters in Faisalabad is related to many aspects such as, historical circumstances, prior existence to large manufacturers, prior existence of supporting industries, prior existing of related industries in neighboring geographic areas, reduction in transportation expense, regional chamber of commerce policies and technology transfers. Such factors seriously make Faisalabad soap manufacturing firms an ideal industry to achieve specialization through value chain and clustering. Faisalabad's industrial cluster generate advantages by supporting large number of suppliers with specialized capabilities and organizing marketing structures that support inter-firm linkages and transmission of knowledge among firms. The list of drivers and advantages of soap industry localization is quite consistent with lists derived from experiences in USA and Europe.

Moreover, Faisalabad soap manufacturing cluster enjoys a serious benefits of sub-contracting, relationship between suppliers and manufacturers, small size of suppliers with low cost, importance of on-job training in firms, preference of internal labor markets to external labor markets to allocate human resources, existence of various institutions such as trade associations and wholesaler associations, and the role these institutions play in facilitating the communication between firms in a cluster, are all important characteristics of Faisalabad's value chain clusters equally good as in USA and Europe.

In a nutshell, according to the advantages identified in the paper the local suppliers is the most important element in creating successful clustering approach. A suppliers skill, knowledge and abilities usually compliment a manufacturer's skill, knowledge and abilities. Through such networking firms develop skills of clustering in this sort of a potential environment. According to the research by the researcher on clustering of Faisalabad's soap firms, the firms develop and accumulate such skills with the pessage of time, which in return become a precious assets which determine the cluster's evolution path.

Bibliography

Aftab, K., Rahim, E. (1986). "The emergence of a small-scale engineering sector: The case of tube well production in the Pakistan Punjab". *Journal of Development Studies*, 1743-9140, Volume 23, Issue 1, 1986, Pages 60 – 76

Aftab, K., Rahim, E. (1989). "Barriers to the growth of informal sector firms: A case study". *Journal of Development Studies*, 1743-9140, Volume 25, Issue 4, 1989, Pages 490 – 507

Babble, Earl. (2004). "*The Practice of social Research". Wads worth: Thomson*

Chopra Sunil and Meindl Peter. 'Supply chain Management". Pearson Publication. New Delhi (2001).

Fisher, M.L. 1997. ''What is the Right Supply Chain for Your Product?'' Harvard Business Review 75(2):105–16.

Gereffi Gary, 2011. "Global value chains and International competition". Vol (56), No1/Spring2011.

Kaplinsky, R., &Morris, M. (2000)." A Handbook for Value Chain Research". *Prepared for the IDRC.*

Kong and Rasiah, 2011. "Moving up in the global value chain in button manufacturing in China", Vol 17(2), *Asia pacific business review*, pg 161-174

Mayer-Sramer, J., & Haemes-Liedtke, U. (2005). "How to Promote Clusters". *Mesopartner Working paper 08.*

Mytelka and Farinelli, (2000), "Local clusters, Innovations and sustained competitiveness", *United Nations University journal (2005).*

MARSHALL, A. (1920). Principles of economics; London, Macmillan.

Nadvi, K. (1999a). "The Cutting Edge: Collective efficiency and international competitiveness in Pakistan". *Oxford Development Studies*, 27:1, 81-107.

Nadvi, K., (1999b). "Shifting Ties: Social Networks in the Surgical Instrument Cluster of Sialkot, Pakistan," *Development and*
Change, Vol. 30, pp. 141-175
139

Nadvi, K, (1999c). "Collective efficiency and Collective failure: The response of the Sialkot surgical instrument cluster to global quality pressures, *"World development,* Vol. 27, No.9, pp 1605-1626.

Nadvi, K., (1999b). "Shifting Ties: Social Networks in the Surgical Instrument Cluster of Sialkot, Pakistan," *Development and Change,* Vol. 30, pp. 141-175 139

Porter. E, Micheal. (1990). "The Competitive Advantage of Nations" (Review of the Book). *Harvard Business Review*, 73-93.

Porter, Michael E., "Competitive Advantage". 1985, Ch. 1, pp 11-15. The Free Press. New York.

Saleem Sandhu, M. R. (2011). "INTERDEPENDENCE OF VALUE CHAIN LINKS: A TALE OF THREE CITIES" . *INTERNATIONAL JOURNAL OF RESEARCH IN COMPUTER APPLICATION & MANAGEMENT* ,Vol 1(8).

Sorenson, O. (2003). Social Networks and Industrial Geography. Journal of Evolutionary Economics. 13: 513-527.
Sturgeon, J. Timothy. (2001). How Do We Define value Chains and Production Networks. *Industrial performance centre, MIT*.
Uttamrao and Rajashree, 2009. "Effectiveness for supply chains for auto component manufacturing industries in India". Vol (2), pp 40-43.
Zachariah and Patrick, 2011. "The value chain of rubber wood industry in Karela: relative share of various actors", Vol 2(11), *Asia pacific journal of research in business management*, Pg 77-85.

The IISTE is a pioneer in the Open-Access hosting service and academic event management. The aim of the firm is Accelerating Global Knowledge Sharing.

More information about the firm can be found on the homepage:
http://www.iiste.org

CALL FOR JOURNAL PAPERS

There are more than 30 peer-reviewed academic journals hosted under the hosting platform.

Prospective authors of journals can find the submission instruction on the following page: http://www.iiste.org/journals/ All the journals articles are available online to the readers all over the world without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. Paper version of the journals is also available upon request of readers and authors.

MORE RESOURCES

Book publication information: http://www.iiste.org/book/

IISTE Knowledge Sharing Partners

EBSCO, Index Copernicus, Ulrich's Periodicals Directory, JournalTOCS, PKP Open Archives Harvester, Bielefeld Academic Search Engine, Elektronische Zeitschriftenbibliothek EZB, Open J-Gate, OCLC WorldCat, Universe Digtial Library , NewJour, Google Scholar