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Economic and Military Diplomacy between India and Europe for Military Industrial Cluster Sustainability

Ismiyatun
Department of International Relations, Faculty of Social and Political Sciences
University of Wahid Hasyim Semarang
X/22 Menoreh Tengah Street, Sampangan, Semarang, Indonesia
ismiyatun@unwahas.ac.id

Abstrak-Artikel ini bertujuan mengekplorasi diplomasi ekonomi dan militer India atas Eropa, khususnya Inggris Jerman dan Perancis dalam kerangka menjaga kelangsungan alih teknologi dan inovasi yang sangat dibutuhkan untuk industri militer sebagai salah satu sub sektor unggulan dalam techno park di Bangalore dan Hyderabad. Diplomasi ekonomi dijalankan melalui upaya peningkatan eksport bahan baku guna kepentingan sub sektor industri ini, sebaliknya peningkatan import dilakukan melalui sistem kerja sama produksi atau ventura sesuai dengan prosedur pengadaan persenjataan, selain itu juga diinisiasikan pembentukan komite kerja sama ekonomi, perdagangan, dan finansial baik secara bilateral maupun multilateral. Sedangkan diplomasi militer cenderung berwujud bantuan program maupun proyek dalam pengembangan persenjatan modern berbasis teknologi informasi.

Kata kunci: Diplomasi ekonomi dan militer, kluster teknologi dan industri militer

Abstract-The article is held to explore economic and military diplomacy between India and Europe, especially United Kingdom, Germany and France on link of inovation, technology transfer sustainability which is needed for its military industry as one of superior sector at Bangalore and hyderabad techno park. Economic diplomacy is obtained through improvement raw material militay industry export while import as the other side is improved with joint production or venture as defense procurement procedure. Beside that, India and Europe are initiated joint committee forum on economic, trade, financial impenetrate bilateral or multilateral. Military diplomacy inclines exist as programme or project assitance for modern weapon is based on information technology

***Keywords*:** Economic and military diplomacy, technology cluster, military industry

1. Introduction

In the early 1960s - during the Cold War, India seeks to develop its military industries rely more on imported and help weapons from the Soviet Union and some Western countries, the level of military import India remains high from year to year. India then, develop a system offset, in particular with Russia, France and the UK. The aim is to meet the needs of the domestic military, reduce dependence on imports/military assistance from other countries, and reached a level of independence of the military for the better through technology transfer.

In addition to the offset, India is also developing armored weapons, cluster bombs carrier rockets, satellites, radar and ballistic missiles with nuclear power. The latter a special program, launched IGMDP (Indigenous Guided Missile Development Programme), a national program of nuclear-powered missile development, involving private firms, university research even as Tata Group's Indian MNC. Some of the military research center established in a technology cluster located in Bangalore, Hyderabad and its surroundings for the sake of production and innovation of the various high-tech weapons. From the program, successfully developed five types of missiles, including Agni (ballistic missile regional middle distance), Pritvi (ballistic missiles short range), Akash and Trishul (SAM / Surface to Air Missile, middle distance), and Nag (ATGM / anti tank Guided missile) (Hoyt, 2006).

Neuman (1994), Ross and Dombrowski [(2008),] and Bitzinger (2009) linked the level of success of developing countries' efforts in the development of this technology clusters with the concept of RMA (Revolution in Military Affairs), all agreed on the importance of technology clusters in order to anticipate the challenges of the military industry in the 21st century Neumann argued that the RMA was able to provide its military industrial commercialization opportunities through the export of military services as a complementary product. Both other researchers supported this contention on the pretext of RMA requires the presence of NCW (Network Centric Warfare) or a single network that connects people, platforms, weapons, sensors, and various decisions on military aid from other countries. The ability of the access that the cluster will be able to facilitate it.

Three concepts are prominent in developing countries when it decided to develop the military industry cluster is the presence of technocrats, state owned enterprises and their share of foreign capital, either in the form of direct investment (FDI) and investment fortopolio. The technocrats in influence in the survival and development of social capital so that together with other policy makers decide whether industrial strategy used ISI, EOI or a combination of the two. In addition, as the executive segment, the technocrats actively developing economic diplomacy with industrialized countries and developing countries, to support the establishment of a network of international military industrial clusters. Through this network developing countries can influence international labor market skills.

Together with the SoE, this group is a manifestation of the existence of an embedded autonomy, as one characteristic that stands out in the developmentalist state theory. Theoretically control of foreign capital in a company can only be done if the amount is a maximum of 50%. Through this research will be explored further the ability of the theory in explaining the level of government involvement in the internalization of the military-industrial India through cluster technology.

Developmentalist state theory has the basic foundation does economic diplomacy on a cluster of high-tech, even if successful will increase to military diplomacy which a country offers SoE (State owned Enterprises) or institution that has to function as a consultant, trainer, supplier or supporter in military affairs. In addition to the existence of a military-industrial cluster is the result of economic diplomacy. This cluster is also able to be used as an instrument of economic diplomacy to enable a variety of natural and human resources through a business related to energy generation nuclear power as South Korean case is also marketing a variety of products these clusters for civilian purposes.

On the other hand, military diplomacy undertaken by developing countries through this cluster in addition to market a military services as mentioned above can also be done through military research cooperation with other developing countries and highly industrialized. For the developmentalist state, military diplomacy that run on other countries, integral with the national policy on weapons that military diplomacy providing opportunities for them to gain recognition from other countries on their military strength and opportunity for technology transfer and human capital development.

Joseph S Nye Jr, a scientist who served as Assistant Secretary of Defense for International Security Affairs during Bill Clinton (Democrat) administrative, gave special attention to the development of industrial clusters military as an instrument of diplomacy, into smart power (Nye, 2004). Due to the special power needed in the implications of RMA with diplomacy, it appears criticisms of scholars on this concept. Biegon (2013) considered the concept still bannal to be incorporated into a strategic concept. Yet developing countries are already running economic and military diplomacy through this cluster, though still in its regionalcyber scale, but do not have smart power, capable of uniting between hard power with soft power. While Nye (2010), defined cyber power as an ability to use cyber space to gain various benefits and effect in accordance with the target and desires.

In India, the second type of diplomacy is run by the government and private and (RUR/Raksha Udyog Ratna, SMSE/Small Medium Scale Enterprises) in tandem to preserve the military industry. Economic diplomacy is run to increase the ability of the cluster, while the military diplomacy supported by an instrument of dialogue, joint exercises, participation as a UN peacekeeping force (peace keeping, peace building) until the military agreements that enhance the understanding of the integrity of domestic security, both bilateral and multilateral.

Research question which be explored in the article are How are economic and military diplomacy done between India and Europe, especially United Kingdom, Germany and France on link of inovation, technology transfer sustainability which is needed for its military industry as one of superior sector at Bangalore and hyderabad techno park.

2. Urgent for Improving Economic and Military Diplomacy

Diplomacy generally in the context of cooperation, both bilateral and multilateral. The difference is in charge and the value that follows it. Cooperation more meaningful term that implies general realization in various categorization, ranging from joint venture, production up to the military and technology. While diplomacy more formal initiation includes various state-run and private. Both of diplomacy and military economi need to be upgraded as a formal step enhancement of international cooperation.In this 21st Century, improvement of high technology between developing countries and industrialized countries need to be improved because it can stimulate economic growth and overcome stagnation of innovation and sustainable development.

Europe (UK, France, Germany and the others) needs raw material and consumer. while as Heckscher-Ohlin theory, Asia as the third world states has endowment factor (owned of production factor) and intensity factor (owned of high skill migrants who agree to be paid lower than the others from developed countries. Why Europe must become more competitive in high technology. Because Europe can still: a) create strong knowledge intensive industries b) strong industrial hold of automotive, aerospace, engineering, telecommunications c) energy services. Both India- as representative of Asia and Europe could benefit by creating economic clusters to work closely with technology suppliers by allowing new ideas to flow across sectors.

AT Kearney, a leading global management consulting firm, gave nine reasons Europe has lost ground in High Tech (Collignon, 2016).

Europe's share of global demand was declining demand for ICT/Information and Communication Technology in relative to the rest world is shrinking.

1. Europe companies were struggling to add specially to Asia.European companies tend to lack the same access to a large home market than Chinese competitors had, so it was better to invest more in Asia than US or Europe its self.
2. Europe has a funding shortage, typically Europe needs a second level of approval, link with bilateral and multilateral on high technology.
3. Europe had an innovation deficit. Europe's R&D deficit was compounded by the growing use of patents as competitive weapons. This exemplified by recent patent cases and strategic acquisitions . In Europe Asian companies such Samsung and LG had become leading filers of patents. By contrast, only two Europe players, Ericsson and Alcatel Lucent made the list of top 10 filers patent registrations in 2012. Some European universities undertook research but many of resulting ideas and insights didn't make it to market quickly enough, either by high tech player or inventors' startups. There was too focus on invention, and too little on innovation that bring commercial success.
4. Europe has a shortage of engineers. Europe's universities are not producing enough enough graduates from MINT (math, informatics, natural science and technology) courses. This gap was the resources pool for talent is particularly substantial in the context of Europe's language fragmentation, which limited cross country mobility.
5. Europe is hampered by high cost, inflexible labor.
6. Europe's ICT firms lack strategic partners.
7. Entrepreneurial culture and support are fragile.
8. Too many European companies had lacked sufficient strategic foresight

The consulting firm also suggested if Europe should take ten steps to restore vitality its ICT industries. They had clustered these into three area:

a. Enable: improving skilled labor, providing better funding, improving entrepreneurial culter and support,creating a level playing field

b. Focus: developing EU wide ICT application focus area, creating pan EU clusters of excellence, focussing on spend and investment into these areas
c. Excel: improving corporate responses, pushing innovativeness and growth ambitions, re-establishing vendor-customer patrnership.

India, South Korea, and PRC (People Republic of China) could be stated as best practice of this cooperation because they implemented with specific public policies and techno park eg: making of specific economic zone (SEZ), human capital policy and regulation about offset, joint ventures and production. The first is institutionalization of high technology cooperation with area or zone that had been planned for technology encouragement. While techno park/technology cluster is ulitized by using industrial cluster as vehicle of FDI agglomeration so enhances availability capacity of cheaper high skill labor, and entrepreneurship motivation.

Europe meets many challenges from some region in Asia, specially SouthEastAsia, EastAsia, and South Asia. Generally the challenge could be classified into: institutional challenge, because both continents don't have same perception about how to manage for best sustainable growth and innovation, and policy challenge, how to match best policy about FDI and technology. As has been stated before economic and military diplomacy are forward looking. In the other side, teckno park as the instrument, direct integrated with military industry. RMA and accelerated industry need ICT and just with techno park, military industry could be linked with high technology cooperation especially for technology transfer, then this sub sector industry has synergy as agent development.

Segments of "focus" have been stated before, they were intended empowerment military industrial cluster with joint venture, and production. Economic and military diplomacy could guarantee sustainability cluster. Economic diplomacy makes customer and supplier of military industry arm and service product, invesment for basic research and civiliant or combatant segment of this. While military diplomacy maintains innovation and other diplomacy remains corrodor in interest and passion of military industry as domesttic development priority.

3. India Economic and Military Diplomacy toward Europe

India has been running a series of economic and military diplomacy both state-run and private, the UK, Germany and France as the representation of the European continent. Its impact on the industrial cluster of Indian military is a guarantee of the continuity of modern weapons technology innovation. At the end of the cluster will be able to survive in the business arsenal. Britain's contribution to the Indian military industry, both government and MNC. Diversity is more structured and balanced contribution between the state and private elements.

Refering to Table 1, as former of British Empire, and member of Commonwealth of Nations, India has good relationships with UK, but traditional barriers eg conflict with Pakistan and Afghanistan, makes only limited progress. Terrorism issue has distrubed it. UK insisted "Afghanistan- Pakisten solution" at India expense for barrier eradication (Kalyanaraman, 2013). While UK couldn't eschew if closer relationship with India may expand the English market and create new job opportinuties. Tata's joint production with Jaguar and Land Rover, has impact on many countries for the same opportinities (Maclachlan, 2010).

Tabel 1. Reprecentation of Joint Venture / Production between India – UK

Members	Type	Name of Cooperation	Production
HAL - Roll Royce	G – P	International Aerospace Manufacturing Pvt Ltd	Hawk Advanced Jet Trainer
BAE –HAL	G – P	BAeHAL Software Ltd	Design, develop & market software
TCS - Roll Royce	P – P	engineering centres	
Mahindra & Mahindra – BAE	P – P	Defense Land Systems	armoured vehicles Mahindra Mine Protected Vehicle

Table 2. UK Support toward India Military Industry

Type of Cooperation	Description
Defense consultative group	combat terrorism, piracy
	military exercise
buy global	Centurion tank
	Jaguar ship
	Hawk (jet Trainer)
Grant	Vijayanta tank
reconstruction plant	MDL
grant & BPO	Spitfires
	Tempests
	Vampires
	hawker hunter
	canberre bombers
	auto transport
	percival prentice trainers
	Gnats
Defense equipment MoU	joint venture
	joint production
Science and Innovation council	researh funding
	academic and entrepreneur team
	joint research team
civil nuclear cooperation	civil nuclear power

*Source: Kalyanaraman, S. (2013).

Germany represents the other side of the economic and military ties with India. As a supplier of weaponry and technology transfer agent, refer to Figure 1, as the world's fourth largest exporter, this country gave special contribution in India, it didn't perform transactions with Pakistan as the main rivals in South Asia. The proximity of India to Germany has existed since the time of Prime Minister Jawaharlal Nehru on the recognition of West Germany after decolonization. Tables 3 and 4 proved to balance public and private German contribution to improve the innovation potential of this country clusters. German seriousness was demonstrated by the diverse offer of cooperation production, especially large projects

MMRCA (Medium Multi Role Combat Aircraft) India. Most tender the project had been taken by Airbus. German (whether public or private) must compete with Rafael (Israel) and Dassault (France).

Germany is second largest partner for India technology collaboration. The largest cooperation are in the field of machinery, heavy vehicles, technical consultancy service, etc (Ernst & Young, 2012). The constraint between of them because of "operation Shakti" nuclear test but Germany took waiver's India from Nuclear Supplier Group to trade nuclear material energy. Both countries can be strong patrners to counter terrorism establishment of stable and sustainable global economic because the geopolitical situation of Germany in Europe is similar to India in Asia (Khashimwo, 2015).

Table 3. Representation of Germany MNC in India

Name of MNC	Type of Contribution	Product Line
Atlas Electronic	contractor of many torpedoes	
Krauss Maffei Wegmann	JV with Ashok Leyland	artillery systems
		combat systems
		armour wheeled vehicles
		recovery vehicles
		bridge laying systems
Diehl Defence Howaldtsweerke	contractor of missile and rocket	
Deutsche Werft	Diesel Electric Submarine	
	Technology Transfer	INS Shalki
		INS Shankul

*Source: Gady, 2015

Table 4. Government Cooperation (G to G) between India with Germany

Type of Cooperation	Description
High Defense Committee	Joint Staff Committee
Sister State	Karnataka – Bavaria
	Maharashtra - Baden Wurttemberg
Naval military Exercise	exercise, training
civil nuclear energy	Technology Transfer
combatting terrorism	Joint Staff Committee

*Source: www.indianembassy.de

Figure 1. Map of Weapon Supplier Distribution between India and Pakista (Rosen, 2015)

Representation of the last industrialized countries, France also had the structured concept of economy and military relations as India's relations with Germany, and UK. Even referring to the tables 5 and 6, the French contribution to the country's military industry was greater when compared with Germany. Defense contractors, as a network of technology venture, had succeeded in taking part in the transfer of technology to the government and private companies. Total private investment India there although the quantity was limited, however qualified financial capital. They were able to run the process of acquiring a PMSC BPO even as practiced by Bharat Forge.

Table 5 . Representation of India MNC in France

Name of Company	Type of Contribution	Partner	Description
TCS	BPO	Airbus	
Tata Steel	Acquisition comprehensive rail product modular platform system	ALTI	
Bharat Forge	Acquisition	Mécanique Générale Langroise (MGL)	
Mahindra and Mahindra	BPO Share	Peugeot Motorcycles	
L& T	BPO	ITER Cryostat	Thermo nuclear Fusion Reactor
Larsen & Toubro Infotech	BPO		Manufacturing, Telecom, Banking
Wipo Technologies	BPO		
Kirloskar	Division	SPP Pump Ltd	
Infosys	BPO		

Table 6. Military Cooperation Cluster berween India – France

Type of Cluster	Segmentation	Partnership	Description
Civil nuclear cooperation	Development of peaceful uses of nuclear energy	AREVA -NPCL- L&T	EPR Reactor
	Joint ventures, joint production	AREVA-Power Grid Corporation	nuclear power equipment
		AREVA - NTPC (PSU)	
		AREVA- Reliance Energy	
		AREVA - Tata Power	
	nuclear research	CEA, ANDRA dgn DAE, IGCAR,BARC, HBNI	reactor safety / security
			basic research
			radio active waste management
			non electrical application of nuclear energy
		research university	master in nuclear energy
			Training
Defense cooperation	joint venture, joint production	Dassault –HAL	Rafale
		Dassault-Reliance Industries	Falcon Series
		Snecma – HAL	M53 component
		Snecma-Max Aerospace Ltd	Max Aero Engines Private Ltd
			MRO
		Dassault – TATA	MMRCA Offset
		Thales –HAL	Mirage 2000
		Thales – BEL	Radar
		Thales - Samtel	Helmet Mounted Sight and Display Systems
			modern avionics
		Thales -L&T	Thales Software India Pvt. Ltd
			modern avionics
		Nexter System- Ashok Leyland- L&T	Mounted Gun System
	military exercise	Varuna Naval Exercises	
		India-French joint army exercise SHAKTI	
		India - French joint army exercise Garuda V	
Space cooperation:	use of outer space for peaceful purpose	climate change	
		telecommunication satellite	megha Tropiques Satellite
			SARAL Satellite

Economic and Military diplomacy between two states increase during recent times. Strategic Partnership which had been signed in between India PM Narendra Modi and French President Francois Hollande on April 2015, implied long standing strategic partnership. Both of states share common concerns and objectives in the field of non proliferation of weapons. In order that issue, they committed to work jointly toward India's accession to the multilateral export control regime, Australia group, MTRC /Missile Technology Control Regime and Wassenaar Arrangement (www.ambafrance-rsa.org).

AREVA as the French state company in the development of the nuclear power industry and electricity have a fairly large degree of participation, particularly in creating EPR (Evolution Power Reactor) in Jaitapur Maharastra. Larsen & Toubro and Tata Group are also involved. Beside that AREVA plays a key role in meeting India's energy needs by **renewable sources** with a clear focus on **solar and bioenergy**. In particular, AREVA was awarded the largest solar power plant of Asia by the Indian group Reliance Power Limited to build a 250 MW concentrated solar power (CSP) installation in Rajasthan, of which the first unit of 125 MW will be commissioned. Sustainable development is a core component of AREVA's strategy, helping to supply ever cleaner, safer and more economic energy to every market (www.india.areva.com).

4. Conclusion

Economic and military diplomacy could guarantee sustainability cluster. Economic diplomacy makes customer and supplier of military industry arm and service product, invesment for basic research and civilian or combatant segment of this. While military diplomacy maintains innovation and other diplomacy remains corridor in interest and passion of military industry as domestic development priority. Since diplomacy as a formal step enhancement of international cooperation, high technology cooperation through technology cluster could be held with economic dan military diplomacy.

As one of priority sub sector on domestic development, military industry should be built by meant of techno park. From the point of view military industrial complex, must be owned by developing countries, included of India, if they want to anticipate RMA. How India utilize both diplomacies, they impact on sustainability cluster. Economic diplomacy makes customer and supplier of military industry arm and service product, investment for basic research and civilian or combatant segment of this. Then military diplomacy maintains innovation and other diplomacy remains corridor in interest and passion of military industry as domestic development priority.

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