

Sustainability through CSR in Oil and Gas Clusters in Sindh: An Inquiry for Regional Policy of Pakistan

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Abstract

This paper is about an important issue of Corporate Social Responsibility (CSR) and its effective execution through the oil and gas cluster particularly consider the area of Sindh Pakistan. This research suggests that theories of industrial clusters and CSR can improve the perceptiveness of sustainable development of nation through the regional community development. Further this research investigates the reasons that why these areas which are rich in oil and gas resources of the Pakistan comes below the economic indicators. This study is based on the mixed methodology (quantitative as well as qualitative approaches). In-depth interview (Informal, formal) is conducted from the managers' extraction and production companies, district government and local public. This research presents the systematic mechanism for effective implementation of CSR and industrial clusters policies to enhance the employment, production and export in resource rich regions of Sindh.

Key words: CSR; Clusters; Oil and Gas industry; Sindh; Sustainability

1. Introduction

Sindh¹ is one of the leading oil and gas producing province of Pakistan, which contributes more than 70 percent of total oil and gas production in the country (Khan et. al, 2009). Though, Sindh province being the richest province in terms of natural resources is in contradiction with the poverty, unemployment and health issues, shortage of compressed natural gas² (CNG), load shedding of gas and electricity, and scarcity of petroleum that it faces. The other environmental and social challenges in Sindh province resulted due to oil and gas exploration and production includes: contaminated underground water, oil spills, gas flaming, deforestation, and increase rate of earthquakes, decline land productivity and an increase in environmental pollution. Every other common person in particular region suffers different health problems due to environmental

¹Province is a geographical and administrative distribution of Pakistan. Pakistan has four provinces i.e. Punjab, Sindh, Khyber Pukhtunkhawah and Balochistan

²CNG used as one of energy alternative in Pakistan

pollution. Also the absence of good medical facility and low literacy rate has enhanced the gravity of situation. Apparently, a rich oil and gas production has turned the region into economic and socially poor. The oil and gas companies, both local and foreign, do not offer jobs to the local people that are closely associated with the unskilled population.

This research is about the empirical case studies of oil and gas industrial sector in Pakistan. The theories of industrial clusters by Porter (1992;1995;2000) and industrial districts theory by Marshal (1920) has supported that the industrial cluster development can enhance the sustainable development of nation through the regional development in context for social, environment and economic perspectives.

The main argument of this research is to find the answer for the question i.e. how the oil and gas sector, a vital natural resource of country, contributes to the sustainable regional development of Pakistan? The objectives of the research is to investigate the potential of an under research oil and gas industrial clusters in district Dadu, Sindh, Pakistan. Further this research evaluates the CSR policies and practices of oil and gas cluster in Sindh. This research has assessed the meagre impact of present CSR in oil and gas industry on particular local community. Generally it is observed that the federal as well as provincial government, local & foreign oil and gas companies and other related institutions are paying no attention to the grave problem of community. There is a need to research and report these problems, although some local and national news paper is raising these issues time by time. Through this research, the oil and gas cluster and its development policies for adequate compensation and a fair share of the profits gather from the extraction of the natural resources in Sindh can improve the competitiveness of the institutions production as well as it can improve the social environment and economic conditions of the region.

An effective regional development policy and projects at provincial level are required for the sustainable development of the Pakistan. An industrial cluster is defined as “a group of geographically adjoining interconnected companies like suppliers and manufacturers, etc. and other related organizations i.e. universities, government bodies, standard-setting organization and trade associations, operating in a particular region and also complementary to each other”. For more than two decades, policymakers and economic development professionals worldwide have emphasized the cluster based approach for economic growth and regional development. Oil and Gas sector has a vast potential to play its role in economic growth and regional development. Thorough Corporate Social Responsibility (CSR) contribution, oil and gas clusters can influence regional development. It,

however, requires investigation of potential of oil and gas industrial cluster and assessment of CSR policies and practices of oil and gas companies.

2. Literature review

This section is based on the industrial clusters, CSR, poverty alleviation and sustainable development in the particular region.

According to Porter (2000) Industrial cluster defines as concentration of interconnected companies by geographic locations including services provider, different material supplier, related firms and institutions like universities and trade association which are proximate to complement each other. Marshall (1920) in his industrial district discussed that the companies located in a specific area gather many regional benefits includes family skill; expansion of subsidiary trades; well specialized machinery; home market for particular skills; industrialized leadership and novelties into the production processes.

In addition to the industrial clusters and its developmental benefits, CSR is also the most important notion of recent world which can contribute in the socio-economic development of the region. Terri et al. (2010) define CSR as “the economic, legal, ethical and philanthropic actions carried out by organizations, activities in which organizations have relationship with its societal or community stakeholders”. According to Jonker and Witte (2006), companies face difficulty in implementation of CSR policies. Further they elaborates that, the major cause of dispute in practical work is that of the CSR needs high cost and companies’ in sufficient financial resources to train the employees. Frynas (2014) stated that CSR has the most prospective for highlighting environmental challenges.

After discussion about the outcomes of industrial clusters existence and CSR investment its resultant is the sustainability. Sustainable Development is defined as an ethical approach in which there is long-term development need to present without assigning talent of future production to fulfill their requirements. Therefore, the economic goals of social development must be defined in terms of sustainability in all developing or developed countries; market oriented or centrally planned cities in “Our Common Future” (World Commission on Environment and Development, 1987).

There are four refinements advertised within the literature review regarding the industrial clusters. According to Gulati (1997) in India there are “modern/ urban clusters” and “artisanal/ provincial

clusters". The urban serve huge export markets, whereas the provincial cluster is provide more nearby demands. According to Sandee (2002), it is recognized from Indonesia, portrays with "dormant clusters" which are involved in manufacturing basic things for poor rural customers and providing miserable occupation for those with constrained pay creating choices, and second is "dynamic clusters", where firms are organized very close to each other and can enter more widespread, even in worldwide markets. According to Schmitz and Nadvi (1999) there are two types of clusters, one is "incipient cluster" and other one is "mature clusters". Incipient clusters are those which at an early stage of industrial development, usually found in poor regions, creating for neighborhood markets with basic advances and work aptitudes. Mature clusters relatively more progressed in terms of innovation and abilities, frequently creating for worldwide markets and in this way defenseless to worldwide competitive pressures. Altenburg and Meyer-Stamer (1999) recognizes difference between "survival" clusters, "advanced mass production" clusters and "clusters of transnational corporations". Their idea of "survival" clusters is comparable to Schmitz and Nadvi's "incipient" clusters. Such clusters are in "poor ranges, where open or disguised unemployment is high, either in little towns of country regions or on the edges of huge cities" (Altenburg and Meyer-Stamer 1999:1695). Mass generation clusters are more progressed, where firms deliver for nearby markets but progressively face worldwide competitive pressures. At last, "clusters of transnational corporations" are in fact progressed remote firms that find in specific zones to draw on territorial agglomeration economies but with limited links to local firms and institutions (Altenburg and Meyer-Stamer, 1999). We have to consider that different sorts of clusters are most important in doing business and creation of profits that seems to have standard affect on poor. Whereas incipient, or survival, clusters are the understandable option to coordinate poverty impacts, whereas developed clusters can have an influence on impoverishment. Besides, incipient clusters could not survive within developing competition, whereas supporting develop clusters might result in

economical improvement for neighborhood communities. Keeping these distinctions in mind, the basic point, in terms of cluster features and their relationship with poverty, that a cluster is engaged within, the nature of firms inside clusters, and the types of employment the cluster produces. All three influence the interests of cluster-based laborers and producers, and are important to poverty.

Poverty rate is rapidly changing within the developing world. Generally, provincial poverty has accounted for a component adding up to poverty. Off-farm employment could be fundamental factor for poor rural families. Rustic clusters, specifically in agro based services and process depend extremely on informal, landless and particular family work, can be providers of basic salary for the rural poor (Das, 2003; Saith, 2001). Numerous “survivalist” clusters are originated in informal settings, depending on economical, casual, work and limited local resources in a region. In addition to this, the informal sector could provide an environment for most dynamic clusters. Hence, rural-based and peri-urban settings clusters produce off-farm employment for the rural poor. The urban informal economy has a significant impact on poverty by providing employment to the poor.

Regional development through CSR investment is a central theme of this research. The World business council for sustainable development (WBCSD) defined CSR as “the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as of the local community and society at large” (WBCSD 1999). The industrial cluster debate expanded as clusters were perceived as a potential source of poverty reduction, while their role in promoting CSR among small and medium-sized enterprises began to take shape from 2006 onwards.

At present, there is still very little conceptual and empirical work that systematically investigates the linkages between industrial clusters and CSR impact on sustainability in developing country contexts. From the literature review the following theoretical-conceptual model is developed.

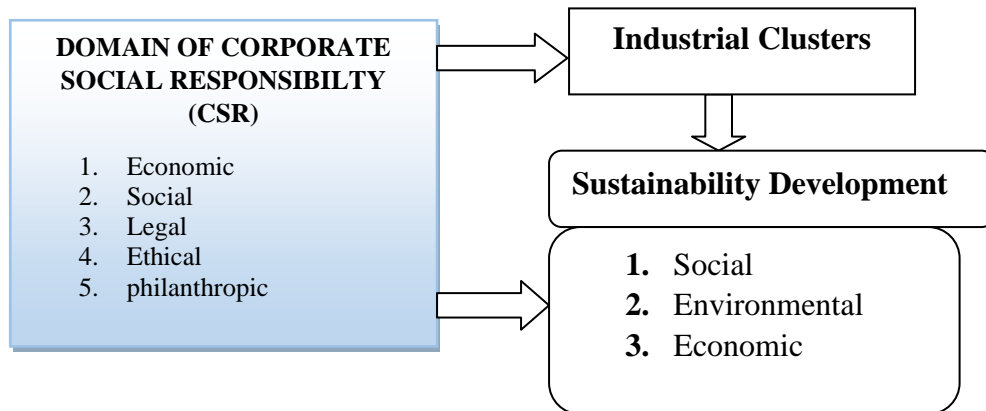


Figure 1: Theoretical-conceptual model for sustainable development

Source: Adopted from Carroll, 1979, 1999 and Hussain et al., 2017 for CSR, Suinisheva, Diana Erikovna, 2010 for Clusters and regional economic growth and Ebner and Baumgartner 2008 for sustainable development

CSR impact on regional development is difficult to quantify because companies mostly provided CSR related information only about how much they spend or how many local stakeholders participate in a project. A little information is available on how effectively the money is spent. CSR community investments are often undertaken to improve external perceptions, keep government officials and employees happy and to gain local support for oil operations. These short terms corporate objectives do not match with the long term regional development goals

3. Materials and Methods

The study is based on case study method. The qualitative approach is used to exhibit the results. A case study of taluka Johi, district Dadu, Sindh, Pakistan is used for the data collection and data analysis particularly in context of oil and gas industrial cluster development. Secondary data is collected from annual financial and CSR magazines, research journals. Primary data is collected through questionnaires and informal interviews taken from managers of companies, local government, and local public. Also researcher personally visits the study area where exploration and production of district Dadu had been taken place.

Following companies are working as a cluster in district Dadu (Sindh) involved in extraction, production other related oil and gas distribution activities involved in district Dadu.

Table 1: oil and gas companies working in district dadu

| S.no. | Companies name | Nature of the company |
|-------|---|---------------------------|
| 1 | Former BHP Ltd. | Extraction and production |
| 2 | Orient Petroleum Corporation Ltd. OPPL., PPL Ltd. | Extraction and production |
| 3 | Polish Co. Ltd. | Extraction and production |
| 4 | DESCON, AFCO, AL-Shahbaz, MDEW, National Engineering (contracting companies). | Contracting companies |
| 5 | OMV, ENI, GHPL, KUFPEC (collaborators) | Collaborators |
| 6 | Premier Oil Ltd | |
| 7 | SSGPL, SNGPL | Customer companies |

Source: Researchers own study

The data collection region for this study is Sindh, Pakistan, there are several gas field reservoirs found in 29 districts in Sindh Province(Indus Basin Zone-III). Figure 1 shows the study area in showing extraction and production in one district named as Dadu (Sindh) Pakistan.

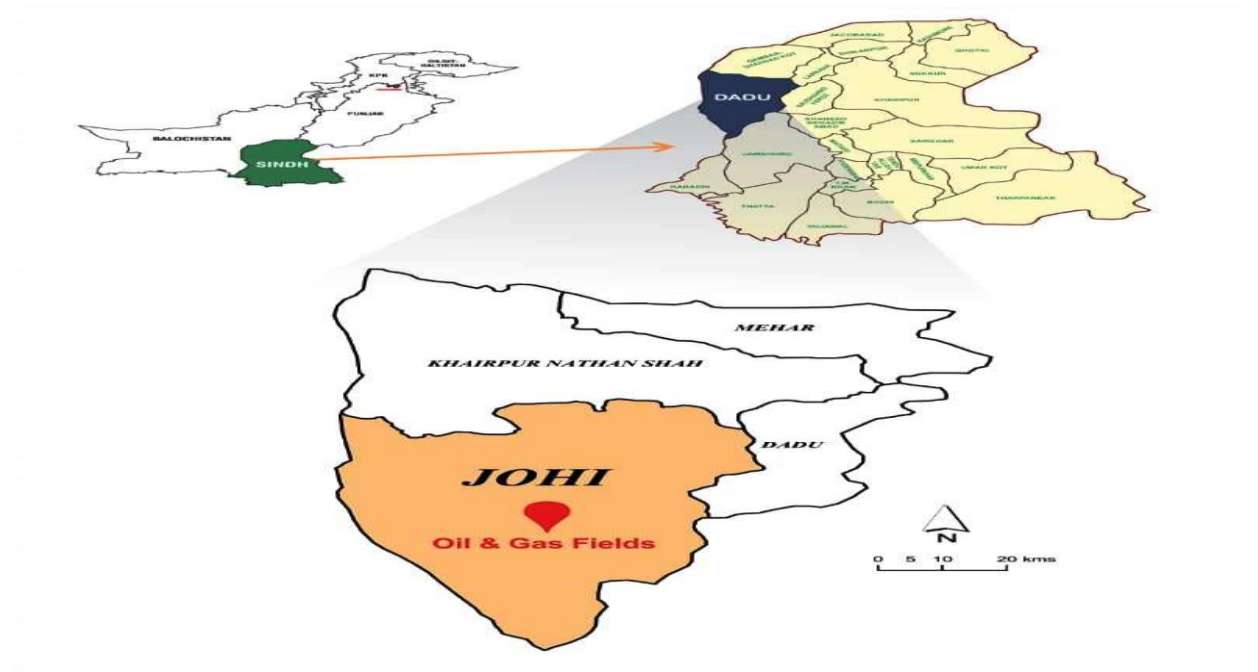


Figure 1. Map of the study area showing locations of oil and gas fields explored, developed by researcher with the help of ArcGis 10.6

4. Analysis and Findings

The findings from research conducted so far reveal that the oil and gas contribution of Sindh province is more as compare to other provinces. In table 1 it is observed that oil production share of Sindh Province is 40.63% and in Table 3 it is shown that gas production share of Sindh province is 68.65%

According to ministry of petroleum and natural resources (2016-2017) oil and gas fields scattered in Pakistan are divided in to four zones i.e. Zone-I, Zone-II, Zone-III and Zone O (off shore). Where Zone-III is considered as cost effective which is contributing more than other zones in Pakistan. It is reported that the 75% areas of Zone-III (lower Indus Basin) in Pakistan are in abject poverty (UN survey (2015-16)). Though the region is rich in reservoirs but due to lack of governance, policy implementation and other factors still there is no any development seen since the discovery of oil and gas in 1866.

Table.2. Oil production and contribution by Sindh Province

| Province | oil production (million barrels) | % share |
|--------------------|-------------------------------------|--------------|
| Sindh | 11.37 | 40.63 |
| Punjab | 5.26 | 18.90 |
| KPK | 11.24 | 40.4 |
| Baluchistan | 0.2 0 | 0.07 |
| Pakistan | 27.84 | 100 |

Source: Ministry of Energy Pakistan (2012-2013)

Table.3. Gas production and contribution by Sindh Province

| Province | Gas production (mmcf) million cubic feet | % share |
|--------------------|--|--------------|
| Sindh | 1,033,794 | 68.65 |
| Punjab | 69,220 | 4.6 |
| KPK | 126,234 | 8.38 |
| Baluchistan | 276,593 | 18.37 |
| Pakistan | 1,505,841 | 100 |

Source: Ministry of Energy Pakistan (2012-2013)

As per Article 23.3 of Petroleum Concession Agreement and Petroleum Exploration and Production Policy 2012, the production funds will be used to the local areas. *In this agreement 1.5% of profit should be used for public welfare in the term of education, environment, health, food, water and other developmental works (roads, building).* Some of the development projects were started in District Dadu (Sindh) is discussed as under:

4.1 Provision of quality education claimed by companies

Different oil and gas companies support the quality education which is the basic initiative for the transformation of better society. The education awareness was also started by different companies with the help of NGOs and local people through lectures, awareness walk within the area (Figure 2).

Number of schools was claimed by companies that are fully functional and providing quality education. Data collected from local people and representative of different companies and literature review that International companies established about 12 primary schools and TCF. Among 12 schools 10 are government acquired and 2 schools building were constructed also at village Allah BachayoJamali and GuhramPanhwar.



Figure 2.Shadabad girls Primary school, Village Araz Muhammad Lund,Johi, district Dadu, Sindh
TCF School (Running In Johi, Dadu)

Local community people interviewed that during BHP tenure, 12 primary schools were working and one TCF high school but now the OPPL is running only TCF where each student is paying 300 to 400 rupees per month. Local people of taluka Johi, reported that total enrolment of students in schools is 217 in which 30 are girl students. OPPL claimed many times that they are providing employment with good salary and quality education. Principle of the school gets 25000 rupees whereas each High School Teacher (HST) is provided with not more than 15000 rupees. Only four teachers are working and their start salary was 4000 rupees. OPPL reported in their CSR report that 45 women are trained teachers who are working in 7 schools and it is in record of their remarkable contribution.



Figure 3.TCF School (School Running in Johi, Dadu)

Oil and Gas companies are working together with NGOs which is particularly on girl's education and employment in different villages of the area. These schools also provide employment to the local women and lower staff worker.

4.2 Vocational Training Centers

Oil and Gas industrial cluster companies establish number of vocational training centers specially for women the aim of the establishing those centers to develop knowledge and provide them self-employment skills that those women can start their own business. Number of sewing machines was also distributed to trained skilled and poor women to start their small business and earn their livelihood. For now according to CSR magazine of PPEPCA (2016), more than 1000 girls and women were trained and their skills started to be an entrepreneurship.

4.3 Award and Scholarships

Five scholarships for university level students were awarded to Gas/ Oil fields of Sindh. In which no one awarded to district Dadu even after the huge struggle.350 million cubic feet BHP production

of gas per day. Now it is 80 to 90 million cubic feet by OPPL. The scholarship awardee students are studying in local area schools and different universities of the Sindh. The oil and gas companies promote education particularly for female and support girls for their higher education from the area.

4.4 Employment Opportunities

Interviews and meetings, Secondary data and Media shows that the concern shareholders local communities of the local area of the Dadu. News stories and interviews with local communities validate that local people was ignored for employment and training opportunities, but now a days the companies has started to train and give opportunity to the local people but only lower level. According the rules and regulation and their rights the employment quotas should be given to the local people at higher level.

4.5 Supply of Clean Drinking water

Drinking water facility is a main problem of Johi district Dadu, due to the polluted water and bad ground water quality. The companies are playing an active role to provide clean drinking water for the community. The water treatment plants were installed in different villages by the companies. About 52 arsenic free water tanks were installed in different villages and ground water facility also provided few villages of the area.

5. Results and discussion

Different methods are used to collect the primary data during the field visits. One is personal observation method and others are questionnaire survey as well as informal interviews from the community of district dadu (Sindh) Pakistan.

5.1 Community response for CSR investment by E & P Companies

During the field visits 300 questionnaires were distributed among the community people of district Dadu. About 200 questionnaires are returned and used as a source of primary data for this study.

5.1.1 Gender and Age distribution of Respondents

Researcher as a team met the different socially active peoples of the different villages in a particular region. The majority of the male respondents were male with the percentage of 57.5 and female with the percentage of 42.5 as shown in table 5 below:

Table 5. Gender of respondents

| Gender | Frequency | Percentage % |
|--------------|-----------|--------------|
| Male | 115 | 57.5 |
| Female | 85 | 42.5 |
| Total | 200 | 100 |

Source: (Researcher survey)

5.1.2 Response of the respondents / community:

It is generalized that community people are not satisfied from the CSR investment in particular region of districts of Sindh. Among 200 respondents, 150 people believe that regional development in context of education, employment, skills, health facilities, dispensaries and scholarships are not very well as shown in table 6 below:

Table 6. State of community development

| Response | Respondents | Percentage% |
|--------------|-------------|-------------|
| Good | 15 | 7.5% |
| Satisfactory | 35 | 17.5% |
| Bad | 150 | 75% |
| Total | 200 | 100 % |

Source: (Researcher survey)

Data collected from local people and representative of different companies stated that international companies established about 12 primary schools and TCF. Among 12 schools 10 are government acquired and 2 schools building were constructed also at village Allah Bachayo Jamali and Guhram Panhwar. Vocational training centers especially for women are established. The aim of the establishing those centers to develop knowledge and provide them self-employment skills that those women can start their own business. Number of sewing machines was also distributed to trained skilled and poor women to start their small business and earn their livelihood. According to CSR magazine of PPEPCA (2016), more than 1000 girls and women were trained and their skills started to be an entrepreneurship. 300 Internship and different scholarship to primary and university level scholarships are provided to particular regions of Sindh province where oil and gas extraction and production taken place (CSR magazine of PPEPCA (2016)). Interviews and meetings with local people, contents availability and media reports show that the concern shareholders local communities of the local area of the Dadu were ignored for employment and training opportunities. No any disclosure has been reported regarding employment of unskilled labour of the particular region. It is now a day's observed the companies have started to train and give opportunity to the local people.

6. Policy implications

There is an indispensable need of a regional policy that can propose the absent support institution

- (i) Review the existing weak institutions
- (ii) Propose a mechanism for the knowledge sharing of the different institutes of the industrial clusters that can contribute in the regional development.
- (iii) Advice for a stringent mechanism to deal the social and health issues related with the environmental pollution of industrial sector.
- (iv) Address the involvement and assessment of provincial and local government for the implementation of the policy.

An effective oil and gas industrial cluster development can increase the sustainability in context of environmentally, socially and economic conditions of the regions. Michal E Porter and Marshall Cluster theories with the collaboration of CSR policies and practices could improve the performance of the industries; stimulates the local growth of the region and the socio-economic development in nation.

References

- A. Safi and M. Ramay, Corporate social responsibility and consumer behavior: A study from Pakistan, *Inf. Manag. Bus. Rev.*, 5(4), 194–202, 2013.
- Ahmad, A., Hakimi, M.H. and Chaudhry, M.N., 2015. Geochemical and organic petrographic characteristics of low-rank coals from Thar coalfield in the Sindh Province, Pakistan. *Arabian Journal of Geosciences*, 8(7), pp.5023-5038.
- Chaudhry, T., 2005. Industrial clusters in developing countries: A survey of the literature. *J. Bus. Ethics*, 95(4), 571-601, 2010
- Costa, M. and Iezzi, S., 2004. Technology spillover and regional convergence process: A statistical analysis of the Italian case. *Statistical Methods and Applications*, 13, 375–398.
- CSR Guidelines, 2013 Securities and Exchange Commission of Pakistan, 2013.
- CSR magazine of PPEPCA, 2016. Editorial Board Leader: Jamil Adil Member: Col. (Retd) Shujaat Ghumman..House # 119-A Street 37, F-10/1, Islamabad, Pakistan. Design & Printed by: ENCORE 0334-5095544.
- Dijk, M.P.V. and Sverrisson, Á., 2003. Enterprise clusters in developing countries: mechanisms of transition and stagnation. *Entrepreneurship & Regional Development*, 15(3), pp.183-206..
- Gordon, I. R. and McCann, P., 2005. Innovation, agglomeration, and regional development. *Journal of Economic Geography*, 5, 523–543.
- Gulati, M. (1997). Industrial clusters and SSI development. *IIMB Management Review*, 97-103.
- Jacobs, D. and De Man, A.P., 1996. Clusters, industrial policy and firm strategy. *Technology Analysis & Strategic Management*, 8(4), pp.425-438.
- Leskinen, O., Bekken, P. K., Razafinjatovo, H., & García, M. (2012). Norway oil and gas cluster: a story of achieving success through supplier development. *Harvard Business School*, 14, 251-272.
- Marshall, A. 1898. Distribution and exchange, *Economic Journal*, vol. 8, no. 29, 37–59 Marshall, A. 1919. *Industry and Trade*, London, Macmillan Marshall, A. 1920. *Principles of Economics*, 8th edn. London, Macmillan
- Nadvi, K. (1999a). Collective efficiency and collective failure: The response of the Sialkot surgical instrument cluster to global quality pressures. *World Development*, 27(9), 1605–1626.

- Nadvi, K. (1999b). Shifting ties: Social networks in the surgical instruments cluster of Sialkot, Pakistan, *Development & Change*, 30(1), 141–175.
- Nadvi, K. and Barrientos, S. (2004). Industrial clusters and poverty alleviation: mapping links and developing a methodology for poverty and social impact assessment of cluster development initiatives. Working paper, Vienna: United Nations Industrial Development Organization.
- Porter, M. E., 2000, “Location, Clusters and Company Strategy”, in Clark, G. L., Feldman, M. P., and Gertler, M. S., (eds.), *The Oxford Handbook of Economic Geography*, Oxford University Press, Oxford, 253-274..
- Sandee, H., & ter Wingel, J. (2002, March). SME cluster development strategies in Indonesia: what can we learn from successful clusters?. In *JICA Workshop on Strengthening Capacity of SME Clusters in Indonesia, March* (pp. 5-6).
- Schmitz, H., & Nadvi, K. (1999). Clustering and industrialization: introduction.
- Zamanbekov, S. Z. (2013). Cluster development concept of Kazakhstan engineering on innovative basis. *Life Science Journal, USA*, 10(4), 1030-1035.