

Chapter 15

From ‘Tradi-cluster’ to ‘Neo-cluster’: First Step for a Typology of Industrial Clusters in Emerging Economies: A Case Study of Thailand

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15.1 Introduction

Rapid industrialisation in East Asia in the late 20th century was backed by strong agglomeration effects due to the combination of construction of national infrastructure and the increasingly strong connections to the world economy. First Japan and then Asian NICs have developed large industrial estates, world class transport infrastructure facilities with export promotion zones, industrial hubs for globalised industries.

This can be interpreted as a sign of maturation of economic structure in these countries and also a sign that the deepening of competition required sustained public intervention and stewardship of the economy. In most East Asian emerging countries, from Korea to Thailand, public policies have given increasing focus over the past two decades to the regional/spatial dimension of industrial activity: location of new conglomerates, restructuring or grouping of firms, inter-sector linkages and strengthening of local network are viewed as means of improving global competitiveness and enhancing the industrial sectors' performance.

In addition, since the 1997 Asian economic crisis, most first and second generation NICs have faced an increasing challenge from China, resulting in a repositioning of their industrial activities.

In Southeast Asia particularly, public support was required to identify prospects, facilitate private initiatives and support new trends of private industrial organisation. Some inspiration for this thinking came from public policies and economic dynamism observed in more advanced economies: soft intervention, mustering of actors and networks, promotion of technology-based activities, etc. In spite of these policy orientations, research on the local development dimension remained relatively limited. In Southeast Asia, some research was devoted mostly to topics such as industrial estates and export promotion zones activity, provincial development or International Growth Triangles. Very few efforts were focused on clustering phenomena — which attracted comparatively more attention for studies in China.

The aim of this contribution is to provide a bridge between the analytical framework elaborated earlier in advanced economies for interpreting territory and cluster based industrial dynamics and recent trends in policies and industrial organisation phenomena observed through several case studies in emerging Southeast Asia — with another underlying question about the bearing of these trends on national industrial specialisation and competitiveness.

This will be done through a review of several case studies derived from different pieces of research in Thailand concerning both traditional, mature and more advanced industrial activities — with a special focus on two province based systems in Chiang Mai (Northern region, with traditional handicraft industries) and Chayaphum (Northeastern region, with textile and garment industries). It will lead to designing an analytical framework or typology adapted to the local context, taking into account major elements of clustering dynamics: history, local resource, sector pattern, linkages.

This chapter is organised in three parts: firstly a presentation of the economic context and industrial development pattern in Thailand, a second part on cluster analysis and its applicability to an emerging economy, and thirdly, reference to case studies and their contribution to enhancement of the analytical framework.

15.2 Industrial Development and Diversification in Thailand

Thailand is a good example of rapid and sustained industrialisation. It was labelled the 'fifth Tiger' in the late 1980s — concurrently with Malaysia with whom it ranks among the resource rich second generation Southeast Asian NICs. Characteristically, growth took roots in a strong agro-based economy, with abundant labour, and diversification sprouted over several decades. Its openness was based on a mix of import protection, mild export facilitation and gentle FDI promotion — rather than a strong liberal attitude though this was frequently advertised. There was actually a step by step opening and liberalisation since the late 1980s. Its production mix diversified steadily — with balanced contribution from local and foreign companies, in a context of regular FDI inflows.

Spatial organisation of activities presented a hyper-centralised pattern over several decades (from the 1930s until the late 1980s) whereas recent trends have shown more dispersion/regional development/relocation of activities — this is related to strategies to access local resource (rural manpower, natural resource, available land) and to a lesser extent public decentralisation policies (such as Eastern Seaboard scheme) or cross-border development projects (such as Greater Mekong Scheme).

This part focuses on some distinctive features of this growth-cum-industrialisation process that determine industrial structure, location pattern, and ultimately international competitiveness. It will then identify current challenges regarding production networks, public support, space and geographic organisation that have bearing on the construction of a new competitive advantage — in the regional as well as world context.

15.2.1 Development in Thailand: Industrialisation and Economic Opening

Thailand's industrialisation is to be understood over a span of five decades (roughly 1955–2005): steady growth was backed by a diversifying

economy — with several stages of restructuring of activities well tuned with steady international integration. Beyond the scope of this paper is the fact that the Thai state as an institution contributing to economic and social change achieved consolidation and modernisation, although politics and government instability remained volatile throughout the period considered. The country benefited from consistency of public policy aiming at overall macroeconomic stability together with considerable development of infrastructure and public services (Wonghanchao and Ikemoto, 1988; Chaponnière and Simon, 1988).

In parallel, over the period 1975–95, human development substantial progress, effectively made particularly in terms of education and health, facilitated by a vigorous demographic transition. This boosted the supply of educated and trainable manpower — in spite of deficiencies in vocational and professional education. We review here major structural transformations in three major areas: industrialisation through diversification of manufacturing production, opening of the economy to trade and investment, stability of public policies.

15.2.1.1 *Industrial Diversification*

The structure of industrial production over the 1960s and 1970s consisted of both export oriented activities (primary processing and garments) and production for import substitution (light engineering, chemicals and textiles). By the beginning of the 1980s agriculture and industry were on a par in GDP. Thailand experienced strong transformation under stimulus from external markets: the expansion of agro-food, footwear and garment industries, and other light industries (jewelry, toys, decoration items) could rest upon active entrepreneurship and extended trade networks in Japan, North America, the Middle East and Europe (Suchiro, 1992; Tambunlertchai, 1993).

A golden opportunity was snapped up with the relocation of East Asian labour intensive activities following a drop in the US dollar (relative to Yen — or Endaka — and other East Asian NICs currencies from 1985): this led to increasing the import content of manufacturing

production as many firms in Thailand became part of a pan-regional network churning out new generations of mechanical and electronic goods ranging from auto parts, home appliances to computer discs or cellular phones with components transferred from several countries (Lecler, 2002; Simon 2001). Maturation of the internal market for intermediary product and consumer goods contributed to strengthening the local manufacturing groups, but very few local conglomerates gained a strong or durable position beyond the national borders.

15.2.1.2 *Growth and Opening of the Economy*

Growth was regular over several decades — it accelerated during the mid 1970s (raw material boom) and late 1980s (post Endaka boom) with two digit growth over several years. Following the 1997 Asian crisis a more gentle rate was sustained — based on both exports and internal market. Steady opening of the economy came hand in hand with overall growth — increasing exports being accompanied with purchase of equipment and intermediary products — the opening rate jumping from 10% to 50% between mid 1960s and mid 1980s (Warr, 1993). This was largely due to trade with advanced industrial nations, although regional trade within ASEAN and East Asian NICs has played an increasingly significant part since the mid 1990s — this being related to stronger integration of manufacturing stages throughout East Asia, particularly in the automobile and electrical/electronics sectors (Horaguchi and Shimokawa, 2002).

Thailand also relaxed its diplomacy leading to renewed ties with neighbours — promoting the idea of a regional area of commerce to foster security and prosperity with former enemies. Regional integration was accelerated through ASEAN enlargement, and particularly the ASEAN Free Trade Area vision implemented since 1992 (but Asean still accounts for about only 20% of total exports).

Although it was more restrictive towards FDI in the 1980s than Malaysia for example, the country benefited fully from the wave of relocations from East Asia following the Endaka. Throughout the early 1990s, Japan and East Asian NICs regularly ranked among the

first investors. FDI regulations were relaxed during the 1997–98 crisis, allowing easier full foreign ownership for non export projects and relaxing the promotion of industries in the provinces.

All these elements had bearings on industrial organisation and territorial structuring and to a large extent on cluster dynamics too.

15.2.1.3 *The State and Stability of Economic Institutions and Policies*

A decisive feature for overall growth and transformation was the stability of macro-economic policies — which resulted in a high level of confidence from various actors ranging from farmers to industrial entrepreneurs and foreign investors.

Structural adjustment programme went relatively smoothly in the early 1980s, and further liberalisation was achieved by the early 1990s. In these circumstances, Thailand's public policies displayed gradual and 'moderate liberalism' — with frequent procrastination or delays in implementing measures such as new fiscal tools (EG; VAT) or lowering import tariffs (Muscat, 1994; Nidhiprabha and Warr, 1996).

On the other hand, sector oriented policies, particularly in the area of industry, were markedly less elaborated and interventionist than what was observed in other Asian NICs: neither a selection of priority industries nor a set of adequate tools for proactive policies.

Thailand's government was relatively ineffective in implementing its strategic plans for industrial estates and strategic regional development and growth poles; they did not benefit from efficient government intervention — in contrast to what was observed in Malaysia, for example in the case of the Penang development.

These trends are similar to those observed in other Asian emerging economies, particularly the second generation NICs that were well endowed with natural resource (Perkins, 1994). Compared with other large Southeast Asia NICs, such as Malaysia or Indonesia, Thailand benefited from similar resources and prosperity, derived natural resources for agricultural and manufacturing development but much less proactive 'developmental state' intervention.

It also presents much less integrated industrial structures compared with first East Asian NICs: many fewer industrial oligopolies and spatial concentration than in Korea (Amsden, 1993), and a lack of advanced ventures such as those forming high tech webs in Taiwan (Guerrieri, 2001).

Several publications (see a survey by Van Huffel, 2005) have emphasised the correlation between economic development (measured through per capita income) and geographic concentration of economic activities (with reference to infra-national regional disparities — in terms of growth and value added). They suggest roughly three phases of geographic restructuring for industrial production location related to development of emerging economies: the 'pre-industrial' era characterised by dispersion (stage 1), the mass-manufacturing production era where industrial concentration reaches a peak (stage 2), and lastly the technology-based industrial era with a new pattern of dispersion based on more advanced sectors (stage 3; see Feser, 1998 and others). In reference to this pattern, Thailand could be on the verge of reaching stage 3 where concentration and clustering could be both declining and shifting to new forms.

This could be represented by a bell curve representing concentration of industrial activities relative to areas where output is measured. It would show a maximum during phase two — due to the relative decline of dispersed informal activities and regional traditional industries, and correlative strong growth of overall manufacturing production throughout national territory...). In stage 3, relative decongestion would take place, with decline in post mature industries together with new infrastructure networks offering a frame for expansion of new/progressive industrial sectors. See Figure 15.1.

15.2.2 *Challenges for a New Wave of Economic Growth*

Several challenges can be identified behind those sound economic dynamisms — we will consider here four aspect that have a bearing on industrial activity, its location and organisational factors, as well as changes in international competitive advantage.

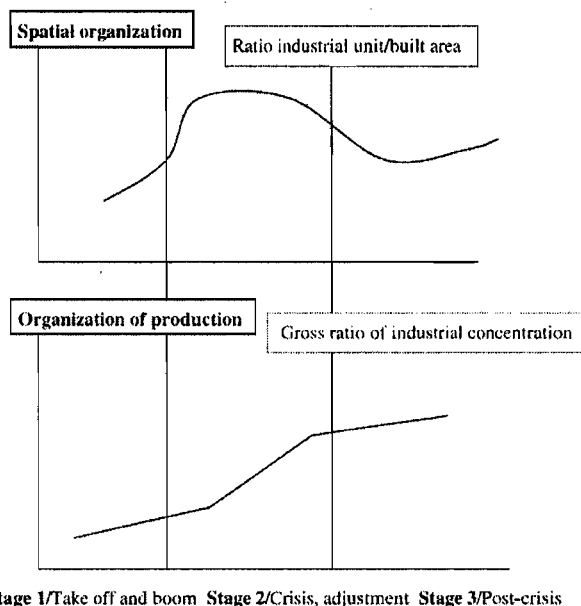


Figure 15.1: Three Phases of Geographic Restructuring for Industrial Production Location.

15.2.2.1 Public-Private Sector Interaction

This relation improved over the past years: whereas it was chaotic in the 1970s it went on a smoother track in the 1980s, blooming over the 1990s with various institutional improvements related to financial regulations, Build-Operate Transfer schemes, private industrial estates and universities. In the present decade, the Thaksin Shinawatra government period placed a strong emphasis on company private style venture governance: from provincial governors compared to CEOs to local development where each district should be initiator of new economic activity (OTOP Programme). This publicly sponsored programme aimed at encouraging new grassroots activities in rural districts (labelled Tambon in Thai, OTOP meaning One Tambon One Product) to generate more added value from projects based on processing and light manufacturing and trading activities. Another

axis was identification and promotion of industrial clusters to strengthen mainstream or high tech manufacturing activities. These new public strategies have taken time to take off and gain substance too: some ideas or 'plans' are little more than catchwords, or advertising for leading politicians, and few analysts would deny that government instability put a load on project design and maturation.

15.2.2.2 *Industrial Diversification and Technological Upgrading*

This is a key element for maintaining a competitive advantage. The expansion of Sino-Thai conglomerates made a decisive contribution to export diversification (several sectors involved such as agro-foods, furniture, jewellery, garments and footwear). Thai companies frequently benefited from intervention (licensing, technology transfer) of foreign firms from major industrial countries — Japan, and East Asian NICs at the forefront but North American and European contributing in key activities too over the period 1975–95 (Hoyrup, 2007).

At that time a growing challenge came from China's increasingly strong position as exporter of manufactured products for the world market: consumer electronics, domestic appliances, whereas neighbouring South East Asian countries gained competitiveness for production of labour intensive goods (garments, sportswear, footwear, etc.).

Over the past decade two successful strategies have been pursued by firms. Firstly, taking strong positions in pan-Asian production networks of complex manufactured goods such as automobiles or computer/communication equipment. Secondly, improving technology and the design content of production.

15.2.2.3 *Structure of Manufacturing Sector*

The 'industrial fabric' looks densely established — but actually linkages are lacking: export oriented activities do not maximise local supplies of components as they can access cheap inputs from

abroad, local market oriented manufacturing is frequently controlled by oligopolies or cartels. The system was oiled by the dynamism and active networks of the Sino-Thai communities, and their ability to set up ad-hoc bodies or association to liaise with government decision-making bodies and agencies (Laothamatas, 1992).

The structure of the manufacturing sector remained biased towards medium and large scale firms in terms of access to financial and technological resources, but also skilled management and manpower (Simon, 2001).

Thus development of small and medium companies has always been lagging behind, and in addition many have suffered throughout the crisis years — in 1997–98 more than 20% of manufacturing companies went through dire straits largely due to the credit squeeze (Régnier, 2000). Since the beginning of the present decade the double targeting of activities (local and export oriented) is once again put to test, although competitiveness to face neighbouring countries remains a hot issue.

15.2.2.4 *The Territorial Dimension*

The territorial dimension of industrialisation in Thailand has kept a strong Bangkok-based bias, a heritage of the early 20th century. Bangkok being the political, institutional, and economic capital — as well as the largest conurbation — it retained its hub and spoke position for connections between regions. Facing this hyper-centralisation, regional city centres did not gain significant role until the early 1990s (Parnwell, 1990; BOI, 1993). Their secondary position was a handicap for local initiatives although they benefited from the spill-over effect from the centre. Active groups of local entrepreneurs snapped up opportunities but were in a subsidiary position to stronger business groups in the metropolis. When local development project and new industrial activities flourished they were to a large extent Bangkok initiated and managed (Kermel and Schar, 1997; Glassmann, 2004) and didn't avoid the overheating and speculative pattern common in the capital city. This intermediation did not generate strong organisation or interactions with local industries!

This explains to a large extent the difficulties encountered to identify or strengthen local clusters.

15.3 Clusters in an Emerging Economy: The Need for a New Typology

The concept of cluster takes its substance from the combining of two dimensions of organisation of industrial activity: territory and production — and it was initially coined as an analytical tool for mature economies with deep industrial history (see Table 15.1 below). Recent literature shows however the relevance of the concept for emerging or developing economies where established or new activities in industry and service sectors display various agglomeration forms. Therefore two aspects will be considered here: theoretical justification for the concept applied to recently developing economies, characterisation leading to a first typology suitable for understanding clustering in reference to concrete cases in Thailand. This approach seems coherent with the perspective offered by Courlet (2001): 'the analysis of territories shows that development stems from a system of inter-linkages and flows of information, production and values related to a specific mode of production ... a territory is therefore a privileged factor of development as it integrates several factors — historical, cultural, social — that form a basis for specific organisation patterns ...' (p. 36; our translation).

Table 15.1: Contemporary View of Cluster Types.

		Inter-firm Linkages Organisation	
		<i>Strong</i>	<i>Weak</i>
Localisation of inter-firms relations	<i>Strong</i>	Mode 1. 'Porter type' cluster	Mode 3. Cluster based on local resource or history
	<i>Weak</i>	Mode 2. Cluster without deep local base	Mode 4. Scattered activity

Source: Adapted from Torre (2006, p. 21).

15.3.1 *Revisiting the Notion of Cluster: From Developed to Emerging Economies*

When referring here to the idea or notion of cluster we do not mean to discard other ideas frequently put forward in literature and recent research on industrial agglomerations and economic or geographic analysis such as 'local productive system', 'industrial district', 'technological or competitiveness pole', etc. The industrial cluster approach is particularly convenient/useful and relevant for two reasons: firstly it is of widespread use in national industrial and regional development policies and more recently in international organisations (World Bank, Unido, etc.). Secondly we consider the flexible definition — or broad semantic use — of cluster is particularly adequate to qualify agglomeration phenomena presenting heterogeneous forms in rapidly growing or emerging countries.

Torre (2006) suggests that the increasingly frequent use of the idea of cluster — in various contexts, by analysts of various disciplines and traditions — has created imprecision, and he concludes that rather than a strong 'concept' it should be labelled a 'notion': 'the main relevance of this notion is the fact it can be used in an operational way ...' (Torre, 2006, p. 39, our translation). This flexibility is also stressed by Salvador and Chorincas (2006, p. 449) in the case of Portugal, as they consider that cluster analysis is a useful and pragmatic tool to analyse concrete cases.

However several justifications can be put forward to use this notion, and account for the frequent use in several areas of scientific analysis: for identification of territorial dimension of economic activity (Pecqueur, 1996; Colletis-Wahl, 2001; Pecqueur, 2006), for analysing industrial organisation and inter-firms linkage (Tsuji, 2007), to develop new tools for public policies (Zimmermann, 2002). Additional theoretical development also concerns analysis of innovation systems, identification of elements of social networks (Angeon, 2006; De Bernardy, 2000).

We therefore suggest the following composite notion of a cluster as 'a group of productive units belonging to one or several sectors, either manufacturing or services, settled on a territory'.

Productive units constituting a cluster may be connected through supplier/client relation, share common specific resource (raw material, traditional skill), or infrastructure — these factors having various degrees of intensity. The cluster generally benefits from an image and members share a 'collective reputation'. On top of that institutional support will be given either by collective body or public/state assistance. In addition, the cluster's dynamism will be backed by socio-political networks, leading personalities and entrepreneurs.

Here, we find it useful to refer to the framework designed by Torre (2006) which highlights the two key dimensions to dynamic clustering analysis, namely organisation of linkage between firms and localisation of relations. The Mode 1 type is obviously the most emblematic — and fits Porter's analysis well. We will focus below on Mode 3. The case of Mode 4 is not to be seen as 'disorganised', referring to Zimmerman (2002, p. 518) 'proximity can accommodate some distance whenever they share common goals or representations that will base their coordination'.

We fully agree with Torre's emphasis on three favourable factors to 'geographic concentration of agents' namely embeddedness of social networks into economic networks, institutions as framework for economic behaviours and finally fundamental conditions for the agglomeration process such as land price, taxation or skilled labour resource.

Although Torre's analysis focuses on mature industrial countries, some key factors he puts forward are evidently relevant for analysing emerging economies. Fundamentals and structures of these economies will have bearing on clustering capacities and patterns — in that respect what has been observed in Thailand is well in line with other works on developing or emerging economies; relevant work was conducted in Taiwan (Paulmier, 2001; Guerrieri, 2001), Tunisia (Ferguène and Hsaini, 1998) India (Schmitz and Nadvi, 1999) and also China (see other sections of this book — we refer to Van Huffel, 2005; Catin and Van Huffel, 2004).

When it comes to the context of our cases studies in Thailand, and in reference to Table 15.1, we will focus on 'Mode 3', showing weak

linkage between firms with relatively strong localisation elements — very seldom can we find ‘Mode 2 type’ in an emerging country (this should lead to further analysis in the case of neo-cluster of Thailand considered in the typology below). Additional research would be needed to take into account another dimension, specific to medium size emerging countries (i.e. non BRICs) — their particular pattern of economic openness and international integration through time. In that respect additional emphasis could be placed on differentiation between ‘endogenous opening’ or ‘exogenous opening’ (Catin and Van Huffel, 2004). The former designates the long maturing of industrial clusters over time, as seen in ‘old industrial countries’ before being subjected to strong international competition, whereas the latter accounts for the external pressure on relatively younger industrial sectors to increase opening and specialisation, as seen in emerging economies. This early confrontation between industrial maturation and international integration is frequently seen as an handicap, and a justification for proactive public policies aiming at reconciling territorial cohesion and enhancement of competitiveness.

Conclusions from all accessible field studies, particularly those mentioned above, seem to agree strongly on the following points:

- i. Clusters in emerging economies show specific dynamisms or creation patterns, and thus present some ‘dissimilarities’ with those observed in advanced industrial economies. This can be explained by developing economies context where several elements are combined such as a local handicraft tradition, industrial dynamics with imported technologies, public development strategies, constraints of social progress and employment creation (Nadvi and Barrientos, 2004, p. 11).
- ii. Many agglomeration that have been identified could be labelled ‘embryonic clusters’ (Salvador and Chorincas, 2006) or ‘potential clusters’ due to their incompleteness or immaturity. That will make them heavily dependant on public intervention in terms of building positive externalities, linkages and common institutions to serve groups of activities/enterprises and strengthen their roots.

15.3.2 *Clusters in Thailand: First Step Toward an Analytical Typology*

When it comes to formulating a typology of clusters, the literature presents a variety of sources (cf. an interesting survey done by Nadvi and Barrientos, 2004) but it appears that most works relevant for developing economies do not take into account the institutional dimension in cluster agglomeration. We suggest here that this criterion has particular relevance for countries where promotion of clusters is part and parcel of public industrial policy implemented either through national or local policy packages. In Thailand by the beginning of the present decade, the government focussed on cluster oriented identification and promotion — and two justifications can be put forward for this: on the one hand industrial structure gained considerable complexity over the period 1986–96 (as presented in Section 15.2.2) and new substance and dynamisms going in hand with a larger number of firms led to some agglomeration sprouting in selected sectors. On the other hand public policy considered that backing up 'bunches of firms' could enhance cohesion of activities and improve national competitiveness.

Actually as part of industrial policy, support was targeted towards small and medium (SMEs) companies for several decades — particularly through the Department of industrial Promotion (D.I.P. *Krom Sangseum Outsahakam*, under the Ministry of Industry). Its action was geared mostly towards traditional sectors such as textiles and garments, light engineering, handicrafts, agro-food, etc.

More recently the reference to cluster oriented policy was adopted under influence from international cooperation agencies which explains why the definition of Thai cluster derives directly from Porter (1999) and Unido's (Ceglie and Dini, 1999): 'clusters are concentrations of enterprises — sector or territory based — that produce and sell a range of complementing products and face similar/common constraints and opportunities'.

This matching of industrial dynamics and programme oriented analysis appears thought provoking. Therefore, the typology suggested on the basis of case studies in Thailand will take into account

both the clusters' dynamisms and their integration in local public policies and national strategy for industrial competitiveness. Three broad categories of clusters are broadly defined here: tradi-clusters, plani-clusters and neo-clusters. (see Table 15.2).

Table 15.2: Synthesis of Major Clusters Identified in Thailand.

	Tradi-cluster	Neo-cluster	Plani-cluster
Cases from research or accessible documents →	Bangkok , urban districts (BoBae, Din Daeng) confection	Automobile Computer parts Hard disk drives	Chaiyaphum Textile, Transport vehicles/ coachs Motorcycles (SME 007+)
Criteria for 'clusterisation' ↓	Chiang Mai céramics, wood industry, textile		Processed food (Black shrimp) Genopolis Jewelery
Localisation/ Territorial Dynamics			
Time frame	25–30 years	5–10 years	5–10 years
Spatial dimension	Town + périphery	Several provinces	Town + province
Resource origin	Local	Global	National
Organisation/ Industrial Dynamics			
Sector pattern	Artisan, basic manufacturing	Capital intensive	Manufacturers simple + elaborate
Types of firms	Local SME	Large + MNCs	Local and foreign
Inter firm linkage	Weak	Strong	Weak
Size of firms	SME	Very large	All sizes
Complexity of products	Simple	Standardised/ highly complex	Intermediary/ complex

(Continued)

Table 15.2: (Continued)

	Tradi-cluster	Neo-cluster	Plani-cluster
Collective Dynamics			
Shared infrastructure	Not specific	National infrastructures	Specialised or ad-hoc facilities
Common local governance	'Bottom-up' association	'Bottom-up' + global network	'Top-down'
Common tools	Nil or simple	Virtual/conceptual	Simple standard
Public intervention	Regional promotion	Target promotion	Local territorial

15.3.2.1 *Tradi-cluster*

This is an elementary form of industrial agglomeration — with strong rooting in territory at the city, district or sub-district level (Thai administrative nomenclature: *muang, amphoe, tambon*). It reflects initial conditions of industrialisation of Thailand's economy: tapping of local natural resource and available labour, small and medium scale firms (SMEs) established by local entrepreneurs (on a family basis), with simple technology or traditional know-how (Schmitz and Nadvi, 1999). Sub-contracting appears to be a frequent element in organisation or linkage.

This form of cluster specialises either on handicrafts type products or simple manufacturing — this frequently found with sectors such as woodworks, ceramics, textiles and garments, light engineering and agricultural equipment.

The cluster's identity, or image, is well recognised, but seldom promoted — as firms tend to be in strong competition they rarely seek a common label or facilities sharing. Usually an 'external' institution would offer a cooperative framework for firms located in the cluster.

15.3.2.2 *Plani-cluster*

This type is more recent in Thailand — and less frequent too — although it gained popularity since the end of the 1990: a plani-cluster

is an agglomeration identified by a publicly sponsored project. Several cases can be found in the literature on emerging countries. This could be done either by central government (through ministry or department, specialised body) or local institution, as part of an integrated and focused development plan (Carluer and Samson, 2006).

Clustering strategy is based on existing industries: established firms with potential for local based linkages, private sector partnership that should be enhanced or re-oriented.

Cluster delimitation is thus related to a proposed framework for promotion and improvement of member's competitiveness. It is generally focused on manufacturing only, and frequently geared towards exports. In Thailand activities range from agro-food processing (marine products such as black shrimp, tropical fruits) jewelry and garments. The territory can be extensive, beyond administrative boundaries of municipalities or even provinces.

15.3.2.3 *Neo-cluster*

This type refers to grouping of firms specialised on more advanced/ and internationally competitive products. This is a *de facto* clustering based on a combination of industrial organisation, with internationally reputable leading firms supported by favourable public policy.

On the corporate side can be found both local ventures and well established of more recently rooted foreign partners (the former in the case of automobile assembly and the latter in the production of computer parts and components).

On the public policy side, this is clear evidence of an 'offensive strategy' facilitating foreign direct investment (e.g. relaxing of some restrictive regulations) as well as international transactions and flows (strong infrastructure, low or nil taxation).

The neo-cluster might be the closest to Porter's concept although the territorial dimension remains relatively shallow — with clustering spreading over relatively large space, probably due to the emerging country specificity (see Lecler, 2002, for a case of the automobile assembly and auto parts). Among key shared element are transport infrastructure (both local and export oriented facilities) manpower pools

considered both easily trainable and reliable. In the case of the Hard Disk Drive cluster, and based on his experience with National science and Technology Development Administration, Intarakumnerd emphasises the role of public policy together with private firms to promote an environment conducive to highest industrial standards and international reputation (see Chapter 16).

15.4 Clusters in Thailand: Contrasting Situations Derived from Case Studies

We present here two case studies that fit into the framework presented above — they derive from a combination of field studies, public research and analysis government sponsored studies reports. They are showcases regarding of the usefulness of typology and bring evidence of specific inter-firm linkage in the context of emerging economies.

15.4.1 *Textile Industries in Chaiyaphum Province: A Case of 'Plani-cluster'*?¹

This case study of a provincial cluster begins with an overview of the Thai textile industry, paying heed to its structure and challenges. The next section describes a specific case, the textile cluster of Chaiyaphum, located in the North-East of Thailand and focuses on the way it is structured and promoted by public intervention.

15.4.1.1 *The Thai Textile and Garment Industry: Current Challenges*

The Thai textile and garment industry still accounts for a relevant part of the Thai industry with about 20% of manufacturing value added (5% of total GDP, more than 1 million employees, 6% of total

¹ This section derives from Baron-Gutty (2006), 'Agglomérations d'entreprises et clusters en Thaïlande.' *Théorie et études de cas*, Master's degree dissertation. Asie Orientale Contemporaine, Université Lumière-Lyon 2/IAO Lyon.

exports). Although the activity was severely constrained by the expansion of China in the late 1990s and the termination of the Multi Fibre Agreement in 2005, firms based in Thailand remain proactive on many international markets from North America to the Middle East, Russia and Europe.

The industry is organised with many networks, based on hierarchical ties, sub-contracting and spatial agglomerations of activities (Supachalasai, 1992). All stages can be found from spinning to garment making, and production of specialised material/cloth fishnets, etc. A large range of technologies is utilized — from basic/standard to high/advanced (such as those required for colour treatments, special synthetic fibres, fishnets, etc). Bangkok remains a hub — keeping as front window the famous Bobae and Pratunam urban districts. Most of the textile companies are SMEs, family-run and owned by Thai nationals, usually from Sino-Thai background — although many joint-ventures can be found with investors from East Asia and occasionally Europe.

Some manufacturing companies work under license from famous brands — and sell locally with exclusivity, or exports to supply international markets of their contractors (for fashion or sportswear). A few firms have developed their own labels, especially for youth, such as Pena House or Greyhound. These clothes are marketed in Thailand and specially designed for the local population, using popular material and colours.

Today the industry has to cope with many hurdles, and can no longer play on the cheap labour resource. Many segment/firms still lack elements to up-grade activity such as global marketing, design, and R&D input. Some companies have shifted to higher value-added segments of the market such as material for interior decoration, carpeting, man-made fibres. Public policy has tried to give support through international promotion; e.g. government launched the Bangkok City Fashion programme to create an Asian Fashion hub in Bangkok. In addition it has also placed the textile and garment industries within the framework of the cluster initiative.

15.4.1.2 *The Cluster of Chaiyaphum: A Publicly Promoted Initiative*

The Department of Industrial Promotion (DIP) launched the cluster initiative, among other projects targeting up-grading and strengthening of small and medium industries. It mustered support from international agencies and consultants — M. Porter among others — to review local situation and gain knowledge from foreign experience.

The DIP programme was structured in different stages: cluster mapping (where are the clusters located?); promotion and mobilisation of cluster programmes; cluster diagnosis (targeting one specific cluster and assessing its strengths and weaknesses); collaborative strategy (recruitment of members); implementation; monitor and evaluation. Besides, the DIP-cluster based programme was centred around the designation of a CDA (Cluster Development Agent). In the economic literature, it is often referred to as an IFC (Institute for Collaboration). Its aim is to establish connections between the components of the cluster. The CDA can be either private person or civil servant, coming from the DIP itself or from the Federation of Thai industries, or from the local Chamber of Commerce. Very seldom, it will be a direct delegate or emanation from the entrepreneurs themselves.

The cluster of Chaiyaphum targets textile companies located in this province, part of the Northeastern Region. Chaiyaphum belongs to the zone 3 of the BOI (Board of Investment) incentives programme, which means that full benefits and tax allowances are granted to investors setting up plants there, for example, tax exemption on corporate revenues for 8 years.

In 2003, 19 companies took part in the cluster programme launched by the DIP. By the end of 2006, 37 companies were registered as member of the programme. This included companies involved in weaving, knitting, spinning and subcontracting tasks. Companies are mostly Thai-owned but some foreign investors from India and Taiwan are also settled there. They chose Chaiyaphum because of the incentives granted by the BOI but also because they

expected to find there skilled and cheap manpower. Recruited members are voluntary and the cluster was supported by DIP funds: in 2003, 3.3 million dollars were awarded to the project. Gradually the DIP decreased its financial support to the cluster, the aim being a self-sufficient basis.

Why did companies agree to join the programme? A study carried out by the DIP for an automotive cluster showed various reasons, including joint use of machine tools, joint purchases of raw materials, order sharing or visiting each other's plants. Surprisingly it was assumed that the motives could be the same for the cluster of Chaiyaphum.

In Chaiyaphum, during the first year the programme was implemented, the DIP did not find a suitable agency to act as a CDA. Therefore, the DIP contacted Chulalongkorn University for business service. They sent a team and set up a structure there to coordinate the programme. The second year, the local agency of the Federation of Thai Industries became involved and acted as the CDA of the Chaiyaphum cluster.

Many activities were offered and coordinated by the CDA such as monthly plant visits and exchange meetings. Meetings involving managers are planned every month, but often only back-up staff is sent to the meeting, managers being too busy. Visiting each other's plant has been a success because most of the managers were interested in doing so but did not dare asking for it. The CDA also organised visit of plants in China as managers wanted to see by themselves how and why China was becoming a threat to the Thai textile industry. Together with cluster members, the CDA organised joint road shows in Bangkok. The aim was to attract new investors in the region. According to the DIP staff, some joint training programmes among members have been implemented in the cluster. In addition some order sharing process was being envisaged too.

Following the implementation over several years, the DIP made an assessment of the cluster programme. A first report suggested that firm managers see the cluster programme more as a threat than an asset, most companies wanting to keep knowledge and activity secret.

It is hard to put together companies that usually make deals on an individual basis.

The definition of a cluster lacks clarity: the administration as a promoter uses the word 'cluster' as a motto, but often underestimates that institution building is a complex, elaborated process, that takes time and energy to succeed. The role of the CDA should not be overlooked, it is central and necessary. Its efficient and adequate action will be the key to the success of the cluster through compromise, conflict solving, and sincerity. At this stage the cluster seemed more the results of a publicly tailored-made programme — thus a 'plani-cluster' — than a fully-developed cluster.

In terms of internal dynamism too, the cluster needs to gain self-sufficiency. Although some actions in the programme have enabled better cooperation between members, they are not involved in a collective, 'cluster' vision. Managers have not sought links with other financial and technological partners. There is very little relationship between the components, and this does not extend to R&D institutes, trading or financial institutions — whereas this could be useful to find appropriate funding for research programmes to improve products and develop new designs.

15.4.2 *Chiang Mai*² Province: Looking for Elements of a 'Tradi-cluster'

Regional economic development in Northern Thailand was vigorous over the past two decades — with pace similar to the national economy as a whole. This is largely due to growth transmitted from Central Region, although the province enjoyed a boom of its own because of its abundant resource, active population and shrewd elites. The capital city Chiang Mai has retained a strong position, inherited from history, placing the city as a regional hub among four provinces (Wongsupbhatsatigul, 1977; TDRI, 1991). Recently connections with neighbouring regions, and even countries like Laos and China have played a more significant role.

² This was part of a research programme with support from Centre for Education and Labour Studies at Chiang Mai University and IRD/Quesed.

The region has enjoyed prosperity despite its distance from the Bangkok Metropolitan Region, due to a combination of factors: successful agricultural transition and diversification, stability of light manufacturing, expansion of service and particularly tourism on a large scale. Analysis of the diversification pattern shows a sort of paradox: transition from agriculture to services has to some extent 'bypassed industrial activity'. Indeed the manufacturing sector has always retained a limited share of provincial domestic production (always below 20% of provincial value added, a share retained by agriculture until the early 1980s). This is because tourism (both local and international) and real estate development (golf courses, resorts, retirement homes ...) have played a considerable part in the economy. Therefore, several systems of production co-exist over the Northern provinces.

In spite of the secondary position, manufacturing remains active and well rooted in the territory and alongside other activities. Traditional sectors such as wood processing, furniture making, ceramics and textile have prospered — and actually offer some cases for analysing clustering dynamics. This clustering relies on local resource (natural resource such as wood bamboo, fine clay) combined with available labour — either young employees or part time off-farm activity — with traditional and artistic skill. The traditional clusters are a good illustration of proto-industrial activity and its evolution.

The industrial activities of the Chiang Mai area are scattered in various urban and rural areas over several districts covering three provinces:

1. Traditional manufacturing areas grouping workshop and small firms, specialised on simple products, or handicraft, such as woodwork and furniture, pottery and crockery, textile and garments. Some groups of firms in this category present some agglomeration that can be labelled clustering — not only do they work connected to close suppliers or customer but also they operate with flexible sub-contracting and order sharing practices. In addition managers frequently belong to associations or clubs forming the base of intense social network intertwined with business.

2. Industrial estates or parks have been in operation for two decades — this is mostly the public operated Norther Industrial Estate in Lamphun province (Chulasai, 1993³). Firms located there have seldom input-output relation with their neighbours or local suppliers — many focus on assembling components imported or transferred from the Central Region (plastic parts, electrical and light electronics, leather and textile).
3. Due to lack of regulation and land speculation, some firms sprouted out or dispersed location to the countryside. Most are labour intensive and some tap local agro-forestry resources.

Most workshops or SMEs initially catered for the domestic market but quickly found opportunities for export of manufactured goods. Several manufacturing clusters have become tightly connected to tourism in terms of product design and identification (e.g. 'traditional umbrellas'). The textile based firms have caught the wave of ecology with sustainable raw materials and design to suit the eco-sensitive middle class of Thailand and abroad. In the ceramics industry about 70% of firms can be now labelled 'modern' (registered, with significant equipment and trading capacity). Sales channels range from local emporium to up-market boutique in Bangkok and other Asian and World capital. They are evidence of a well targeted niche market, and they are internationally competitive — which also means they have to face intense competition from Vietnam and China. This call for technological upgrading and product differentiation. As an example there is a specialisation for fine ceramics such as Celadon, Benjarong, tapping on local know how.

Chiang Mai province 'tradi-clusters' show a variety of entrepreneurial forms from self employed craftsmen to modern firm owners. There is indeed a spectrum of business size and production patterns (equipment, production quality, customer market segment). Firms in these clusters do share common territory (such as artisans village, peri-urban factory locations) and identity. However, common facilities are

³ Luechai Chulasai (1993), 'Local economic development core: A case study of northern region industrial estate in Lamphun'. Institute of Developing Economics, Tokyo.

not developed, and linkages kept minimal — mostly under the form of occasional sub-contracting. Cooperation remains at an embryonic stage as tradition of SMEs is not oriented towards sharing information and developing common knowledge. In spite of this a consensus emerge on the promotion of a common image of a region close to nature, even if not eco-friendly — which is an easy way to mark the difference with the capital city. This translates into ranges of products combining local skill and natural or organic products (cosmetics, garments, food). This remains superficial, and so far very few cooperation to develop technologies along these lines has led to cooperation between firms and local educational and university institutions.

Beyond manufacturing, how can we characterise potential for stronger integration of a 'local productive system'? Several issues are at stake: competition for labour is fierce between industry and the tourist service sector (a so called 'tourism cluster' would target some newly created activity parks and even more resorts for senior citizens). Natural resources are being intensively tapped for conflicting use (land for housing estates or golf club versus orchards and 'green hill' landscape).

15.5 Concluding Remarks

At this stage, we would like to stress once again that although 'cluster' remain a very broad notion, it provides a helpful framework in the context of rapidly changing industrial dynamisms. We suggest here several elements that should be scrutinised in further investigations.

Then addressing the analysis of public policies concerning cluster, two elements seem to emerge from our cases:

- The promotion of clusters was part of proactive public policy in Thailand in the first part of the present decade: they were supported in the context of domestic oriented policy with strong fiscal impetus to rejuvenate the domestic market after the post 1997–98 crisis years. Most clustering experiences depend on this contra-cyclical effort and it is unlikely that inter-firm cohesion

would remain strong in a more affluent context unless it predated the official clustering period. In addition, public policy to create clusters *ex-nihilo* from fragmented contexts or for stagnant industries faces (too) many uncertainties. It seems an investment with poor returns.

- Regarding specialisation, our cases show that for a strongly export oriented economy, clusters tend to blur the distinction between offensive and defensive strategies: true to the case both tradi- and plani-clusters tend to be supportive of activities under intense competition or already threatened whereas neo-cluster are identified in more advanced or high tech sectors. However all clusters — and their public support — show the competitiveness challenge of a diversified emerging economy facing globalisation: specialisation and competitiveness are more and more clearly defined within sectors, on niches or segments of production rather than for the sector as a whole. Therefore clustering should also reflect this shift in industrial competition dynamics.

Regarding the improvement of our analytical tool, it would be relevant to revisit our typology with data covering a longer time frame, about two decades of actual activity, regarding both plani- and neo-clusters. Quantitative data is still lacking concerning value derived from clustering for 'members' — registered or *de facto* — as well as spread effects for the territory.

Beyond this first typology, it would be fruitful to consider the addition of categories or modifications on two aspects. One to take into account connection between manufacturing and other industries, and second to better understand the role of cluster for technological up-grading (densification and up-scaling of production, identification of internationally attractive areas for science parks or technopoles).

We still find it relevant to consider the transfer of this typology to other emerging countries where various forms of cluster can be found — probably relevant contextual situations could be found in Southeast Asia (the Philippines, Indonesia) or in the Mediterranean area (Morocco, Tunisia, Turkey, Egypt, etc.).

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