

## Chapter 11

# Production of Precision Die and Machine Parts in Thailand

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### 11.1. Background Information

The firm represented in this case study is a manufacturer of dies<sup>3</sup> and machine parts in Thailand. Its parent company is a listed Japanese company engaging in contract manufacturing and sales of dies and machine parts. The firm is located in an industrial estate in the Pathumthani Province, a location chosen by the parent company mainly due to its strong ground and water supply.

Annual sales revenue of the firm in FY 2012 was approximately THB 500 million. The firm has approximately 240 employees, including 6 Japanese. Roughly 140 employees engage in production directly, while the remainder are in service capacities such as management and engineering.

The firm considers itself in the supporting industry for makers of machinery. It does not market its products under its own name but sells them directly to manufacturers who use them as inputs for production. Its main customers are Japanese corporations or the Thai subsidiaries thereof. The biggest customer, a metal product manufacturer which accounts for 70% of the firm's revenue, is located near the firm in the same industrial estate<sup>4</sup>.

The firm has four factories on site, each manufacturing a different type of die and machine parts. Dies are highly customized in that the type, shape, dimensions and material of a die needs to be designed with precision according to the specifications of the product that it is supposed to form.

The product selected for this case study is a precision die. A die is a mould used to shape metals. Simply put, the die casting process involves injecting molten metal into the die opening under high pressure. Dies "can be designed to produce complex shapes with a high degree of accuracy and repeatability."<sup>5</sup>

### 11.2. Description of the Value Chain

This case study follows a precision die from the design stage until it is transferred to the customer. The die will subsequently be used by its customer in producing metal parts for home equipment.

The value chain begins at the customer approaching the firm with drawings of the desired metal product that the precision die would help produce. The customer for this value chain is the firm's major customer, as mentioned in Part I, whose production site is near the firm's. The firm then proceeds with industrial design, which includes computer-aided design of the die and determination of material, and production planning. The firm then orders raw materials through an importation agent, who handles procurement, customs clearance and transportation of materials all the way to the firm's factory gate. Once the design specifications are programmed into the machine, production is rather straight-forward, requiring operation and monitoring by semi-skilled technicians. The die is then manufactured and tested before

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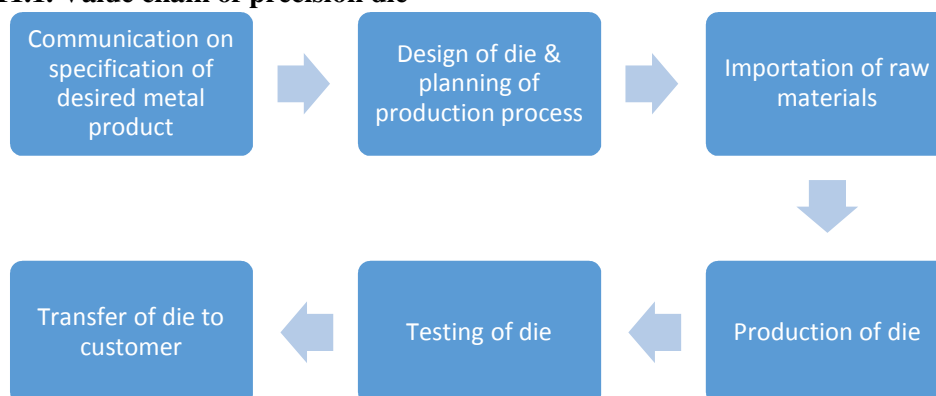
<sup>3</sup> A die is a device for cutting or moulding metal into a particular shape.

<sup>4</sup> The abovementioned customer together with its parent company also owns 50% stake of the firm being studied.

<sup>5</sup> Source: North American Die Casting Association, <http://www.diecasting.org/>

it is packaged for transfer to the customer. As the customer is located nearby, the transfer of goods only involves minimal labour.

**Figure 11.1. Value chain of precision die**



### 11.3. Services along the Value Chain

A total of 38 services has been identified in the value chain, these services have been grouped together according to the various stages in which they enter the value chain: i) pre-production, ii) In factory and factory related services, iii) delivery and sales stage, (iv) post-sales services, and v) operation and management related services.

**Table 11.1. Services entering the value chain**

<i>Services</i>	<i>Corresponding CPC Rev. 2 code</i>
<b>Raw-materials, input/pre-production stage</b>	
<b>1. Procurement agent for raw material sourcing</b>	85999 - Other support services n.e.c.
<b>2. Customs-related services for raw materials imported</b>	85999 - Other support services n.e.c.
<b>3. Quality assurance services (of raw materials)</b>	83441 - Composition and purity testing and analysis services
<b>4. Freight transportation services (of raw materials) by road, rail, sea or air</b>	Division: 65 - Freight transport services
<b>5. Storage of raw materials – general storage</b>	67290 - Other storage and warehousing services
<b>6. Industrial design</b>	83912 Industrial design services
<b>In factory stage</b>	
<b>7. Production Administration - Production management</b>	83115 - Operations management consulting services
<b>8. Production Administration - Quality assurance and compliance with ISO</b>	83441 - Composition and purity testing and analysis services
<b>9. Warehousing services for intermediate goods</b>	67290 - Other storage and warehousing services
<b>10. Cleaning services of factory</b>	85330 - General cleaning services
<b>11. Security guards for factory and warehouses</b>	85250 - Guard services

<b>12. Sewage water treatment services</b>	94110 - Sewerage and sewage treatment services
<b>13. Industrial waste disposal</b>	94212 Collection services of industrial hazardous waste (except medical and other biohazardous waste)  94339 Other non-hazardous waste treatment and disposal services
<b>14. Repair and maintenance services of machines and equipment</b>	87156 - Maintenance and repair services of commercial and industrial machinery
<b>15. Financial leasing of machinery</b>	71140 - Financial leasing services
<b>16. Government inspections on fire prevention, health hazards, environmental protection and other aspects.</b>	91133 - Public administrative services related to mining and mineral resources, manufacturing and construction  91290 - Public administrative services related to other public order and safety affairs
<b>17. Catering services for workers</b>	63393 - Other contract food services
<b>18. Medical services</b>	93121 - General medical services
<b>19. Personnel search and referral services - Recruitment of factory workers</b>	85112 - Permanent placement services, other than executive search services
<b>20. Transportation services for staff</b>	64114 - Local special-purpose scheduled road transport services of passengers
<b>21. Social insurance for factory workers</b>	91320 -Administrative services related to government employee pension schemes; old-age disability or survivors' benefit schemes, other than for government employees  91330 - Administrative services related to unemployment compensation benefit schemes
<b>Delivery and sales stage</b>	
<b>22. Design of Packages</b>	83919 - Other specialty design services
<b>23. Packaging Services</b>	85400 - Packaging services
<b>24. Transport of goods by manual labour</b>	65119 Other road transport services of freight
<b>25. Storage and warehousing services for finished goods</b>	67290 - Other storage and warehousing services
<b>Post-sales stage</b>	
<b>26. Customer services – technical support and complains handling</b>	85931 - Telephone call centre services
<b>Operation and Management related services</b>	
<b>27. Auditing on financial accounts</b>	Group of 822 - Accounting, auditing and bookkeeping services
<b>28. Financial services</b>	71121 - Deposit services to corporate and institutional depositors
<b>29. Internal auditing (including audits of financial accounts and corporate governance)</b>	Group of 822 - Accounting, auditing and bookkeeping services  83118 - Head office services

<b>30. Insurance services for machinery</b>	71334 - Other property insurance services
<b>31. Corporate communications, marketing and public relationship</b>	83114 - Marketing management consulting services  83121 - Public relations services
<b>32. Real estate services</b>	72112 - Rental or leasing services involving own or leased non-residential property
<b>33. Human resources management</b>	83113 - Human resources management consulting services
<b>34. Human resources management -</b> • <b>Personnel search and referral services for back-office staff</b>	8511 - Personnel search and referral services
<b>35. I.T. and information system management</b>	8314 - Information technology (IT) design and development services  8316 - IT infrastructure and network management services
<b>36. Legal services</b>	82120 - Legal advisory and representation services concerning other fields of law  82130 - Legal documentation and certification services
<b>37. Product development/ R&amp;D</b>	81129 - Research and experimental development services in other engineering and technology
<b>38. Visa and immigration services for foreign investors/ employees</b>	91290 - Public administrative services related to other public order and safety affairs

Source: *Compilation from the discussion with the company*

## 11.4. Analysis of the Services Inputs in the Value Chain

### *Value contribution*

The firm estimated that services contribute over half of value in the value chains of die and machine parts. Due to the high level of customization and technology content of precision die, high-value services such as industrial engineering and product testing are necessary to make the product. On the other hand, because the product is produced for a sole on-site customer, many business services that are typical in manufacturing GVCs – downstream as well as upstream – such as logistics and warehousing services are not involved. On balance, the overall value contribution of services in this value chain is not far off that of other value chains of goods with lower technological content.

Among the services identified, back-office services account for the biggest share of value. This may be due to the firm's customer profile. For die and machine parts, the firm relies on a handful of major customers that are also subsidiaries of Japanese corporations. Because of this profile, emphasis needs to be placed on maintaining a strong management team that is capable of communicating and building long-term relationships with the Japanese customers. The reputation of the firm's parent company likely plays a part in winning these contracts. Management that is capable of working closely with the Japanese parent company is therefore also important.

## **Outsourcing**

Out of the 38 services identified in the value chain, 17 are fully outsourced, 5 are partially outsourced, and 16 are supplied in-house. Tables 11.2(a)-(e) show the full list of services, with information on whether each service is supplied in-house or outsourced and the respective reason.

Decisions on whether or not to outsource in this case study are generally prompted by three factors. The decision to outsource turns on two considerations – cost and government requirements. The decision not to outsource is usually driven by perceptions of risk associated with a lower level of control over particular functions.

Most of the decisions to outsource are cost-related. In one form or another, they relate to external economies of scale. For instance, all services related to the purchase of raw materials are outsourced to an import agent in order to save cost and minimize inventory. The firm's location in an industrial park means that it can benefit from relatively efficient provision of estate management and sewage treatment services. Other illustrations of external economies of scale at work are coach services for staff, repair of specialized machinery, complicated IT tasks, legal services, security guard services, general cleaning services, and catering. In many of these cases, the cost advantages of outsourcing relate to the under-utilization of personnel or of physical assets that would result from in-house supply. In other instances it is a matter of the level of investment required for the acquisition of particular skills that would not be fully utilized.

Some services are outsourced simply because the firm is unable to provide them. One could conceive of the rationale as being a matter of scale, but the reality is that the intrinsic purpose of the services means that they must be purchased elsewhere. These kinds of services include banking, financial leasing, and insurance.

Finally, outsourcing that results from government regulation include financial, social insurance, and inspections with respect to environmental, health and safety regulations. Governments may also mandate the outsourcing of certain services that in theory could perhaps be managed in-house. In the value chain under study, the Thai government requires that industrial waste treatment be conducted only by licensed industrial waste disposal companies. Of the licensed waste disposal companies in the whole economy, only three to four are qualified to treat the type of waste that the firm produces.

The 16 services that are provided in-house are often core activities relating to production, where greater direct control is commercially desirable. These include industrial design, production management, and quality assurance. Other services supplied in-house may be required at very short notice. Examples of these are first aid supplied by an in-house nurse, and day-to-day IT maintenance. Finally, some service tasks may be supplied in-house because they are so simple and arise sufficiently infrequently to be taken on by other staff on a part-time basis. Examples of these include the recruitment of factory workers, packaging of finished dies, and delivery of finished goods (to the customer next-door).

## **Bundling**

In this value chain, the product that the firm sells to its customer is essentially a bundle of services and goods. A number of services including industrial design and quality assurance are bundled with the precision die. The firm bills the customer based on the physical product, but the product would not have been made without the services that enter the value chain in various stages.

Another example of bundled services in this value chain is raw material sourcing undertaken by the import agent. The agent takes care of all the steps needed to deliver the raw material to the firm's factory gate. A range of services including procurement, transportation, customs-related services and storage are all bundled with the raw materials and enter the value chain as physical inputs.

**Tables 11.2(a)-(e). Factors affecting outsourcing decisions**

**Table 11.2(a): Raw-materials, input/pre-production stage**

<i>Stage/ Category</i>	<i>Service</i>	<i>Central Product Classification (CPC) Ver.2 Code</i>	<i>In-firm Supply</i>	<i>Outsourced and to whom?</i>	<i>Reason(s) for In-house Supply/Outsourcing</i>	<i>Remarks</i>
<b>1. Procurement of raw materials</b>	Procurement agent for raw material sourcing	85999 - Other support services n.e.c.		Yes. Import agent handles all tasks up to delivery of materials to the factory	Efficiency and stock control	
	Customs-related services for raw materials imported	85999 - Other support services n.e.c.				
	Quality assurance services (of raw materials)	83441 - Composition and purity testing and analysis services	Yes.		Core activity related to production	
<b>2. Logistics</b>	Freight transportation services (of raw materials) by road, rail, sea or air	Division: 65 - Freight transport services		Yes. Handled by import agent.	Efficiency and stock control	
<b>3. Storage</b>	Storage of raw materials – general storage	67290 - Other storage and warehousing services		Yes. Raw materials are delivered to factory by the import agent just-in-time.	Efficiency and stock control	
<b>4. Product Design</b>	Industrial design	83912 Industrial design services	Yes. In-house CAD engineers.		Core activity related to production	

**Table 11.2(b): In-factory stage**

Stage/ Category	Service	Central Product Classification (CPC) Ver.2 Code	In-firm Supply	Outsourced and to whom?	Reason(s) for In-house Supply/Outsourcing	Remarks
<b>1. Production administration</b>	Production Administration - Production management	83115 - Operations management consulting services	Yes		Core activity related to production	
	Production Administration - Quality assurance and compliance with ISO	83441 - Composition and purity testing and analysis services	Yes		Core activity related to production	
	Warehousing services for intermediate goods	67290 - Other storage and warehousing services	Yes		Efficiency	
<b>2. Services supporting factory daily operations</b>	Cleaning services of factory	85330 - General cleaning services	Yes. Cleaning of manufacturing production area.	Yes. Cleaning of office and general areas.	Efficiency/economy of scale	
	Security guards for factory and warehouses	85250 - Guard services		Yes.	Efficiency/economy of scale	
	Sewage water treatment services	94110 - Sewerage and sewage treatment services		Yes. Provided by the industrial estate.	Efficiency/economy of scale	

	Industrial waste disposal	94212 Collection services of industrial hazardous waste (except medical and other biohazardous waste)  94339 Other non-hazardous waste treatment and disposal services		Yes. Domestic firm licensed to conduct industrial waste treatment.	Regulatory requirement	Regulation requires that industrial waste treatment be carried out by licensed firms. Currently only 3-4 firms in the economy are licensed to conduct such business.
	Repair and maintenance services of machines and equipment	87156 - Maintenance and repair services of commercial and industrial machinery	Yes, general maintenance.	Yes. Maintenance and repair of specialized equipments is undertaken by equipment suppliers.	Insufficient in-house expertise	
<b>3. Leasing/Hire purchase services</b>	Capital leasing of machinery	71140 - Financial leasing services		Yes.	Efficiency/cost	
<b>4. Services from government regulation requirements</b>	Government inspections on fire prevention, health hazards, environmental protection and other aspects.	91133 - Public administrative services related to mining and mineral resources, manufacturing and construction  91290 - Public administrative services		Yes.	Government services	At factory establishment and once every few years thereafter. Paper reports are required periodically and in case of any change of



		related to other public order and safety affairs				factory structure.
<b>5. Worker- related services</b>	Catering services for workers	63393 - Other contract food services		Yes.	Efficiency/economy of scale	
	Medical services	93121 - General medical services	Yes, in-house nurse to treat minor illness/injury.		Efficiency	
	Personnel search and referral services - Recruitment of factory workers	85112 - Permanent placement services, other than executive search services	Yes.		Efficiency	
	Transportation services for staff	64114 - Local special-purpose scheduled road transport services of passengers		Yes. Coach service between Bangkok and the factory.	Regulatory requirement and efficiency	License is required to provide transportation services.
	Social insurance for factory workers	91320 -Administrative services related to government employee pension schemes; old-age disability or survivors' benefit schemes, other than for government employees  91330 - Administrative services related to unemployment compensation benefit schemes		Yes.	Government services	

**Table 11.2(c): Delivery and sales stage**

<i>Stage/ Category</i>	<i>Service</i>	<i>Central Product Classification (CPC) Ver.2 Code</i>	<i>In-firm Supply</i>	<i>Outsourced and to whom?</i>	<i>Reason(s) for In-house Supply/Outsourcing</i>	<i>Remarks</i>
<b>1. Packaging and labeling</b>	Design of Packages	83919 - Other specialty design services	Yes.		Efficiency	
	Packaging Services	85400 - Packaging services	Yes for most products.	Yes. Certain exported products are packaged by logistics service provider.	Efficiency	
<b>2. Delivery to customer</b>	Transport of goods by manual labour	65119 Other road transport services of freight	Yes.		Efficiency	
<b>3. Storage and warehousing</b>	Storage and warehousing services for finished goods	67290 - Other storage and warehousing services	Yes.		Efficiency	

**Table 11.2(d): Post-sales stage**

<i>Stage/ Category</i>	<i>Service</i>	<i>Central Product Classification (CPC) Ver.2 Code</i>	<i>In-firm Supply</i>	<i>Outsourced and to whom?</i>	<i>Reason(s) for In-house Supply/Outsourcing</i>	<i>Remarks</i>
<b>1. Sales/After-sales Customer services</b>	Customer services – technical support and complains handling	85931 - Telephone call centre services	Yes.		Core activity related to production	

**Table 11.2(e): Back-office services**

Stage/ Category	Service	Central Product Classification (CPC) Ver.2 Code	In-firm Supply	Outsourced and to whom?	Reason(s) for In-house Supply/Outsourcing	Remarks
<b>1. Finance</b>	Auditing on financial accounts	Group of 822 - Accounting, auditing and bookkeeping services		Yes, outsourced to accounting firm.	Regulatory requirement	
	Financial services	71121 - Deposit services to corporate and institutional depositors		Yes. A Thai bank and Bangkok branches of two Japanese banks	Insufficient capacity (impossible to provide in-house)	
	Internal auditing (including audits of financial accounts and corporate governance)	Group of 822 - Accounting, auditing and bookkeeping services 83118 - Head office services	Yes.			
	Insurance services for machinery	71334 - Other property insurance services			Insufficient capacity (impossible to provide in-house)	
<b>2. General Management</b>	Corporate communications, marketing and public relationship	83114 - Marketing management consulting services 83121 - Public relations services	Yes.		Core activity	

	Real estate services	72112 - Rental or leasing services involving own or leased non-residential property		Yes.	Economy of scale	
	Human resources management	83113 - Human resources management consulting services	Yes.	Yes. Renovation of HR information system.	Insufficient in-house expertise	
	Human resources management - <ul style="list-style-type: none"> <li>Personnel search and referral services for back-office staff</li> </ul>	8511 - Personnel search and referral services	Yes. The firm posts job advertisements on the internet and directly deals with candidates.		Efficiency	
	I.T. and information system management	8314 - Information technology (IT) design and development services  8316 - IT infrastructure and network management services	Yes. Two in-house staff are responsible for routine maintenance of server.	Yes. More complicated IT tasks are outsourced.	Insufficient in-house expertise	
<b>3. Legal</b>	Legal services	82120 - Legal advisory and representation services concerning other fields of law		Yes.	Insufficient in-house expertise	

		82130 - Legal documentation and certification services				
<b>4. Research and Development</b>	Product development/ R&D	81129 - Research and experimental development services in other engineering and technology	Yes.		Core activity related to production	R&D activities are mainly done by the parent company. The firm contributes by providing feedback.
<b>5. Government services (licensing etc.)</b>	Visa and immigration services for foreign investors/ employees	91290 - Public administrative services related to other public order and safety affairs			Government services	

## 11.5. Policies Affecting Services in the Value Chain

The firm faces unique opportunities and challenges because of its dual role of manufacturer and service provider. The Thai government's preferential policies in the manufacturing sector and more restrictive policies in certain services puts the firm in an interesting situation.

### *Investment promotion*

The Thai Board of Investment offers incentives for investments in seven industries. Classified under A3 in the “activity-based incentives” categories by the BOI, the die and mould industry enjoys exemption of import duty on machinery and raw materials as well as a five-year corporate income tax exemption upon establishment (refer to Table 11.3).

Thailand's new investment promotion policy, which came into effect on 1 January 2015, introduced “merit-based” incentives granting additional corporate income tax exemptions to projects that undertake expenditures on; (i) R&D in technology and innovation including in-house R&D, outsourced research in Thailand or joint R&D with overseas institutes; (ii) donations to Technology and Human Resources Development Funds, educational institutes, specialized training centres, research institutes or governmental agencies in the science and technology field in Thailand, as approved by BOI; (iii) IP acquisition/licensing fees for commercializing technology developed in Thailand; (iv) advanced technology training; (v) development of local suppliers with at least 51% Thai shareholding in advanced technology training and technical assistance; and (vi) product and packaging design, either in-house or outsourced in Thailand, as approved by BOI.<sup>6</sup>

**Table 11.3: Activity-based investment incentives**

Group	Corporate income tax exemption	Exemption of import duty on machinery	Exemption of import duty on raw or essential materials used in manufacturing export products	Non-tax
<b>Group A: shall receive corporate income tax incentives, machinery and raw materials import duty incentives and other non-tax incentives.</b>				
A1	8 year (Without cap) + Merit	✓	✓	✓
A2	8 year + Merit	✓	✓	✓
A3	5 year + Merit	✓	✓	✓
A4	3 year + Merit	✓	✓	✓
<b>Group B: shall receive only machinery and raw materials import duty incentives and other non-tax incentives.</b>				
B1	Merit (some activities)	✓	✓	✓
B2	Merit (some activities)	-	✓	✓

Source: Thailand Board of Investment

### *Value-added tax*

While the BOI considers the firm a manufacturing company, the Revenue Department defines the firm's business as “contract manufacturing” and hence a service subject to VAT tax. Currently, Thailand's rate for VAT is 7 per cent. The firm's customers are required to withhold 3 per cent tax on payments to the firm.<sup>7</sup>

<sup>6</sup> Source: Board of Investment, [http://www.boi.go.th/tir/issue\\_content.php?issueid=118;page=0](http://www.boi.go.th/tir/issue_content.php?issueid=118;page=0)

<sup>7</sup> Source: <http://www.ey.com/GL/en/Services/Tax/Worldwide-VAT--GST-and-Sales-Tax-Guide---XMLQS?preview&XmlUrl=/ec1images/taxguides/VAT-2014/VAT-TH.xml>

In fact, the latest VAT rate as set by the Revenue Code was 10 per cent but the Thai government had extended the previous 7 per cent rate for two years in order to boost the economy. Unless another extension is granted, the VAT rate is scheduled to increase to 10 per cent on 1 October 2015.<sup>8</sup>

### *Assessment of custom duties*

Because the company imports many of the machine parts from its Japanese parent company, intellectual property content embedded in the imports became an issue. The Thai Customs sometimes demands that royalties be added to the invoiced amount in calculating the dutiable value of the imported inputs from Japan, even if no royalty payment has been made in reality.

Royalties are indeed a common source of problem in international trade. According to the WTO Customs Valuation Agreement, royalties paid, either directly or indirectly, by the buyer must be included in the value for customs duty purposes if the payments meet the following criteria: i) they are related to the imported goods; and ii) the royalties are paid as a condition of sale. Assessment of the latter criterion is not always straightforward and disputes sometimes arise between companies and customs, as in the case of Nike Thailand which was taken to the Thai Supreme Court in 2011.<sup>9</sup>

### *Challenges with movement of natural persons*

In order to continuously improve its facility, the firm has to regularly bring in highly-skilled staff such as engineers from Japan for a short period of time for activities such as training and equipment installation. The firm estimated that such improvements would have increased its revenue by 15 to 20 per cent and hence should be encouraged by the government.

Instead, there is a 15 per cent international withholding tax on payments to non-residents for services that are defined by the Thai government as involving royalties.<sup>10</sup> For example, when a technician from the parent company came to the firm to provide training to local staff on the operation of a new machine, a 15 per cent withholding tax was charged on the service bill of the Japanese technician.

Visa requirements for work-related trips also discourage transfer of know-how. The firm's management indicated that it was not easy to obtain short-term visas although they are not explicit about what the problem is.

### *Environmental regulations*

The firm is required by law to dispose its industrial waste properly<sup>11</sup> and the government has been tightening enforcement of the regulations lately. As stated in Section IV, the Thai government requires

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<sup>8</sup> Source: <https://tax.thomsonreuters.com/blog/onesource/indirect-tax/thailand-maintains-vat-7-vat-rate-october-2015/>

<sup>9</sup> Source: [http://www.ey.com/Publication/vwLUAssets/EY-TradeWatch-Volume-11/\\$FILE/ey-TradeWatchVol11.pdf](http://www.ey.com/Publication/vwLUAssets/EY-TradeWatch-Volume-11/$FILE/ey-TradeWatchVol11.pdf). In this case, Nike got a favourable ruling that "royalty payments made by Nike Thailand (importer/licensee) to Nike International (licensor) for the use of the Nike trademark and trade name are not required to be added to the customs value of the imported goods."

<sup>10</sup> Source: <https://www.kpmg.com/Global/en/services/Tax/regional-tax-centers/asia-pacific-tax-centre/Documents/CountryProfiles/Thailand.pdf>

<sup>11</sup> Various sections in the Enhancement and Conservation of National Environmental Quality Act B.E. 2535 stated that the owner or possessor of the point of source of pollution has the duty to control pollution through various means including constructing an on-site facility to treat waste and sending waste to a centralized waste treatment facility. For example, sections 70-77 focus on control of water pollution while sections 78-79 focus on

that industrial waste treatment be conducted only by licensed industrial waste disposal companies. As of April 2014, the Industry Ministry had issued licenses to 1,843 industrial waste disposal factories, including 141 waste processing factories, 1,256 landfill businesses that separate trash and 446 recycling sites.<sup>12</sup> The firm explained that among these licensed waste disposal companies, only three to four are qualified to treat the type of waste that the firm produces.

While the firm has always adhered to the law and utilizes the service provided by one of these firms up to this point, management expressed concern on whether they have the capacity to treat all industrial waste in the near future, considering likely increase in demand for their services.

One possibility is for the firm to engage the services of firms not licensed by the government. This is a measure currently taken by some companies. Acknowledging the capacity constraint of licensed waste disposal companies, local governments would unofficially permit companies to hire non-licensed firms for the task. However, the management would strive to adhere to the law for fear that it might face penalties if there were any issues with the waste.

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other pollution and hazardous waste. More details can be obtained at:

[http://www.pcd.go.th/info\\_serv/en\\_reg\\_envi.html](http://www.pcd.go.th/info_serv/en_reg_envi.html)

<sup>12</sup> Source:

[http://thainews.prd.go.th/centerweb/newsen/NewsDetail?NT01\\_NewsID=WNECO5704250010014#sthash.1vet2iHr.dpuf](http://thainews.prd.go.th/centerweb/newsen/NewsDetail?NT01_NewsID=WNECO5704250010014#sthash.1vet2iHr.dpuf)



**Table 11.4. Policies affecting services in the value chain**

Government policies/services	Authority(ies) in charge	Details	How the policy affects services in the value chain
<b>Investment incentives (Investment Promotion Act B.E. 2520)</b>	Board of Investment	The mould and die industry is eligible for investment incentives offered by the BOI.	The firm can enjoy tax exemptions on raw materials and machinery.
<b>Value-added tax on services</b>	Revenue Department	Services are subject to VAT.	The core activity of the value chain is defined as contract manufacturing (a service), by the Revenue Department. Customers' payments to the firm are subject to a 3 per cent withholding tax.
<b>Assessment of custom duties</b>	Customs Department	Direct or indirect royalty payments are to be included in customs valuation of imported goods.	The Customs Department sometimes demands that royalties be added to dutiable values of goods that the firm imports from its Japanese parent company.
<b>International withholding tax</b>	Revenue Department	15 per cent tax is charged on payments to non-residents for services that are defined by the Thai government as royalty moves.	Staff from the parent company providing technical support in Thailand are subject to 15 per cent withholding tax. This has discouraged technological transfer.
<b>Visa requirement</b>	Immigration Bureau	Visas are required for all work-related travel into Thailand regardless of length of stay.	The administrative burden has discouraged technological transfer.
<b>The Factory Act of Thailand – Industrial Waste Treatment</b>	Ministry of Industry	Companies are required to use licensed service providers for industrial waste disposal/treatment.	The firm has been adhering to the law so far, but foresees that it will become more difficult as the licensed waste disposal companies may not keep up with demand.

<b>The Factory Act of Thailand – Health and Safety Standards</b>	Ministry of Industry	The Factory Act sets out inspection and reporting requirements with respect to occupational safety.	No major impact on value chain. Quarterly safety reports and annual fire drill reports are submitted to respective agencies. Government inspections are conducted at factory establishment and when any structural change is made to the building. Other than that, inspections only take place every few years,
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