

# Sustainable Development Impacts of Investment Incentives

## A Case Study of the Chemical Industry in Indonesia

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## Executive Summary

Foreign direct investment (FDI) inflow has assumed great importance for the Indonesian economy, especially after the 1997 economic crisis. High unemployment, poverty and low economic growth over the past decade call for substantial investment inflow to propel the economy out of the doldrums. In order to attract foreign investment, Indonesia is not only involved in forming cooperation agreements with other countries, but also offers various investment incentives to potential investors. The incentives take several forms, including import duties, tax facilities, export manufacturing incentives and bonded zones.

Indonesia started to provide incentives to foreign investors in 1967 when Law No. 1/1967 came into effect. However, until the late-1970s, the entry procedure for foreign enterprises remained obscure, complex, time consuming and costly. In 1984, all tax concessions were rescinded in line with Law No. 7/1983 on Income Tax. In 1985, Indonesia renewed incentives to attract FDI by simplifying administration procedures and deregulating investments, including equalizing foreign and domestic investors and granting income tax facilities to many sectors. The most extensive incentive was the enactment of Law No. 25/2007 on Investment. The law essentially allows non-discriminatory treatment for both foreign and domestic investors. Government regulation No.1/2007 grants income tax dispensation facilities to 15 sectors, one of which is the chemical industry.

Foreign direct investment in the chemical and pharmaceutical industry experienced very rapid growth from 2002 to 2007 (though it plummeted in 2006). The real foreign interest rate is the main variable influencing FDI in the chemical industry in Indonesia. Other economic variables, such as Bank Indonesia's rates, real exchange rates and gross domestic product, do not seem to have a significant impact on foreign investors' decisions to invest their capital in Indonesia. It is also notable that offering foreign investors 100 percent share ownership and making it easy for foreign workers to stay or reside in the country do not constitute key factors that influence foreign investors who consider bringing their capital investment into the country. In the long term, Gross Domestic Product (GDP) constitutes an important determinant of FDI in Indonesia, while investment incentives do not.

Based on the results of in-depth interviews with a number of chemical companies located in the province of Banten, the large Indonesian market appears to be the key factor underlying a foreign chemical company's decision to invest in Indonesia. However, though investment incentives are not a key factor for foreign investors, they are still considered as an important element in investment. In connection with the impact of incentives on business development, most respondents expressed the view that incentives do not significantly influence their businesses. Based on in-depth interviews, companies identify incentives that affect import duties/levies applicable to capital goods as the most attractive of all incentives, as most industries in Indonesia depend heavily on imported intermediate and capital goods as inputs in their production processes. Based on research findings, incentives should ideally last more than five years, and respondents urged for even longer incentive duration if it is possible.

Employment generated by the chemical industry arising from foreign direct investment from 2002 to 2007 tends to decrease. This indicates that the chemical industry is moving to more capital intensive industry or lowering its capacity. Most of the companies employ less than 50 percent local workers, with the rest coming from neighbouring areas. The wages of FDI companies are higher than regional minimum wages. People living in surrounding areas regard chemical industries as beneficial to their community as they provide much needed employment opportunities.

Inputs are primarily imported goods, while only very few inputs are sourced from the surrounding area. The motivation for using imported inputs is primarily competitive price. The largest percentage of output is sold on the domestic market, and a small percentage is sold on the local market.

Sample respondents drawn from members of the community living in the vicinity of the factories in Banten generally perceived immense benefits derived from the existence of the factories as a source of employment opportunities for the local community, albeit unskilled and non-managerial in nature. Most respondents expressed satisfaction with the establishment of the industry in their area because it induced many people to live within the vicinity of the factories, serving as a convergent point for in-migrants employed at the factory. The in-migrants, in general have higher skills than the local population. The increasing numbers of factory employees, who are mainly non-locals, have become a source of economic welfare for the local population through the provision of parking services, washing and houses for rent.

In order to protect the environment, the Indonesian government issued Act No. 23/1997 on managing the environment and attendant implementing legal instruments. The State Ministry for the Environment employs environmental management ranking assessors to measure each company's degree of compliance with the legal instruments (or PROPER). Data shows that foreign companies in the chemical industry in 2007 are not the worst offenders when it comes to the environment, generally outperforming their domestic counterparts.

An issue that is cause for concern, albeit still within tolerable limits, is the scale of environmental contamination and pollution. Air pollution, caused by smoke, fumes and pungent odours spewed by factory chimneys often cause severe irritation and discomfort. Some people who are highly sensitive to pungent odours suffer from headaches. Air quality has declined drastically since the chemical factories came into existence. However, in general members of the local community perceived such effects as within tolerable limits, which in any case they had become accustomed to, and not a major source of serious health problems.

Foreign direct investment as a source of foreign capital inflow is important in fostering economic growth. Thus, efforts must be made to increase both domestic and foreign investment. This report provides the Government of Indonesia with several recommendations to enhance its attractiveness to foreign investors. These include:

- A need to improve legal certainty and investment security guarantees;
- The provision of public services and good infrastructure;
- Incentives especially for those companies that produce inputs for local industries, are needed;
- A need to improve human resources quality in the chemical industry and surrounding community.

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## 1 Introduction

Foreign direct investment inflow has assumed great importance for the Indonesian economy, especially after the 1997 economic crisis. High unemployment, poverty and low economic growth over the past decade, call for substantial investment inflow to propel the economy out of the doldrums. However, investment in the economy continues to show sluggish performance. For instance investment over the last six years grew by about 7.2 per cent. Meanwhile, investment expenditure to GDP in Indonesia is around 20 per cent. In contrast, in other Asian countries such as South Korea investment expenditure contributes 29 per cent to GDP, and China was 44.9 per cent in 2006. Thus, the Indonesian economy requires injection of foreign investment in general and FDI in particular.

In order to attract the needed foreign investment into the country, Indonesia is not only involved in forming cooperation agreements with other countries, but also offers various investment incentives to potential investors. The incentives take several forms, which include:

- **Import duty exemptions:** exemptions from import duties for foreign and domestic investors for imports of machinery and equipment, raw materials and supporting materials.
- **Tax facilities:** an investment tax allowance in the form of taxable income reduction as much as 30 per cent of the realized investment spread over six years; accelerated depreciation and amortization; a loss carried forward facility for a period of no more than ten years; a ten per cent income tax on dividends, and possibly lower if stipulated in the provisions of an existing particular tax treaty.
- **Export manufacturing:** restitution (drawback) of import duties and import charges on imported goods and materials needed to manufacture exported finished products; exemption from Value Added Tax and Sales Tax on Luxury Goods and Materials Purchased Domestically, to be used in the manufacturing of the exported products; the ability to import raw materials required regardless of the availability of comparable domestic products.
- **Bonded zones:** industrial companies located in the bonded areas receive many incentives.

FDI in the chemical and pharmaceutical industry is the second largest after transportation services industry, warehousing and telecommunications (see Table 4 for a description of the chemical and pharmaceutical industry). In 2007, 16 per cent of total FDI in Indonesia was in the chemical and pharmaceutical industry, which, in comparison with the manufacturing industry, constituted more than 35 per cent of total FDI. The high percentage of FDI in the chemical and pharmaceutical industry has remained unchanged over several years, an indication that Indonesia is an attractive destination for FDI in the global chemical industry.

### 1.1 Scope and methodology

This country study assesses the extent and impacts of investment incentives on the chemicals sector in Indonesia. In particular, the study aims to:

- Analyze developments in the incentives that Indonesia offers to foreign investors;
- Examine the impact of FDI incentives on the decision to locate FDI in Indonesia, especially in chemical companies; and
- Analyze the impact of FDI on the environmental and socio-economic development in Indonesia's chemical industry.

In order to address the first objective, the research uses a qualitative descriptive method to identify existing investment incentives issued by the GOI, and the extent to which they are implemented on the ground in the chemical industry. The questionnaire was distributed to companies within the chemical industry in Banten (when possible, paired with in-depth interview) and in-depth interviews were also held with stakeholders who live in the area.

Regression analysis was used to achieve the second research objective (see Annex 2 for further details). The influence of FDI incentives on actual FDI figures in Indonesia was analyzed, with special reference to the chemical industry. Explanatory variables were not only limited to investment incentives but also various factors that influence the decision to invest. Such variables include the domestic and world lending interest rate, inflation, and various incentives, which include environment protection standards (to compare emission standards).

In the beginning, the regression in our proposal included more complex variables, particularly for incentive variables. However, we found that Indonesia does not have incentives variables for the period used in our study. For example, Law of 1967 stated that there were tax incentives and import duty incentives for foreign companies, but starting in 1983, most of the incentives were amended by Law of Taxes. The chemical industry FDI had just started its business in Indonesia in 1992; hence we are quite sure that the companies did not consider tax incentives as the main reason to invest in Indonesia. This statement is supported by the interview results of six company respondents. Our regression is derived from the model used by Lipsey (1999), Chantasawat (2004), and Gast (2005).

Quarterly data from first quarter of 1990 to fourth quarter of 2006 were used in the regression equation. The following regression function was used:

$$FDI_t = f(gdp_t, ISBI - INF_t, LIBOR - INFF_t, rer_t, INCTV_t)$$

Whereby:

- $FDI_t$  is real foreign direct investment (billion rupiah).
- $gdp_t$  is real gross domestic product (billion rupiah).
- $ISBI - INF_t$  is Bank Indonesia Rate minus Indonesia Inflation. This is the measure of real Bank Indonesia rate.
- $LIBOR - INFF_t$  is LIBOR interest rate minus U.S. inflation. This is the measure of the real foreign (world) interest rate.
- $rer_t$  is the real exchange rate of rupiah for the \$.
- $INCTV_t$  is the dummy variable for investment incentive in Indonesia. The incentive dummy is used to proxy for foreign shareholding, which rose to 100 per cent of shares since 1994. In the same year, the government enacted a regulation that made it easier than before for foreign workers to stay in Indonesia. The dummy variable used was 1 for 1994 and above and 0 for the period prior to 1994.

Lower case figures in the equation represent log value. Technically, FDI figures were not transformed into a natural logarithm because the figures for some years were negative values. Smoothing the FDI variable was done by using  $FDI/1000$ .

Besides regression, the research collected primary data, which were used to answer the second objective. The researchers conducted in-depth interviews with businessmen involved in the chemical industry to obtain their perception about the impact of various FDI incentives on their investment decisions. The 10 companies interviewed are in the chemical industry in Banten (where there is a cluster of chemical companies).

To address the third objective, the research team used field observation and qualitative analysis. Focus group discussions were carried out with several key stakeholders, who among others, included practitioners in the chemical industry, related authorities, parties responsible for controlling environmental protection and members of society who use chemical products.

Field research was carried out in Anyer and Merak industrial areas in Banten. The following reasons were behind the decision to take samples in Banten:

- Indonesia has four chemical industrial centres: Medan, Banten, East Java and East Kalimantan. Banten was chosen because it is the nearest area to Yogyakarta (the location of Center of Asia Pacific Studies).
- The chemical industry located in Gresik (East Java) is in the main state-owned facility, and hence falls outside the privately owned FDI criteria.

Questionnaires were distributed to 15 companies as listed in Table 1.

**Table 1. Companies targeted by the survey**

No	Company Name	Plant/Site
1	PT.NIPPON SHOKUBAI INDONESIA	Kawasan Industri Panca Puri Jl . Raya Anyer Km.122 Ciwandan, Cilegon, Indonesia
2	PT.CHANDRA ASRI	Jl. Raya Anyer Km. 123 Ciwandan, Cilegon, Banten, Indonesia
3	PT.TRIPOLYTA INDONESIA, Tbk. www.tripolyta.com	Jl. Raya Anyer Km. 123 Ciwandan, Cilegon, Banten
4	PT AMOCO MITSUI PTA INDONESIA	Komplek PENI, Jl. Raya Merak Km. 116 Banten, Indonesia
5	PT. ASAHIMAS CHEMICAL www.asc.co.id	Desa Gunung Sugih, Jl. Raya Anyer Km. 122, Cilegon, Banten, Indonesia
6	PT. DOW CHEMICAL INDONESIA	Jalan Raya Merak Km. 117.5 Cilegon 42438, Banten, Indonesia
7	PT. UNGGUL INDAH CAHAYA, Tbk www.uic.co.id	Jl. Raya Cilegon - Merak, Km. 117.5 Desa Gerem, Kecamatan Pulomerak, Banten, Indonesia.
8	PT. TITAN Petrokimia Nusantara	Jl. Raya Merak Km. 116 Desa Rawa Arum, Pulo Merak, Banten, Indonesia
9	PT. CABOT INDONESIA	Jl. Amerika I - Kav. A5, Kawasan Industri Estate Cilegon, Indonesia
10	PT. LAUTAN OTSUKA CHEMICAL (LOC)	Factory address: Jl. Raya Anyer Km.123 Cilegon, Banten
11	PT. POLYPET KARYAPERSADA http://www.polypet.co.id/	Jl. Raya Anyer Km. 121, Ciwandan Cilegon, Banten, Indonesia
12	PT. POLYPRIMA KARYAREKSA http://www.polyprima.co.id	Jl. Raya Anyer Km.121 Ciwandan, Cilegon, Banten
13	PT. BLUESCOPE STEEL INDONESIA www.bluescopesteelasia.com	Krakatau Industrial Estate Cilegon (KIEC) Jl. Asia Raya Kav. O2 Cilegon, Banten
14	PT. DOVER CHEMICAL www.dovechem.com	Jl. Raya Merak Km 117, Desa Gerem, Gerogol Kodya Cilegon, Banten, Indonesia
15	PT BAYER MATERIAL SCIENCE INDONESIA	Jl. Raya Anyer Km. 121 Tanjung Leneng, Ciwandan Cilegon, Banten, Indonesia

According to the Ministry of Environmental Protection sources (not the National Investment Coordination Board), Banten has FDI in these 15 chemical companies, on which the research team collected data and made observations. The response rate to the questionnaires was 40 per cent, with a sample of six companies providing data for further analysis. All six companies are involved with the chemical industry as well as foreign direct investment. One of the companies in the sample is the largest chemical company in Indonesia.

Subsequently, the research team conducted in-depth interviews concerning motivation and business developments in Indonesia. Observational findings indicated that three companies (50 per cent) were established prior to 1992, and three companies (50 per cent) were established during the 1992–1997 period. Respondent companies that started up prior to 1992 are considered to have commenced in 1992.

With respect to investors' origins, three firms are from Japan; one firm is from Malaysia, one firm is from Singapore, and one is from Japan and the United Kingdom. Viewed from the perspective of structure of ownership, 50 per cent of interviewed companies are fully fledged foreign companies, and the rest joint venture companies.

## 2 Overview of Investment Incentives

Indonesia started providing incentives to foreign investors in 1967 when Law No. 1/1967 came into effect (see Annex 1 for a list of investment-related regulations). Lack of capital, experience and technology hampered Indonesia's efforts to transform its economic potential into real economic growth. Therefore, the underlying goal of offering incentives to foreign investors was to transform its resources into real economic strength through investment, technology, expansion of knowledge, and enhancement of skills and organizational managerial capabilities.

Law No. 1/1967 on Foreign Investment offered tax and levy reduction and exemptions to foreign capital enterprises.

- a) Foreign capital enterprises were granted tax exemption incentives such as:
- Exemptions from corporate taxes on profits during a specified period not to exceed five years from the commencement of enterprise production.
  - Exemptions from dividend taxes on some of the accrued profits paid to shareholders as long as these profits are earned during a period that does not exceed five years from the commencement of enterprise production.
  - Exemption from corporate tax on profits accruing to capital subtraction of taxes and other financial obligations in Indonesia that are reinvested in the enterprise in Indonesia, for a specified period not exceeding five years from the time of reinvestment.
  - Exemption from import duties on fixed assets such as machinery, tools or instruments needed for the operation of said enterprise at the time of entry into Indonesia.
  - Exemption from capital stamp duties on the issuance of capital originating from foreign investment.

b) Relief incentives were also granted:

- Corporate tax relief through a proportional rate of not more than 50 per cent for a period not exceeding five years after expiration of the exemption period (as intended by point a.1. above).
- Relief by offsetting losses suffered during the period of exemption intended by point a.1. above, and against profit subject to tax following the exemption period.
- Allowing accelerated depreciation of fixed assets.
- The incentives on taxes and other levies were granted after considering the priority on fields of activity. Details of activity fields prioritized were determined whenever the government prepares medium- and long-term development plans, taking into consideration developments in the economy and technology.

Law No. 1 of 1967 was amended by Law No. 11 of 1970 on Amendments and Supplement to Law No. 1 of 1967. Essentially, the tax concessions were the same: foreign capital enterprises were granted an exemption from capital stamp duties, import duties and sales tax (import) of capital goods (fixed assets) such as machinery, tools or instruments needed for the operation of said enterprise at the time of entry into Indonesia, and exemption from corporate tax. In Law No. 11 of 1970, foreign capital enterprises were granted additional tax incentives as follows:

- Exemption from conversion of ownership fees for first-time ship registration documents until two years after the enterprise commences production.
- For new enterprises investing in fields of priority activities, the Minister of Finance has the power to grant an exemption from corporate tax during a specified period of at least two years (tax holiday) from the moment the enterprise commences production. Other concessions, by Peraturan Pemerintah/PP (Government Regulations), could be given to foreign capital enterprises that have made a great contribution to economic growth.
- Import duties and sales taxes (import) on capital goods imported by foreign enterprises would be specified in Surat Keputusan Menteri Keuangan (Decree of The Minister of Finance) No. Kep-289/MK/IV/4/1971. The regulation granted exemptions/relief of import duties on machinery, tools or spare parts needed for the development and production of foreign enterprise.

Incentives to foreign enterprises have experienced ups and downs as a result of political developments and the development of the Indonesian economy. In 1974, the government, in a reaction to the Malari riots, limited access of foreign investors, including by:<sup>1</sup>

- Requiring foreign investors to form partnerships with local investors in terms of shares and equities ownership.
- Tightening foreign workers' regulations.
- Closing several business sectors to joint investment.

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<sup>1</sup> Hill (2001), p. 133

Moreover, until the late-1970s, the entry procedure for foreign enterprises remained obscure, complex, time-consuming and costly. In 1984, all tax concessions were rescinded in line with Law No. 7/1983 on Income Tax. By the time the law was fully implemented, all tax concessions given to foreign enterprises as regulated in Law No. 1/1967 and Law No. 11 /1970 had been revoked. Consequently, 1984 tax regulations, especially those concerning corporate income tax, were harmonized, meaning that both foreign and local investors paid the same tax rates.

In 1985, as a result of weakening economic growth, Indonesia tried to attract foreign investment by granting a limited number of incentives through the simplification of administration procedures and investment deregulation implemented between 1986 and 1988. The aftermath of such incentives saw a rise in export-oriented foreign investment. One of the incentives that had significant impact on investment was the regulation that allowed foreign companies to own 100 per cent of company shares. This regulation was embodied in Government Regulation No. 20/1994 on Share Ownership in Companies Established for Foreign Investment. Before 1994, share ownership was regulated under Government Regulation No. 17/1992, which allowed the establishment of foreign companies that met several criteria: at the time of establishment, five per cent of company shares were in domestic hands, which had to be increased to a minimum of 20 per cent not longer than ten to twenty years for specified regions such as Irian, Maluku and other areas outside Java.

As regards FDI in the chemical industry, the regulation on shared ownership had significant effects. In the aftermath of the regulation, the first FDI-based chemical industry with 100 per cent of its shares under foreign ownership, PT Chandra Asri, was established.<sup>2</sup>

Other than 100 per cent foreign share ownership, the government offered several additional incentives to foreign investors. These took the form of simplified residence permit arrangements for foreigners as regulated in Government Regulation No. 32/1994 on Visas, Entry Permits, and Immigration Permits. As mentioned earlier, in 1974, the regulation on foreign workers was tightened. This regulation was embodied in Presidential Decree No. 23/1974 on Limiting the Employment of New Foreign Workers. The regulation stipulated that the use of foreign workers in foreign companies and other activities in Indonesia was henceforth limited and regulated by the Minister of Labor Affairs. Later regulations have since allowed foreign workers to possess residence permits.

Other incentives offered related to opening business sectors to foreign investors which were hitherto closed (commonly called a *negative list*). Business sectors that used to be closed to foreign investors, according to Law No. 1/1967, were opened to 95 per cent ownership by foreign investors in 2000 (by Presidential Decree No. 96/2000). The sectors involved included harbour development and exertion; production, transmission and distribution of electric power; aviation; drinking water management and supplies; and atomic energy development.

The most extensive incentive was the enactment of Law No. 25/2007 on Investment. The law essentially allows equalization and non-discriminatory treatment for both foreign and domestic investors. Besides stipulating equal treatment, the law also guarantees that there will not be nationalization or expropriation against the proprietary rights of investors and offers investors the right to transfer and repatriate in foreign currencies.

Since Law No. 7/1983 on Income Taxes came into effect, fiscal incentives tailored to investors in Indonesia no longer focus on foreign and domestic dimensions, but rather are oriented toward specified

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<sup>2</sup> Hill (1996), p. 177

products and regions. In terms of tax incentives, there are few regulations, for example Government Regulation No. 45/1996 on Income Tax on Obligatory Tax Income for Specified Business Industry; Government Regulation No. 147/2000 on Tax Treatment in Integrated Regional Economic Development Zones (KAPET); Government Regulation No. 148/2000 on Corporate Taxes Facilities for Investment in Specified Business Sectors and/or Specified Regions; Government Regulation No. 12/2001 on Import and/or Delivery of Taxable Specified Goods Strategic in Nature Exempt from Value Added Tax; and Government Regulation No. 1/2007 on Corporate Tax Facilities for Investments in Specified Business Sectors and/or Specified Regions.

Government Regulation No. 1/2007 replaced Government Regulation No. 148/2000, which faced implementation hurdles as there were presidential decrees issued to regulate specified sectors and/or specified regions granted such facilities. Government Regulation No.1/2007 offers income tax dispensation facilities to 15 sectors, one of which is the chemical industry (both inorganic and organic). The pharmaceutical industry is one of the other chemical industries that was granted the facility. The incentive is strongly related to the petrochemical industry, one of the strategic industries in the Manufacturing Industry Development Blueprint in Indonesia Year 2007 by Ministry of Industry.

The blueprint states that the chemical industry development strategy encompasses many things, for example cluster location development (i.e., Kalimantan, Tuban and Cilegon), while strategies to achieve supporting investment and business climates are implemented through fiscal, monetary and administration incentives, including legal and safety guarantees. The fiscal incentives in particular are promoted through tax incentive policies.

Other laws enacted to support the investment regime include Law No. 40/2007 on Limited Liability Companies; Presidential Regulation No. 76/2007 on the Formulation Criteria and Requirement of List of Lines of Businesses Closed and Open, Conditional to Investment; Presidential Regulation No. 111/2007 on the Amendment of Presidential Regulation No. 77/2007 on The List of Lines of Businesses Closed and Open with Conditions to Investment; Government Regulation No. 7/2007 on the Import and/or Transfer of Strategic Certain Taxable Items, which include the Value Added Tax Exemption.

## 3 Bilateral and Multilateral Investment Treaties and Negotiations

### 3.1 Bilateral agreements

The Government of Indonesia has signed bilateral investment treaties (BITs) with other countries under investment guarantee agreements (IGA). By signing an IGA, the government guarantees both compensation and transfer of losses that occur as a consequence of wars and other armed conflicts, revolutions, states of national emergency, revolts, insurrections or riots. The number of agreements signed has increased gradually from 33 in 1996 to 61 in 2006. The latest countries to sign were Japan and Russia in 2007, bringing the total IGAs signed by Indonesia to date to 63.<sup>3</sup> On April 16, 2008, Indonesia agreed to begin bilateral investment treaty negotiations with Canada under Foreign Investment Promotion and Protection Agreement (FIPA).

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3 These countries include Argentina, Australia, Bangladesh, Belgium, Cambodia, Chile, Cuba, Czech Republic, Denmark, Egypt, Finland, France, Germany, Hungary, India, Italy, Jamaica, Jordan, Kyrgyzstan, Laos, Malaysia, Mauritius, Mongolia, Morocco, Mozambique, North Korea, Norway, Pakistan, People's Republic of China, Poland, Qatar, Romania, Singapore, Slovak Republic, South Korea, Spain, Sri Lanka, Sudan, Suriname, Syria, Sweden, Switzerland, Thailand, The Netherlands, Tunisia, Turkey, Turkmenistan, Ukraine, United Kingdom, Uzbekistan, Vietnam, Yemen and Zimbabwe.



Indonesia is currently discussing a free trade agreement (FTA) with the U.S. that may include investment provisions. However, prospects for an FTA are hampered by free trade “fatigue” in the U.S.; delays and challenges to implementing critical reforms in Indonesia; and heavy demands on Indonesia by the U.S. that are part of the FTA process. Closer ties with the U.S. are not a “political plus” in Indonesia today; and the Doha Round of trade talks at the World Trade Organization (WTO) is in need of more immediate attention before bilateral negotiations are likely to proceed.<sup>4</sup>

Although Indonesia has clearly decided to go down the path of signing BITs to attract greater FDI flows, there is no evidence or official data that supports the idea that more BITs have resulted in more investments.

In addition, the Government of Indonesia has signed a number of agreements (tax treaties) to avoid incidental double taxation on certain income such as profits, dividends, interests, fees and royalties, namely the Avoidance of Double Taxation Agreements. Since 1996, the number of bilateral agreements has increased to 47 agreements in 1997, 50 agreements in 2002, and has since then risen to 57 agreements.<sup>5</sup> The benefit of signing the agreements lies in the fact that the process leads to the reduction of withholding tax rates applied to residents of the signatory countries based on the provisions of the particular tax treaty. Tax treaties with other countries are being negotiated.

### 3.2 Multilateral agreements

Since 1992, Indonesia has been a member of the Multilateral Investment Guarantee Agency (MIGA), an organization that protects investments against various political risks. Membership to the Agency ensures that Indonesia guarantees a favourable investment climate.

As a member of the Association of Southeast Asian Nations (ASEAN), Indonesia signed the Framework Agreement on the ASEAN Investment Area (AIA) on October 7, 1998 in Manila. The AIA aims to make ASEAN a competitive, conducive and liberal investment area by the following actions:

- Implementing coordinated ASEAN investment cooperation and facilitation programs;
- Implementing a coordinated promotion program and investment awareness activities;
- Immediate opening up of all industries for investment, with some exceptions as specified in the Temporary Exclusion List (TEL) and the Sensitive List (SL), to ASEAN investors by 2010 and to all investors by 2020;
- Granting immediate national treatment, with some exceptions as specified in the Temporary Exclusion List (TEL) and the Sensitive List (SL), to ASEAN investors by 2010 and to all investors by 2020;
- Actively involving the private sector in the AIA development process;

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4 Hufbauer and Katz (2007)

5 Indonesia has signed agreements with the following countries: Algeria, Australia, Austria, Belgium, Bulgaria, Brunei Darussalam, Canada, Czech, China, Denmark, Finland, Egypt, France, Germany, Hungary, India, Italy, Japan, Jordan, Rep. of Korea, Democratic People’s Republic of Korea, Kuwait, Luxembourg, Malaysia, Mexico, Mongolia, Netherlands, New Zealand, Norway, Pakistan, Philippines, Poland, Romania, Russia, Saudi Arabia, Seychelles, Singapore, Slovak, South Africa, Spain, Sri Lanka, Sudan, Sweden, Switzerland, Syria, Taipei, Thailand, Tunisia, Turkey, Ukraine, Uni Arab Emirate (UAE), United Kingdom, United States of America, Uzbekistan, Venezuela and Vietnam.

- Promoting freer flows of capital, skilled labour, professional expertise and technology amongst the member countries;
- Providing transparency in investment policies, rules, procedures and administrative processes;
- Providing a more streamlined and simplified investment process; and
- Eliminating investment barriers and liberalizing investment rules and policies in the sectors covered by the Agreement.

The benefit of AIA arrangements for investors are: greater investment access to industries and economic sectors as a result of the opening up of industries under the AIA arrangements, if investors qualify as ASEAN investors; national treatment, if investors qualify as ASEAN investors; greater transparency, information and awareness of investment opportunities in the region; more liberal and competitive investment regimes; and lower transaction costs for business operations across the region.

The ASEAN ministers, including from Indonesia, want to combine, revise, and enhance investment agreements in ASEAN, i.e. the ASEAN Investment Area (AIA) Agreement and the ASEAN Investment Guarantee Agreement (IGA) into one comprehensive agreement, called the ASEAN Comprehensive Investment Agreement (ACIA). It is scheduled to be signed at the ASEAN Summit in early 2009. The objective of ACIA is to enhance the investment environment in ASEAN to attract domestic investments and FDI by including elements of transparency, consistency, and detailed mechanisms to address disputes. Some of the differences between ACIA and AIA/ASEAN IGA are:

- ACIA grants immediate benefits to both ASEAN investors and ASEAN-based foreign investors (in the AIA Agreement, there were differentiated timelines).
- In the ACIA, the procedures for investors to register their investment in order to benefit from protection under the agreement is outlined clearly so that the procedures are transparent to investors.
- Policy-makers will be able to more easily consider the views and feedback of the business community, as the ACIA has a consultations mechanism giving ASEAN countries an official platform to stay engaged on ACIA matters and its implementation, (which the AIA Agreement did not have).
- The ACIA stipulates that if any country modifies their commitments that lead to an investor being negatively affected, the country would have to give compensation (in the AIA Agreement, there was no such provision).
- The ACIA has Investor-to-State Dispute Settlement (ISDS) provisions that are more comprehensive and detailed (than under ASEAN IGA).

The benefits of ACIA for the investors are:

1. ASEAN-based investors can enjoy non-discriminatory treatment when they invest in other ASEAN countries. They will be granted similar treatment as domestic (host country) investors, and also similar treatment vis-à-vis other ASEAN-based investors;

2. In case of disputes with host governments, investors have a choice to bring a claim in domestic courts (where applicable) or international arbitration; and
3. Investors and their investments will be granted fair and equitable treatment and full protection and security.

ASEAN members are cooperating with China, Japan and Korea in ASEAN Plus Three (APT). In November 2007, APT formulated a master plan to enhance APT relations and cooperation from 2007 through 2017. The work plan for investments are as follows:

- To promote the transparency of policies to facilitate trade and investment expansion, including those enhancing conducive business environments, business mobility and trade financing;
- To provide regional support to foster an attractive investment climate through sharing best practices, giving mutual encouragement, responding to the requirements of investors, extending technical assistance and exchanging statistical information;
- To consider conducting comprehensive studies on the possible establishment of an East Asia Investment Area by expanding the ASEAN Investment Area;
- To promote cooperation among investment promotion agencies and facilitate mutual investment promotion missions by respective business communities; and
- To promote an understanding of each other's policies, regulations and legislation pertaining or related to trade, competition policy, services, investment and industry as well as the sharing of experiences and best practices among ASEAN Plus Three countries.

ASEAN has also been negotiating FTAs with dialogue partners Australia, New Zealand, Korea and China.

At the sub-regional level, two agreements are in place: BIMP-EAGA (Brunei Darussalam – Indonesia – Malaysia – Philippines – East Asian Growth Area), and IMT-GT (Indonesia – Malaysia – Thailand – Growth Triangle), which declared cooperation within the framework of investment facilitation and promotion.

Indonesia is also a signatory member of the International Center on the Settlement of Investment Disputes (ICSID) in Washington D.C. and has signed the UNCITRAL (United Nations Commission on International Trade Laws) arbitration rules in order to deal with foreign investment disputes. In case there are two parties to a dispute that is submitted for arbitration, the Indonesian Investment Arbitration Board (*Badan Arbitrase Nasional Indonesia*, BANI) renders assistance. Indonesia is also party to the 1958 New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards. However, in practice, foreign companies have encountered difficulties in enforcing foreign arbitration awards or enforcing the judicial system to honour arbitration clauses in contracts that involve foreign investors.

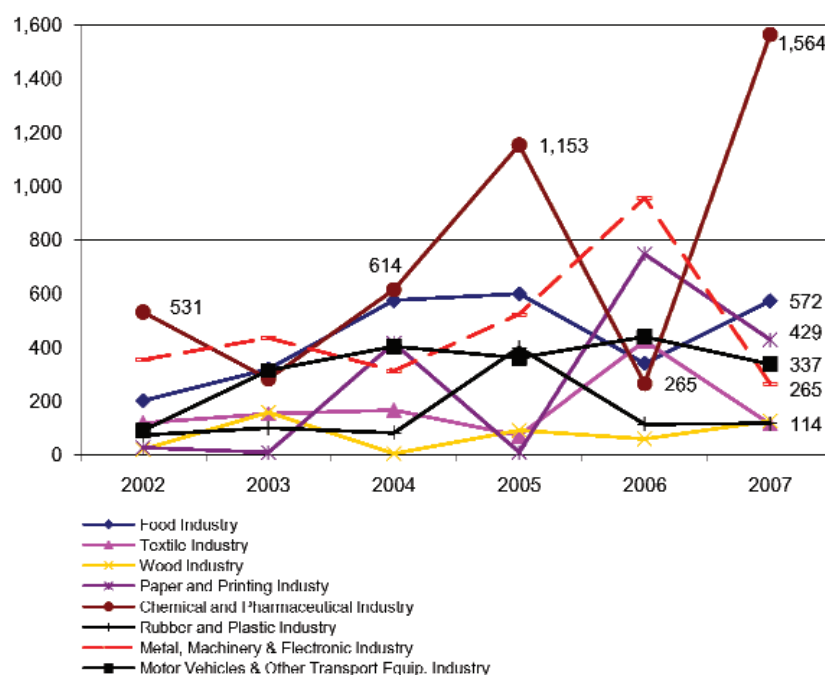
## 4 Impacts of Investment Incentives on FDI Decisions

### 4.1 Depiction of developments in FDI in Indonesia

Overall, FDI in the chemical and pharmaceutical industry has experienced very rapid growth during the 2002–2007 periods (growth contracted in 2006 after the macroeconomic instability in 2005). This is an indication that Indonesia continues to be an attractive destination for investment in the chemical

industry. In 2002, FDI in the chemical and pharmaceutical industry was a mere \$530.9 million,<sup>6</sup> but as of September 30, 2007, it had surged to \$1,563.7 million. There was a faster upward trend in the investment in the chemical and pharmaceutical industry over the 2002–2007 periods as compared with other industries in Indonesia. Realized project investment in the industry from 2002 to September 2007 was 26 projects, 29 projects, 39 projects, 41 projects, 32 projects and 26 projects, respectively.

Figure 1. Value of foreign direct investment realization by sector, 2002 – September 30, 2007 (\$ million)



Source: National Investment Coordination Board

Table 2. Ranking of direct investment realization by sector, January 1–September 30, 2007

Sector	Project	Value (\$ million)
Chemical and Pharmaceutical Industry	26	1,563.7
Food Industry	45	572.1
Paper and Printing Industry	10	428.5
Motor Vehicles and Other Transport Equip. Ind.	29	336.9
Metal, Machinery and Electronic Industry	80	265.3
Wood Industry	13	125.5
Rubber and Plastic Industry	26	116.5
Textile Industry	53	114.0
Leather Goods and Footwear Industry	7	33.2
Other Industry	21	29.5
Non-metallic Mineral Industry	5	26.8
Medical, Precision Optical Instru., Watch & Clock Ind.	1	10.9

Source: National Investment Coordination Board

<sup>6</sup> Unless otherwise indicated, all \$ amounts are in U.S. dollars.

Investment realizations in the chemical and pharmaceutical industry between January 1 and September 20, 2007 were high in the country (Table 2). Thus, despite having fewer projects than those recorded for the textile industries (53) and the metal, machinery and electronics industries (28), the chemical and pharmaceutical industry is foremost in returns due to the high value of the projects—\$1,563.7 million compared to \$265.3 million for textile and metal industries.

Four countries contribute, i.e., Singapore, the United Kingdom, Japan and South Korea, constituting the major source of investments in the chemical and pharmaceutical industry. In 2007, Singapore invested in two projects with a value of \$11.8 million, the United Kingdom made investments in four projects worth \$1,312.6 million, while Japan and South Korean each had three investment projects worth \$11.2 million and \$120.5 million, respectively.

According to the state of the base chemical industry and the chemical and pharmaceutical industry from 1970 to 2007, FDI approvals show a significant improvement (Table 3). Total new investment stocks since 1970 are 794 projects, worth \$86,647,174,000, while expansion of investment projects total 563 projects, worth \$9,071,321,000. The FDI agreements, however, are not always followed by realization.

**Table 3. FDI approval by state of development, 1970–2007**

Sector: Base chemical industry, chemical and pharmaceutical industry

No	Country	New		Expansion		Status Alteration		Total	
		Project	Investment (thousand \$)	Project	Investment (thousand \$)	Project	Investment (thousand \$)	Project	Investment (thousand \$)
1	Liberia	1	375,000	4	5,700	1	17,602	2	398,302
2	Mauritania	1	515,000	0	-	0	-	1	51,500
3	Mauritius	1	90,970	3	57,732	2	409,759	3	558,461
4	Nigeria	1	1,000	0	-	0	-	1	1,000
	AFRICA	4	518,470	7	63,432	3	427,361	7	1,009,263
5	United States	55	11,524,774	38	321,656	6	5,062,318	61	16,908,747
6	Bahamas	1	2,000	1	5,500	3	31,042	4	38,542
7	Cayman Islands	0	-	0	-	4	7,917	4	7,917
8	Canada	5	536,025	4	4,153	0	-	5	540,178
	THE AMERICAS	61	12,062,799	43	331,309	13	5,101,277	74	17,495,384
9	Hong Kong	31	5,823,876	17	330,122	10	143,813	41	6,297,811
10	India	14	414,969	3	10,634	1	964	15	426,567
11	Indonesia	0	-	0	-	0	-	0	-
12	Japan	97	7,278,144	126	2,615,323	6	434,251	103	10,327,718
13	South Korea	118	1,021,553	36	424,615	5	6,611	123	1,452,779
14	Kuwait	1	1,661,019	0	-	0	-	1	1,661,019
15	Malaysia	34	465,375	9	168,159	1	83,748	35	717,282
16	Thailand	1	1,500	2	3,781	0	-	1	5,281
17	China	16	42,113	3	13,475	1	1,601	17	57,189
18	Saudi Arabia	5	7,517,900	0	-	0	-	5	7,517,900
19	Singapore	64	1,096,391	34	362,260	16	239,553	80	1,698,204
20	Sri Lanka	1	1,500	0	-	1	1,153	2	2,653
21	Taiwan	62	193,600	22	57,200	7	7,363	69	258,163
	ASIA	444	25,517,938	252	3,985,570	48	919,059	492	30,422,567
22	Australia	24	3,669,456	15	83,216	0	-	24	3,752,672
	AUSTRALIA	24	3,669,456	15	83,216	0	-	24	3,752,672

## trade knowledge network

No	Country	New		Expansion		Status Alteration		Total	
		Project	Investment (thousand \$)	Project	Investment (thousand \$)	Project	Investment (thousand \$)	Project	Investment (thousand \$)
23	The Netherlands	30	743,347	35	1,008,422	3	14,627	33	1,757,395
24	Belgium	0	-	1	70	0	-	0	70
25	Denmark	1	683	5	9,207	0	-	1	9,889
26	Finland	0	-	1	1,600	0	-	0	1,600
27	Hungary	1	117	0	-	0	-	1	117
28	England	39	16,917,582	34	178,660	19	470,805	58	17,567,047
29	Ireland	2	1,111	2	8,414	0	-	2	9,525
30	Italy	6	39,438	0	-	0	-	6	39,438
31	Germany	22	1,177,498	31	164,125	5	188,971	27	1,530,594
32	Lichtenstein	0	-	0	-	1	217	1	217
33	Luxembourg	1	175	3	1,330,597	0	-	1	1,330,772
34	Norway	7	213,015	4	16,246	0	-	7	229,261
35	France	10	44,364	11	102,582	0	-	10	146,946
36	Spain	2	9,721	1	10,112	0	-	2	19,833
37	Switzerland	22	279,615	24	221,479	0	-	22	501,094
	EUROPE	143	19,417,665	152	3,051,512	28	674,621	171	23,143,798
38	Gabungan Negara	118	25,460,845	94	5,925,634	6	1,949,004	124	33,335,483
	Total	794	86,647,174	563	13,440,672	98	9,071,321	892	109,159,167

Source: National Investment Coordination Board

**Table 4. PMA approval based on sub-sector, 1970–2007**

Sector: Base chemical industry, chemical and pharmaceutical industry

Code	Sector	New		Expansion		Change of status		Total	
		Project	Investment	Project	Investment	Project	Investment	Project	Investment
2411	Basic organic and inorganic chemical	339	15,322,915	199	25,153	42	3,377,657	381	26,425,725
2412	Fertilizers	21	500,347	10	44,962	4	207,920	25	853,229
2413	Synthetic resins	79	2,496,383	44	21,703	6	99,549	85	4,217,634
2421	Pesticides and plantation generating chemicals	19	126,673	22	83,975	5	10,478	24	221,126
2422	Paints, varnishes, lacquers	55	108,458	28	56,113	6	8,409	61	272,980
2423	Pharmaceutical and herbal medicine	70	266,893	83	54,217	7	12,549	77	533,659
2424	Soap, cleaning preparations, cosmetics	40	162,862	64	84,143	8	654,793	48	2,101,798
2429	Chemicals	86	296,554	50	23,398	11	42,985	97	462,936
2430	Artificial filament and staple fibre	34	1,020,516	54	48,064	5	227,827	39	3,196,406
	Basic chemical industry, chemical products and pharmaceuticals	794	86,646,693	563	475,197	98	6,068,684	892	109,090,574

Source: National Investment Coordination Board

Asian countries are the largest foreign investors in the chemical industry, contributing 55 per cent of total investment projects and 28 per cent of total investment value. Among Asian countries, Japan is the largest investor in the Indonesian chemical industry. European countries also contribute substantially to the investment value. Since 1970, there have been 171 projects worth US\$3,752,672, or 19 per cent of the total number of projects, and 21 per cent of total investment. England and The Netherlands are the two largest investment contributors from European countries. The growth in the number and value of projects is an indication that Indonesia is an attractive place for investment. Table 4 shows FDI's sub-sectors in the chemical industry for the 1970–2007 period.

## 4.2 The impact of incentives on the decision to invest

The regression results using variables foreign direct investment, real gross domestic product, real Bank Indonesia rate, real foreign (world) interest rate, real exchange rate of Rupiah for the dollar, and the dummy variable for investment incentive in Indonesia indicate that the foreign interest rate is the most significant variable that influences FDI in the chemical industry in Indonesia. Foreign interest rates are an important factor for investors, as high rates in the international market mean that the cost of external financing is high. Investors need a high return on their investment, which can be obtained by investing in developing countries like Indonesia. Therefore, when the international rate rises, FDI in Indonesia also rises because Indonesia has the developing country characteristic of high risk, high return.

In contrast, other variables, which include incentives to investors such as allowing 100 per cent share ownership or extending the time allowed for foreign workers to stay in Indonesia, do not seem to have an impact on chemical companies' decisions to invest in Indonesia. In the short run, GDP has no significant effect. However, GDP is a significant variable in the long run. Gross domestic product is a measure of the state of the economy, which implies that higher GDP translates into higher purchasing power or market, which in turn increases investment. The real exchange rate of the Rupiah against the dollar also has significant influence on foreign direct investment—depreciation of the Rupiah adversely affects foreign direct investment. Depreciation represents an economic condition that reduces the investors' return in placing their capital in the country.

In-depth interviews with six sample companies confirmed that factors other than incentives were the key determinants influencing foreign companies' decision to invest in Indonesia. The large Indonesian market is the single most important factor that underlies their decision to invest in Indonesia (Table 5). Sample companies believe that the large population offers potentially immense business prospects and opportunities. The large market also makes it possible for output produced by one industry to serve as inputs for other industries. Another source of motivation for foreign investor includes the low labour cost and availability of inputs.

**Table 5. Investment motivation**

Investment motivation	Number of Companies	Respondent Percentage ( per cent)
Big market	6	100
Incentive	1	16.7
Low cost of labour	1	16.7
Availability of input	1	16.7

Source: in depth interview

Some companies also consider a conducive social-political environment and unambiguous regulations as key factors behind their decision to undertake new investments and expand their operations. Some companies still consider the 1998 economic crisis and recent macroeconomic vulnerability as important

factors that influence their decisions not to make new investments and expand their operations in Indonesia. A few regulations, such as those on regional decentralization, were perceived by some respondents to be disincentives to investment, as they hamper the production process. New labour regulations that have been in the spotlight have caused concern among company management teams because they curb the companies' authority to determine wages and salaries by giving employees disproportionate bargaining power in wage and salary negotiation process.

Though investment incentives do not constitute the main determinant of foreign direct investment in Indonesia, investors consider the investment regime in their decision to invest. The interview findings showed that investment incentives constitute a crucial issue for half of respondents, with one respondent perceiving them as important (Table 6). The respondents stated that although incentive is not the main reason for FDI, they would be happy to have incentives available. In the long term, FDIs regard incentives as beneficial because they would reduce tax costs or import duties they have to pay out.

**Table 6. The importance of investment incentive**

The importance of investment incentive	Number of companies	Respondent percentage ( per cent)
Very important	3	50.0
Important	1	16.7
Not important	1	16.7
Neutral	1	16.7

Source: in depth interview

In connection with the impact of incentives on business development, two thirds of respondents expressed the view that incentives do not significantly influence their businesses (Table 7). Those who perceived that incentives have a significant impact on business development cited reasons that ranged from increasing integration, business scale, output, labour utilization and mechanization. Meanwhile only one respondent was of the view that incentives had an impact on the location.

**Table 7. Incentive impact on corporate action**

Incentive impact	Number of companies	Respondent percentage (per cent)
No impact	4	66.7
Increased integration level	2	33.3
Increased business scale	2	33.3
Increased output	2	33.3
Increased usage of labour	2	33.3
Increased mechanization	2	33.3
Location	1	16.7

Source: in depth interview

Companies identify incentives that affect import duties/levies applicable to capital goods as the most attractive of all incentives because most industries in Indonesia depend heavily on imported intermediate goods as inputs in their production processes (Table 8). Most machinery used in the production process is still imported. Many companies complain about the difficulties they face in carrying out expansion and renewal of machinery, largely due to the high cost of importing machinery. To that end, incentives in the form of lowering/exempting tariffs on capital goods and intermediate products are vital for attracting foreign investors. It is worth noting that some of the inputs used in the production process in the chemical industry are imported, which makes reductions or exemptions of tariffs/duties a very attractive proposition for investors. Other incentives perceived as important are value added tax incentives.



**Table 8. Most attractive investment incentives**

Incentive Type	Number of Companies	Respondent Percentage (per cent)
Tariff incentives for capital goods	5	83.33
Tariff incentives for imported immediate goods	3	50.00
Value added tax incentives	3	50.00
Low interest loan	1	16.70
Special concessions from government	1	16.70
Imported input tariffs	1	16.70
Land buying subsidies	1	16.70

Source: in depth interview

Respondents would like to see the duration of incentives extended beyond the current duration of five years (Table 9). This is understandable given the advantages in terms of financial, production, marketing, and general management benefits that businessmen enjoy as long as incentives apply.

**Table 9. Ideal period for investment incentives**

Incentive period	Number of Companies	Respondent Percentage (per cent)
1-5 years	1	16.7
>5 years	3	50.0
No answer	2	33.3

Source: in depth interview

## 5 The Impact of FDI in the Chemical Industry on Sustainable Development

Although FDI inflows into the chemical and pharmaceutical industry have experienced brisk performance over the years, indications point to a continuing lack of sufficient supporting conditions in the industry. The structure of the chemical industry in Indonesia is lopsidedly downstream, depending heavily, as it does, on imports of raw materials from abroad.

Accelerating the growth of the chemical industry in Indonesia faces obstacles in the form of limited technology and supporting infrastructure. In fact, the technology that is used in the industry is largely imported. Limited application of technology in the industry is also attributed to limited research in the industry, which has hampered its growth. Another problem that faces the industry is the rising cost of raw materials, compounded by poor infrastructure in rural areas, the main producers of raw materials. Feeder roads linking villages to towns and cities, where chemical industries are located, are still in poor state relatively.

### 5.1 Economic impacts

#### 5.1.1 Employment generation

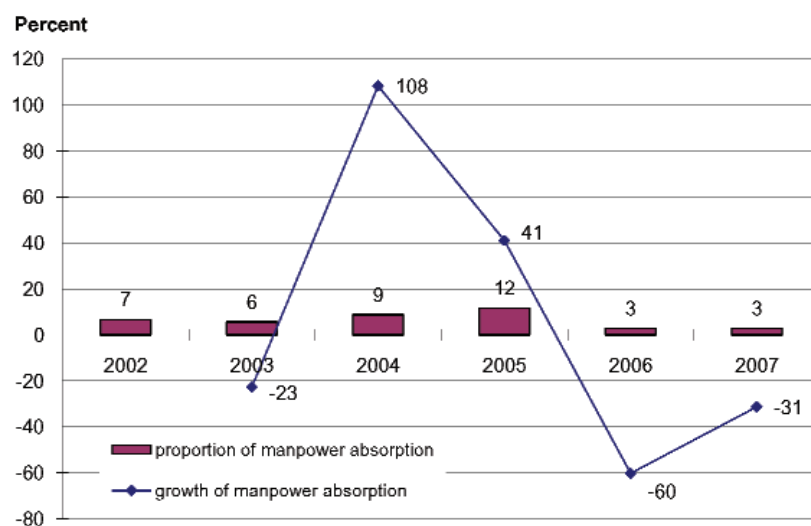
Foreign direct investment generated employment for 73,839 people in 2002, a figure that rose to 105,141 people in 2007 (Table 10). In comparison with other industries such as textiles, and metal, machinery and electronics, the chemical industry does not provide as many employment opportunities.

**Table 10. Manpower absorption of foreign direct investment realization by sector, 2002 – September 30, 2007**

Sector	2002	2003	2004	2005	2006	2007
Textile Industry	12,426	17,452	24,640	15,332	67,335	32,078
Metal, Machinery & Electronic Industry	14,847	10,887	9,766	18,122	21,257	15,308
Food Industry	11,653	7,730	17,759	13,092	12,729	14,921
Motor Vehicles & Other Transport Equip. Industry	1,989	5,642	5,597	7,384	12,751	12,123
Leather Goods & Footwear Industry	15,653	4,337	3,303	5,652	7,886	10,388
Wood Industry	2,692	7,568	1,248	6,197	6,854	7,828
Other Industry	4,882	5,903	6,590	7,041	5,115	3,865
Rubber and Plastic Industry	2,670	4,325	3,110	10,323	6,744	3,656
Chemical and Pharmaceutical Industry	4,981	3,848	8,019	11,312	4,488	3,082
Non-Metallic Mineral Industry	1,561	969	4,315	2,147	1,461	923
Paper and Printing Industry	420	269	4,776	668	6,153	875
Medical & Optical Instrument, Watches & Clock Industry	65	266	2,605	56	42	94
Total manpower absorption	73,839	69,196	91,728	97,326	152,815	105,141

Source: National Investment Coordination Board

Employment generated by FDI in the chemical industry fluctuated during the 2002-2007 period. In 2002, the chemical industry absorbed 4,981 people or seven per cent of the total labour force employed in FDI industries, which increased to 11 per cent in 2005. However, in 2007, employment in the industry declined to 3,082 people or seven per cent of the labour force in FDI industries. The only time when job absorption in the chemical industry experienced a rapid increase was in 2004, registering 108 per cent growth, and in 2006 and 2007, employment in the industry dropped by 60 per cent and 31 per cent, respectively. This indicates that the chemical industry is moving to a more capital intensive industry or lowering the capacity, which is why its capacity to generate employment decreased.

**Figure 2. Manpower absorption of foreign direct investment realization in the chemical and pharmaceutical industry, 2002 – September 30, 2007**

Source: National Investment Coordination Board

According to results of the in-depth interview carried out in Banten province, five of the six interviewed companies employ less than 50 per cent of local population, with the rest coming from areas neighbouring the

Banten area (Table 11). Few companies employ foreign employees for specific management positions. One fully-fledged FDI company employs local citizens right from bottom to top managerial level positions, with only one expatriate serving as vice president. The Indonesian government requires FDI companies to employ local people, a regulation that is often difficult to fulfill due to the lower skill and competence levels of local workers compared with foreign manpower. However, companies often carry out job training before the job placement and employ local citizens as outsourced employees in positions that lie outside production processes.

**Table 11. Labour source**

Labour sources	Number	Number of companies	Respondent percentage (per cent)
Local (Banten area)	More than 50 per cent	1	16.7
	Less than 50 per cent	5	83.33
Domestic	More than 50 per cent	5	83.33
	Less than 50 per cent	1	16.7
International	More than 10 per cent	0	-
	Less than 10 per cent	6	100.0

Source: in depth interview

Regarding wages, work opportunity, work leave, career opportunities and gender equality, research findings indicate that chemical companies in general are performing well. The wages of FDI companies are also higher than regional minimum wages. In light of that, chemical industries in Banten have a vitally important influence on improving socioeconomic conditions of the community. People living in surrounding areas regard chemical companies as beneficial to their community as they provide much-needed employment opportunities. As a result, people who were farmers prior to the establishment of the chemical factories have had the opportunity to become employees in manufacturing and service industries. Moreover, the local people have had to seek higher education to qualify for educational requirements demanded by the factories. Community income has risen, as remuneration in the chemical industry is higher than in agriculture. Thus, there is no doubt the chemical industry has made a positive contribution to the well-being of the society in the study area.

### 5.1.2 Trade aspect

Based on in-depth interviews, most inputs are imported goods (five of six respondents say that they use more than 50 per cent imported input), while only very few are from local surrounding production (Table 12). The imported input dependency in chemical industries makes imported tariff incentives an important aspect in the development of the chemical industry.

**Table 12. Input source**

Input location	Proportion	Number of Companies	Respondent percentage (per cent)
Local	None	2	33.33
	Less than 50 per cent	3	10.00
	More than 50 per cent	1	16.67
Domestic	None	1	16.67
	Less than 50 per cent	5	83.33
	More than 50 per cent	-	-
Import	None	-	-
	Less than 50 per cent	1	16.67
	More than 50 per cent	5	83.33

Source: in depth interview

The imported inputs are used due to their competitive price according to five of the six respondents; half of the respondents said that they used imported inputs because of a contract with an investor's company, and others mentioned the higher quality of imported inputs as the reason they use imports (Table 13).

**Table 13. Reasons for using imported input**

Reason of using imported input	Number of companies	Respondent percentage (per cent)
Input quality	2	33.33
Price	5	83.33
Contract	3	50.00

Source: in depth interview

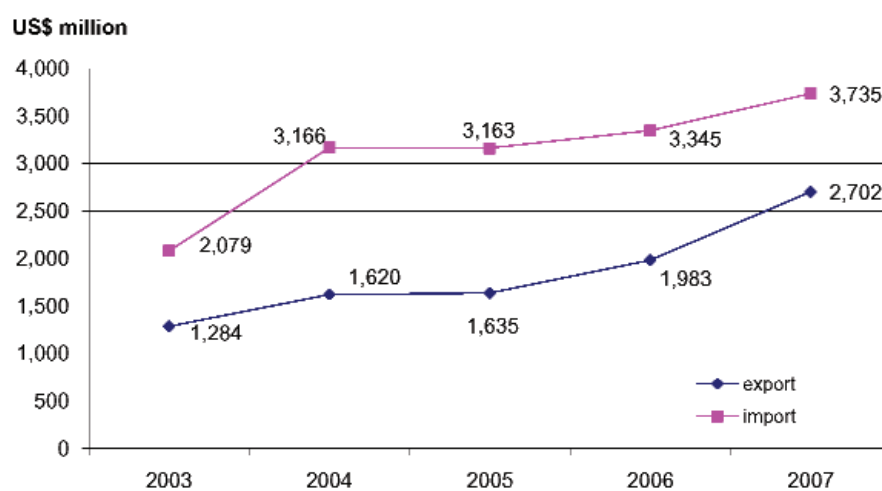
The largest percentage of output (more than 50 per cent) is sold in the domestic market, and a small percentage is sold in the local market (Table 14). Research findings indicate that half of the respondents exported their output, while a third did not.

**Table 14. Market destination**

Market Destination	Proportion	Number of companies	Respondent percentage (per cent)
Local (Banten Local area)	None	5	83.33
	Less than 50 per cent	1	16.67
	More than 50 per cent	0	-
Domestic	None	0	-
	Less than 50 per cent	0	-
	More than 50 per cent	6	100.00
Export	None	2	33.33
	Less than 50 per cent	4	66.67
	More than 50 per cent	-	-

Source: in depth interview

**Figure 3. Exports-imports of organic chemicals 2003–2007**



Source: National Investment Coordination Board

In general, FDI in the chemical industry has not generated a positive balance of trade in chemical products for Indonesia. Imports of organic chemicals continued to outstrip exports each year from 2003 through 2007. In 2003, organic imports were valued at \$2,078.9 million, while exports of the same were reached \$1,283.8 million. In 2007, imports of organic chemical products were valued at \$3,734.8 million, while exports reached \$2,701.7 million. The largest percentage of imports in the chemical industry is composed of intermediate products.

## 5.2 Social impacts

This section discusses the social impact of FDI in the chemical industry (located in Banten province). The social impact presented here covers employment generation, social welfare, and various aspects of human resource improvement, development and social environment recorded in the province in the aftermath of the establishment of FDI activities.

**Table 15. Profile of community respondents**

Profile		Number	Percentage
Gender	Male	23	54.76
	Female	19	45.24
Occupation	Civil servant/Military personnel/police	2	4.76
	Private sector employees	7	16.67
	Businesspeople	21	50.00
	Homemakers	5	11.90
	Community personnel	2	4.76
	Others	5	11.90
Origin	Indigent	34	80.95
	In-migrants	8	19.05
Relationship with chemical industry	Factory employees	9	21.43
	Dependants of factory employees	2	4.76
	Service providers	0	0.00
	No relation	31	73.81

Source: Primary data

To determine the social impact of FDI in the chemical industry on the community, the research team used results obtained from a sample of 42 respondents drawn from a cross section of people living in close proximity to the chemical factory premises, both factory employees and otherwise. Table 15 gives a detailed account of the profiles of the 42 respondents.

Some respondents work as parking assistants, while others undertake itinerant economic activities close to factory premises such as selling food stuffs, repairing flat tires or selling mobile phone vouchers. Others are public transportation drivers, civil servants, military personnel, community leaders and harbour employees. Interviews showed that the existence of chemical factories in the area has generated both benefits and costs to the local community. However, all in all, benefits do outweigh costs.

In general, the biggest benefit to the local community is employment opportunities in factories, albeit in unskilled and non-managerial roles. The social impact of the establishment of the factories as perceived by the local community is shown in Table 16.

**Table 16. Social impact**

Explanation		Number	Percentage
Perception about the industry	Pleased	21	50.00
	Unchanged	7	16.67
	Not pleased	14	33.33
Benefits derived from the industry	Derive benefits	19	45.24
	No change	13	30.95
	Adverse effects	10	23.81
The existence of the industry has made life better	Better	16	38.10
	Unchanged	26	61.90
	Worse	0	0.00
Impact of the industry on the life of the local community in general	Better	24	57.14
	Unchanged	18	42.86
	Worse	0	0.00
Level of eviction of in-migrants	High	7	16.67
	Normal	22	52.38
	Rejection	13	30.95
Acceptance of in-migrants by indigenous population	High	22	52.38
	Normal	20	47.62
	Rejection	0	0.00
Local community perception of gender discrimination by the industry	Rife	0	0.00
	Non existent	4	.52
	No idea	38	90.48
Social assistance provided by the industry to the local community	There is	11	26.19
	There isn't	12	28.57
	No idea	19	45.24

Source: Primary data

The above table shows that most respondents expressed satisfaction with the establishment of the factory in their area because it induced many people to live within the vicinity of the factory, serving as a convergent point for in-migrants who serve as employees. The in-migrants, in general, have higher skills than the local population. The increasing number of factory employees, who are mainly non-locals, has become a source of economic welfare for the local population through the provision of parking services, washing and houses for rent. Most members of the local community also take this as an opportunity to establish eateries, which indirectly contributes to the betterment of community income, and forces them to shift their livelihoods from agriculture-based activities to industry and services.

The establishment of chemical factories has fostered infrastructure modernization and physical improvement of roads (surfacing them) and electricity. This, in turn, has paved the way to regional development, as transport improvement has led to better distribution, modernization and society socialization.

Nonetheless, some respondents contended that most benefits went to those who have large tracts of land and capital as they are able to construct houses for hire, which is not possible for those without such an advantage. Those with sufficient capital can also start eateries and other small businesses. These two economic activities constitute the main spillover effects of chemical factories in the community.

Local community members were of the view that the benefits they derive from the existence of the factories in their midst are constrained by their lack of education, which is vital for working in the chemical factories. This explains why there are few members of the local communities who are employed by chemical factories. For those who have the opportunity to work in the chemical factories, they serve in minor roles suitable for employees with secondary technical education.

A small section of the local community perceived the existence of the chemical factories with strong scepticism, citing the lack of benefits. These people are primarily those who are not employed by the factories due to their lack of education. Nonetheless, most respondents perceived no significant negative side effects caused by the existence of the factories in their midst. However, as will be elaborated in the following section, pollution—though still within tolerable limits—is cause for concern of many respondents.

### 5.3 Impacts on the environment

Besides the state and condition of investment and prospects of the chemical industry in Indonesia, one issue that needs special attention is environmental safety. Industrial pollution is often generated by various energy uses in operating facilities, which is compounded by a lack of emission control equipment such as an electrostatic precipitator, a fuel gas desulfurization, a scrubber and others. Pollution can be caused by the industrial process and raw materials used in the production facilities.

The chemical industry is the number one polluter in Indonesia.<sup>7</sup> The production process in chemical industries such as alcohol requires a lot of water and releases a large volume of effluents to surrounding areas. Liquid effluents cause contamination because they contain micro-organisms, in the form of solutions and suspensions, among others, that arise from direct fermentation. The industry generates other liquid pollutants during the production process: contaminated water from washing equipment and tools, solid effluents from metals parts, residues of CaSO<sub>4</sub>, gas effluents in the form of alcohol vapours. These forms of industrial pollutants are very dangerous and poisonous causing environmental damage to air and water.

The policies adopted to control industrial pollution revolve around emphasizing the use of clean sources of energy, reviewing regulations such as the emission standards and reinforcing self-supervision. Based on the outcome of findings by the State Ministry for Environmental Protection, most industries are yet to comply with the provisions. These are the forms of non-compliance within the provisions:

- Ejecting emissions through chimneys;
- Not supervising emission standards;
- Not fulfilling emission standards;
- Not carrying out periodic self-supervision;
- The sampling hole and the supporting facilities are not in accordance with regulations;
- Non-installation of Continuous Emissions Monitoring equipment; and
- Monitoring equipment is dysfunctional.

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<sup>7</sup> KLH (2003)

In order to protect the environment, the Indonesian Government issued Act No. 23/1997 on Managing the Environment and Attendant Implementing Legal Instruments. Environmental management is not only reported to the government but also to the public in the form of corporate social responsibility. The State Ministry for the Environment assesses environmental management to measure the degree of compliance with legal instruments, under the acronym PROPER. PROPER findings are announced annually to the public, creating an incentive or disincentive for the company, depending on its ranking.

The performance of the company is assessed and categorized into five colour rankings as follows:

- Gold ranking: for a company that has succeeded in conducting good environmental management in a satisfactory manner.
- Green ranking: for a company that succeeds in conducting environmental management beyond legal standards.
- Blue ranking: for a company that succeeds in conducting environmental management in line with the basic minimum legal requirements.
- Blue minus ranking: for a company that attempts to carry out environmental management, though some of the attempts have not met legal requirements.
- Red ranking: for a company that carries out environmental management below minimum legal standards.
- Black ranking: for a company that has so far failed to carry out meaningful environmental management.

The outcomes of compliance rankings indicate that FDI companies perform better than domestic investment companies. The following is a detailed account of the categories and compliance in the chemical industry in Cilegon City, Banten province, Indonesia.

**Table 17. Environmental compliance in the chemical industry in Cilegon, Banten Province (2007)**

Category	FDI Chemical industry	Domestic Chemical Industry
Gold	-	-
Green	5	-
Blue	8	1
Blue – (new classification since 2007)	9	-
Red	1	5
Black	-	-

Source: State Ministry for the Environment, 2007

Data in Table 12 show that foreign companies in the chemical industry in 2007 generally perform well. Five chemical companies fall into the Green category, eight into the Blue category, and nine into the Blue-minus category. Two chemical companies fell into the Red category, and none fell into the Black category. In general, FDI chemical companies outperformed domestic chemical companies in environmental safety compliance in the area survey.

Moreover, the ranking achieved by respondent companies shows an upward trend. Out of six companies that were observed in 2007, five fell under the Green category, with only one still in the Blue category.



It is also worth noting that one company was able to improve its category ranking from Blue in 2005 to Green in 2007.

The outcome of environmental protection compliance evaluation shows that foreign companies in Indonesia tend to apply higher standards than required by Indonesian law. This was confirmed during the interviews when the foreign companies stated that they use environmental standards originating from their holding companies, which are tighter than Indonesia's. In light of such a finding, the fear expressed by some that Indonesia is turning into a "pollution haven" due to the relocation of "dirty" may not be entirely true.

Since the negative impact caused by pollutants emitted by the chemical industry is not strictly the responsibility of the Indonesian government, but rather predominantly that of the business community, companies in the chemical industry in Indonesia have formed National Responsible Care® (KN-RCI) to serve as a tool companies can use to apply Responsible Care® principles. Members of Responsible Care® are obliged to follow a six-principle code of ethics:

- Care for the community and response to emergencies through communications and dialogue with the local community (CAER-Community Awareness & Emergency Response Code)
- Pollution Prevention Code
- Process Safety Code for production processes/industrial facilities
- Safety Distribution Code
- Employee Safety and Health Code
- Product Stewardship Code (handling product design to disintegration in nature)

The synergy between the government and chemical companies in Indonesia attests to the fact that the Indonesian government and the chemical industry are concerned about minimizing the impact that chemical products cause on the environment and society.

From the companies' standpoint, research findings indicate that respondents are concerned about the environment (Table 18). Some companies have slogans stuck in various places on factory grounds serving as awareness raisers to the public about environment and work safety. Companies have allocated special funds to handle public complaints and deal with waste management. All the companies surveyed had sound waste management systems in place, which was why no public complaints arose. However, chemical companies and members of the community did not agree on the impact of operations of chemical industries on environmental quality. While chemical companies considered their operations safe for the environment, members of the general public were concerned about the contamination of water and air caused by company operations.

Based on the community members' perceptions, the factory and its operations have adversely affected water and air quality, but there are as yet no indications that it has directly been the cause of sickness affecting members of the local community. Air pollution, caused by smoke, fumes and odours spewed by factory chimneys often cause severe irritation and discomfort. Some people who have high sensitivity to pungent odours suffer from headaches. The air temperature surrounding the chemical plants tends to be relatively higher, which is attributed to the fact that many trees have been cut down to clear the way for the establishment of the chemical plants.

**Table 18. Environmental treatment**

Kind of treatment	Availability	Number of companies	Response percentage (per cent)
Cost allocation for waste management	Available	6	100
	Not available	0	0
Have effluents processing system	Available	6	100
	Not available	0	0
Local community complaint	Available	0	0
	Not available	6	100
Degradation of water quality	Available	0	0
	Not available	6	100
Degradation of air quality	Available	0	0
	Not available	6	100

Source: in depth interview

Noise pollution, caused by rumbling and droning sounds generated by factory installations and running truck engines to and from the factory, has become a constant headache for members of the local community living in the vicinity of chemical plant.

Several respondents stated that the surrounding areas around chemical factories are uninhabitable because of severe air pollution, though the pollution is invisible to naked eye. Detailed responses about the impact of chemical plants on the environment appear in Table 19.

Table 19 shows that most respondents were unhappy with air pollution caused by chemical plants in the area. Incidentally, a chemical leak occurred in one of the facilities at the time the field work was underway (not one of the companies interviewed), which caused a lot of discomfort to the local community. As a result of the chemical leak, 37 people had to undergo medical treatment after inhaling poisonous substances.

**Table 19. Respondents' perception on environmental impact**

Keterangan		Jumlah	Percentage
Negative impact on water quality	There is	2	4.76
	None	23	54.76
	No idea	17	40.48
Negative impact on air quality	There is	41	97.62
	None	1	2.38
	No idea	0	0.00
Negative impact on environmental quality in general	There is	40	95.24
	None	2	4.76
	No idea	0	0.00
Community perception about effluents management by the industry	There is	14	33.33
	None	1	2.38
	No idea	27	64.29
Community perception about tolerance limit of pollution produced	Tolerable	29	69.05
	No idea	0	0.00
	Not tolerable	13	30.95

Source: Primary Data

Ground water within the vicinity of the chemical plants was found to be safe for consumption and use by the local community. However, some respondents contended that, though safe for drinking, since the

establishment of the chemical plants underground water had become murky. That said, some respondents believed that it was in fact a local coral that had contaminated the water, and not pollution caused chemical plants in their areas.

In general, however, members of the local community perceived such effects as within tolerable limits, which in any case they had become accustomed to, and not a major source of serious health problems.

## 6 Policy Recommendations

Domestic and foreign investment is vital for the development of Indonesia's economy. Foreign direct investment as a source of foreign capital inflow is important in fostering economic growth. Efforts must be made to increase both domestic and foreign investment. The Government of Indonesia has many tasks to accomplish if it is to enhance its attractiveness to foreign investors. There is a need to improve legal certainty and investment security guarantees, as well as the provision of public services and good infrastructure. The GOI must create an environment that provides the best services to investors in order to attract FDI to Indonesia.

Although investment incentives are not a key influence on the decision of foreign investors to invest in Indonesia, they are still an important element in attracting FDI to Indonesia. In particular, there is a need for incentives and policies tailored to promoting the development of inputs industries for the chemical industry, which should help in elevating industrialization and, in turn, will raise Indonesia's value added. Furthermore, to increase the spillover effect generated by the chemical industry to the local community, human resources must improve. Poor human resources within the local community hampers the capacity of employees to derive many benefits they should from the operations of the chemical plants located in their areas.

Foreign-invested chemical companies in general outperform their domestic counterparts in protecting the local environment in the areas surveyed. However, considering the fact that the PROPER category of many companies still falls below Green, GOI should increase pressure on the chemical industry to build up their waste processing facilities. Such a policy will enable the companies to achieve Green environmental quality standards, thereby reducing the negative impact on the surrounding community. There is also need for incentives tailored to encouraging better environmental quality in areas where chemical industries carry out their operations. Environment incentives could include publishing the names of firms that have achieved Green or Gold standard. In addition, the firms can show their status in their own promotional materials—both to promote their business and to act as a mentor to other businesses.

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### Law References

Decree of the Minister of Finance No. Kep-289/MK/IV/4/1971 on Import Duties and Sales Tax (Import) of Capital Goods Imported by Foreign Enterprises.

Government Regulation No. 17/1992 on Share Ownership in Foreign Enterprises.

Government Regulation No. 20/1994 on Share Ownership in Companies Established for Foreign Investment.

Government Regulation No.32/1994 on Visas, Entry Permits, and Immigration Permits.

Government Regulation No. 45/1996 on Income Tax on Obligatory Tax Income for Specified Business Industry.

Government Regulation No. 147/2000 on Tax Treatment in Integrated Regional Economic Development Zone (KAPET).

Government Regulation No. 148/2000 on Corporate Taxes Facilities for Investment in Specified Business Sectors and/or Specified Regions.

Government Regulation No. 7/2007 and Government Regulation No. 31/2007 as substitution of Government Regulation No. 12/2001 on Import and/or Delivery of Taxable Specified Goods Strategic in Nature Exempt from Value Added Tax.

Government Regulation No. 1/2007 as substitution of Government Regulation No. 148/2000 on Corporate Tax Facilities for Investments in Specified Business Sectors and/or Specified Regions.

Law No.1/1967 on Foreign Investment.

Law No.11/1970 on Amendments and Supplement to Law No.1/1967.

Law No. 7/1983 on Income Taxes.

Law No. 25/2007 on Investment.

Presidential Decree No. 23/1974 on Limiting the Employment of New Foreign Workers.

Presidential Decree No. 96/2000 on Business Sectors Closed to Foreign Investors.

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## Annex 1: List of regulations on investment incentives

No.	Regulation	Concerning	Contents
1.	Act No. 1/1967	Foreign Investment	<p>Incentives</p> <p>Exemption and tax reduction on corporate profits for a period not longer than five years</p> <p>Tax on dividends out of company profits paid to shareholders for profits accrued within a period not exceeding five years</p> <p>Lower corporate tax on profits that are re-invested in Indonesia</p> <p>Import duty at the time of importing fixed equipment such as machinery, tools, and work utensils required in facilitating company operations</p> <p>Excise tax on FDI</p> <p>FDI negative list</p> <p>Areas that are of strategic importance to the state/nation, and affect the well being of the public :</p> <ul style="list-style-type: none"> <li>• Harbours</li> <li>• Generation, transmission, and distribution of electricity for the public</li> <li>• Telecommunication</li> <li>• Water transportation</li> <li>• Air transportation</li> <li>• Drinking water services</li> <li>• Public railway transportation</li> <li>• Nuclear energy generation</li> <li>• Mass media</li> <li>• Areas that are of strategic importance to national defence:</li> <li>• Production of arms and ammunition</li> <li>• Dynamite</li> <li>• Explosives</li> <li>• War weaponry</li> </ul>
2.	Act No. 11/1970	Amendment and addition made to Act No. 1/1967 on FDI	<p>(1) Tax Incentives given to FDI companies:</p> <ul style="list-style-type: none"> <li>• Excise tax on capital /investment</li> <li>• Excise tax and tax on sales</li> <li>• Excise on changing ownership</li> <li>• Corporate tax</li> <li>• Tax on dividends</li> </ul> <p>(2). For new legal entities undertaking investment in government priority areas/sectors or production in areas declared by government to be of priority, the Ministry of Finance is authorized to exempt the company from tax commitments for a period of two years of the commencement of company operations (can be extended).</p> <p>(3). Besides tax incentives, the government can issue regulations for additional incentives to FDI companies that are deemed pivotal for the country's economic development.</p>
3.	Ministry of Finance Decree No. Kep-289/MK/IV/4/1971	Exemption/reduction of import duty and tax on imports	<p>Exempted or reduced import duty and sales tax on imports made by an FDI or domestic investment company with an operational permit for:</p> <ul style="list-style-type: none"> <li>• Company machinery and equipment</li> <li>• Spare parts</li> <li>• Raw materials and supporting materials</li> <li>• Transportation equipment, tools and construction materials</li> </ul> <p>Exemption is applicable if:</p> <ul style="list-style-type: none"> <li>• The goods/materials are not produced in the country</li> <li>• The goods/materials have been included in capital expenditure plan</li> <li>• The cost of importing the goods is not drawn from country's foreign currency.</li> </ul>
4.	Presidential Decree No. 23/1974	Restricting/limiting the use of foreign manpower	<p>Restricts the use of foreign manpower in FDI and domestic direct investment.</p> <p>The company employing foreign manpower is obliged to conduct training and education programs for Indonesian employees who are supposed to replace the expatriates.</p>
5.	Act No. 7/1983	Income tax	<p>Retracts exemption of excise tax on company fixed goods such as machinery, worker equipment, and tools /aircraft to facilitate company operations.</p> <p>Restores imposition of excise tax on FDI.</p> <p>Retracts tax incentives and other levies that are applicable.</p>
6.	Government Regulation No. 17/1992	Requirements for owning shares in FDI companies	<p>A company that is established within the framework of a FDI is, in principle, a joint venture in which the Indonesian partners must hold not less than 20 per cent of the total value of the company at the time of establishment, and can be raised to become 51 per cent in a period of 20 years from when the company commenced its production on a commercial basis (as noted in its operational permit/license).</p>

No.	Regulation	Concerning	Contents
7.	Government Regulation No.20/1994	Requirements for share ownership in FDI companies	Foreign Direct Investment can take the forms of: <ul style="list-style-type: none"> <li>• Joint venture</li> <li>• Direct, meaning the entirety of its capital is controlled by foreign nationals or foreign legal entity.</li> </ul>
8.	Government Regulation No.32/1994	Visa, entry permit, and immigration permits	Visiting permits for foreign nationals for business purposes. Visiting permits can be changed to become temporary stay permits, and temporary stay permits can be changed to become permanent stay permits.
9.	Government Regulation No.45/1996	Income tax on taxable entities for certain industries	Income tax on certain companies in certain industries can be guaranteed by the government for a period of 10 years. The industries in question will be regulated in a presidential decree upon the recommendation of a team charged with the task of giving business facilities.
10.	Presidential Decree No. 96/2000	Areas of business closed to investment	List of areas that are off limits to foreign direct investment: <ul style="list-style-type: none"> <li>• Forestry and plantations sector: seeds; plasma husbandry; the right of doing business in natural forestry; contractors in timber logging.</li> <li>• Transportation: Taxi/bus operations and public water transportation.</li> <li>• Trade sector: trading and trade support services, with the exception of: large retailing (malls, supermarket, department stores; shopping centers)</li> <li>• Air broadcasting: radio and television broadcasting; multimedia services and press media; movie/film making.</li> </ul>
11.	Presidential Regulation No. 147/2000	Implementation of tax imposition on integrated economic development zones	Companies that carry out activities in integrated economic development zones (KAPET) are entitled to: <ul style="list-style-type: none"> <li>• Reduction of income tax by 30 per cent net from total investment made.</li> <li>• Choice to apply accelerated depreciation or amortization.</li> <li>• Compensation for fiscal loss continuously for a period of 10 years.</li> <li>• Imposition of income tax amounting to 10 per cent on dividends paid to foreign taxable entities, or a lower tax rate in accordance with the agreement on double tax incidence tax that apply.</li> </ul>
12.	Government Regulation No. 148/2000	Income tax on investment in certain areas in certain regions	Reduction of net incomes by 30 per cent of total investment made. Accelerated depreciation or amortization. Extension of compensation periods, not to exceed 10 years. Imposing a 10 per cent income tax on dividends paid to foreign taxable entities or lower tax rate in line with agreement on double tax incidence avoidance that apply. Note: Certain areas and businesses are determined by presidential decree, but when that doesn't materialize, the application thereof is annulled
13.	Government Regulation No.7/2007 and Government Regulation No.31/2007 replacing Government Regulation No.12/2001	Exemption of value added tax on imports/ relinquishing certain goods that are classified as strategic.	Goods that constitute machinery and factory equipment, both fixed or installed or not mobile/loose, with the exception of spare parts; Livestock, poultry and fishery feedstuffs; Agricultural produce/primary products; Seeds/seedlings in agriculture, estates/plantations, forestry, livestock, conservancies and fisheries; Clean water channelled through pipes by clean water company; Electricity, with the exception of for homes that use more than 600 watts
14.	Act No.25/2007	Foreign Direct Investment	Applies equal treatment to domestic direct investment and foreign direct investment. Guarantees that no nationalization or confiscation of investment. Gives investors the right to transfer and remit foreign currency.
15.	Presidential Regulation No.1/2007 replacing Government Regulation No.148/2000	Income tax on investment in certain areas in certain regions	Reduces income tax by 30 per cent of the total value of investment made. Offers compensation for a longer period not exceeding 10 years. Ten per cent in income tax on dividends paid to foreign taxable entities, or lower tax rate in accordance with prevailing agreement on double tax incidence avoidance. Accelerated depreciation and amortization. Note: Areas fall into 15 areas of business endeavours; one of which is the chemical and pharmaceutical industry.

## Annex 2: Methodology

Lower case figures in the equation represent log value. Technically, FDI figures were not transformed into natural logarithms because the figures for some years were negative values. Smoothing the FDI variable was done by using FDI/1000.

In light of that, the following long run regression function was used:

$$FDI_t = f(gdp_t, ISBI - INF_t, LIBOR - INFF_t, rer_t, INCTV_t)$$

Whereby:

- $FDI_t$  is real foreign direct investment (billion rupiah).
- $gdp_t$  is real gross domestic product (billion rupiah).
- $ISBI - INF_t$  is Bank Indonesia Rate minus Indonesia Inflation. This is the measure of real Bank Indonesia rate.
- $LIBOR - INFF_t$  is LIBOR interest rate minus U.S. inflation. This is the measure of the real foreign (world) interest rate.
- $rer_t$  is the real exchange rate of rupiah for the \$.
- $INCTV_t$  is the dummy variable for investment incentive in Indonesia. The incentive dummy is used to proxy for foreign shareholding, which rose to 100 per cent of shares since 1994. In the same year, the government enacted a regulation that made it easier than before for foreign workers to stay in Indonesia. The dummy variable used was 1 for 1994 and above and 0 for the period prior to 1994.

$$FDI_t = \alpha + \beta_0 gdp_t + \beta_1 (ISBI - INF_t) + \beta_2 (LIBOR - INFF_t) + \beta_3 rer_t + \beta_4 INCTV_t + \varepsilon_t$$

The following dynamic regression equation using the error correction model approach (ECM) was used:

$$D(FDI_t) = \beta_0 d(gdp_t) + \beta_1 D(ISBI - INF_t) + \beta_2 D(LIBOR - INFF_t) + \beta_3 D(rer_t) + \beta_4 INCTV_t + \beta_5 ECT_{t-1}$$

Regression analysis was used to determine key factors that influence FDI in Indonesia. The first step was to carry out unit root tests, which aim at establishing whether or data are stationary or otherwise. If data are found to be non-stationary, this should imply that the dynamic model is the appropriate mode to use in the analysis. Unit root tests of level data should produce unit roots for all the variables used in the model.



**Table 20. Unit root test: Level**

Variable	lags	DF	ADF	Inference
Gdp	3	-0.917559	-1.77050	unit root
Fdi	2	-2.162966	-2.127760	unit root
ISBI-INF (real BI interest rate)	5	-3.235689	-3.512072	unit root
LIBOR-INFF (real foreign interest rate)	1	-1.700125	-1.306240	unit root
Rer	2	-2.615880	-2.798644	unit root

Source: analyzed data

Meanwhile, results from unit root tests indicate that the first difference unit root test produces significant estimates, leading to the inference that data are stationary.

**Table 21. Unit root test: First difference**

Variable	lags	DF	ADF	Inference
Gdp	3	-5.011448	-4.965730	stationary
FDI	2	-5.392151	-5.396805	stationary
ISBI-INF (real BI interest rate)	5	-4.755406	-4.715646	stationary
LIBOR-INFF (real foreign interest rate)	1	-5.345417	-5.409380	stationary
Rer	2	-5.148076	-5.129394	stationary

Source: analyzed data

If the level data has unit root, the dynamic regression equation, taking the form of error correction model (ECM) should be used. To ensure that the model produces valid and unbiased estimates, the next step involves a co-integration test. The co-integration test was done using Dickey Fuller test (DF), Augmented Dickey Fuller test (ADF) and CRDW.

**Table 22. Co-integration test**

DF	ADF	CRDW	Inference
-5.643762	-5.598580	1.326011	Stationary

Source : analyzed data

The above table presents results of the unit root tests on the co-integration function residuals and CRDW value. The critical value of CRDW is obtained from Engel and Yoo (1987), which, for a sample of 100, and a significance level of one per cent, the CRDW statistic is 0.51; at the five per cent significance level the CRDW statistic is 0.39 and at 10 per cent significant level, the CRDW statistic is 0.32. CRDW test results also indicate that the equation has a significant CRDW value, which means that Ho's assertion that there is no co-integration is rejected. Estimation of residuals generated by the equations using DF test and ADF at one percent to 10 per cent significance level, all produce stationery outcomes, which clears the way for using the ECM.<sup>8</sup>

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8 Engle and Granger (1977)

**Table 23. Error correction model estimation**Dependent Variable:  $D((FDI\_RP/IHK)*100)/1000$ 

Method: Least Squares

Date: 09/24/08 Time: 18:09

Sample(adjusted): 1990:2 2006:4

Included observations: 67 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLOG((GDP/IHK)*100)	-20.90770	29.60872	-0.706133	0.4828
D(ISBI-INF)	0.209336	0.464595	0.450576	0.6539
D(LIBOR-INFF)	6.688684	2.890285	2.314195	0.0240
DLOG(RER)	10.34278	17.11135	0.604440	0.5478
INCTV	0.275621	2.418954	0.113942	0.9097
ECT1_RERSBI(-1)	-0.499739	0.116546	-4.287904	0.0001
R-squared	0.340917	Mean dependent var		0.582723
Adjusted R-squared	0.286894	S.D. dependent var		20.32557
S.E. of regression	17.16406	Akaike info criterion		8.608798
Sum squared resid	17970.90	Schwarz criterion		8.806233
Log likelihood	-282.3947	F-statistic		6.310563
Durbin-Watson stat	2.004196	Prob (F-statistic)		0.000088

Source : analyzed data

**Table 24. Co-integration equation estimation**Dependent Variable:  $((FDI\_RP/IHK)*100)/1000$ 

Method: Least Squares

Date: 09/24/08 Time: 18:06

Sample: 1990:1 2006:4

Included observations: 68

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-136.5213	159.3013	-0.857001	0.3947
LOG((GDP/IHK)*100)	33.88370	15.39631	2.200768	0.0315
ISBI-INF	-0.591608	0.392238	-1.508289	0.1366
LIBOR-INFF	1.528785	1.609615	0.949783	0.3459
LOG(RER)	-31.22415	10.03551	-3.111366	0.0028
INCTV	-14.97050	9.913553	-1.510104	0.1361
R-squared	0.179938	Mean dependent var		-0.417996
Adjusted R-squared	0.113804	S.D. dependent var		21.55949
S.E. of regression	20.29566	Akaike info criterion		8.942789
Sum squared resid	5538.67	Schwarz criterion		9.138628
Log likelihood	-298.0548	F-statistic		2.720810
Durbin-Watson stat	1.326011	Prob (F-statistic)		0.027548

Source : analyzed data