

Defence Cluster of Kanpur Nagar District: Challenges and Prospects for Global Reach

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ABSTRACT

Objective /Background of the study: This research paper analyses the growth of defence cluster in Kanpur Nagar and its emerging challenges and opportunities. Major defence equipment manufacturing cluster is located in the Kalpi region of the district. This region has also a predominant role in the establishment of defence industries, especially the subsidiary and ancillary MSME's, which act as a supplier base of small units for five large scale defence industries. MSME's are considered as the backbone of the industrial sector of Uttar Pradesh. Uttar Pradesh has 52.38 lakh MSME which is 11.55 % of the MSME of India (2015-16)¹. The state has 102 service enterprise in defence, in which 23 are in Kanpur Nagar in year 2016-17². Despite of these five large scale and abundance of medium and small-scale industries, defence equipments did not get any place in the list of top ten exports of India³. Therefore, it becomes mandatory to find out the challenges of defence cluster of Kanpur Nagar district. The dataset for the study is derived from the fieldwork of large, medium and small-scale industries in Kanpur Nagar district. Mostly, data is based on the short survey, open ended and semi-structured interviews. The study reveals the benefits of locational attributes of defence cluster of Kanpur Nagar district and major centripetal and centrifugal forces are shaping the economic cluster of the region. Continuously rising defence exports of India has a pivotal role in the international trade. Cluster policies can bridge the issues of missing cutting edge technology platforms. The economical and optimal implementation of such cluster strategies will lead to greater self-reliance.

Key Words : Defence cluster, Self-reliant India, Centripetal and centrifugal forces of defence cluster, Cluster strategies

INTRODUCTION

Kanpur Nagar District as "Economic district of Uttar Pradesh" has a vast and varied industrial base. It has an ample availability of mineral based resources, which helped in the establishment of iron and steel-based plants and industries. Defence cluster in Kanpur Nagar region is a flourishing cluster. The defence expenditure of India is continuously on rise. Therefore, the production and manufacturing of defence equipments as well as the

investments have increased. The Table 1 shown below mentions the ten years data of defence expenditure of India from year 2012-2022. Kanpur Nagar cluster has a significant role in this manufacturing process.

Conceptualization of cluster industry and cluster facilitation:

In neo classical economics, the concept of cluster industry has been enunciated by Michael E. Porter. Porter concluded that in a world *where all firms can gain*

1. Annual survey of Industries Report (2015-2016). Ministry of Micro, Small and Medium Enterprises. Government of India.
2. Brief industrial profile of Kanpur Nagar district, Uttar Pradesh (2019) (2014) MSME development institute. Ministry of micro, small and medium enterprises. Govt of India.
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Table 1: The decadal growth of Defence expenditure of India from 2012-2022

Year	Defence Expenditure (In INR crores)
2012-13	181805
2013-14	203515
2014-15	222365
2015-16	246740
2016-17	249080
2017-18	347750
2018-19	404365
2019-20	431011
2020-21	471378
2021-22	478195
2022-23	525166

Source: Ministry of Defence, Government of India and IDSA (*1USD=INR 65)

similar potential advantages from the spread of internet and inexpensive communications technology, geographic cluster generate a specific competitive advantage in terms of privileged access, informal channels of communication as well as peer and community generated incentives that can drive innovation and productivity. (Porter 2000, p.32)⁴.

Roelandt and Den Hertog⁵ (1999) defined that “Clusters can be defined as the network of manufacturers and highly interdependent firms (including specialized suppliers) in an environment of production chain producing added value”

Firms also gain from positive externalities from co location of the firms that are involved in the same or similar industry. This is, because there is knowledge spill over as result of various firms with similar production process clustering in a single region (Smith, 2012)⁶.

Kanpur Nagar defence cluster is a localized and planned agglomeration of large-scale industries. Later on, the secondary and ancillary units of production have agglomerated in the peripheral region of the prime cluster location. The prime location of defence cluster is Kalpi region and peripheral regions are Kalyanpur, Dadanagar, Ispat Nagar, old and new Udyamnagar, Barra phrase-3 and phrase-6.

Industrial profile of Kanpur Nagar district :

Kanpur Nagar has always been accoladed as industrial region of Uttar Pradesh, especially because of textile industry, defence equipments, manufacturing industry and leather industry. The five large defence factories were established by the British India corporation in the colonial rule. The obvious choice of Kanpur Nagar as a manufacturing base of defence equipment proved advantageous to the British troops. The Table 2 shown below depicts the high work participation rate in Kanpur Nagar cluster, in which defence industry has a significant hold of share.

Table 2 : Industrial workers of Kanpur Nagar district

Total workers	1572232
Total rural workers	562869
Total urban workers	1009363
Total work participation rate	34.3%
Total rural work participation rate	36.0%
Total urban work participation rate	33.5%

Source: District Industrial profile, Kanpur Nagar, 2019.

Evolution and growth of the Defence Cluster of Kanpur Nagar district:

There are two broad categories of defence manufacturing industries in Kanpur Nagar. The five ordnance factories are large scale industries. At another end, there are private manufacturing companies. These are medium, small and micro industries, which supply the raw material, semi-finished products, parts of defence equipments to these five large scale industries.

Organization of Defence cluster:

The defence cluster comprises of government production units, public companies, private enterprises, suppliers, buyers, infrastructure services. There are five government ordnance factories such as Small Arms Factory, Ordnance Parachute Factory, Ordnance Equipment Factory, Ordnance Factory Kanpur, Field Gun Factory.

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- Yoldiz, T., Aykanat, Z., (2015) Clustering and Innovation Concepts and Innovative Clusters: An Application on Technoparks in Turkey, World Conference on Technology, Innovation and Entrepreneurship. Published by Elsevier Ltd. pp-1198.
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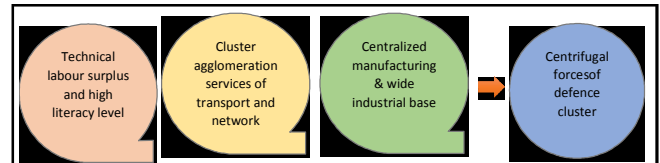
1. **Small Arms Factory (SAF)** was established in 1942 during the second world war as Transplantation project-1. Its major supplies are for the police and paramilitary forces. The manufactured products are rifles, carbines and revolvers.
2. **Ordnance Factory Kanpur (OFC)** basically deals with the mass scale production of the ammunition hardware and large calibre ordnance for Indian forces. It has recently initiated its work culture based on cluster facilitation and building quality product through modernization. It is now trying to expand its export base in international market as well. The industry has recently taken the initiative in the artificial intelligence in manufacturing.
3. **Field Gun Factory (FGK)**, Kanpur is the youngest of 11 weapon factories of India. It has been established after the Indo-Pak war of 1965, when India needed the field guns most. It occupies a large land area of 104.10 hectares.
4. **Ordnance equipment factory, Kanpur (OEFC)** has been established by the British in 1859 for the manufacturing of harness and saddlery. Major forte was the manufacturing of engineering products, textile products and leather goods. Now, it caters to the equipment need of the Indian forces.
5. **Ordnance Parachute factory (OPF), Kanpur** was established in 1941 during the second world war. The factory has the production base of man carrying parachutes, drop parachutes, uniforms and inflatable boats.

Medium, small and micro industries of defence cluster:

The key attribute of the defence cluster in MSMEs is that the firms are strategically and locationally established in semi-defined region of Kalpi and Dadanagar. They are mostly in trade relations with each other for the raw materials or semi-finished products. They lack the common advantages on technical and innovative platforms, that’s why the MSMEs having marginal profits since past few years. To increase their profits, now they have expanded their product range. The credit penetration, venture capital funds, special schemes and recovery rate of small and micro industries is very low.

Centripetal and Centrifugal Forces of defence cluster:

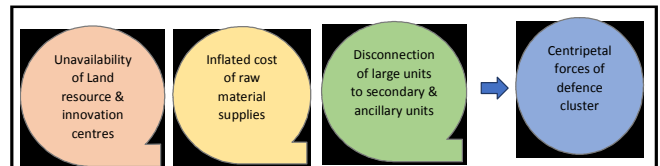
The territoriality can be bounded in map as they exhibit a high degree of nearness. The supply chain model of defence cluster is traditional in nature. The evolution of defence cluster was based on the need of defence supplies in world war. The cluster still performs for the requirement of defence supplies. Recently, the cluster approached business expansion models to place itself on the international level for trade benefits.



Source: Author compilation from field survey

Fig. 1 : Centripetal forces of defence cluster of Kanpur Nagar district

Rising cost of products, congested firms, unavailability of land, environmental clearance issues, crime, inflated cost of raw material supplies, rising market gasps, lack of research and innovation centres, converging product range, declining competitive prices and disconnection with the secondary and ancillary defence production units are few centripetal forces, which are compelling the medium and small industries and firms for reallocation in other locations such as Agra, Noida.



Source: Author compilation from field survey

Fig. 2 : Centrifugal forces of defence cluster of Kanpur Nagar district

Present day challenges of the defence cluster of Kanpur Nagar district:

The challenges of ordnance factories of Kanpur Nagar are categorized in two broad sections.

(A) Challenges of the government ordnance factories (Large scale industries)

1. Ordnance factories of Kanpur Nagar are the oldest and largest non-profit government owned defence manufacturing industries. They supply

defence equipments, arms and ammunition only to the Indian Army, Indian Air Force, Indian Navy, Indian Coast Guard, forces under Ministry of Home Affairs, like CISF, CRPF, BSF and State Police Forces. This restricts the customer base for the large-scale industries. Apart from that, they deliver few products for civil trade like pistol, revolvers etc.

2. The ordnance factories take the orders from the above specified customers (other than civil trade) in the form of indent and start manufacturing after that. As the indent is placed only for one year, therefore it is not possible for ordnance factories to plan for their next year targets. Due to this, the procurement of material for manufacturing gets delayed. It leads to delay in the supply of final products to the end user.
3. The bureaucrats in the ordnance factories are recruited through Union Public Service Commission Examination. They are frequently transferred from one ordnance factory to another factories/ allied departments/ central and state deputation etc. The frequent transfers in various locations hampers the specific expertise in any particular field.

B) Challenges with the private enterprise and MSME's

1. In the defence cluster of Kanpur Nagar area, there are so many private firms which solely work as a vendor to the five ordnance factories. The orders of the factories given to these vendors are limited in quantity. Therefore, most of the private firms are not able to produce in their full capacity. It is affecting their profits badly and stagnating their growth.
2. The ordnance factories follow the government rules of procurement manual. It is a very lengthy and critical process. Many a times, the private firms get their due payment after a huge delay after so many clearances. This gravely affects the production cycle of these private manufacturing units.
3. Covid 19 pandemic has hit the private industries the hardest. The frequent lockdown blocked the supply chain in such a way that they become disabled to produce at their average capacity.

It has reduced the opportunities of job in the cluster zone. Secondly, pandemic situations compelled huge migration of workers and labourers to their home. It had a cascading effect on the production and export lines of defence cluster of Kanpur Nagar.

4. The private firms do not manufacture final products and that's why they cannot supply the items directly to the defence services like Army, Navy and Airforce. If they could have received the direct orders, they may produce in large quantities. This would have resolved the demand-supply gap itself.
5. The problem of cartel formations in the private enterprises and industries is much vigilant in the defence cluster of Kanpur Nagar district. They decide that who will get the tender in a serial manner. Therefore, they avail the order one by one. It ceases the chances of getting a tender for any new private industry and destroys the very purpose of the open competition of the market.
6. Department of Defence Production (DDP) releases the list of defence items for production from time to time for the strategic purposes. Recently, private companies have received the blanket approval only for the production of small arms. They can only manufacture few parts of arms, ammunition and giant weapons. Central government is also providing the state of art facility to manufacture the parts of high quality next generation arms.
7. Major investment enablers are much required in the defence cluster. The credit facility and credit availability are low in the small enterprises. The defence cluster is in the process of modernization and expansion of its prime zone area to keep up with the international trade scenario and emerging threats perceptions of the region.

Opportunities in defence cluster :

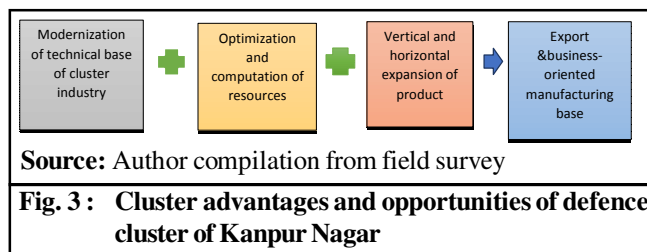
In the recent past, the advent of Make in India has promoted the local manufacturing of the products. Skill development mission has facilitated expansion of the ordnance factories. The major attractions are investment centre for mega PSU's, mega green and brown field projects and anchor projects.

Foreign Direct Investment (FDI) has been revised every year. FDI is permitted under automatic route upto 49% and beyond 49% through government route for the strategic purposes. This process will encourage the participation of public/private industries, especially the MSME's. It will create an ecosystem for innovation and cutting-edge technology for defence production and application.

The government has approached to the Technopolis Defence Design of cluster. It is focusing on the modernization of the production facilities, in-house research and development of technical congruence and potential infrastructure development for cluster prominence.

Uttar Pradesh defence industrial corridor project (A Greenfield Project) in 2018 has accelerated the opportunities for the defence cluster of Kanpur Nagar. The development and manufacturing are in full swing to promote the corridor encompassing 6 districts of the state i.e., Lucknow, Kanpur Nagar, Agra, Aligarh, Jhansi and Chitrakoot. The mainland region and hinterland region have a vast range of enterprises to work in the proposed defence park.

The joint ventures (JV's) for the co-development and co-production strategies in defence sectors is working out well for defence cluster of Kanpur Nagar district. Simultaneously, the intervention of soft and hard technologies with e- governance platform will bolster the cluster push effects. The defence industries are getting ready for the participation in procurement process especially with few south American countries, such as Chile. It has opened a much wider range of opportunities for global trade. The Fig. 3 below mentions the four major steps to higher the cluster advantages.



Conclusion:

A renewed economic interest in the defence cluster of Kanpur Nagar district will pace up the acquisition of new weapon platforms operational capability. The reliability on the foreign trade is very high for defence

equipments, therefore, there is an urgent need to spread the global reach of defence clusters of India, especially Kanpur Nagar defence cluster.

Indigenization of the technology and manufacturing of products will initiate the development processes of world class manufacturing technology as well as reduction of import substitution. The intervention of government is necessary for formation of procurement policy. Defence cluster must diversify itself for next generation equipments for social welfare, robotics engineering and green engineering-based production. It will make defence cluster of Kanpur Nagar district to march towards the self-reliant India and global outreach in international trade market.

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