

# Industrial Policy, Industrialisation and Cluster Industries in Indonesia: An Overview

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## Abstrak

*Kebijakan industri di Indonesia telah dibangun melalui kebijakan yang pragmatis. Artinya, kebijakan itu tidak terikat pada pendekatan tertentu, seperti hanya menekankan pada mekanisme pasar atau melalui intervensi negara. Pendekatan pragmatis ditempuh sebagai upaya untuk menyesuaikan dengan kebutuhan pasar dan lingkungan. Di dalam pendekatan demikian, industri menengah ke atas, lebih banyak diuntungkan. Tetapi, pemerintah juga tidak menutup fakta bahwa kelompok industri kecil dan menengah sangat penting bagi perekonomian Indonesia. Untuk itu, pemerintah juga berupaya membantuk kelompok ini. Salah satu strategi penting yang dipakai adalah melalui pendekatan klaster, yakni membangun kelompok industri sejenis di dalam wilayah-wilayah tertentu. Pendekatan ini dipakai mengingat keuntungan industri yang mengelompok lebih besar daripada ketika berdiri sendiri-sendiri.*

**Kata Kunci:** *Kebijakan Industri, Kelompok Industri*

**D**uring the New Order, between 1966 and 1998, the Indonesian government attempted to accelerate the growth of the industrial sector. Under the leadership of President Suharto who was assisted by technocrats, the New Order government launched industrial policy for fuelling the industrialisation process which resulted in a huge transformation of the Indonesian economy, from agricultural based to industrial based. The existing cluster industries, to some extent, cannot be separated from the way the New Order government that deliberately carried out the industrialisation process.

This paper discusses the industrialisation process and the dynamic development of cluster industries in Indonesia. It mainly consists two parts. The first part discusses the extent to which industrial policy

has generated the growth of the industrial sector in general and cluster industries in particular. The second part attempts to explore the characteristics of cluster industries in the context of the industrialisation process.

## **Industrial Policy and Industrialisation in Indonesia**

Industrialisation in Indonesia actually was initiated during the Dutch colonial period, especially after the Dutch introduced the cultivation system in the 1830s (Maddison 1989). During this period some industries, such as food and beverages, textiles and cigarettes were founded. However, Pangestu and Sato (1997:xi) argue that modern industrialisation in Indonesia started when President Suharto took power in the middle of the 1960s. The New Order govern

ment deliberately changed the structure of the Indonesian economy, from predominantly agricultural sector to predominantly industrial sector. As in many developing countries, industrialisation was viewed as being taken for granted as an instrument for affording a high standard of living as people in industrialised countries (Hughes 1984).

That way of thinking seems to reflect that the policy makers were very much influenced by the argument of modern theories, suggesting that society essentially has developed linearly from hunting society to the high consumption of industrial society (Leys 1996; Webster 1990). Gunnar Myrdal, for example, has pointed out that manufacturing industry is 'a higher stage of production' and symbol of 'a high living standard' (Myrdal 1955:227).

A huge structural change of the Indonesian economy has taken place since the early years of the New Order government. In the middle 1960s, the sectoral share of GDP was dominated by the agricultural sector which accounted for 53 per cent. This share dropped drastically to 19 per cent in the early of the 1990s. In contrast, the contribution of the manufacturing industrial sector to the GDP trebled from only 8 per cent in the middle 1960s to 24 per cent in 1995 (Aswicahyono 1997:2; Hill 2000:5).

The fact that the Indonesian government has deliberately undertaken industrialisation to carry out its economic development seems to support the argument that industrial policy has contributed positively to the existence of the industrial sector of any country (Blais 1986; Cowling *et al.* 1999; Johnson 1998; Poot *et al.* 1990). Actually, as Johnson (1998:7) argues, industrial policy can be negative if it results in 'distortions, disincentives, and inequalities that result from uncoordinated public actions that ben-

efit or restrain one segment of the economy at the expense of another'.

However, this argument seems to look at industrial policy solely as a high intervention of government to the economy. In reality, as Johnson himself emphasises, industrial policy is 'the activities of governments that are intended to develop or retrench various industries in a national economy in order to maintain global competitiveness' (1998:7). This leads to an understanding that industrial policy is not only mean the way for the government to intervene in the economy, especially at the macro level. Industrial policy might comprise structural adjustment policy to provide a better environment of industrial climate for the emergence of competitive advantages. In other words, industrial policy might be different and change from time to time (Blais 1986; Neumann 1990), moving from emphasising sectoral policy to horizontal policy (Cowling *et al.* 1999: 18).

Industrial policy during the New Order government illustrates that the policy makers did not adhere strictly to any particular way of thinking, for example only adopting the pro-state intervention point of view or the pro-market point of view, but it was guided by pragmatic considerations (Pangestu 1996; Sadli 1988), moving from one type to another. That is why, during the early years of the New Order government, the policy of fostering the process of industrialisation seemed to be pro-market while during the early 1970s and the early 1980s tended to return to the pro-state policy as happened during the last decade of Sukarno government. However, the pro-market strategy was again adopted afterward.

Some authors tend to classify industrial policies based on the period of time (Aswicahyono 1997; Booth 1998; Karseno

1997; Pangestu 1996; Ramli 1992; Sjahrir 1986). First was period of stabilisation, between the middle 1960s and early 1970s. This period is marked by the efforts to solve the problem of what Higgins called 'the chronic dropout' economy (1968). Prior to the New Order government, the Indonesian economy was characterised by the high intervention of government in economy which resulted in the stagnancy of economic growth. Furthermore, following the '30 September movement of 1965', inflation increased sharply from 69.4 per cent in June 1964 to 3,992 per cent in December 1966 (Ramli 1992: 36-38). As a result, the Indonesian economy collapsed.

In stabilising the economy the New Order government carried out some policies, which were essentially pro-market in nature. In October 1966, the government introduced some important policies such as the policy to reduce subsidies and fix prices, the policy credit regulations to reduce the inefficiency of state enterprises, the policy on foreign exchange regulation, and the policy of devaluation of rupiah currency (Sjahrir 1986:13-14). In addition, the government also dismantled the import licensing system in 1967, provided export bonus schemes in 1967 and 1968, and enacted the Law of Investment in 1967 (Aswicahyono 1997:3). By these policies, the Indonesian government attempted to move forward to a more open economic policy from the high intervention of the state in economy as happened during Sukarno government.

The second period was the oil boom period, between 1973 and 1982. This period was characterised by a return of government intervention in the economy. Two main factors contributed to this feature. First was the strengthening of pro nationalist policy makers. The formal basis argument of this group is referred to the Constitution 1945

that stipulates that state should control industries which are related to the livelihood of the public (Simandjuntak 1994:210). Thus, despite providing more foreign investment, the open door policy which was undertaken previously resulted in criticism among pro-nationalists groups which reached its peak during the visit of Prime Minister Tanaka on 15 January 1974 or known as the *Malari* Affair<sup>1</sup> (Aswicahyono 1997; Pangestu 1996).

Chalmers (1997b:71) argues the *Malari* Affair was the turning point for economic nationalism because the concern of this movement, the pro-national economic policy, was taken by the high ranks of the state policy makers. In this point of view, the open door policy was regarded as advantaging foreign capitalists. Some Indonesian elites even considered capitalism and economic liberalism to be associated with imperialism and exploitation (Chalmers 1997a; MacIntyre 1994). Second, during this period, the Indonesian government benefited much from the windfall of oil revenue as the oil price increased sharply in the international market. In April 1969, the oil price at international market was just US\$ 1.67 per barrel. The price increased sharply about a decade period and reached its peak to US\$ 34.00 per barrel in April 1982. Thus, Indonesian revenue during this period was dominated by oil revenue (Booth 1992:7).

A combination of the strengthening pro-nationalist way of thinking and the increase of revenue from oil encouraged the government to be more active in the economy. This was marked by some characteristics (Aswicahyono 1997; Robison 1986; Shin 1989). First was the strengthening of state

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<sup>1</sup> *Malari* is an abbreviation of *Malapetaka Lima Belas Januari* (the disaster of 15 January) to describe the bloody demonstration as happened on 15 January 1974.

enterprises. In the banking sector, the state-owned banks were key financial institution to provide concession credits to particular clients. In the production sector, state-owned enterprises were involved in heavy industries such as cement, fertilisers, steel, aircraft and oil refining. Second was the deeper involvement of government in regulating economic activities such as industrial licensing, import and export control, price control, and fiscal and monetary policies.

The third period was the post-oil boom period, between 1982 and 1997. In contrast to the second period, this period was characterised by the decline of oil prices in the international market. In August 1986 the oil price dropped threefold to US\$ 9.83 per barrel from US\$ 35.00 in April 1982. As a consequence, the value of oil and gas exports declined from US\$ 18.4 billion or 82 per cent of the total exports in 1982 to only US\$ 8.3 billion to 56 per cent of the total exports in 1986 (Robison and Rosser 1998: 1597). As the oil and gas revenue decreased, the government attempted to increase its revenue from non-oil exports in this period. To ensure the work of this program, government issued policies to overcome constraints of business community such as over-regulation and bureaucratic red-tape. Thus, main policies of this period were deregulation and debureaucratisation (Kartasapoetra 1989; Soesastro 1989). In other words, government started to withdraw its deep involvement in the economy and let the market mechanism play greater roles.

However, some authors found contradictions among the policies of government in the early years of this period (Aswihayono 1997; Pangestu 1996; Robison 1997). On one hand, the macroeconomic policies seemed to support the pro market system such as the policy on devaluation of rupiah currency and the policy in resched-

uling capital-intensive industrial plan. On the other hand, the microeconomic policies seemed to hamper market mechanisms. For example, the importers system (*Tata Niaga Impor*), which was designed to regulate the import system, including who had the privilege to import, acted as a brake on the trading system. This phenomenon indicated that the effort to lessen of the state intervention in the economy in the mid-1980s was not fully undertaken. Clientelism factor (MacIntyre 1994; Muhaimin 1991) seemed still to significantly influence policy making in Indonesia. Apart from this contradiction, since the early 1980s, government has continuously adapted their policies into a more market mechanism.

The fourth period was the period of economic crisis, between 1997 to the present. Following the financial crisis in Thailand, the economic crisis seriously hit the Indonesian economy between the mid-1997 and 1998. While on average economic growth during previous years was around 7 per cent, in 1998 it dropped to minus 13 per cent. Applying the neo-classical perspective as suggested by the IMF and the World Bank, the Indonesian government has continued to implement the liberal economic policy to remove market constraints such as reducing subsidies and privatising state-owned enterprises. The implication of this policy is that the role of the state in the economy has been reduced, while the private sector has been provided more rooms.

Cutting across historical time periods, industrial policy in Indonesia can also be categorised based on the market orientation of industrial products, namely the import substitution industrialisation (ISI) and the export orientation of industrialisation (EOI).

The ISI strategy was popularly applied in Latin American and Southeast Asian

countries in the 1950s as a way to accelerate the industrialisation process. Bruton (1989: 1602) illustrates ISI 'as a development strategy that seeks to accomplish both of these objectives: to learn from, and in general gain from, the rich countries, and at the same time, to protect the domestic economy that the society can find its own way...'. In short term, this strategy emphasised strengthening industries of domestic consumption (Brohman 1996:53; Rapley 1996:23). The aims was to nurture the entrepreneurial talent of the domestic industrialists (McVey 1992:11). In addition, this strategy was undertaken to reduce external dependency and to improve self-sufficiency. In achieving this strategy, the state played an important role. Thus, ISI was characterised by the high intervention of the state in the economy both through state-owned enterprises and through regulation. The state, for instance, increased import tariffs of manufacturing goods and issued import licences. This policy was undertaken to protect domestic industries.

Argument of late development theory seems to support the ISI strategy. Drawing from the work of Alexander Gerschenkron on 'Economic Backwardness' (1962), the late development theory argues that the state in less developed countries might take part actively in the economy in order to catch up the industrialised countries (Wade 1990; Weiss and Hobson 1995). This theory views many industries in less developed countries as infant industries. As a consequence they cannot compete with mature industries in developed countries properly merely based on market mechanism.

During Sukarno government, the ISI strategy was applied through the 'Banteng' program. This program encouraged indigenous entrepreneurs and nationalised Dutch firms in Indonesia. The New Order government also

adopted the ISI strategy, particularly between the 1970s and the early 1980s, during the oil boom era. In addition to strengthen the national industry this strategy was intended to fulfil the needs of the people, especially the imported consumption goods. During the first and second *Repelita*, priority was given to industries which supported the agricultural sectors such as fertiliser and agricultural tools, industries to support the development of infrastructure such as cement and steel, and small industries and handicrafts (Deperindag 1993:8). It seemed that the government was able to afford this strategy because financially the government at the time benefited from the increase in oil prices in the international market.

During the implementation of ISI strategy, the manufacturing sector grew very rapidly, 15.2 per cent per annum between 1971 and 1980 (Poot *et al.* 1990:43). However, the very rapid growth of the manufacturing sector was characterised by inefficiency (Hill 1998: 28). Most industries were concentrated on fulfilling domestic market and their growth was partly fuelled by government policy protection.

Meanwhile, Export Orientation Industrialisation (EOI) strategy emerged as an alternative for the ISI strategy. Rooted in the neo-classical economic tradition, the EOI is more concerned with the free market mechanism for the industrialisation process. EOI, therefore, tends to encourage competition to achieve efficiency and innovation within industry and limit state intervention. In addition, the argument of EOI departs from the weakness of ISI which caused inefficiency, high prices and less competitiveness of products in the international market (Balassa 1989). Furthermore, unlike the ISI that emphasise its strategy on strengthening industries for domestic consumption, the EOI encourages outward looking export-ori

ented industries. This strategy is based on the fact that the market for industries in developing countries is limited because the purchasing power of their people is low. In addition, the domestic industries were highly dependent to the state in the provision of subsidies, especially for SMEs, and protection from overseas industries.

The Indonesian government has applied the EOI strategy since the early 1980s. The fall of the oil prices in international market resulted in the decline of state revenues from oil. This encouraged the government to proclaim the program of enhancing non-oil exports and consider the ISI strategy was no longer applicable. In addition to high dependency to the financial state capacity, the ISI in fact needs huge purchasing power of people. In contrast, reducing oil revenue means the decrease of financial state capacity. At the same time, the purchasing power was still limited due to the low income per capita of Indonesian people.

In applying the EOI strategy, the Indonesian government has used the 'strategic retreat' (MacIntyre 1994:254) in which the government has attempted to reduce its intervention into the market. However, it does not mean that through this policy the state transforms its function and let the magic market run. In reality, due to the fact that the nature of political power was centralised, the close relations between political elites and business groups was inevitable. Clientelism, to some extent, was still applied even though the government attempted to liberalise the Indonesian economy. Liberalisation of the economy, for example, advantaged those close to the political elites, such as family of the Cendana and Chinese conglomerates such as Liem Shio Liong and Prajogo Pangestu.

As the EOI strategy was applied at strengthening the non-oil and gas manufac-

turing sectors, the non-oil and gas industrial sector grew rapidly. Between 1985 and 1997, for example, the growth of the manufacturing sector was about 10 per cent annually (Dhanani 2000:2). However, four years prior to the economic crisis in 1997, the growth of manufacturing sector actually started to slow down to 7 per cent annually. Dhanani (2000) argues this happened as a consequence of 'shallow export-led industrialisation' which resulted in the gap between imported manufacturing goods and exported manufacturing goods. Many industries in Indonesia were heavily dependent on imported components and machineries. Nevertheless, generally, the EOI strategy during the New Order government was able to continue the growth of the industrial sector as happened during the implementation of the ISI strategy.

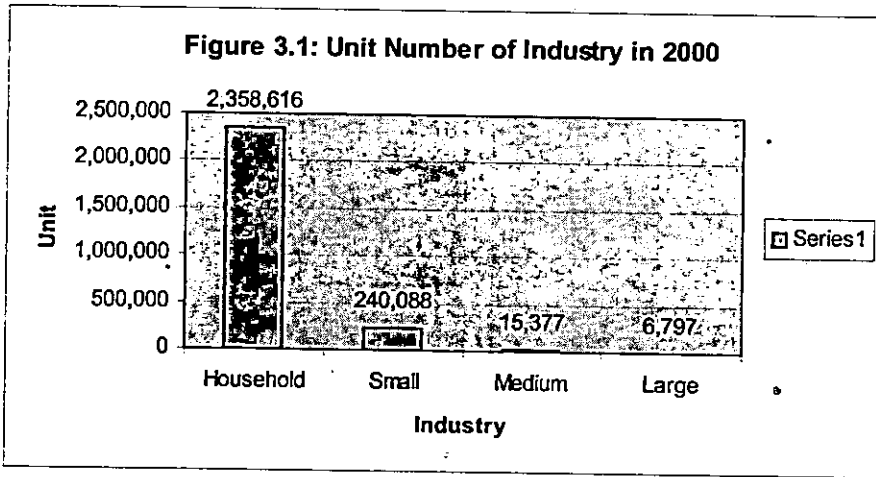
Furthermore, the retreat strategy has been particularly applied since the economic crisis in mid-1997. Departing from the neoliberal economic way of thinking, the IMF, which was deeply involved in overcoming the crisis between mid-1997 and the end of the 2003, strongly advocated the Indonesian government to reduce substantially the involvement of the state in the economy such as reducing or even abolishing any government subsidies, particularly to the BBM and for agricultural products. In this way, government has continued to apply the EOI strategy with outward-looking orientation. However, due to complicated political and economic problems during the crisis, the growth of the industrial sector between 1997 and early 2000s was stagnant.

Actually, the application of both the ISI and EOI strategy in Indonesia is not totally rigid. During the oil boom period, for example, the New Order government did not simply only implement the ISI strategy for accelerating the growth of industry. As pointed out

by Chalmers (1997a:22), the Indonesian government applied a pragmatic approach or what he called an 'integrationist approach'. In this approach, in addition to supporting the indigenous industries, the government used foreign capital. The Indonesian industries themselves were not merely intended at fulfilling the demands of domestic consumers. During the oil boom period, Indonesia also exported manufacturing goods, even though the export revenues were mainly received from the oil sector.

### Industrialisation, Small-Scale Industry, and Cluster Industry

Since the Sukarno era, the Indonesian government has attempted to support the existence of cottage and small-scale Enterprises (CSSEs),<sup>2</sup> on the basis of two main considerations. The first consideration is that the unit number of CSSEs is much bigger compared to unit number of medium and large enterprises. Figure 4.1, for example, shows



Source:<http://www.dprin.go.id/IND/Statistics.asp?m=6&sm=2&ssm=1> (2 June 2004)

Furthermore, during the application of EOI strategy, the Indonesian government was also still concerned with strengthening domestic industries. For example, until the fall of New Order, the government gave special attention to strategic industries. Both industries which were managed by the state such as the aircraft and ship industries and industries which were managed by private groups such as chemical industry of Candra Asri owned by Prajogo Pangestu and Cendana Family.

that the unit number of large industries in 2000 was only 0.3 per cent of the total number of unit industries, while for household and small industries' unit number reached 99.2 per cent.

<sup>2</sup> Per definition small-scale enterprise is often differentiated from cottage enterprise. The Indonesian central bureau of statistic (CBS), for instance, considers cottage enterprise as household enterprise with less than 5 employees. While, small-scale enterprise (SSE) is defined as enterprise that employs labour between 5 and 19 people. However, SSE is sometimes applied to call all industries with less than 19 employees, including cottage enterprise.

The second consideration of the government to support the CSSEs is to provide a welfare distribution program. Compared to other types of industry, the CSSEs have been participated in creating large proportion of labour forces (Hill 2001; Sandee and van Diermen 2004; Urata 2000), in particular from those disadvantaged people such

consumptions, the government apparently is in favour of supporting the indigenous (*pribumi*) industrialists. This implies that during the adoption of ISI strategy, the government provided more attention to the CSSEs, as a matter of fact that the CSSEs predominantly have been owned by the *pribumi*. The program, particularly relate to

**Table 1: Employees of Categorised of Industry, 1998-2001 (in thousands)**

Types of Industry	Year			
	1998	1999	2000	2001
SSCI	4,986.16	6,771.88	7,154.65	7,592.51
Medium Industry	3,343.37	3,363.64	3,553.77	3,771.25
Large Industry	220.97	222.31	234.88	249.25

Source: Deperindag, *Rencana Induk Pengembangan Industri Kecil menengah 2002-2004*, Book 1: 7.

as people who come from low education level. Supporting to the CSSEs can be means of reducing unemployment, especially from low level income people.

Table 1 shows that between 1998 and 2001 CSSEs was able to absorb 63.6 per cent of the total labour force in the industrial sector. This percentage is much higher compared to the absorption of large industries which only amounting to 2.3 per cent. In addition, the growth of CSSEs in creating job reached 15.9 per cent annually, while both of medium industries and large industries were only 4.1 per cent per annum. This figure is opposite to the contribution of CSSEs to the GDP. In 1997 and 1999, the share of manufacturing sector of CSSEs to the GDP was very small, 3.9 per cent and 4.9 respectively. At the same time, the large manufacturing industries contributed 17.5 per cent and 17.8 per cent (Sato 2000b:576).

The serious effort of government in supporting CSSEs especially seemed to deeply occur during the adoption of the ISI strategy period. As far as this strategy is concerned with strengthening industries for domestic

the effort to remove constraints faced by the CSSEs such as financial and technical constraints.

The adoption of the EOI strategy since the early of the 1980s signalled a change of approach in which the government relied to a greater on market mechanism. But this did not mean that the government lost interest in supporting CSSEs. While, concession credit for small-scale enterprises (SSEs) was terminated at the end of 1989, other programs such as the provision of technical assistance and management assistance have been continued until the present day. The difference is that, during the ISI strategy, the assistance programs were aimed at strengthening local industrial capacity to fulfil the domestic demands. Meanwhile, during the EOI strategy, the efforts of government in supporting the CSSEs has been intended at fostering domestic industries to compete in the international market or to increase non-oil products export (Deperindag 2003). The latter is undertaken as a consequence of the decline of government revenue from the oil sector.



The industrialisation process, however, does not always coincide with the growth of CSSEs. Despite encouraging the rapid growth of CSSEs, industrialisation resulted in the collapse of some CSSEs. One reason for this is because industrialisation generated enormous growth of large industries, which obviously have been high competitors for CSSEs (Sandee *et al.* 1994:117). Examples of this are garment industries of *batik* in Solo, Yogyakarta, and Pekalongan. As large garment industries of *batik* emerged, some CSSEs industries collapsed because they lacked the ability to compete with those large industries. Through using a more intensive capital and modern machineries, the large industries have been able to produce large amounts of *batik* products. As a consequence, large industries have been able to reduce the cost of production. All these processes have brought large industries to produce more qualified manufacturing goods and market the products cheaper compared to the price of CSSEs' products. Only those CSSEs that were able to improve its technologies and products survived and were able to compete with large industries. According to Poot *et al.* (1990: 205), the CSSEs are the most affected by competition from large industries has been the traditional weaving industry. This industry has used handlooms for the process of production, while the large industry has applied mechanised weaving mills for their production. But, other CSSEs have been also suffered from competition with large industries such as the footwear industry and household utensils and equipment.

The irony that some small-sale industries collapsed in line with the process of industrialisation apparently seems not unique to Indonesia. As in other countries, it is natural for the CSSEs to grow up or down according to their ability to adjust with

the market environment as a matter of fact that CSSEs are easy to 'entry' and 'exit' (van Diermen 1999:9). However, the trend that the industrialisation process encouraged the growth of CSSEs seems to be more dominant than to discourage them. This might happen because for people in rural areas, CSSEs could be a pivotal vehicle to raise their income while income from agriculture declined. For some people in urban areas, CSSEs may function as an early experience for entering business world as well as a vehicle to create employment. Therefore, CSSEs continued to exist even though they faced high competition with large industries.

In the context of policy, the government actually has attempted to foster CSSEs to grow simultaneously with medium and large industries (Kragten 2000:50). Hill (2001:250-52) identifies three types of government policy in promoting SMEs, including CSSEs. They are the financial assistance such as the provision of concession credit, the technical assistance such as training schemes, marketing advisory services and the UPT, and regulation and coercion policy such as the program of sub-contracting system or Foster-Father program. However, as some authors argue, unintentional discrimination for CSSEs emerged as a result of some government policies and regulations (Hill 2001; Thee 1993). Trade policy during the adoption of ISI strategy, for example, tended to favour capital-intensive large industries especially those owned by some people close to the inner circle of power (MacIntyre 1991; Muhaimin 1991; Robison 1986; Shin 1989). This especially happened during the New Order government. Those people frequently gained privileges from government such as import licensing and better access for credits.

In addition to the fact that the policies of the government tended to advantage large industries, the government has also intentionally encouraged the growth of CSSEs. Among the important government policies in promoting SSCI is the cluster approach. The concept of cluster has been applied since the time of the Sukarno government. In the 1950s, Sokarno government established 18 Industrial Centres (*Induk Industri*) aimed at providing technical assistance, especially to the indigenous weaving industry, and other assistance in purchasing raw materials, marketing of the products, training and information (Grizzlell 1988; Poot *et al.* 1990). The promotion of CSSEs through cluster approach seemed to be more intensified during the New Order government, especially during the adoption of the ISI strategy. At this time, government specifically supported CSSEs through BPIK program, which facilitated technical assistance to cluster industries.

Furthermore, for a long time, especially during the New Order government, the concept of *sentra industri*, was widely acknowledged in Indonesia, in particular among industry policy makers. It was referred to a group of at least 20 similar enterprises in particular areas (Sandee and van Hulsen 2000:4). Corresponding with the promotion of the cluster approach in international community, the Indonesian government subsequently changed the concept of *sentra industri* into cluster industry.

The effort to apply the cluster approach in promoting SSCI is based on the argument that sectoral industries based in one geographic area receive benefits from their geographic proximity such as easier to get raw materials, labours, and marketing the products, while such benefits are rarely received by dispersed industries. Besides their ability to create competition and cooperation

among individual firms altogether, cluster industries may reduce transaction costs, generating specialisation and conducting joint actions to remove constraints faced by industries. In addition, providing support for clusters also leads to reduced policy cost compared to providing support for individual CSSEs, considering the fact that the number of small individual CSSEs in Indonesia is huge (Klapwijk 1997; Sandee *et al.* 1994). Furthermore, as Berry *et al.* (2001:370) argue, compared to dispersed industries, cluster industries are more outward looking in the sense that they primarily market their products outside their community. That is why, based on such benefits, economic activity tends to cluster (Boadway *et al.* 2004: 623). Therefore, in the literature, applying the cluster approach is not solely intended to ensure the survival of CSSEs but also to strengthen them to compete in the global market.

In Indonesia, many CSSEs have formed clusters naturally. Initially, most of them emerged spontaneously, stimulated by the abundance of raw materials and skilled workers and engaged with agricultural sector (Poot *et al.* 1990; Tambunan 2000). Their products were mainly intended to supply the demands of low-income groups in rural areas. Subsequently, cluster industries in Indonesia are not only concerned in producing items which relate to agricultural goods such as foods and beverages, and *genteng* (roof-tiles). They also produce other goods, for example, clothes products such as *batik* clusters in some parts of Java, *songket* (hand-made woven clothes) in some parts of Sumatera; craft products from silver and leather; and other products such as shoes, bags and suitcases, and metal products. In addition, their products are not only marketed for the lower income group in rural areas but also expanded to people in urban

areas, including for middle and high-income groups.

While cluster industries spread out throughout all provinces of Indonesia, most of them are located in Java. In 1998, for example, 47 per cent of clusters receiving guidance from the government were in Java. This figure is not surprising given that most industries have been heavily concentrated in Java. In 1989, for instance, of 14,676 medium and large-scale manufacturing industries in Indonesia, 11,534 establishments or 78.6 per cent were in Java (UNIDO 1993:66). Small-scale industries (SSIs) are also highly

Like other small industries, the majority of cluster industries are located in Central Java province. Of the 5715 clusters in Java in 1998, 53.6 per cent were in central Java. This percentage is equivalent to 25.2 per cent of total clusters throughout Indonesia. The real number of clusters in central Java might be bigger than those receiving guidance from government. Weijland (1999:1518), for instance, has estimated that than 40 per cent of cluster industries in Indonesia are located in Central Java province. Weijland's estimate is supported by other data. For example, Klapwijk (1997:45)

**Table 2: Unit Number of Small Industries between 1994 and 1998, Based on Large Islands.**

Name of Island	Year				
	1994	1995	1996	1997	1998
Sumatera	204,141	213,497	240,788	249,251	218,756
Java	1,483,94	1,514,38	1,536,53	1,087,42	986,230
Kalimantan	4	5	9	6	26,421
Bali and Nusatenggara	115,584	119,554	123,078	114,206	157,252
Sulawesi	157,767	164,690	169,379	131,697	89,480
Maluku and Papua	122,011	125,150	129,366	126,648	10,392
	13,992	15,452	18,743	18,743	
Total	2,105,92	2,157,13	2,221,95	1,732,81	1,488,89
	7	8	4	7	1

Source: Deperindag, *Industri Kecil dalam Angka tahun 2000: 17*

concentrated in Java. On average 67.8 per cent of the unit number of small industries in Indonesia was located in Java between 1994 and 1998. But, while medium and large industries are concentrated in the Greater Jakarta or the so-called Jabotabek, most SSIs in Java are concentrated in Central Java province.

found that there were at least 4,400 *sentra industri* in central Java in 1989. Among this, around 90.9 per cent were classified as rural industry clusters.

Cluster industries in Indonesia apparently are not unique, in the sense that their common characteristics are also found in cluster industries in other countries, particu

larly in developing countries. However, each cluster seems to have its own characteristics. Below is the summary of some general characteristics of cluster industries in Indonesia.

The first characteristic is with regard to their production in which cluster industries in Indonesia generally comprise two types, namely clusters relating to agriculture which are mostly located in rural areas, and clusters relating to non-agricultural products that are mostly located in subs-urban areas. Years before the rapid growth of industrial sector period, between 1970s and 1980s, the existence of most first type of clusters had already emerged and grown up. Meanwhile, many of the second type have emerged and rapidly grown up mostly since the transformation of the Indonesian economy from agricultural base to industrial base.

However, the different between the two types of clusters might be narrowed since a number of the first types have been able to find innovations, apply new technologies, and produce better quality products. An example is the way roof tiles industries in Boyolali, central Java adopted new technology and adjusted their products based on tastes of modern consumers (Sandee 1995; Sandee and Rietveld 2001). Initially these industries only used simple technology and market their products for village consumers. Subsequently, they have applied hand press and power press technology, and expanded their products for urban consumers. As a result, they are not strictly agricultural and rural cluster industries, but have move forward to be 'non-agriculture' and urban cluster industries.

The second character is about their size. As in other developing countries, most cluster industries in Indonesia are classified as CSSEs. Individual small and cottage

establishment seems in favour to posit at the same location due to the external economy advantages, that is the advantages of particular firm caused by the existence of other firm at the same location. In some cases, such as in obtaining raw materials and upgrading new technologies and selling their products they benefited from their proximity, something that cannot be received by dispersed firms. In such clusters, the establishments may conduct collaboration to overcome their common problems such as buying raw materials and selling the products together. As a result, the individual small and cottage industry might compete with medium and large industries.

However, not all firms within clusters are CSSEs. Medium and large industries might also exist within the clusters through at least two mechanisms. First, they may emerge from the small industries that successfully achieved the position due to their ability to improve their technology, create innovative products and market them into a more diverse market. Second, investors might establish the large and medium industries after looking at the potential existing cluster industries.

Apart from factors stimulating the emergence of medium and large industries in clusters, they have functioned both as competitors and partners. On one hand, besides they are more capital intensive in nature, medium and, in particular, large industries have applied more advanced technology. As a consequence, they might produce goods more efficiently and effectively. The implication is clear that their products are more competitive compared to the products of CSSEs. On the other hand, they may function as partners for CSSEs. A study of Ines Smyth (1992) on rattan industry in Tegalwangi, West Java, revealed collaboration among small and medium-large industries through contract

ing system. This collaboration benefited each other, which resulted in collective efficiency. Collaboration among medium-large establishments and small industries is also founded in the furniture cluster industry of Jepara, central Java (Sandee *et al.* 2000; Schiller and Martin-Schiller 1997).

The existence of collaboration among individual firms is one of main characteristics of dynamic cluster industries. Geographical proximity of industries might only result in external economy, but not a dynamic cluster. The existence of collective efficiency, an important nature of dynamic cluster, might occur when among establishments within cluster carry out joint action to overcome their common problems (Schmitz 1995; Schmitz and Nadvi 1999). For example, they share in purchasing raw materials and marketing their products.

Not all clusters in Indonesia enjoyed collective efficiency. A study of Smyth (1992) indeed shows some establishments in the rattan industry of Tegalwangi benefited from collaboration among the firms. Sandee *et al.* (2000) in their study on the furniture cluster industry of Jepara also conclude that the dynamic of this cluster is marked by the existence of collaboration among firms. The similar conclusion is revealed by Turner (Sato 2000a; Turner 2003) in her study of four small cluster industries in Makasar. However, other studies (Prabatmodjo 1999; Sato 2000a) conclude that collaboration among firms within cluster industries is rare.

Thus, looking at their dynamic, cluster industries in Indonesia are obviously diverse. Most clusters seem still depend on the advantage of external economy from their proximity. Schmitz and Nadvi (1999) attribute this type of cluster as passive cluster. Some others have been involved in collaboration to overcome their common constraints. They can be classified as active clusters.

Furthermore, considering their dynamic, Supratikno (2004:124-125) classifies clusters in Indonesia into four types. The first type is dormant clusters, in which most of them are informal sector. Supratikno argues that more than 90 per cent of cluster in Indonesia is part of this type. The second type is active cluster. In this type, clusters have been able to upgrade their technology and improved the quality of the products. But the products are still marketed domestically. The third type is dynamic clusters. In addition to upgrading technology and improving the quality of the products, the clusters in this type have been able to build network, including marketing their products in overseas. The last type is modern or advanced clusters, in which the firms have applied high technology in producing the products.

## Conclusion

The attempt to change the Indonesian economic structure has considerably contributed to the increase of industrial sector since over the last three decades. As many developing countries, the Indonesian government has viewed industrialisation as a pivotal vehicle to bring people more prosperity

In achieving that purpose, the Indonesian government has applied a pragmatic approach, adjusted in the context of financial capacity of the state and the dynamic of domestic and international political economy. However, two strategies have been highlighted: the ISI strategy and the OEI strategy. These strategies obviously are diverse in nature. The ISI strategy is more concerned with strengthening industries for fulfilling domestic consumption, therefore its orientation is inward looking. The EOI is emphasised on strengthening industries for export and its orientation is outward look

ing. The two strategies also differ in terms of the state's role in the economy. Intervention of state in economy within the ISI strategy is deeper compared to the EOI.

The pragmatic strategy for industrialisation to some extent has accelerated the transformation of the Indonesian economy from agricultural base to industrial base. However, the Indonesian government seems to face difficult problem in the process of industrialisation. On one hand, government is concerned with the strengthening medium and large industries to compete both in domestic and international markets. On the other hand, industries in Indonesia have been dominated by CSSEs which are characterised by highly capability in absorbing larger proportion of labour force. Therefore, in addition to supporting medium and large industries, the Indonesian government has attempted to encourage the growth of CSSEs through cluster approach.

The cluster approach has been selected as an instrument to accelerate the growth of CSSEs because clustering CSSEs has a number of advantages compared to dispersed industries. Clusters, for instance, encouraged individual firms to collaborate in overcoming their common constraints. For government, technically, providing assistance for group of industries such as clusters is easier compared to providing assistance for individual firms. The limit of financial capacity of government is another reason for applying cluster approach.

Cluster industries in Indonesia are not new phenomena. Since individual firms look at cluster is more beneficial for them they prefer to locate their firms within cluster. Thus, many industries in Indonesia have been clustered naturally. While, many clusters gained advantages from passive exter-

nal economy, clusters are more dynamic when they are able to create collaboration for the existence of active collective efficiency. ●

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