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THAI CLUSTERING – TYPOLOGY OF THE EMERGING MARKET

Abstract: Thailand is a rapidly growing emerging market of Southeast Asia, with the prospect of further convergence in relation to regional economic leaders. The Asian financial crisis 1997–1998 induced important changes in the state’s development policy, exposing clustering as an important component of the industrial and competition policy. Thai experiences indicate a difference of clustering conditions within the emerging markets, which is reflected in the evolution of the typology and the concept of cluster. The article identifies three basic concepts of cluster, namely tradi-cluster, plani-cluster and neo-cluster, operating in both traditional and modern manufacturing sectors.

Keywords: Thai clustering, typology, concept of cluster.

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1. Introduction

Thailand – 29th economy in the world in terms of nominal GDP, has been recognized as the fastest growing economy in the world in the years 1985–1996 (annually 12.4%), that contributed to transformation into newly industrialized economy with expansive export industry. However, as being a victim of its own success, this Southeast Asian economy contracted dramatically in the 1997 and 1998 as a consequence of rapid depreciation of baht challenging strong external pressure. Following years brought gradual recovery, boosted by exports encouraged by the weak baht and increasing domestic spendings induced by *Thaksinomics*.¹

The first decade of the 21st century, with average annual growth rate of 4–6%, resulted in the doubling of GDP *per capita*, and acquiring the status of the second largest economy in the Association of Southeast Asian Nations (ASEAN) and the Greater Mekong Subregion (GMS). Thai prosperity is, however, affected by global economic shocks, natural disasters, sociopolitical tensions, and relatively low

¹ A. Jones, *Thai northeast vows poll payback to Shinawatra clan*, AFP, 2014, January 31.

investment² that may threaten further convergence and advancement towards upper middle-income status, with the aspiration of progressing to a higher-income status. However, recent macroeconomic data show that Thai economy represents relatively modest downturn in terms of merchandise exports, and imports growth, inflation rate, current account and fiscal balance, when compared to the other leading ASEAN states.³

As it was pointed out by Skulska and Bobowski,⁴ shifting away from industrial division of labour towards process-based division of labour⁵ led to formation of production networks⁶ and clustering in developing East Asia, including expansive Thai economy, that took advantages of globalizing forces when compared to other developing regions of the world, rejecting the traditional concept of infant industry protection or development model involving import – substituting foreign direct investments (FDI).⁷

The main objective of the article is to study evolution of the cluster typology basing on experiences of Thai clustering. According to the author, traditional concept of cluster, embracing economic and geographic analysis, industrial agglomerations, industrial districts, competitiveness poles, etc. should be found useful, however, industrial cluster approach requires further upgrading in order to address various manifestations of agglomeration phenomena, extensively present within rapidly growing regions/countries, i.e. Thailand.

2. Cluster structures

Clusters are, according to Porter, the exemplification of a typical paradox that “the competitive advantage in the global economy is based increasingly on local resources, such as knowledge, relationships and motivations that are not available for distant competitors.”⁸ He defined clusters as a geographical concentration of interconnected companies, specialized suppliers, service providers, businesses

² <http://www.adb.org/countries/thailand/main>.

³ For further studies see: <http://www.adb.org/sites/default/files/pub/2014/basic-statistics-2014.pdf>.

⁴ B. Skulska, S. Bobowski, Clustering in East Asia – implications of Japan’s industrial development model, *Economics* 3(20), Publishing House of Wrocław University of Economics, Wrocław 2012, pp. 9–21.

⁵ For further studies of vertical specialization in production see: F. Kimura, A. Obashi, Production networks in East Asia: What we know so far, *ADB Working Paper* 320, Asian Development Bank Institute, Tokyo 2011.

⁶ K.-M. Yi, Can vertical specialization explain the growth of world trade?, *Journal of Political Economy* 2003, vol. 111, no. 1, pp. 53–102.

⁷ F. Kimura, A. Obashi, *op. cit.*, pp. 15–21.

⁸ M.E. Porter, Clusters and the new economics of competition, *Harvard Business Review* 1998, November–December, p. 78; Rosenfeld, defining clusters in relatively similar way as Porter, have articulated an important aspect of common opportunities and threats challenged by partners, potentially a source of internal dynamism and interactions within cluster structures (see also E.J. Visser,

operating in related sectors, as well as related institutions (such as financial, training, research, standardization institutions and trade associations), in specific areas, while competing⁹ and cooperating with each other. Thus, a departure from the traditional understanding of the role of location,¹⁰ on the one hand, reflects significant changes in the field of technology and competition, on the other – points to the serious implications in the acquisition of resources on a global scale. It turns out that the cluster structures may become, when reaching an appropriate critical mass,¹¹ an instrument of competition policy under the dynamic knowledge based economy.¹²

In the literature there are many different classifications of clusters. According to Markusen,¹³ there are three basic forms: industrial districts (the dominance of the SME sector companies, strong, flexible specialization, the occurrence of a system of relationships based on trust, the possibility of the creation of a significant potential for innovation), *hub and spoke* (coexistence of large firms affiliated hierarchically with a wide range of SME sector firms, a source of potential – TNCs, cost advantages, flexibility) and satellite (dominating, large group of SME companies dependent on external companies, location cost advantages).¹⁴

Modern theoretical approaches move away from a Marshall's industrial district for the extended manufacturing cluster model based on SMEs, while taking into

R.A. Boschma, Learning in districts: Novelty and lock-in in a regional context, *European Planning Studies* 2004, vol. 12, no. 6, p. 801).

⁹ Porter argued that spatial concentration enables quicker reaction to innovative activities of rivals, than in case of more widely dispersed companies; competition has been found by M. Castells and P. Hall as positive determinant of cluster formation and development in case of Silicon Valley (M. Castells, P. Hall, *Technopoles of the World: The Making of 21st Century Industrial Complexes*, Routledge, London 1994, p. 22).

¹⁰ M.E. Porter, Location, Competition, and Economic Development: Local Clusters in a Global Economy, *Economic Development Quarterly* 2000, vol. 14, no. 1, pp. 15–34; Jacobs and Lakhuzen pointed out that Porter is trying to convince governments to rely on traditional, specific competition forces instead of imitation of the others' successes (E.J. Visser, O. Atzema, With or without clusters: Facilitating innovation through a differentiated and combined network approach, *European Planning Studies* 2008, vol. 16, no. 9, p. 1174).

¹¹ Critical mass, spatial proximity, knowledge flows and interactions were listed by Ketels as major features of contemporary clusters (Ö. Solvell, G. Lindqvist, Ch. Ketels, *The Cluster Initiative Greenbook*, Bromma tryck AB, Stockholm 2003, p. 15).

¹² M.E. Porter, Clusters and the New economics of competition, *Harvard Business Review* 1998, November–December, p. 80; according to Porter, clusters affect competition in three ways: by increasing business productivity, stimulating innovation, that determine future productivity growth and initiating the process of creating new businesses to strengthen the cluster.

¹³ For other classifications of clusters see also: M.J. Enright, Regional clusters and economic development: A research agenda, [in:] U. Staber, N.V. Schaefer, B. Sharma (eds.), *Business Networks: Prospects for Regional Development*, DeGruyter, New York 1996; M.E. Porter, *The Competitive Advantage of the Nations*, The Free Press, New York 1990; S.A. Rosenfeld, Bringing business clusters into the mainstream of economic development, *European Planning Studies* 1997, vol. 5, no. 1.

¹⁴ G.-M. Isbasoiu, *Industrial Clusters and Regional Development. The Case of Timisoara and Montebelluna*, RTN Urban Europe Program and University of Urbino, Urbino 2007, p. 7.

account the growth of service clusters, operating in high technology sectors, increasing importance of TNCs, network-affiliated international companies, and finally – the contribution of public and private institutions.¹⁵

According to Feser, cluster theory concentrates on specialisation advantages associated with agglomeration effects – both urbanisation and localisation.¹⁶ Following Jacobs: urbanisation advantages are generated by the agglomeration of companies from different economic industries, able to supply various products and services, whereas localisation advantages, activity-specific one, are as follows:¹⁷

- external networked suppliers and distributors,
- spatial concentration of well-skilled labour forces,¹⁸
- knowledge spillover understood as flow of very specialized knowledge about products and production processes.

Glaeser et al. have confronted Porter externalities with Marshall–Arrow–Romer and Jacobs externalities. The latter has identified the knowledge spillovers originated in diversity of knowledge from different industries (i.e. urbanisation advantages).¹⁹ However, Marshall–Arrow–Romer dynamic localisation externalities refer to internalisation of local monopolies, such as workforce mobility. Therefore, according to empirical studies by Glaeser et al., Feldman and Audretsch²⁰, Jacobs externalities were responsible for economic growth, thus, clustering lacks legitimacy. However, Paci and Usai²¹ have proven that urbanisation and localisation advantages do not have to be supplementary, because there is a possibility of different kind of combinations of both sectoral specialisation and regional diversification. Moreover, Jacobs externalities have been found as dominant in case of high-tech industries within metropolitan regions.

However, spatial proximity of cluster actors should not be overestimated, global interactions that induce learning processes and engage local capabilities might be perceived as complementary to local.²²

¹⁵ *Competitive Regional Clusters. National Policy Approaches, OECD Reviews of Regional Innovation*, OECD, Paris 2007, pp. 25, 26.

¹⁶ E.J. Feser, Old and new theories of industry clusters, [in:] M. Steiner (ed.), *Clusters and Regional Specialisation. On Geography, Technology and Networks*, Pion, London 1998, pp. 18–40.

¹⁷ H.B. Parr, Agglomeration economics: Ambiguities and confusions, *Environment and Planning A* 2002, vol. 34, p. 719.

¹⁸ M. Roos, *Ökonomische Agglomerationstheorien: Die Neue Ökonomische Geographie im Kontext*, Josef Eul, Lohmar 2002, p. 42.

¹⁹ E.L. Glaeser, H.D. Kallal, J.A. Scheinkman, A. Shleifer, Growth in cities, *Journal of Political Economy* 1992, vol. 100, pp. 1126–1152.

²⁰ M.P. Feldman, D.P. Audretsch, Innovation in cities: Science-based diversity, specialisation and localized competition, *European Economic Review* 1999, vol. 43, pp. 409–429.

²¹ R. Paci, S. Usai, Externalities, knowledge spillovers and the spatial distribution of innovation, *Geo Journal* 1999, vol. 49, pp. 381–390.

²² A. Malmberg, P. Maskell, Localized learning revisited, *Growth and Change* 2006, vol. 37, p. 9.

3. Thai clustering – emerging typology

When studying cluster typology within emerging economies, i.e. Thailand, specificity of macro determinants, considering local handicraft tradition, technological imports enhancing industrialization, public development strategies and the jobs creation should be considered. Moreover, emerging agglomerations may lack appropriate experience and potential to develop advanced, long-term linkages and institutions without public support.

Thailand is an example of government-led cluster identification and promotion within public industrial policy both at the national and local levels. As a consequence of inducing new companies' creation, cohesion of activities within the sectors is enhanced while the competitiveness increases. Industrial policy has been oriented on small and medium-sized enterprises (SMEs) for the last few decades, mainly through the Department of Industrial Promotion under the Ministry of Industry. However, public interventionism has been traditionally concentrated within traditional sectors, i.e. textiles, garments, agriculture, light engineering, handicrafts, etc. active engagement of Thai public institutions, therefore, cluster policy is heavily influenced by international cooperation agencies, resulting in emergence of new concept of cluster, derived from Porter.

Combination of three variables, i.e. clusters' dynamism, linkages with the local public policy, and national strategy of industrialization and competitiveness, led to formation of three major, distinctive categories of clusters: tradi-clusters, plani-clusters and neo-clusters (see Table 1).

Tradi-cluster is a form of industrial agglomeration, deeply rooted in territory, i.e. city, district or sub-district. An idea of tradi-cluster might be perceived as an exemplification of prerequisites of Thai industrialisation phenomena, namely accumulation of local natural and labour resources, small and medium-sized enterprises established locally, very frequently by the families or endeavours, utilization of basic technologies or traditional know-how.

As it was pointed out in Table 1, inter-firm linkages are relatively weak, therefore, arm's length transactions through subcontracting may define the organization of such a cluster, lacking common identity, shared facilities or promotion.

Tradi-clusters concentrate around handicrafts products or simple manufacturing, i.e. woodworks, ceramics, textiles and garments, light engineering or agricultural equipment. Because of intensive competition, cooperative frameworks for such clusters are usually delivered by the external local institutions to enhance the companies to share potentials.

Plani-cluster is an example of agglomeration that has gained popularity in the late 90s, boosted by publicly sponsored projects under the development policies of both national (ministry or department, specialized body) and local authorities.

An objective behind the concept of plani-cluster is to induce clustering basing on existing industries, so the already established firms with potential to link local

Table 1. Major categories of clusters in Thailand by determinants of clustering

	Tradi-cluster	Plani-cluster	Neo-cluster
Localisation/territorial dynamics			
Time frame	25–30 years	5–10 years	5–10 years
Spatial dimension	town and periphery	town and province	several provinces
Resource origin	local	national	global
Organization/industrial dynamics			
Sectoral pattern	artisan, basic manufacturing	manufacturers simple and elaborate	capital intensive
Types of firms	Local SMEs	local and foreign enterprises	large enterprises and multinational corporations (MNC)
Inter-firm linkages	weak	weak	strong
Size of firms	small and medium	all sizes	very large
Complexity of products	simple	intermediary/complex	standardised/highly complex
Collective dynamics			
Shared infrastructure	not specific	specialized or <i>ad hoc</i> facilities	national infrastructure
Common local governance	bottom-up association	top-down	bottom-up and global network
Common tools	nil or simple	simple standard	virtual/conceptual
Public intervention	regional promotion	local territorial	target promotion

Source: B. Ganne, Y. Lecler (eds.), *Asian Industrial Clusters, Global Competitiveness, and New Policy Initiatives*, World Scientific Publishing Co., Singapore 2009, pp. 452, 453.

entities, in order to establish or reorient private sector partnerships. Consequently, public activities are oriented on promotion of cluster structures and competitiveness of engaged companies.

Plani-clusters concentrate mainly on manufacturing, very frequently export-oriented, which translates into extensive territorial dimension, going much beyond administrative boundaries of municipalities or provinces. Thai plani-clusters specialize in agro-food processing, i.e. marine products as black shrimps or tropical fruits, jewellery and garments.

Neo-cluster may be found as a product of clustering based on a combination of industrial organization with leading multinational corporations, combined with intensive support of the public authorities. Such clusters are, therefore, oriented on more advanced, high-end, internationally competitive products.

Neo-cluster takes the form of both local ventures, as in the case of automobile assembly, or foreign, locally rooted partnerships, as in the case of computer parts and components manufacturing. An emanation of the public support is an offensive

strategy of facilitating foreign direct investments, international transactions and flows, mainly through favourable tax regulations and infrastructure provision.

Territorial dimension of neo-cluster is frequently limited, however, clustering tends to spread over large spaces. As it was mentioned in Table 1, neo-cluster members share facilities, with special regard to both local and export-oriented transport infrastructure, trainable and reliable labour forces. Furthermore, public actors are expected to cooperate closely with the cluster members in terms of promotion of the highest industrial standards and international reputation.

4. Thai cluster mapping – some evidence

4.1. The Plani-Cluster of Chaiphaphum

The cluster of Chaiphaphum is an example of initiative by the Department of Industrial Promotion (DIP), gathering textile enterprises located within this province in the north-eastern Region of Thailand to up-grade and strengthen local SMEs. Chaiphaphum is located in the zone 3 of the Board of Investment incentives programme, providing wide spectrum of incentives and allowances to investors setting up plants locally.

DIP programme consisted of a few stages:

- cluster mapping – identification of clusters in the space,
- promotion and mobilization of cluster programmes,
- cluster diagnosis – choice of concrete cluster, providing SWOT analysis,
- collaborative strategy – recruitment of members,
- implementation,
- monitor and evaluation.

When building the programme, Cluster Development Agent (CDA)²³ was designated, acting as the Institute for Collaboration (IFC). Its main objective is to bring the components of the cluster together. In 2003, when the programme started, Chaiphaphum cluster engaged 19 local companies, attracting tens of new entities, specializing in weaving, knitting, spinning, and subcontracting every year. Most of the companies are Thai-owned, however, there are some Indian and Taiwanese investors settled there, attracted by both tax incentives and cheap, skilled labour forces. Initial DIP support was USD 3.3 million, decreasing year by the year to reach the target of self-sufficiency. During the first year, Chulalongkorn University was contracted by DIP to act as CDA of the cluster, however, replaced in the following years by the local agency of the Federation of Thai Industries. To date, major activities of CDA within the cluster were as follows:

- organization of regular plant visits and exchange meetings within the cluster to share ideas and experiences,

²³ CDA can be either private person or civil servant, representing DIP, the Federation of Thai industries or the local Chamber of Commerce.

- organization of visit of textile plants in China to identify their competitive advantages,
- organization of joint road shows in Bangkok to attract new investors to the region,
- organization of joint training programmes.

The first evaluation report published by DIP revealed lack of mutual trust among the members, resulting in lack of willingness to share the knowledge and the assets when acting individually on the business field.

The Chiayphum Cluster seems to fit the category of plani-cluster because of the:

- top-down approach in terms of the common local governance (DIP programme to map and initiate the cluster),
- local territorial public intervention (local agency of the Federation of Thai Industries acting as CDA),
- concentration of the local (Thai) and foreign (Indian and Taiwanese) enterprises,
- national resource origin,
- relatively weak and limited linkages between the companies,
- concentration within the Chiayphum Province.

However, it should be noted that relatively slow process of institutionalization of a cluster and building closer ties among cluster members does not question the importance of CDA, being a core of organization to induce dialogue and interactions. Managers do not share the common vision of a cluster, tailored by the public institution, resulting in unsatisfactory engagement of external financial and technological partners, which may potentially boost the innovations and competitiveness of the whole structure.

4.2. The tradi-clusters of Chiang Mai

Chiang Mai located in the Northern Thailand, while being distant from the Bangkok Metropolitan Region, has enjoyed the prosperity because of the:

- successful agricultural transition and diversification,
- stability of light manufacturing,
- expansion of service, with special regard to tourism.

As a consequence, local manufacturing sector traditionally accounted for limited share of GDP, while tourism and real estate market played the significant role. However, traditional sectors such as wood processing, furniture making, ceramics and textiles manifest progressive clustering, based on the local natural and human resources.

Chiang Mai area's industrial activities cover several districts within three provinces, both urban and rural. Some small companies located within traditional manufacturing areas, specializing in low-end products, i.e. handicrafts, wood-work and furniture, pottery, textile, and garments established agglomerations that match an idea of clustering – such manufacturers share the consumers, suppliers, and practices, providing flexible subcontracting and social networking among the managers. Firms located among others in Lamphun province, operating within industrial parks,

developing intensive input-output relations with the neighbours and local suppliers, specializing mainly in components assembly such as plastic parts, electrical and light electronic, leather and textile.²⁴ Some companies, to benefit from legal burden and land speculation, dispersed location to the countryside, to specialize in some labour-intensive outputs based on local agro-forestry resources.

Workshops engaging local SMEs resulted in gradual internationalization of the local manufacturers, and in the expansion within the domestic tourism industry in the field of product design and identification under *traditional umbrellas*. The textile companies started to manufacture environmental-friendly assortments addressing demand of the middle class, both domestic and international. Sharing local know-how, and enhancing technological upgrading and product differentiation have been the key to success for ceramics industry, internationally competitive – even when challenging China or Vietnam – and centred mainly around Celadon and Benjarong.

Chiang Mai concentration of manufacturers may be recognized as tradi-clusters because of the:

- specialization in low-end products,
- concentration within local SMEs sector,
- lack of specific shared infrastructure,
- inter-firm relations remaining limited to occasional subcontracting,
- bottom-up association in terms of the common local governance,
- simple common tools including exchange of practices during the workshops.

Just like in case of the Chiayphum cluster, Chiang Mai clusters seem to sustain embryonic stage because of the unwillingness of SMEs to share information and knowledge. However, consensus on the promotion of a common image of a region close to nature translated into the range of eco-friendly products engaging local skills and natural resources. Consequently, cooperation between local firms and universities enhanced new technologies, thus, perspectively, more advanced and competitive output.

5. Concluding remarks

When studying manifestations of Thai clustering, it should be noted that the cluster concept may evolve and remain useful to describe industrial dynamism within emerging markets and traditional sectors, deriving from advanced economies' patterns and frameworks. Three major conclusions are as follows:

- clustering has been a component of proactive policy of Thai government since the late 90s to boost the economy;
- establishment of plani- and tradi-clusters enhances specialization and competitiveness of business entities located within emerging economies when facing the challenges of economic globalization;

²⁴ For more studies see L. Chulasai, *Local Economic Development Core: A Case Study of Northern Region Industrial Estate in Lamphun*, Institute of Developing Economies, Tokyo 1993.

- establishment of fully developed cluster is a long-term, elaborated, and very complex process, manifested through development of the common institutional frameworks of a cluster;
- cluster initiative studied above has proved the importance of a dialogue as the platform of mutual trust and potential future cooperation of the members when facing market challenges, mainly induced by the Chinese manufacturers;
- limited interactions among the cluster members combined with relatively poor cluster identity question the perspectives of reaching the goal of self-sufficiency in financial terms in the mid-term, especially when taking into consideration lacking common R&D facilities.

In case of neo-cluster concept which might be manifested by the example of Hard Disk Drive cluster under the auspices of the National Science and Technology Development Administration, that could not have been studied in details at this stage of research because of scarce data, much more similarities with the Porter concept seem identifiable, regarding mainly the role of favourable environment, public-private promotion activities, local resource base to concentrate the knowledge and tap the potentials within highly advanced niche markets and segments.

Undoubtedly, further studies on Thai specific clusters, with special regard to plani- and neo-clusters, should bring more data regarding their “life expectancy” so as the added value derived from clustering for the members.

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TAJSKI KLASTERING – TYPOLOGIA RYNKU WSCHODZĄCEGO

Streszczenie: Tajlandia jest prężnie rozwijającym się rynkiem wschodzącym Azji Południowo-Wschodniej, z perspektywą dalszej konwergencji w stosunku do regionalnych liderów gospodarczych. Okres kryzysu finansowego 1997–1998 zapoczątkował zmianę w polityce rozwojowej państwa, eksponującej klastering jako istotny komponent polityki uprzemysłowienia i wzrostu konkurencyjności sektora MŚP. Doświadczenia tajskich struktur klastrów wskazują na odmienność uwarunkowań klasteringu w obrębie rynków wschodzących, co przekłada się na ewolucję typologii i koncepcji klastra. W artykule wyodrębniono trzy podstawowe koncepcje klastra funkcjonujące w Tajlandii: planiklastra, tradiklastra oraz neoklastra, celem wskazania na uwarunkowania klasteringu zarówno w tradycyjnych, jak i w nowoczesnych sektorach wytwórczych.

Słowa kluczowe: tajski klastering, typologia, koncepcja klastra.