Chapter 3

Study of Indonesia's national intellectual property system

Indonesia needs to develop its innovation capacities if it is to sustain growth and address key social challenges. Intellectual property (IP) policy can become a powerful policy tool to support these efforts if effective co-operation with actors involved in IP policy is achieved. Indonesia's businesses and research institutions are currently weak users of IP notably of patents and utility models. Legal and administrative reforms are needed to improve the quality of the IP system. Efforts must also be taken to include smaller entities and businesses in remote geographic areas. Traditional knowledge protection and geographical indications can permit the inclusion of a wider group of innovators, but will require investments aimed at generating economic value on their basis. IP policy also has to focus on commercialisation by resolving the legal uncertainty about the licensing of IP generated from public funding sources and implementing effective support programmes and services.

3.1. Overall assessment and recommendations

Introduction

Indonesia's policy makers recognise the importance of the IP system and have begun implementing multiple policy initiatives to strengthen the role that IP plays for Indonesia's research organisations and businesses. This analysis of Indonesia's IP system, which uses the framework described in Chapter 1, contributes to this initiative. The analysis is based on a review of the national intellectual property system, which draws on more than 50 individual and group interviews with representatives from the Indonesian Ministry of Science and Technology, the Directorate General of Intellectual Property Rights (DGIPR) and several other key governmental agencies, research institutions and universities, as well as companies.[1]

This chapter is structured as follows. Section 3.3 provides an overview of the socio-economic and innovation context of Indonesia; section 3.4 describes the various dimensions of its IP system; and section 3.5 examines the various types of IP used and the challenges facing users. The appendix provides a list of the country's main IP laws.

Implications of Indonesia's socio-economic and innovation context for IP policy

Indonesia is the fourth most populated country in the world with 237 million inhabitants. Its GDP places it among the top 20 countries. In 2001-12, a timeframe which includes the Global Financial Crisis, the country's average annual growth rate was 4.3%, compared to a much lower average of less than 1% for OECD countries during the same 11-year period. Moreover, its growing domestic market and solid base in one of the world's most dynamic regions offers many opportunities for further growth. This, however, requires addressing a series of challenges, including huge infrastructure gaps, substantial pockets of poverty, and a weakly articulated and poorly performing innovation system (OECD, 2013). Table 3.1 provides a summary of the strengths, weaknesses, opportunities and threats (SWOT) of Indonesia's innovation system.

The socio-economic context of Indonesia and the characteristics of its innovation system (section 3.3) are crucial to the capacity of IP to support innovation in the country, as the following points make clear:

- Southeast Asia is one of the world's most dynamic regions, exceeded only by East Asia. Europe, Latin America and North America have lagged behind, especially since the onset of the Global Financial Crisis. Indonesia's recent growth experience follows this dynamic, regional trend, while its huge, growing domestic market offers significant opportunities for future national growth (Oberman et al., 2012). *This performance will continue to attract foreign companies to the Indonesian market and, thus, provide opportunities to draw on their technological expertise (e.g. by seeking licensing arrangements). However, incentives for foreign companies to engage in those transfers will depend on their perception of the local IP system and the level of legal certainty it offers them.*
- While innovation has played little role to date in Indonesia's growth, there has been an improved contribution of total factor productivity (TFP) to output growth. In addition, there are indigenous pockets of concentrated S&T and R&D expertise, especially in the public sector where most expenditure on research

occurs. A small number of well-known universities produce qualified scientists and conduct research in an expanding higher education sector, while in the private sector a small cadre of innovation-oriented companies have grown to appreciate the benefits of innovation. *A key implication for IP support policies, particularly those based on patents, is that a focus on leading public research institutions offers greater opportunities for success in Indonesia. This will also require engaging with private actors for commercialisation. Given the weaknesses of established private sector activities in innovation, commercialisation of the most advanced technical inventions produced by public research institutions should go hand-in-hand with entrepreneurship policy (including, for example, support for science parks), and might sometimes target foreign markets.*

Table 3.1. Summary SWOT analysis

Strengths	Weaknesses
• Strong natural resource base • High trade-based growth rates largely linked to natural resources • Good trade links with Japan and the United States, and improving trade links with regional neighbours and China • Reasonable levels of international competitiveness • Improved contribution of Total Factor Productivity (TFP) to output growth • Pockets of concentrated S&T and R&D expertise, though primarily in the public sector • Expanding higher education sector and small number of well-known universities • Small cadre of companies appreciative of the benefits of innovation • Recent attempts to focus government policy on innovation-related growth • Recent attempt to improve overall co-ordination of government R&D and innovation policies.	• Low GDP per capita and high poverty levels • Slow shift away from a low-technology base • Low productivity levels and TFP growth rates • Modest and highly volatile levels of foreign direct investment (FDI), with few technology or innovation-related spillovers • Underdeveloped infrastructure, including information and communication technology (ICT) infrastructure • High perceived levels of bureaucratic inefficiency and corruption • High barriers to business formation • Limited access to capital for innovation • Low public and private investment in R&D • System-wide failure to generate and diffuse technology • A low-ranked higher education and training system • Small number of researchers and scientists for a country of its size • Poor publication and patent performance • Highly fragmented R&D and innovation governance structure, with limited attempts at overall co-ordination • Lack of indicators and evidence base to underpin innovation policy.
Opportunities	**Threats**
• Appreciable innovation potential and scope for moving up value-chains • Large, young population • Scope for improving qualified human resource base • Market expansion in Southeast Asia and China • Scope for more coherent R&D and innovation policies • Scope for more innovation-friendly FDI • Scope for raising S&T competence levels via greater international co-operation • Scope for making public sector R&D more relevant to industry needs • Scope for increasing private sector involvement in R&D and lowering barriers to innovation • Scope for service sector innovation.	• Volatile global financial situation • Increased competition from emerging and developed countries • Depletion of natural resource base and related problems of environmental degradation • Continued emphasis on trade-based rather than knowledge-based growth • Continued under-investment in infrastructure, higher education and R&D • Failure to attract and retain qualified human resources • Inadequate incentives for innovation generally • Inadequate incentives for innovation-friendly FDI • Inefficient implementation of R&D and innovation-related policies.

Source: OECD (2013), *Innovation in Southeast Asia*, OECD Publishing, doi: 10.1787/9789264128712-en.

- Indonesia is very slowly moving away from a low technology base with declining exports of high-technology products and an increasing reliance on imports of these goods. Many private sector actors in low-technology manufacturing and services have, to date, only been modestly engaged in innovation activities and very few are involved in technology-based innovations. *This means that patents will not be attainable for many actors in Indonesia's innovation system, as they lack the needed research capacity. However, this is less the case for utility models, design rights and trademarks.*
- Poverty and inequality are key challenges for Indonesia. Given that the informal sector in Indonesia employed 68% of the population in 2009, the question of how to integrate the contributions of this sector, which are commonly excluded from innovation, cannot be easily dismissed. *While IP policies are not a solution to poverty and inequality, the importance of addressing these challenges requires a focus on the opportunities and challenges of IP for innovators in informal and traditional sectors.*
- Several forms of market failure affect innovation performance in Indonesia: weak infrastructure, bureaucratic inefficiencies and limited access to capital for innovation. *While IP can provide powerful incentives, in practice, incentives are provided to inventors who have successfully commercialised products. This translates into IP systems that only provide incentives to those less affected by market failures, such as large companies, unless complementary policies are used to address market failures. It is important, therefore, to focus on how IP support policies can ensure benefits for "catching-up" firms.*
- Indonesia has multiple traditional industries and a rich repository of traditional knowledge, some of which (e.g. traditional bhatik textiles, handmade furniture and traditional medicines) can offer opportunities for developing innovative markets with additional opportunities on international markets. Developing these industries can also provide opportunities for a more inclusive development strategy in Indonesia. *IP policy needs to focus on the requirements of these sectors, as well as on potential challenges they might face in their development.*

3.2. Key recommendations for Indonesia

Main lines of policy action

Indonesia's IP rights policy has to be complemented by other policies to boost the country's innovation performance; however, reform of current IP policies could strengthen the innovation system.

Regarding operation of the IP system, efforts aimed at automating procedures to increase the processing efficiency of IP applications should be a priority, as lengthy delays weaken incentives. The new Arbitration and Mediation Agency created in 2012 is a positive step towards reducing enforcement costs and needs to receive the necessary political support to ensure its success. Policy steps also have to be taken to avoid the potential exclusion of smaller entities, as well as businesses in remote geographic areas, because of barriers of access to the IP system. Such steps can involve differential pricing strategies and the provision of online and regional services.

Policies should also encourage the use of IP by national actors, including the launch of IP awareness and capacity-building initiatives. They should also focus on those actors with the greatest potential for earning revenue-generating IP, as this will ultimately generate the highest payoffs to the country's innovation system. Incentive schemes should give researchers a stake in the returns from their inventions, by rewarding most those who commercialise inventions with high industrial applicability. This requires resolving legal uncertainties regarding the licensing of IP generated from public funding sources. Since obtaining IP alone does not generate value unless it leads to innovation, Indonesia's IP policy should take further complementary steps to support their commercialisation.

It is worth emphasising that a different mix of IP compared to that of OECD countries would serve Indonesia best. Trademarks, design rights and utility models will better serve a larger group of innovators, since only a small number have the capacity to seek patents. Embracing "new" types of IP, such as traditional knowledge, genetic resources, folklore and geographical indications (GIs), will be attractive for Indonesia, but these need to be used to generate value if they are to serve the innovation system. IP in agriculture is another priority and should be explored and developed much further. In addition, some leading research institutions should examine the opportunities of IP abroad, as foreign markets can provide higher returns for Indonesian inventions, especially as domestic markets for IP are weak.

To achieve these objectives, the country's IP policy has to undertake a more coherent approach involving the various actors of Indonesia's innovation governance system, particularly if the system is to support innovation performance. Indonesia can also further optimise its innovation and IP policies by sharing IP best practices with other countries.

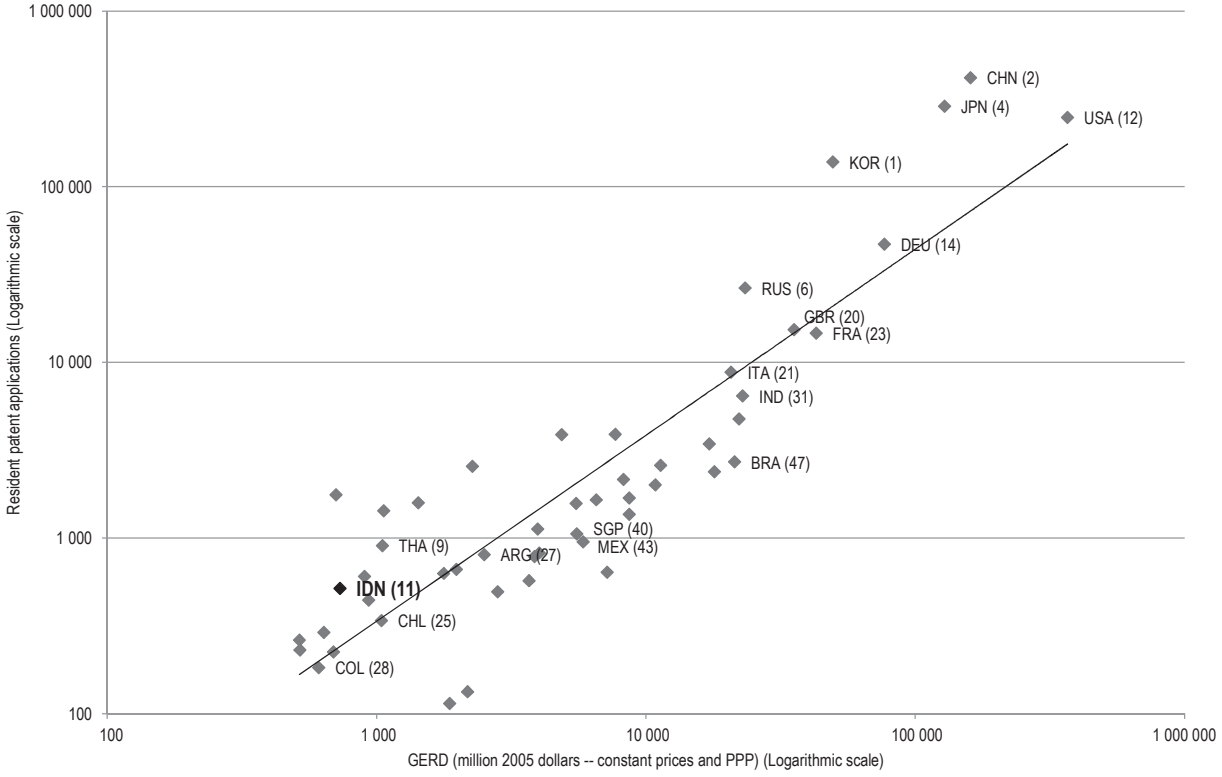
Specific recommendations

Connecting IP policies to innovation policies

1. **IP can be a powerful support to Indonesia's innovation system, but implementation of complementary policies is crucial to strengthen innovation performance.**

   Low levels of R&D investment indicate that inputs into innovation activities are still limited. Accordingly, the ability of Indonesia's IP system to generate patentable inventions is low, as are the stock of human capital and level of industrial specialisation. Figure 3.1 illustrates the relatively high ratio of resident patent applications to R&D expenditures, above the level expected from a linear trend based on performance of all countries (with available data). While the IP system itself can provide incentives for more R&D, a variety of weaknesses in Indonesia's innovation system, such as shortcomings in human capital and weak linkages among actors of the system, require attention to boost research capacities to enable IP. In addition, several interviewees reported that some research was not of sufficient quality to obtain a patent. This is not to say that Indonesia's IP system cannot play an important role, but rather that other innovation policies are needed with IP policies to play a complementary but not exclusive role.

Figure 3.1. Resident patent applications and gross domestic expenditure on R&D (GERD), 2011 or latest available year



Notes: 1. A resident application is an application filed with an IP office by an applicant residing in the country/region in which that office has jurisdiction. 2. Countries were selected if they had a GERD greater than USD 500 million PPP (in constant prices, 2005) and more than 100 resident patent applications. 3. Resident patent application data are for 2011 and 2010 for GERD except for Belarus, Brazil, China, Egypt, Hong Kong, Indonesia, Mexico, New Zealand, Pakistan, Serbia, Slovenia, South Africa and Ukraine, (2010 and 2009 for GERD); for Switzerland (2009 and 2008 for GERD); and for Argentina, Greece, India and Thailand (2008 and 2007 for GERD). 4. A ranking of "a resident patent applications-per-GERD" out of 50 offices for which data are available is displayed in parentheses.

Sources: OECD calculations based on WIPO Statistics Database, http://ipstatsdb.wipo.org/ipstats/patentsSearch; OECD, *Main Science and Technology Indicators*, http://stats.oecd.org/Index.aspx?QueryId=33210; and UNESCO, http://stats.uis.unesco.org/unesco/ReportFolders/ReportFolders.aspx?IF_ActivePath=P,54&IF_Language=eng.

2. Indonesia's IP policy should emphasize effective co-operation with the actors in Indonesia's innovation governance system with an explicit focus on innovation and high-level policy support.

Several policy actors in Indonesia's IP system have increased policy efforts to foster IP awareness and uptake. However, one major policy challenge is weak co-ordination among different institutions. The only formal instance of inter-ministerial co-ordination in Indonesia is the Task Force for IP Enforcement. The Task Force focuses mostly on enforcement, but not on co-ordinating IP support policies for innovation implemented by different ministries and agencies. Given the wide variety of ministries who conduct innovation policies, co-ordination of their activities would lead to a more coherent approach to IP policy. The creation of an IP co-ordination body with an explicit focus on innovation to complement the activities of the Task Force should therefore be considered. This would create

a governance structure for IP matters suitable to effectively fostering the contributions of Indonesia's IP system to innovation. High-level policy support is critical to introduce such change.

3. **Additional efforts aimed at increasing exchanges on IP policy with experienced policy makers and country experts can help enhance policy impacts.**

   Efforts to optimise innovation and IP policy pose challenges for Indonesia. The country could benefit substantially from sharing best practices with other economies, especially those with a similar model of development. These can help to inform policy choices and enrich IP-relevant training opportunities for government officials and practitioners at various stages of the IP process. Learning from the mistakes of others will allow Indonesia to improve the implementation of IP-based innovation policies, and avoid approaches proven to be inefficient. In addition, the country could strengthen co-operation by adopting a stronger, tighter focus regarding the kind of support it seeks from abroad. In general, it should concentrate on the larger questions of innovation, rather than on purely procedural aspects.

Legal and administrative conditions of IP systems

4. **Indonesia can increase the efficiency of patent application processing by prioritising automation. The quality of the examination process should also be improved.**

   Users of the Indonesian IP system have experienced significant delays in the processing of patent applications. Such administrative inefficiency can discourage IP applications and slow down the commercialisation of IP. Automating processes can be of substantial help in this respect, taking advantage of opportunities provided by information and communication technologies (ICTs). Continuing co-operation with the World Intellectual Property Organisation (WIPO) can be particularly useful.

   The quality of examination processes is similarly critical to IP systems operations. The publication of examination manuals to standardise and improve the quality of processes can be an effective way to send a positive signal to users that their patent applications will be dealt with objectively.

5. **The new Arbitration and Mediation Agency created in 2012 must receive the necessary policy support to operate effectively and support the IP system.**

   Enforcement of IP rights is a challenge in Indonesia. Litigation processes are often lengthy and costly particularly for smaller firms. The inability to enforce IP rights also effectively reduces the perceived value of IP for Indonesian firms. The creation of the Arbitration and Mediation Agency in 2012 is a useful approach to address this problem, but the new agency will require policy support and adequate resources and capacities if it is to operate effectively.

Adapting IP systems to users

6. **Expanding the provision of online and local IP services would help attract new users from regions other than Jakarta.**

   The majority of IP services are available in the metropolitan area of Jakarta. Users outside the area, though, have to cope with infrastructure shortcomings, which raise transportation costs. Expanding online services is an attractive solution for reducing both regional barriers to IP access and application costs for users not located near Jakarta. However, online services work less well as a means of attracting new users to the IP system. In such cases, a better option is greater availability of local services to orient new users to the system. These could be organised in co-operation with regional business associations.

7. **Focusing IP awareness and capacity-building initiatives on national actors with the strongest potential for obtaining revenue-generating IP can bring the highest payoffs for Indonesia's innovation system.**

   There is a widespread lack of awareness among national actors in Indonesia's innovation system regarding the potential value and payoffs of obtaining IP. Policy makers from various institutions involved in IP policy have identified this as a major shortcoming. Awareness-raising initiatives are implemented by a variety of actors, including DGIPR, the Indonesian Ministry of Science and Technology (RISTEK), research institutes and universities, and various ministries. Together, this probably represents the largest share of expenditure on policies aimed at supporting the use of IP. While these initiatives play a valuable role in support of the IP system, prioritising target groups, starting with national actors with the greatest potential for innovation, would optimise the impact on innovation systems. This is even more important as public resources available to support national actors are limited. Notably, these initiatives could target pockets of leading inventive capacities, especially in activities where IP is critical, such as pharmaceuticals and chemicals for patents. Such support need not necessarily be confined to frontier sectors: another possibility consists of targeting the use of trademarks and other relevant IP among traditional industries with innovation potential, such as *bhatik* producers. To facilitate uptake, consultancy services can help firms identify how to apply IP to their specific context. By taking this approach, rather than offering generic advice, consultants can foster uptake among potential users with only limited prior exposure to IP.

8. **Indonesia has to adopt a scheme whereby public sector researchers receive a share of returns from their inventions. Resolving the current legal uncertainty about licensing of IP generated from public funding sources should be made a priority.**

   The vast majority of leading research in Indonesia is conducted at public research institutions. The leading IP users are thus more likely to come from these institutes. However, a major sticking point concerns the incentives these researchers receive for obtaining and generating revenue from their IP. Currently, public institutions are not legally allowed to reward their researchers with shares in the royalties from any IP they create because of a lack of regulations. The only rewards researchers can expect are minor enhancements to their academic careers, making IP far less attractive than other activities with higher returns such as publications. The short-term budgetary allocations for research projects received

by research institutions create additional disincentives for commercialisation. To transform inventions into commercial products requires a long-term commitment from researchers, whose inputs are often essential for success. This lack of resources on top of limited opportunities creates an additional disincentive.

9. **Indonesia's IP incentive policy has to shift away from a "quantity" approach towards a "quality" approach, as the current focus on quantity generates effects that are counterproductive to strengthening the IP and innovation systems.**

   Valuable policy efforts in Indonesia have invested in supporting the IP registrations of national actors. However, a more sophisticated incentive structure is required, as many current programmes provide support and rewards for patent applications regardless of the chances of obtaining IP. These programmes also provide no additional rewards for innovations that reach the commercialisation stage. This approach potentially encourages a proliferation of bad-quality patent applications, rather than patent applications with potential to serve innovation. It also increases the amount of applications the IP office has to process and, consequently, the amount of human and financial resources. Policy incentive schemes that provide bigger rewards for granted patents and additional rewards for their commercialisation would be more effective in support of innovation. This includes, for example, incentive schemes that offer matching funds against patent titles to allow national actors to commercialise their patents.

10. **Indonesia's IP policy should take further complementary steps to support the commercialisation of inventions by public research institutes. It should provide support for shared TTOs and replicate successful commercialisation experiences in other national institutions.**

    The number of granted IP rights is an indication of successful inventive capacities, but not necessarily of successful innovation performance. This requires an additional step – the commercialisation of IP. However, multiple obstacles can hamper licensing or exploitation of IP, particularly from public research institutes and universities in Indonesia. Finding suitable partners to commercialise inventions is also complex, as the country's institutions have only limited experience in this area. Technology transfer offices (TTOs) can play a critical role here, although only a few offices currently address these tasks well. This is also because sustainable business models are difficult to develop with incipient patenting activities. Shared TTO services among several institutions could help to realise economies of scale and provide a better service in support of commercialisation.

    Moreover, policy could provide support to other research institutes with IP suitable for licensing or commercialisation, replicating the example of the Indonesian Agricultural Research and Development Institute for Agricultural Technology Transfer, which effectively handles the entire process required for commercial application of inventions (Box 3.5). In so doing, these institutions can more easily obtain returns from their IP.

11. **Indonesian IP policies aimed at helping small companies should be complemented by policies supporting these firms' capacity to innovate.**

    Assistance provided to small companies to obtain trademarks can encourage them to invest in quality improvements in products and services and, thus, create an environment supportive of innovation. However, substantial investments in good quality products and marketing are also needed. Moreover, if market constraints,

such as lack of access to finance, prevent firms from upgrading product quality, then complementary support will be necessary to facilitate access to finance for those investments. Industry associations could play a meaningful role in providing targeted services to help SMEs build up their capacities and support for collective trademarks, which are essential for traditional industries.

12. **IP policy should further support technology-screening services that help firms and universities take advantage of information on technologies contained in national and international IP application documents.**

    IP titles are a valuable source of information regarding potential fields for profitable inventions. Screening IP at the onset of research ventures can be critical to channel investments towards the most revenue-generating types of IP avoiding investments that have low potential for success. Tapping into pioneering knowledge from abroad can also support national research and help avoid duplication. It can also empower national actors by allowing them to understand claims held by others operating in their industry both nationally and internationally. Such strategic uses of IP are incipient in Indonesia and support would be beneficial, specifically at institutions and companies where research capacities could clearly apply such knowledge and where IP is an important element, such as pharmaceuticals and chemicals.

13. **IP related to traditional knowledge, genetic resources, folklore and GI is particularly relevant for Indonesia. Policy should encourage communities to generate economic value based on their assets, as these uses will bring the biggest payoffs.**

    IP related to traditional knowledge, genetic resources, folklore and GI, has received substantial policy attention in Indonesia. There are multiple reasons why Indonesian policy makers are justified in their focus on these. Compared to other economic activities where foreign competitors often have leading positions, these activities provide a potential market advantage, aside from the ethical and social importance of IP protection. For instance, traditional medicines such as Javanese "jamu" have given local pharmaceutical companies an opportunity to engage in research on internationally "patentable standards". Furthermore, obtaining these potentially "lower-hanging fruits" does not require the same technical expertise required for research-leadership patents, given the novelty requirement of such patents and the foreign competition.

    In addition, the new forms of IP may constitute a potentially valuable asset for socio-economic groups, including disadvantaged communities. GI, for example, rewards certain regional products. In this respect, current efforts aimed at creating a comprehensive database to document Indonesia's traditional knowledge are worthwhile. They might also offer an opportunity for entrepreneurs to create innovations based on such ownership. In the case of GI, substantial communal investment by effective collective associations will be needed to ensure product quality and to support marketing for payoffs. Focusing on a few GIs but providing them with sufficient support offers a greater chance of success than attempting to create many GIs.

14. **Depending on the activity, trademarks, design and utility models can involve a larger group of innovators than patents. Therefore, Indonesia should address the weak use of utility models by residents. Unregistered design rights can also be a way to support SMEs in fast-moving industries such as fashion. Moreover, exploring opportunities for IP in agriculture should be a priority.**

    While patents are crucial to support innovation, other types of IP can contribute meaningfully to innovation performance. Many other types set a lower bar than patents and thus provide opportunities for a wider group of innovators. IP support policies in Indonesia should therefore pay more attention to fostering their use. Utility models, in particular, are weakly used in spite of the size of Indonesia's industry. The utility model-to-patent ratio is very low compared to neighbouring countries such as the Philippines or Thailand, where usage surpasses that of patents. This indicates that many groups of innovators that lack the capacities to file for patents have opted for utility models as means to obtain IP. Indonesian innovators have not done so, possibly because of legal and administrative conditions of the IP system or because of the country's industrial structure. It is important to ascertain the exact reasons, as utility models could play a critical role in catching-up on development (see Box 1.6).

    The importance of agriculture for rural populations underlines the need to support innovation in this sector. Existing research capacities and advanced technology transfer capacities should be exploited further to develop a model similar to that of Brazil's Embrapa. This requires steps to be taken to facilitate commercialisation, such as engaging in testing and customisation of technologies for potential licensees. Commercialisation needs to be strongly supported for both private and public inventors.

15. **Opportunities to file and exploit IP abroad for some leading inventions should be supported further, since this can raise resources (foreign income and capital) to support innovation in Indonesia.**

    Given the weaknesses of private sector activities in innovation, foreign markets for IP might be particularly attractive outlets for selected leading technical inventions, including those produced by the country's best public research institutions. So far, Indonesia has only very limited experience with seeking foreign IP, however, further support would enable more to be done. Success will depend on developing adequate strategies to compete successfully in contested international markets. This will require screening of technological trends and market developments as part of the product development process, including by exploiting information provided by national and international IP application files.

3.3. The socio-economic and innovation context of Indonesia[2]

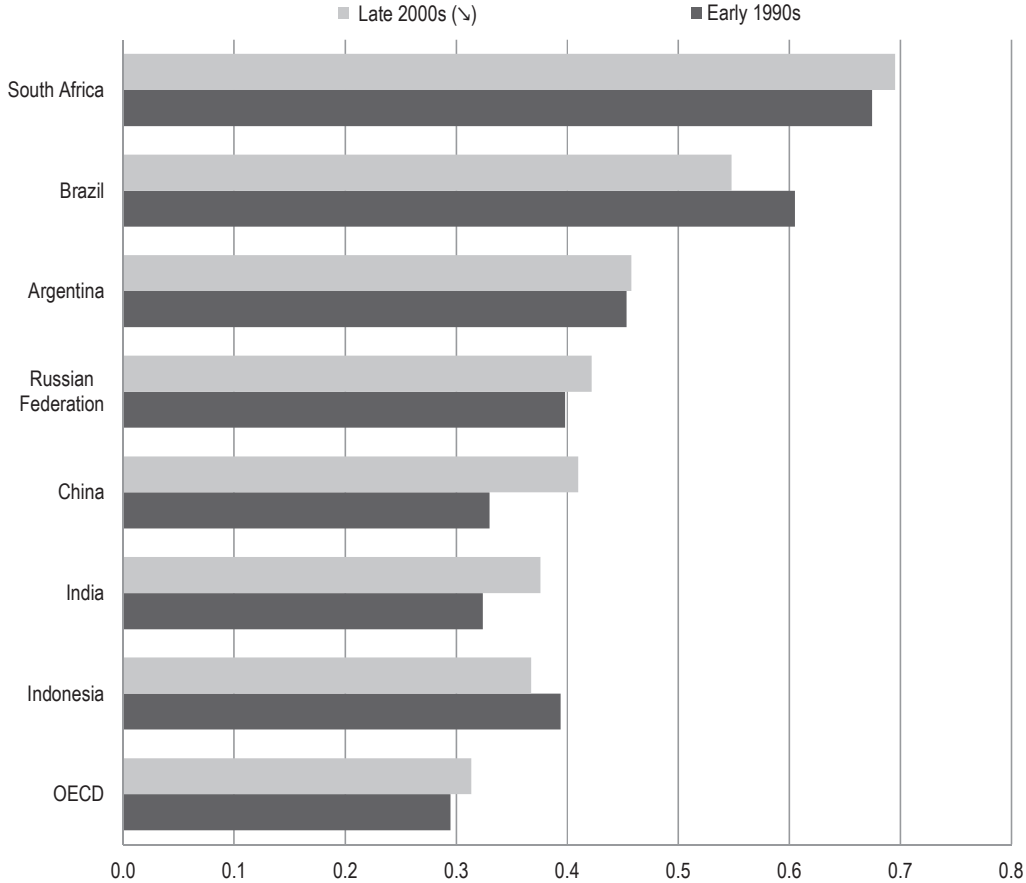
The socio-economic context for innovation

Indonesia's socio-economic performance

Southeast Asia is one of the world's most dynamic regions, exceeded only by East Asia. Indonesia has risen to become a middle-income economy through appreciable levels of economic growth, which have relied to a large extent on exports of natural resources and good trade links with leading global economies. For 2001-11, Indonesia's average annual growth rate was 4.1% in spite of the Global Financial Crises, in contrast

to the much lower average of OECD countries (less than 1%). It is the fourth most populated country in the world (242 million inhabitants) and its GDP places it among the top 20 countries. However, Indonesia's GDP per capita remains relatively low (USD 4 094 in 2011) and it has only attracted modest levels of foreign direct investment (FDI). Increases in TFP have contributed to economic growth, but TFP growth levels have been lower than in competitor countries. Moreover, poverty levels are high, with 18.1% of the population with less than USD 1.25 PPP in 2010. Inequalities in Indonesia are substantial compared to the OECD average (Figure 3.2).

Figure 3.2. Change in inequality levels, early 1990s versus late 2000s*



Notes: Figures for the early 1990s generally refer to 1993, whereas figures for the late 2000s generally refer to 2008. Gini coefficients are based on equivalised incomes for OECD countries and per capita incomes for all EEs except India and Indonesia for which per capita consumption was used.

Source: OECD-EU Database on Emerging Economies and World Bank, World Development Indicators

Indonesia's economic and industry structure

Indonesia has not developed a technology-intensive industry structure and imports of high-technology products outweigh exports. The country underwent an industrialisation process with remarkable growth of the manufacturing sector between 1982 and 1997, which ended with the arrival of the Asian crisis. During the following years, the industrial sector (excluding manufacturing) upheld growth, reflecting the primal role of commodity products during the 2000s. Manufacturing is no longer the engine of growth in Indonesia.

Agriculture activities have constantly decreased over the last two decades by 9 percentage points but remain the main source of employment (about 45% of the labour force) and income in rural areas (OECD, 2010a). For the years 1990-2010 the service sector grew slightly from 34% to 38%.

A few additional aspects of Indonesia's economic and industrial structure are also worth emphasising:

- State-owned enterprises (SOEs) continue to play an important role in the economy (OECD, 2010a).
- There is also a high level of corporate conglomeration and seller concentration in Indonesia.
- In 2006, SMEs employed 96.2% of the workforce and accounted for 53.3% of GDP (APEC SME Innovation Centre, 2007).
- The informal sector in Indonesia is also significant and employed 68% of Indonesians in 2009 according to the Central Bureau of Statistics.

External trade and foreign direct investment

Indonesia has endeavoured to open up its economy to foreign direct investment and trade over the past three decades. In 2010, the country's main outgoing products were petroleum oil and other non-refined derived products (13.5%), coal (10%) and palm oil (6.5%). Machinery and electrical products represented about 15% of exports. Japan and the United States became major export targets and have remained important export partners, though the relative share of exports to China, in particular, and India, Korea, Malaysia and Singapore, increased during 2000-10. Reforms also brought an increase of net FDI flows as a percentage of GDP, which, however, remain modest compared to those in other Asian countries. Moreover, Indonesia's innovation capacity has not benefitted greatly from FDI and technology transfer from other countries.

Education and skills

The proportion of GDP spent on education in Indonesia has increased from 0.7% in 1990 to 3.5% in 2007. Indonesia still lags considerably behind some of its ASEAN neighbours, however. The country's education system displays important weaknesses. The availability of skills for education is low. The ratio of natural science and engineering doctorates to all other doctorates is also low by international standards.

Framework conditions: Financial sector, infrastructure and business conditions

Access to finance is another factor limiting the establishment of new, innovative businesses. Banks remain the primary source of finance; however, the banking sector was badly affected by the Asian crisis and recovery has been slow. Venture capital and other sources of risk financing for newly established technology-based companies are weakly developed. Moreover, deteriorating transport infrastructure and shortages in energy supply are key obstacles for investors and have been identified as barriers to industry development (OECD, 2010b). Improvements regarding ICT infrastructure are also needed to increase quality and address regional digital divides. Finally, cumbersome administrative processes, lack of transparency and weak implementation of tax regulations pose additional challenges for businesses.

The national innovation system

General characteristics

Indonesia's investment in R&D to date is low. Over the period 1987-97, there were only 182 scientists and engineers per million inhabitants engaged in R&D, and total expenditure on R&D (GERD) amounted to 0.07% of GDP. This reached 0.08% in 2009. Government expenditure on R&D in Indonesia accounted for 84.5% of all R&D expenditure over 2001-06 (LIPI, 2009a), with business accounting for most of the remainder (14.7%) and only 0.8% from other sources. The vast majority of Indonesian companies do not invest in R&D and many are reliant instead on technologies developed elsewhere. Some, however, especially those located in high-technology sectors with export potential, are increasingly interested in raising R&D competence levels and have started to co-operate with foreign research institutions.

Performance of universities and research institutions

The bulk of R&D in Indonesia is undertaken by public research institutes (PRIs), in particular, government research institutions (GRIs). Seven research institutes report to RISTEK and the presidential office, and 16 others report to other government ministries or departments. The former accounts for almost 29% of government expenditure on R&D in the government sector, while the latter accounts for around 70%. The Indonesian Institute of Sciences (LIPI) also has a number of research centres covering numerous fields. Moreover, the 32 research centres of the Agency for Research and Development of Industry conduct applied research and offer a range of services to industry, while the Ministry of Internal Affairs co-ordinates 78 research institutions at the local level. Most of the money spent by GRIs on R&D supports projects in engineering and technology (32%) and agricultural and environmental sciences (30%), with natural sciences and social science each taking 18% of the budget and medical sciences and the humanities each taking a further 1% (RISTEK, 2010b).

Historically, the linkages between the various R&D and innovation performers in the Indonesian national innovation system are tenuous. Most research is conducted within GRIs, which tend to operate independently, and there are few research connections between the GRIs and university research units. Research linkages between GRIs and universities and the small industrial R&D community are also rare, with public sector inputs into the innovation process conspicuous by their absence.

Innovation policy

Until recently, government policies tended to neglect the development of an adequate scientific and technological base and framework conditions for innovation.[3] However, a new emphasis on policies and mechanisms is designed to stimulate innovation-led growth, with mechanisms freshly in place to oversee co-ordination:

- The Vision and Mission of Indonesian S&T Statement 2005-2025 emphasises science, technology and innovation (STI) as a source of future competitiveness. The current medium-term plan (2010-2014) focuses on developing the quality of human resources, increasing R&D capabilities by strengthening and articulating institutions, and economic competitiveness.

- The National Innovation Committee (KIN) was established in 2010 as an independent institution in charge of oversight, steering and co-ordination of national innovation policy. It is an autonomous body comprising 30 members and report directly to the President. It covers nine areas (energy, food and water, education, health and medicine, maritime affairs, defence and weaponry, transportation, ICT and the creative industries) and has established five working groups (innovation programme development, innovation in business and industry, innovation cluster development, innovation-related incentives and regulations, and economic, social and cultural aspects of innovation).

Another advisory body, the National Economy Committee (KEN), was set up to work closely with the Coordinating Ministry for Economic Affairs. Along with KIN, it contributed to the formulation of the Master Plan for the Acceleration and Enlargement of Indonesian Economic Development (MP3EI), launched in 2011. This was an ambitious attempt to maintain high growth (7-9% annually), while transforming the economy from a natural resource and trade-driven economy to an investment and innovation-driven economy.

Multiple ministries or departments with an interest in research populate the public sector institutional landscape, some of which also have an interest in innovation. Numerous agencies/institutions both implement policies and conduct R&D in their own multitudinous research institutions and laboratories. A small number of high-level advisory bodies advise on overall strategic direction and help formulate policies affecting different parts of the national innovation system.

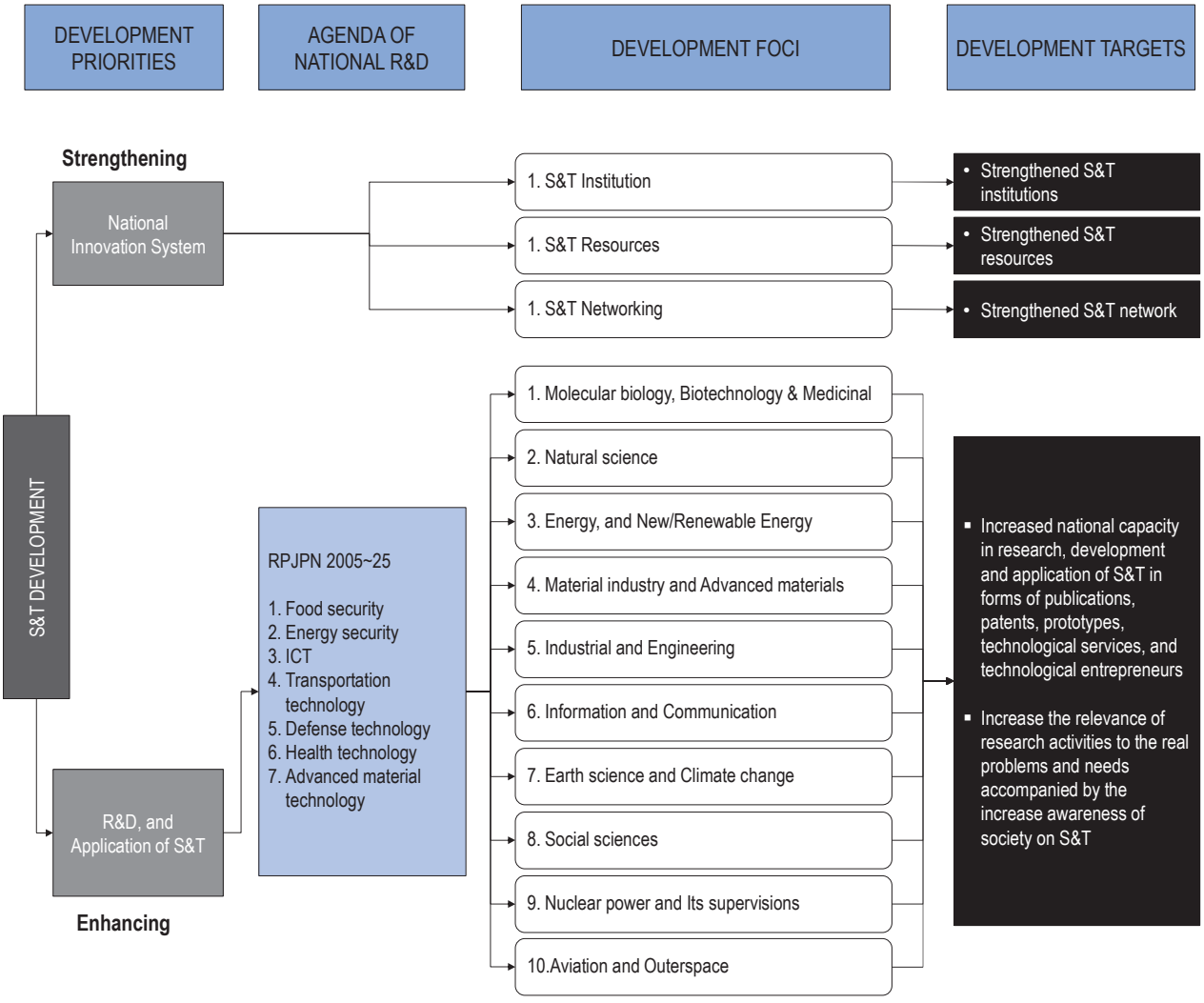
Research priorities suggested by the DRN feed into broader-based planning activities. Within the context of a long-term National Development Plan, covering the period 2005-25 (the RPJPN), Indonesia is producing a series of medium-term five-year plans (RPJMNs), each of which comprises five annual plans (RKPs). Figure 3.3 presents the vision outlined in the second RPJMN for 2010-14.

There are at least 19 ministries/departments with an interest in R&D. The ministry with the largest budget for R&D is the Ministry of Research and Technology (RISTEK), responsible for the formulation, co-ordination and implementation of S&T policy at a national level and the promotion of technological development. RISTEK oversees seven agencies/institutions (LPNK RISTEK) that operate in a fairly autonomous fashion and report not only to RISTEK, but also directly to the Presidential Office. Aside from RISTEK, the ministry with the biggest interest in innovation is the Ministry of Industry (DEPPERIN). Its R&D and innovation-related activities are co-ordinated by the Agency for Research and Development of Industry, which oversees 32 different applied research and service organisations. The Ministry of Industry is also responsible for setting R&D priorities for the transportation, ICT, agribusiness and ba RISTEK manufacturing sectors.

Budgets for S&T policy

The government's budget for S&T has decreased over the past four decades as a share of the total state budget (from 6.11% in 1970 to 2.34% in 1991 and 0.49% in 2006), reflecting dwindling support and belief in the importance of science and technology for development. Funding for S&T, research and innovation in Indonesia now takes the form of direct institutional funding rather than funding allocated via competitive programmes, with most funding used by public research institutes (PRIs) to conduct R&D and, on occasion, to provide technical services to industry.

Figure 3.3. The S&T vision in the Indonesian Development Plan, 2010-14



Source: Indonesian Ministry of Science and Technology (RISTEK) published in OECD (2013b), *Innovation in Southeast Asia*, OECD Publishing, doi: 10.1787/9789264128712-en

3.4. Indonesia's IP system and innovation

Organisation of the Indonesian IP system

IP law and regulations

Indonesia has introduced a variety of patent regulations designed to protect IP and stimulate innovation, first in the form of a decree in 1953 and then as the Patent Law of 1989. Significant changes to Indonesia's IP legislation were made in 1991 and again in 1995, when Indonesia became a member of the Trade-Related Intellectual Property Rights (TRIPS) Agreement upon its accession to the World Trade Organization (WTO). Indonesia is also a signatory to the Berne Convention, the Paris Convention, the Patent Cooperation Treaty and the Trademark Law Treaty. Changes to bring Indonesia in line with the TRIPS agreement involved the introduction of the Patent Amendment Law

(1997), the Copyright Amendment Law (1997) and the Trademark Amendment Law (1997). Over the past decade, Indonesia has implemented several major IP laws, including on trade secrets, industrial design, layout design of integrated circuits, patents, trademarks, copyright and GI. The appendix describes a list of the country's main IP laws. Box 3.1 details some of the provisions not regulated by TRIPS. A few legislative processes for drafting and approving the regulations for implementation are still pending, including for licensing, which remains an area of legal uncertainty. A license registration system, general license and compulsory license are provided in patent law. However, there is no regulation to implement it.

Box 3.1. IP law in Indonesia

Utility models

Indonesia's IP system grants utility models, which run for a 10-year term (Law 5 of 1984). A utility model is referred to as a "simple patent" and is protected under patent law (Law No. 14 of 2001). Simple patents are granted to any invention in the form of a product or device without restrictions on the field of technology (Article 6).

Patent examiners verify that the applied invention satisfies the *novelty* requirement. This requirement is limited to simple inventions made in Indonesia. However, the "inventive step" is not required to receiving such protection.

Patents

Concerning medicines derived from substances found in nature, Indonesian law does not state the extent to which such medicines are eligible for patents (UNCTAD, 2011). Micro-organisms and substances existing in nature are patentable; however, if they are plant or animal varieties, they must be registered at the Ministry of Agriculture.

Once a patent is registered patent owners have an *obligation* to use their patents or license them to others within three years. Non-compliance with this obligation results in compulsory licensing by governmental use order.

Trademarks

At present, there is no three-dimensional mark under Indonesian trademark law. However, a draft amendment to trademark law exists, and three-dimensional marks may be available after 2013.

Plant variety protection

Indonesia is not a member of the International Union for the Protection of New Varieties of Plants (UPOV), but has UPOV-style *sui generis* laws (Robinson, 2009).

Sources: the Economist Intelligence Unit, Country Commerce 2012, interview at the DGIPR during the OECD mission to Indonesia (26-30 November 2012), JETRO business news (13 November 2012, Bangkok) and UNCTAD (2011).

Governmental stakeholders and co-ordination mechanisms

At least 10 ministries are responsible for various dimensions of IP policy making in their respective fields, such as science and technology, education, agriculture, creative industries, trade, industry, law and human rights, and finance. The co-ordination mechanisms bridging between ministries and bodies involved in IP policy for innovation are, similarly to those for innovation policy, rather weak.

The only formal instance of inter-ministerial co-ordination is the Task Force for IP Enforcement (established by Presidential Decree No. 4/2006, 27 March 2006). The Co-ordinating Minister of Political, Legal and Security Affairs acts as head, the Minister of Trade serves as vice-coordinator, and DGIPR serves as the general secretariat. The Task Force meets once every quarter and reports twice a year on its activities. These focus on a narrow dimension of relevant IP policies related to enforcement and to raising awareness about IP. They do not focus on IP for innovation. As a result, individual ministries often

lack knowledge about other IP policies enacted by their counterparts. This weakens the potential impact of institutional IP policy projects, as those of individual institutions tend to be relatively small, and result in only limited learning from policy experiments. Better co-operation could bring higher payoffs.

Several external stakeholders are also involved in governance of the Indonesian IP system, including the Association of Indonesian Intellectual Property Rights Consultants Association (Asosiasi Konsultan Hak Kekayaan Intelektual Indonesia). The DGIPR participates in IP policy making by providing input and feedback about general IP practice in universities, public institutions and companies; explaining IP user needs to governmental officials; and participating in the IP legislative process. After a law is drafted it is opened for public comments. During this consultation phase the Association gives feedback to DGIPR. In addition, RISTEK's privileged contacts with seven major public research institutes allows it to elicit first-hand feedback from these on challenges they face regarding IP. The concerns of private companies are less well sought by RISTEK, reflecting its strong focus on supporting research institutes and agencies to which RISTEK allocates the bulk of its funding.

IP operations and procedures

Directorate General of Intellectual Property Rights: Functions

The main institution in charge of granting IP in Indonesia is DGIPR. DGIPR is the national office for industrial property rights including patents, utility models, trademarks, designs and also copyrights. This differs from the practice in many developing countries, where national IP offices are typically divided between an industrial property office and a copyright office (Deere, 2009). It falls under the Ministry of Law and Human Rights and not, as is frequently the case for industrial property, under the Ministry of Trade or Industry, or for copyright, the Ministry of Culture, Media, and/or Information and Communication Technologies.

The Directorate's threefold mandate is: to administer the IP system by granting protection, rewards and recognitions to intellectual assets; to encourage an innovative and inventive culture; and to promote technology and knowledge-based investment and economic growth. Its policy tools go beyond administration and processing. It also aims to promote IP awareness among researchers at universities, research institutions, SMEs and even school children, by providing, for example, seminars. DGIPR also drafts IP laws and serves as the IP Task Force secretariat. Moreover, DGIPR has, often in co-operation with corresponding ministries, introduced fee-reduction schemes for certain users, including SMEs and research organisations, and conducts training for patent examiners and users.

Divided into seven divisions, DGIPR employed 575 staff in 2012. About 25% worked in the divisions of patents (82 examiners) and trademarks (49 examiners); 13% in the division of copyright, industrial design, layout design of IC and trade secrets; 6% in co-operation and promotion; and the remainder worked in the divisions of information technology, investigation and the secretariat (DGIPR, 2011). The allocation of staff reflects a strong emphasis on processing and operations with only a few staff in charge of promotion activities.

DGIPR generates revenue from two major sources: IP application fees from the registration of patents, trademarks and design; and other fees such as certification, substantive examination, trademark renewal, patent maintenance, IP consultant registration and searching fees. Of these, the revenue from trademark registration increased 13% between 2010 and 2011, while the remainder remained stable. However, DGIPR is not self-funded, and the resources it generates are transferred to the Ministry of Finance, which returns some of the revenue to the DGIPR for its operations. Thus, any variation in revenues collected from IP application fees does not influence the operating budget, ensuring that DGIPR's own incentives do not distort services provided by the office. However, in consequence it suffers somewhat from a lack of autonomy with respect to staffing decisions, since these are taken by the Ministry of Finance.

DGIPR faces the following challenges with respect to the processing of IP:

- It needs to gain public trust in its integrity, principally by emphasising that no surcharges or illegal charges are permitted during the registration process. In its annual report, DGIPR also acknowledged the distrust of public officials and administrative processes among many users (DGIPR, 2011). Some national users believed that their applications were not treated equally to those of foreign applicants, and that having a patent granted abroad supported quicker processing. Perceptions of unequal treatment of nationals are damaging for national producers' uses of IP systems. This issue has to be addressed.
- DGIPR lacks a comprehensive database. More time is thus required to conduct a prior art search and locate the results of decisions by other IP offices. DGIPR is currently working with WIPO to improve its IT system with the objective of automating processes more effectively so as to gain in efficiency. Investments involve the procurement of computer hardware, software, networking and communication equipment, Internet connectivity, training, and application and system development. This activity can make a substantial difference to the productivity of IP examination processes.
- Resources are to some extent a challenge for DGIPR. For example, the office has only a limited number of patent examiners with a background in pharmaceuticals. Since patents are examined exclusively by DGIPR, but staff decisions are taken by the Ministry of Finance, the resulting mismatch challenges the efficiency of its operations. DGIPR also has limited resources to play a more active role regarding the design of IP support policies for innovation.
- Regional coverage is a further challenge in Indonesia. Given the vast size of the country and its complex geography, the journey to DGIPR headquarters, if necessary, can be substantial and impose additional costs. IP applications have to be submitted to headquarters or one of 33 provincial governmental offices *on paper* as online procedures do not exist yet. The documents are then forwarded to headquarters where all processing takes place. Meanwhile, provincial offices provide no specific IP-related services beyond contributing to basic awareness campaigns. Requests for information from patent applications published by DGIPR can also only be submitted in person at headquarters. Better local services should be provided to inventors, especially those living in places with greater potential benefits from IP, and those having stronger innovation capacities.

Directorate General of Intellectual Property Rights: Disclosure of IP information

Disclosure of patent information through the national patent office is a key tool for users, enabling them to access the latest research trends and technology. As disclosure of such information is a key contribution of the IP system to society, IP offices should aim to facilitate access to firms and research institutions interested in the use of patent information. However, the current patent publication system and access to DGIPR's services are not very user friendly and actually impede access to IP information: The law requires a patent application to be published 18 months after initial application. However, only the first page is published by DGIPR online. To access the complete information users must visit DGIPR offices and request print copies. To remedy this situation, DGIPR with the aid of WIPO and the World Bank is working to build and maintain a reliable and accurate IP rights database, and to ensure public access to its contents throughout Indonesia (DGIPR, 2011).

Application and processing fees

Application fees for different types of IP are set by Presidential decree. Pricing differs across types of IP with utility models more affordable than regular patents. The price for filing patents via the Patent Co-operation Treaty (PCT) is nearly double that for national patent applications (Box 3.2). Special rates for SMEs are applied for industrial designs, layout and integrated circuits. These applicants pay about half the rate paid by other applicants. The Ministry of SMEs entered into a memorandum with DGIPR, through which it provides about USD 75 574 (IDN 700 million) to allow SMEs to obtain free IP rights certificates for the next three years. RISTEK also has in place programmes to cover IP application fees for research institutions and universities.

Box 3.2. Application and processing fees in Indonesia

Regular patents require an application fee of USD 61 (IDN 575 000) plus a fee of USD 213 (IDN 2 000 000) to inspect an application for a for-profit patent or USD 96 (IDN 900 000) to inspect an application for a non-profit patent.

Patents filed through the Patent Co-operation Treaty (PCT) require a fee of USD 107 (IDN 1 000 000).

Utility models require an application fee USD 13 (IDN 125 000) plus USD 37 (IDN 350 000) for substantive inspection.

Trademarks require an application fee of USD 64 (IDN 600 000) for up to three goods/services, an application fee of USD 213 (IDN 2 000 000) for extension of trademarks, and an application fee of USD 107 (IDN 1 000 000) for extension of trademarks for small and medium-sized enterprises.

Industrial design requires an application fee of USD 64 (IDN 600 000), and an application fee of USD 32 (IDN 300 000) for small and medium-sized enterprises

Source: Presidential decree (No. 38 of 2009, 28 May 2009) and the Economist Intelligence Unit, Country Commerce 2012.

Processing and duration

Patent applicants must ask DGIPR to conduct a substantial examination within 36 months of application. The normal time frame for publication is 18 months after the patent application. Any objection to the patent application should be made within six months of publication. For trademarks, after receiving the application DGIPR conducts a substantial examination and publishes the application prior to registration. Indonesian

trademark law adopts the first-to-file system and there is no requirement of actual use or intent to use.

Although no official data are available concerning speed of patent registration, the estimated average processing time from a request for examination to the first action by DGIPR is about a year. It takes two to five years from application until registration. DGIPR examiners and IP users state that patent applications for pharmaceutical products take longer because of the insufficient number of patent examiners in this field. Users from other sectors also complained about excessively slow patent granting procedures and referred to much longer time periods. Some users chose to seek international patents as a strategy to speed up processing at DGIPR.

IP enforcement system

The Patent Appeal Commission deals with appeals relating to refusals of applications. Decisions are final and binding. Patent infringement lawsuits go to the Commercial Court and final appeals go to the Supreme Court. The Trademark Appeal Commission deals with appeals relating to refusals of applications. Decisions are final and binding. Trademark lawsuits go to the Commercial Court and appeals go to the Supreme Court. The content of the lawsuit should include indemnification and/or termination of illegal practices. Parties in dispute may also choose to settle by arbitration or alternative means of dispute resolution. Industrial design lawsuits go to the Commercial Court and appeals go to the Supreme Court. Lawsuits should include indemnification and/or termination of illegal practices. Parties in dispute may choose to settle by arbitration or alternative means of dispute resolution. Copyright lawsuits go to the Commercial Court. A lawsuit should include indemnification and/or seizure.

At present, Indonesian law designates IP consultants as legal representatives who are registered at DGIPR and can draft and apply for IP at DGIPR on behalf of IP owners. The qualifications to be an IP consultant are: (i) a bachelor's degree; (ii) English language skills; (iii) successfully passing a national exam; and (iv) completion of a three-month IP consultant training programme provided by DGIPR. IP consultants can also represent trademark infringement cases at commercial courts. Since the introduction of the IP consultant system in 2005, the number of IP consultants has steadily increased. Currently, about 545 attorneys are registered. The number of IP consultants is considered sufficient both by DGIPR and Indonesia's Patent Attorney Association, AKHKI.[4]

The law contains criminal penalties for end-user piracy and gives the copyright owner the right to seek civil injunctions against pirates. Despite the government's significantly expanded efforts to improve enforcement, IP piracy remains a major concern. Enforcement of copyright, including collecting royalties and preventing copyright infringement of merchandise, are considered major challenges.

Enforcement of IP is more generally considered a challenge. One study (Park, 2008) used an index designed to measure the strength of patent regimes in 2005 in terms of coverage (inventions that are patentable), membership of international treaties, duration of protection, enforcement mechanisms and restrictions, and concluded that Indonesia lagged behind many other countries, with a score of 2.77, including Singapore (4.21), Malaysia (3.48) and Viet Nam (3.03).

Litigation

The law requires civil cases assigned to the commercial court to be settled within 90 days, extendable to 150 days with the permission of the Supreme Court. Currently, IP cases are assigned to the commercial court in Jakarta where three to four judges, who have received special IP training, hear IP dispute cases. In the early 2000s, the delegation of IP matters to specialised commercial courts helped to build expertise in the legal system and speed up the process. The resulting IP decisions have been judged to be largely sound (Antons, 2007). The Supreme Court hears appeals of decisions of the commercial courts. Recent laws concerning patents, trademarks, copyrights and industrial design also provide for harsher sanctions against infringement (WTO, 2007).

Few IP-related litigation cases arise in Indonesia, however, and international and national IP owners have expressed concerns regarding the efficiency of the judicial and prosecutorial system. A major task in patent litigation cases is to persuade and explain the technology and provide a technical interpretation of the patent description to judges. This can prove difficult if patent applications are poorly translated and judges lack the requisite scientific knowledge. For some national IP users, such as local SMEs, IP enforcement costs are a burden, particularly as no legal aid is available. The inability to enforce their rights, among other reasons, often results in many SMEs perceiving IP as of limited value to them.

Two relatively recent reforms can help strengthen the quality of enforcement:

- DGIPR is involved in the fact-finding phase of the patent infringement process. During the process: (i) DGIPR receives a request from a patent owner to investigate patent infringement by third parties; (ii) DGIPR conducts a civil investigation using expert witnesses; (iii) after deliberation, DGIPR issues a report and a certificate; and (iv) the patent owner takes this certificate to a lawyer and goes to court to enforce their patent rights. In 2010-12, DGIPR issued patent infringement certificates for about 64 cases. Both local and foreign companies made use of the process.
- In April 2012, the Ministry of Law and Human Rights established the Arbitration and Mediation Agency for IP rights. The Agency aims to accommodate arbitration as an alternative dispute solution, which could offer solutions for IP disputes with less complex procedures, less time and lower costs. The mediators and arbitrators who serve with the Agency include retired judges, lecturers at universities, IP consultants and former IP examiners from DGIPR. The effectiveness of the Agency in addressing those challenges remains to be seen.

Counterfeiting and IP violations

Over the last decade, Indonesia has significantly improved its legal framework to combat counterfeiting and IP violations. A 2006 Presidential Decree established a National Task Force for IP Violation Prevention. This ministry-level task force co-ordinated the enforcement of IP rights among customs authorities and police, while increasing the number of qualified judges, prosecutors and IP lawyers (WTO, 2007). The Task Force has also conducted public campaigns to raising awareness of IP protection. Other measures included a regulation regarding temporary suspension for trademarks and copyright, and a temporary injunction on all industrial property rights in July 2012. The IP owner could request a commercial court to issue an order to the local customs office to conduct temporary suspensions (maximum 10 days) or injunctions (maximum 30 days).

As a result of the policy, 121 IP cases were processed during 2011 and 2 551 784 VCDs/DVDs/CDs/MP3 were seized. DGIPR also seized 64 954 VCDs/DVDs for two copyright infringement cases and 6 224 types of counterfeited goods, and confiscated 44 examples of industrial design infringement. The seizures and confiscations were followed by investigations.

International aspects

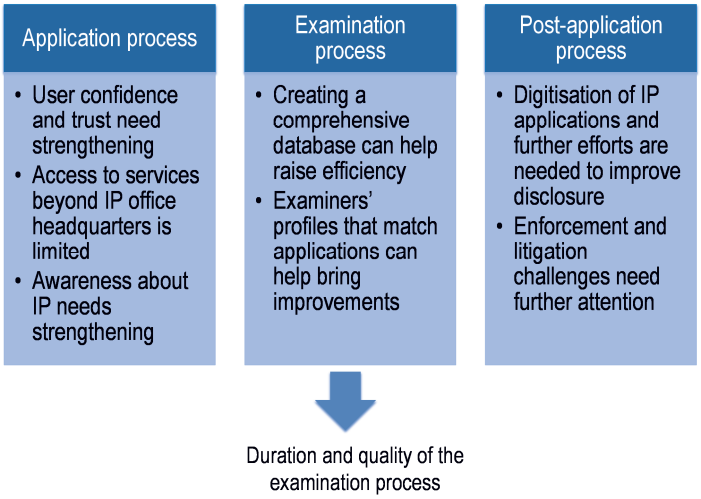
Indonesia became a member of the PCT in 1997 (Decree No. 16). To date, only a few national companies have filed patents through the PCT. Moreover, in 2011, DGIPR conducted a feasibility study for implementing the Madrid Protocol. The Madrid system offers trademark owners the possibility of having their trademarks protected in several countries by simply filing a single application directly with their own national or regional trademark offices (DGIPR, 2011).

Indonesia has engaged in many types of international co-operation in support of its IP system. In addition to WIPO, the DGIPR has received external support from India, Japan and Switzerland. The "Indonesian-Swiss Intellectual Property Project (ISIP Project)" is a four-year-old project focusing on capacity building in policy making, enabling DGIPR to better support IP users and demonstrating good practices through pilot GI cases.

Summary of challenges regarding IP operations and procedures

Figure 3.4 summarises the challenges regarding IP applications and procedures faced by Indonesia.

Figure 3.4. Summary of Indonesia's challenges regarding IP operations and procedures



IP, markets and diffusion

Licensing and markets for IP: Open innovation and open source

One of the crucial factors for strengthening licensing opportunities and markets for IP is a framework to enhance public-private partnerships. In addition to limited linkages in Indonesia's innovation system, IP laws do not promote such collaboration. IP policy for public-private partnerships should be discussed among the relevant ministries with regard to two main frameworks: legal frameworks for co-ownership of IP rights resulting from

collaboration; and legal frameworks and regulations for sharing revenues from licensed IP rights. As these frameworks are not in place, the current context of legal uncertainty hinders the development of markets for IP and in this way substantially reduces opportunities for generating new, successful cases of domestic innovation, such as the EMAS case (Box 3.3).

Box 3.3. Biofertiliser and responding to socio-economic needs through innovative R&D

Food security is a research priority for Indonesia. In this context, the Indonesian Planters Association for Research and Development (IPARD) led an R&D project on "enhancing microbial activities in the soils (EMAS)" to develop a biofertiliser. A number of public and private research institutes collaborated. In 1995, principal researcher and inventor Dr. Goenadi, a soil science expert at the Indonesian Biotechnology Research Institute, developed a prototype of EMAS biofertiliser for Estate Crops (BRIEC). In 1998, the process for producing EMAS biofertiliser was patented with DGIPR. In 2009, the management and production of the biofertiliser qualified for ISO certification.

The commercialisation strategy for EMAS biofertiliser was developed through the formation of a company called PT Bio Industri Nusantara (BioNusa), with stakeholders and state-owned plantation enterprises. The company office is in Bandung and a large-scale manufacturing plant is located in Purwakarta, West Jawa. The profits from licensing EMAS biofertiliser production were shared among the stakeholders with 10% of the total production value received as a licensing fee, of which 40% goes to the primary inventor Dr. Goenadi; 40% allocated for labour support including co-inventors; and 20% for administrative purposes.

Source: WIPO (2012a), *Responding to a Socio-economic Need through Innovative Research and a Profit-making IP Strategy*, WIPO Programme Activities.

It is essential to support and develop agencies that promote commercialisation processes, as is the case of the Indonesian Agricultural Research and Development Institute for Agricultural Technology Transfer (Box 3.6). In order to manufacture products from patented inventions, technology will need customisation. Customisation and commercialisation requires investment, and thus the quality of inventions is important. Low-quality inventions are not only a risk to the licensees' investment in commercialisation, but also block follow-on innovations based on patent information. Thus, quality control mechanisms of inventions must be implemented.

In Indonesia, an open-source software movement has been growing over the last decade. RISTEK promotes R&D and use of open-source software, in line with the recommendations of the United Nations Industrial Development Organization (UNIDO), among universities, research institutions and ministries. Currently, RISTEK co-operates with about 20 universities to develop open-source IP software for SMEs with the support of global players as Google.

IP, markets and diffusion: Competition

In Indonesia, the Commission for the Supervision of Business Competition (KPPU) is responsible for oversight of anti-competitive behaviour. To date, the Indonesian Competition Authority has not been significantly involved in the oversight of license agreements (Junaidi, Presentation at the OECD Workshop in Jakarta, 2011). The KPPU has not played a role in overseeing license agreements, which have to be registered at DGIPR, because there is no corresponding regulation.

3.5. Users of Indonesia's IP system

Types of IP used in Indonesia

The descriptions and charts below contain information on the use of different types of IP in Indonesia including national patents, utility models, trademarks, GI, design rights and international patents. Indonesian residents are relatively weak users of the patent system, compared to more developed countries and regional competitors. In comparison, trademark and design are used more, possibly (for the latter) reflecting greater dynamism among services industries (Table 3.2). Utility models, however, are only moderately used compared to neighbouring countries such as the Philippines and Thailand. Only few Indonesian companies have so far sought international IP patent applications via the PCT procedure or applied for patents or trademarks in Europe, Japan or the United States.

Importantly, this is not an indication of Indonesia's innovation performance compared to that of other countries.[5] In fact, the number of IP titles should not be seen as a core benchmark for innovation policies. The main issue is the quantity-over-quality ratio, whereby many applications add substantial costs to the system by increasing the number of IP applications patent offices need to process, although only those of sufficient potential commercial value will support innovation systems.

Patents

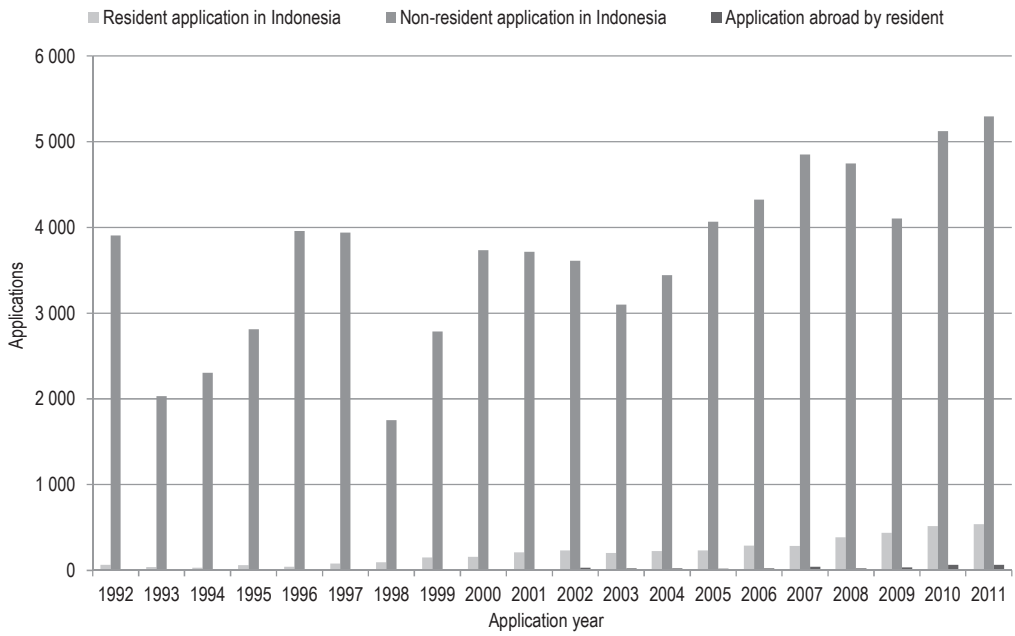
The vast majority of applications for Indonesian patents are non-residents (Figure 3.5). The share of Indonesian resident applications has, however, increased since 2005. Indonesia's performance in absolute terms is rather weak, even compared to much smaller regional competitors (Figure 3.6). At present, the country ranks 44th internationally out of 105 IP international offices (Figure 3.7).

Table 3.2. IP applications broken by resident and non-resident count by filing office, 2011

	Patent		Utility model		Trademark		Design	
Office	Resident	Non-resident	Resident	Non-resident	Resident	Non-resident	Resident	Non-resident
Indonesia (2009 for design data)	**9%**	**91%**	**81%**	**19%**	**95%**	**5%**	**79%**	**21%**
Malaysia	17%	83%	56%	44%	45%	55%	40%	60%
Philippines	6%	94%	94%	6%	57%	43%	48%	52%
Thailand	24%	76%	92%	8%	60%	40%	77%	23%
China	79%	21%	99%	1%	92%	8%	97%	3%
France	87%	13%	42%	58%	92%	8%	95%	5%
Germany	79%	21%	80%	20%	88%	12%	89%	11%
Japan	84%	16%	79%	21%	78%	22%	87%	13%
United States of America	49%	51%			84%	16%	57%	43%

Source: WIPO Statistics Database.

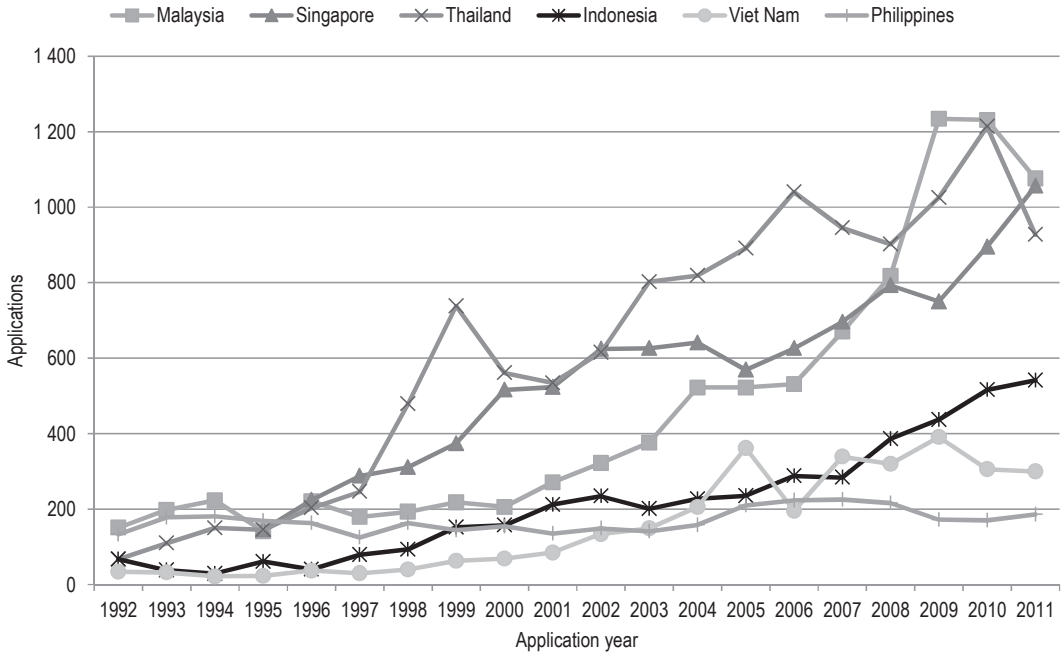
Figure 3.5. Patent applications for Indonesia



Note: A resident application is an application filed with an IP office by an applicant residing in the country/region in which that office has jurisdiction. A non-resident application is an application filed with a patent office of a given country/jurisdiction by an applicant residing in another country/jurisdiction. An application abroad is an application filed by a resident of a given country/jurisdiction with a patent office of another country/jurisdiction.

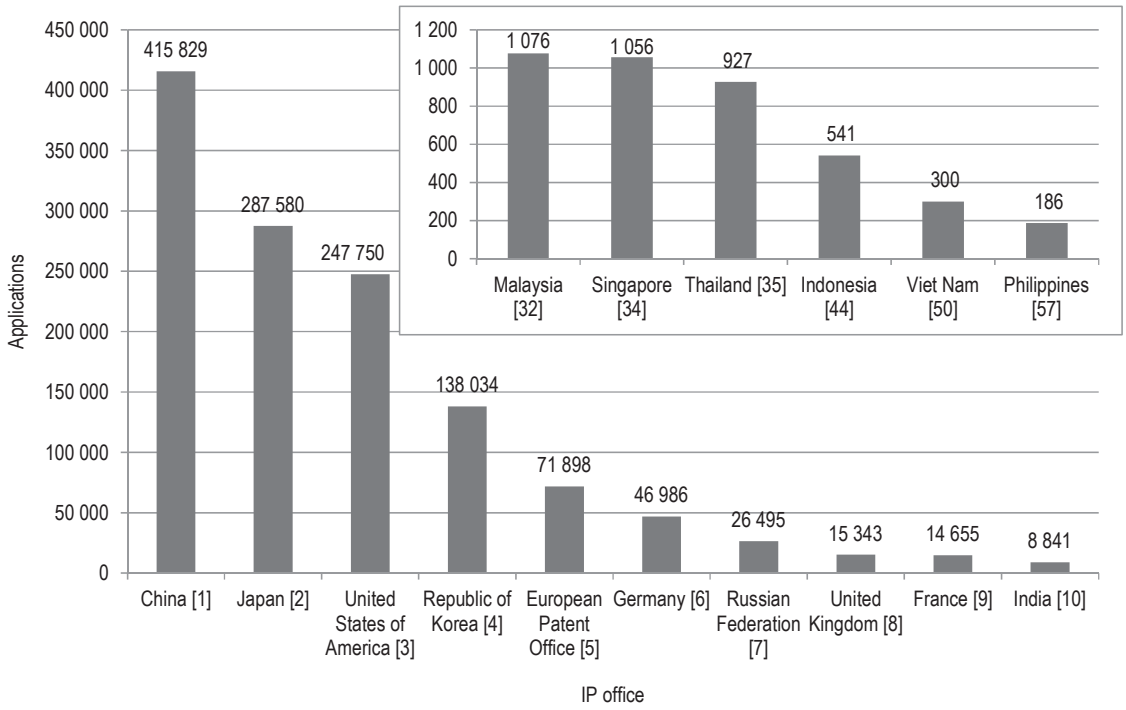
Sources: WIPO Statistics Database, http://ipstatsdb.wipo.org/ipstats/patentsSearch; JETRO, www.jetro.go.jp/theme/ip/data/pdf/stats_idn01.pdf.

Figure 3.6. Resident patent applications for selected ASEAN IP offices



Sources: WIPO Statistics Database, http://ipstatsdb.wipo.org/ipstats/patentsSearch; JETRO, www.jetro.go.jp/theme/ip/data/pdf/stats_idn01.pdf.

Figure 3.7. Resident patent applications for selected IP offices, 2011



Note: The number displayed in square brackets represents a ranking of the number of applications out of 105 offices for which data are available.

Source: WIPO Statistics Database, http://ipstatsdb.wipo.org/ipstats/patentsSearch.

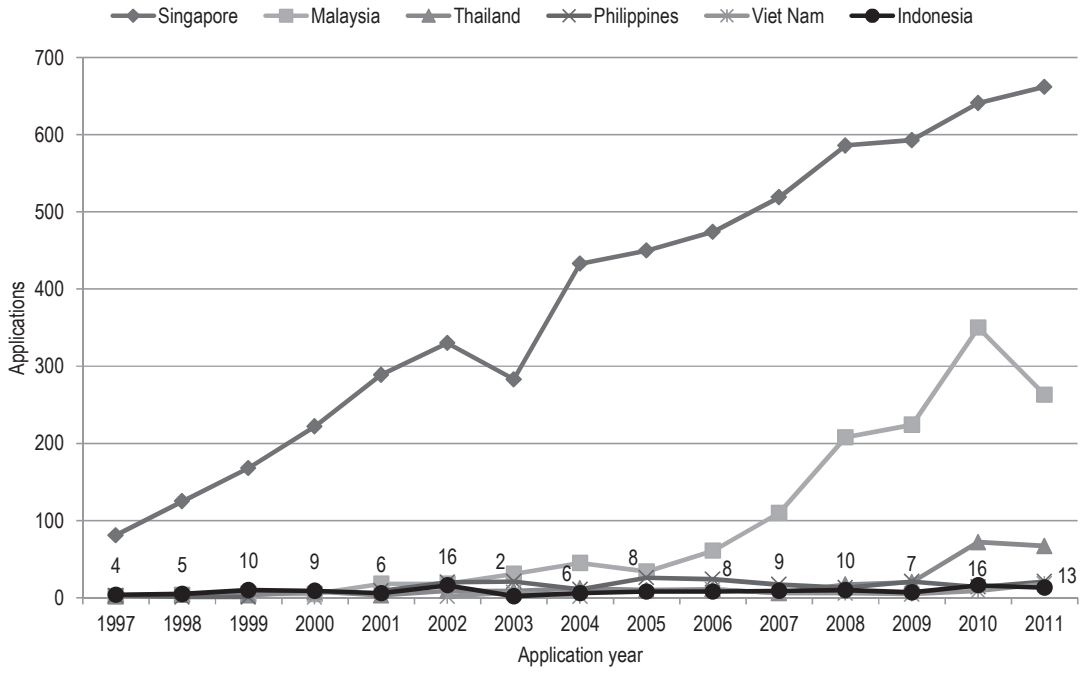
Box 3.4. Dexa Medica

Established in 1969, Dexa Medica supplies medicinal products, both modern and traditional, throughout Indonesia and abroad. The company is privately owned and engages in substantial in-house R&D. In-house scientists develop most of the company's products, although some collaboration takes place with local universities and scientists. Dexa's R&D involves not only modern medicine, but also the development of medicines based on the country's natural resources and traditional medicines. Currently, the company conducts research on about 10 specific herbs for their potential application to medicines. Dexa's scientists have so far isolated one medically effective herb, which is currently in the clinical trial phase.

Dexa developed their IP to capitalise better on their research. Dexa's IP team of four pharmacists is lead by a legal counsellor with foreign US-based training and expertise. They draft patent applications, file applications at the DGIPR, manage IP assets and respond to day-to-day operational questions. Over the last 10 years they have filed seven PCT applications. To date, they have not been involved in any IP litigation. The challenge for them is speeding up patent registration at the national patent office. In addition, they undertake research on international patents to ascertain the areas in which their R&D investments could have the highest payoffs on international markets.

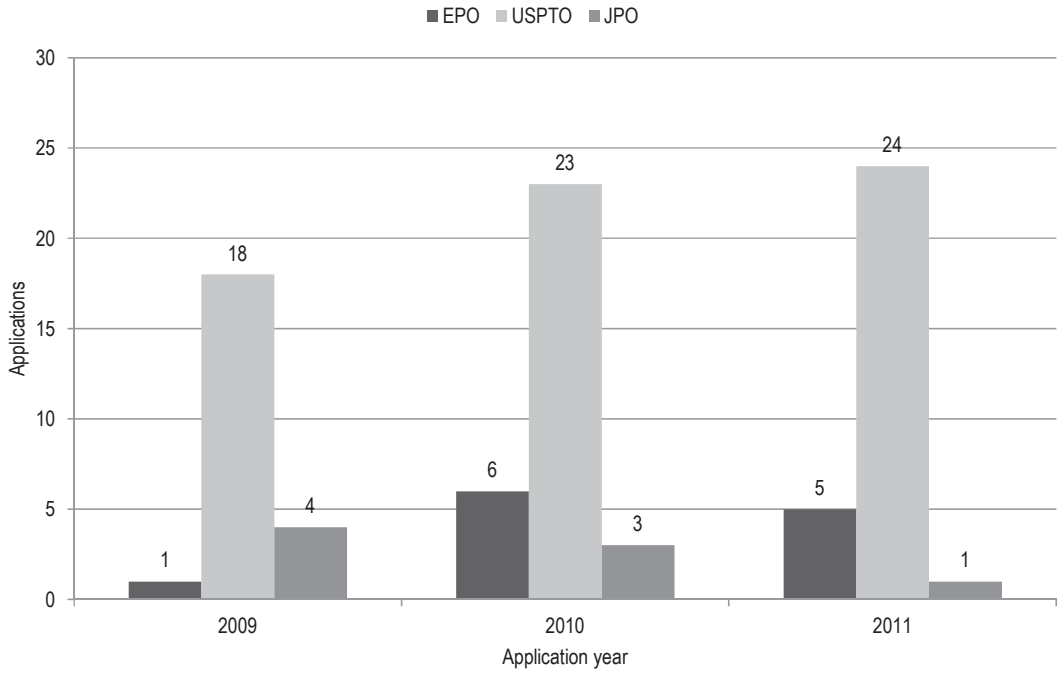
Source: OECD mission to Indonesia and the Dexa website: www.dexa-medica.com.

Figure 3.8. PCT applications for selected applicant's country of residence



Source: WIPO Statistics Database, http://ipstatsdb.wipo.org/ipstats/patentsSearch.

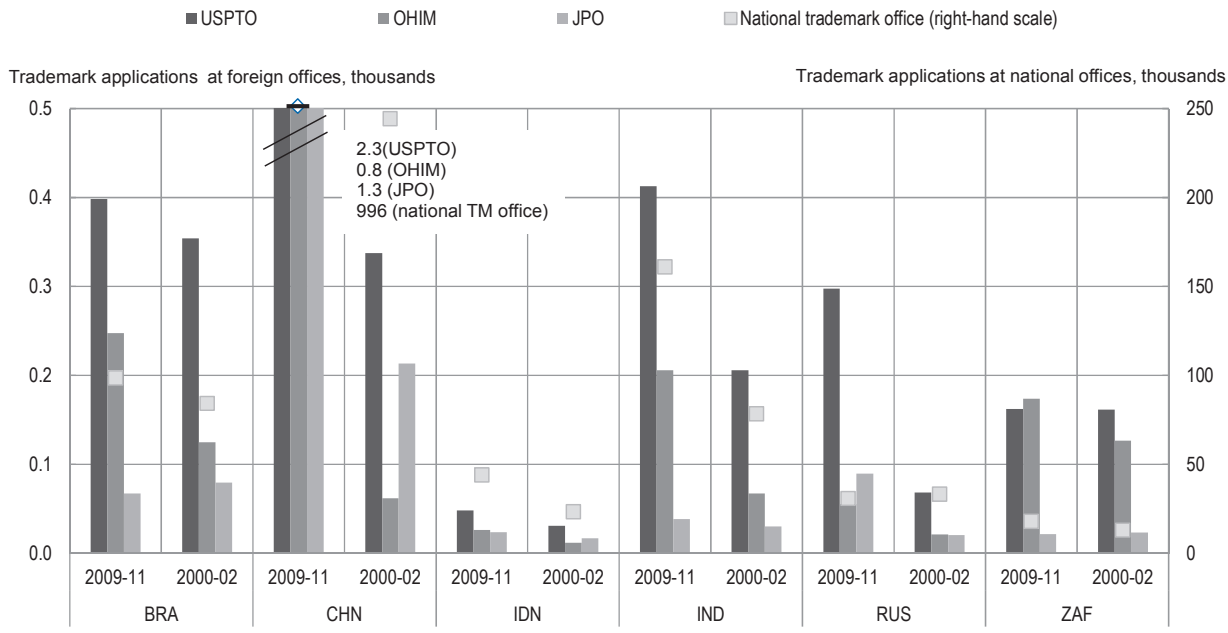
Figure 3.9. Patent applications by an applicant residing in Indonesia at EPO, USPTO and JPO



Source: WIPO Statistics Database, http://ipstatsdb.wipo.org/ipstats/patentsSearch.

Regarding international patent applications only a handful of Indonesian firms have applied for PCT patents internationally, including Tjiwi Kimia, a paper-producer that applied for 10 PCT patents in 1996-2011; Pasifik Satelit Nusanara (PSN), a satellite engineering firm involved in GPS and mapping technology that applied for three PCT patents in 1996-2011; Dexa Medica, a pharmaceutical production company that applied for three PCT patents (Box 3.4). Figure 3.8 shows that these firms are among the few users of PCT patents in Indonesia. Similarly very few Indonesian residents have applied for patents at the three major IP offices, UPSTO, EPO and JPO (Figure 3.9). Regarding trademark applications abroad, Figure 3.10 shows Indonesia's international performance is behind that of other BRIICS countries (Brazil, Russia, India, Indonesia, China, South Africa).

Figure 3.10. Trademark applications by BRIICS countries at national IP offices, USPTO, OHIM and JPO, ratio to GDP, 2007-09 average

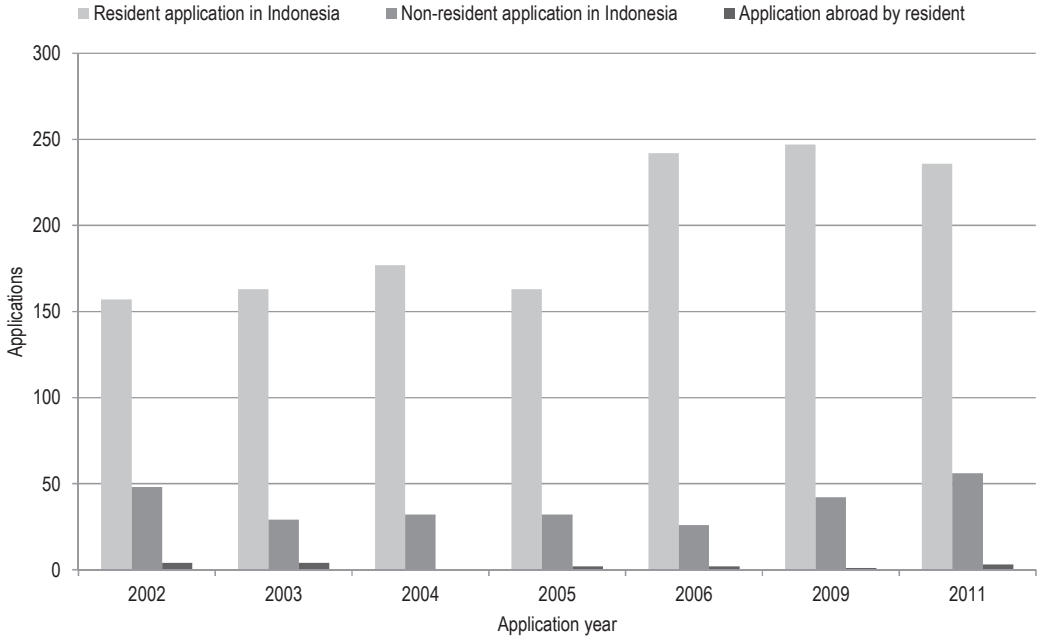


Source: OECD (2013a), *OECD Science, Technology and Industry Scoreboard 2013: Innovation for Growth*, OECD Publishing. doi: 10.1787/sti_scoreboard-2013-en.

Utility models

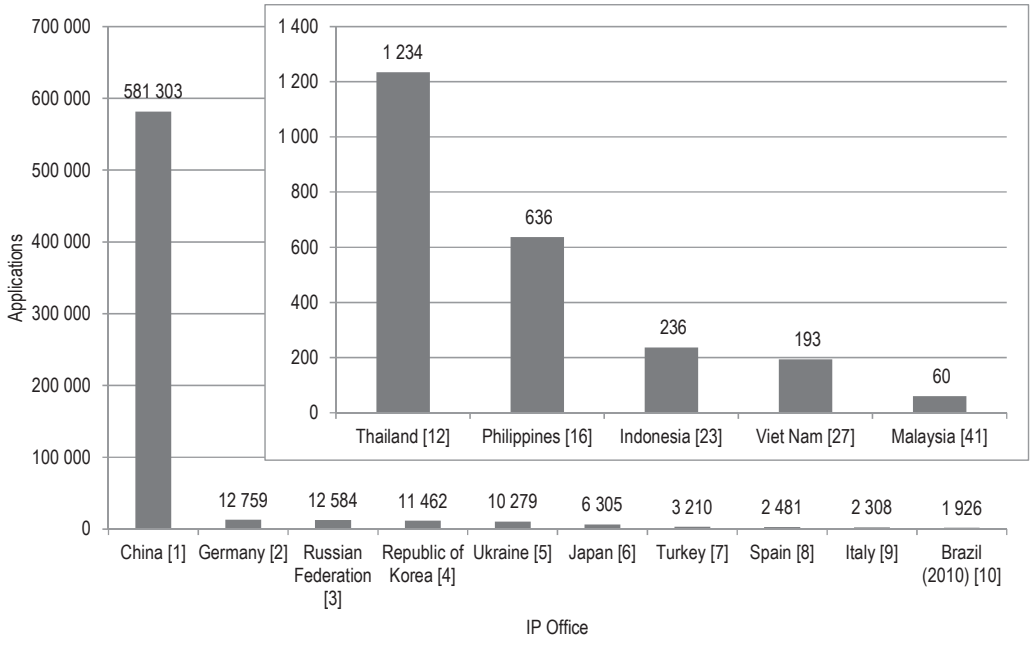
The use of utility models by domestic residents in Indonesia is relatively moderate, but increased somewhat from 2005 onwards (Figure 3.11). It is in mid-position among countries with utility model systems worldwide (Figure 3.12).

Figure 3.11. Utility model applications for Indonesia



Source: WIPO Statistics Database, http://ipstatsdb.wipo.org/ipstats/patentsSearch.

Figure 3.12. Resident utility model applications for selected IP offices, 2011*



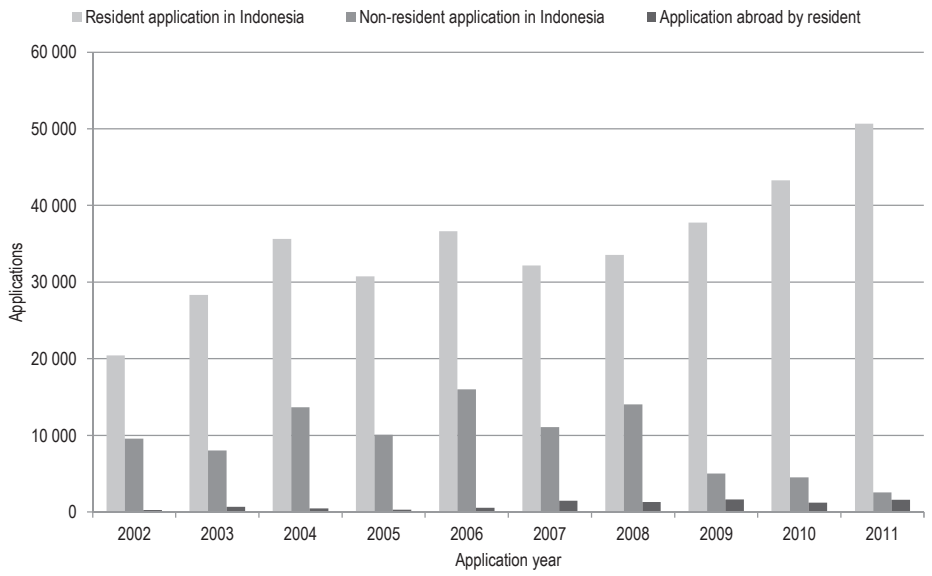
Note: *Or most recent available year. Latest available year is displayed in parentheses when different from 2011. The number displayed in square brackets represents a ranking of the number of applications out of 55 offices for which data are available.

Source: WIPO Statistics Database, http://ipstatsdb.wipo.org/ipstats/patentsSearch.

Trademarks

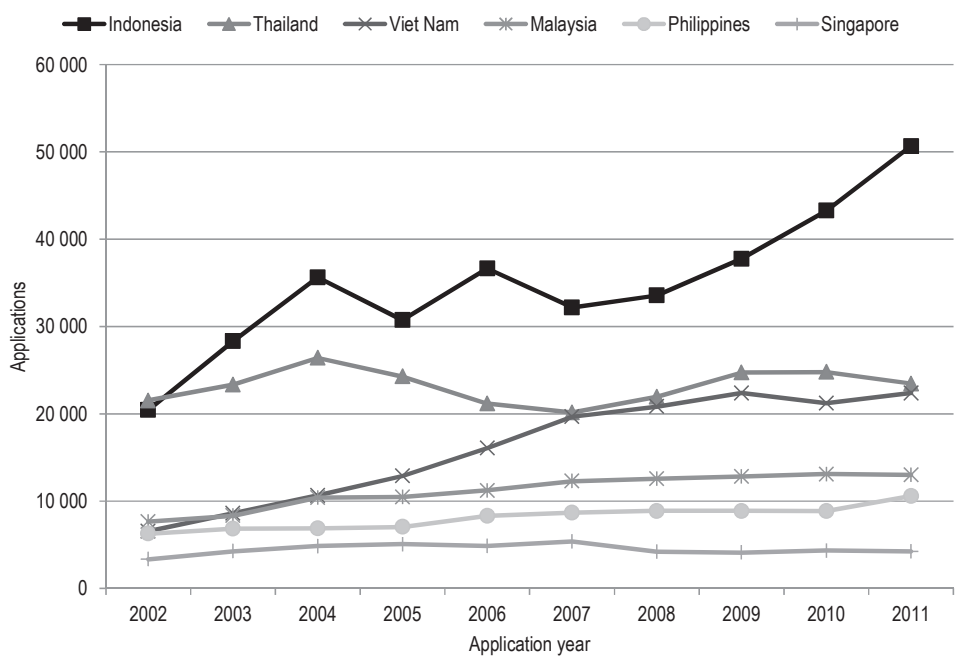
Trademark applications by Indonesian residents far outnumber those of non-residents and have increased since 2008 (Figure 3.13). In absolute terms Indonesia is a strong user of trademarks compared to other countries in the region and globally (Figures 3.14 and 3.15). Interestingly, it is the only country in the region with an upward trend in trademark applications.

Figure 3.13. Trademark applications for Indonesia



Source: WIPO Statistics Database, http://ipstatsdb.wipo.org/ipstats/patentsSearch.

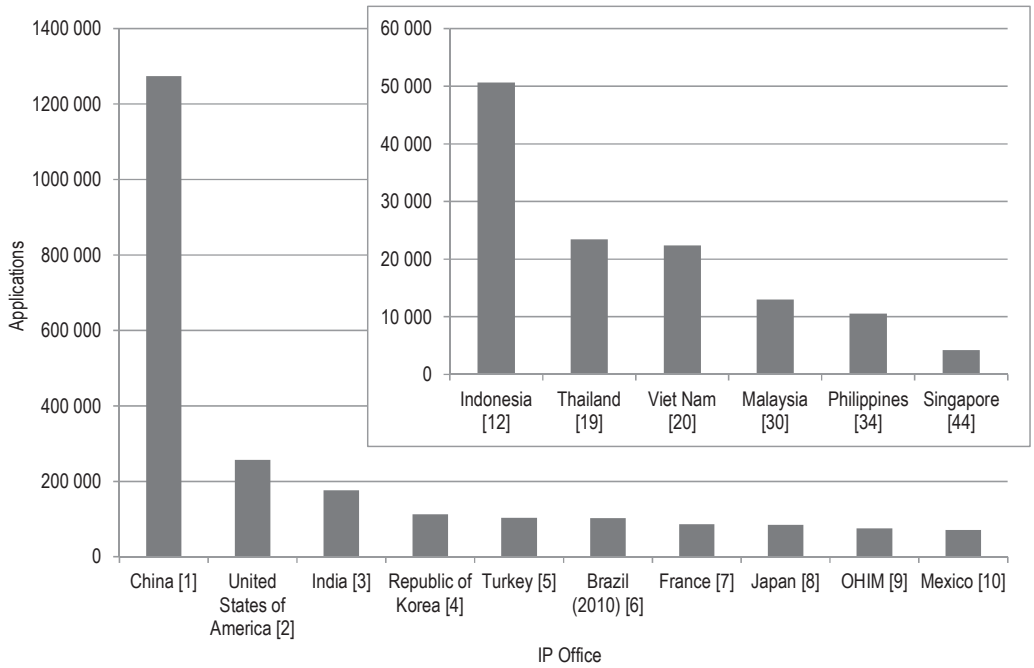
Figure 3.14. Resident trademark applications for selected ASEAN IP offices



Note: National offices figures are not directly comparable as some countries have single-class systems (Brazil, China, Colombia, South Africa), whereas others have adopted a multi-class system (many European offices, India, Japan, Korea, Russian Federation and the United States).

Source: WIPO Statistics Database, http://ipstatsdb.wipo.org/ipstats/patentsSearch.

Figure 3.15. Resident trademark applications for selected IP offices, 2011*



Notes: *Or most recent available year. Latest available year is displayed in parentheses when different from 2011. National offices figures are not directly comparable as some countries have single-class systems (Brazil, Colombia, China, South Africa), whereas others have adopted a multi-class system (many European offices, India, Japan, the Republic of Korea, Russian Federation and the United States). The number displayed in square brackets represents a ranking of the number of applications out of 97 offices for which data are available. OHIM = Office for Harmonisation in the Internal Market.

Source: WIPO Statistics Database, http://ipstatsdb.wipo.org/ipstats/patentsSearch.

Geographic indications

GI is relatively new to Indonesia (since 2008). By the end of 2011, only 12 GIs had been registered at the DGIPR, covering coffee beans, tobacco, horse milk, honey and white pepper for Indonesian products, in addition to foreign registrations of champagne, *parmagiano reggiano* and *Pisco* (DGIPR, 2011; Table 3.3).

Table 3.3. Registered Geographical Indication applications at the DGIPR

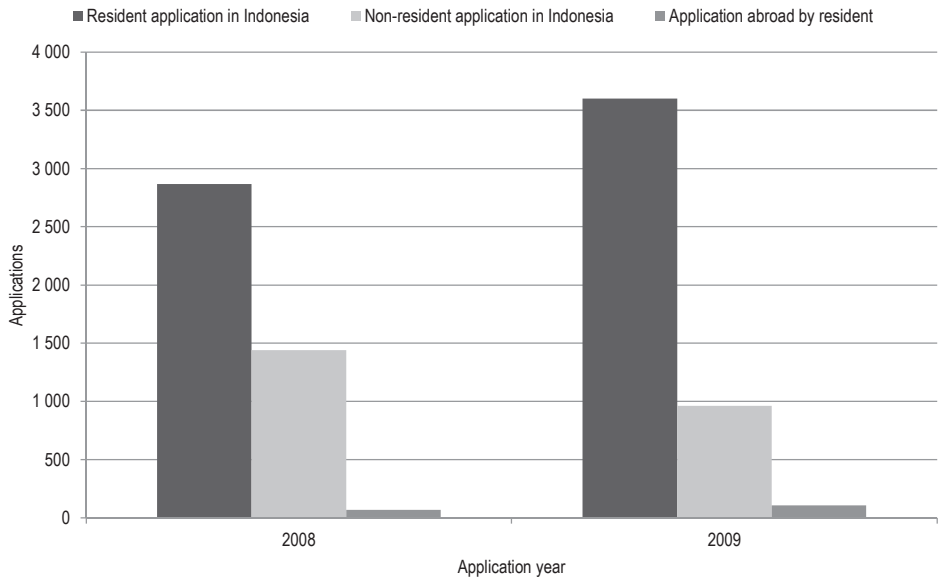
Name of product	2007	2008	2009	2010	2011
Kopi Arabika Kintamani Bali (coffee)		X			
Champagne			X		
Mebel Ukir Jepara (furniture)				X	
Ladal Putih Muntok(white pepper)				X	
Kopi Arabika Gayo (coffee)				X	
Pisco				X	
Tembakau Hitam Sumedang (tobacco)					X
Tembaku Mole Sumedang (tobacco)					X
Parmagiano Reggiano					X
Susu Kuda Sumbawa (horse milk)					X
Kangkung Lombok (watercress)					X
Madu Sumbawa (honey)					X
Total number	0	1	1	4	6

Source: DGIPR (2011) *Annual Report*, Directorate General of Intellectual Property Rights Ministry of Law and Human Rights, Indonesia Republic.

Industrial design

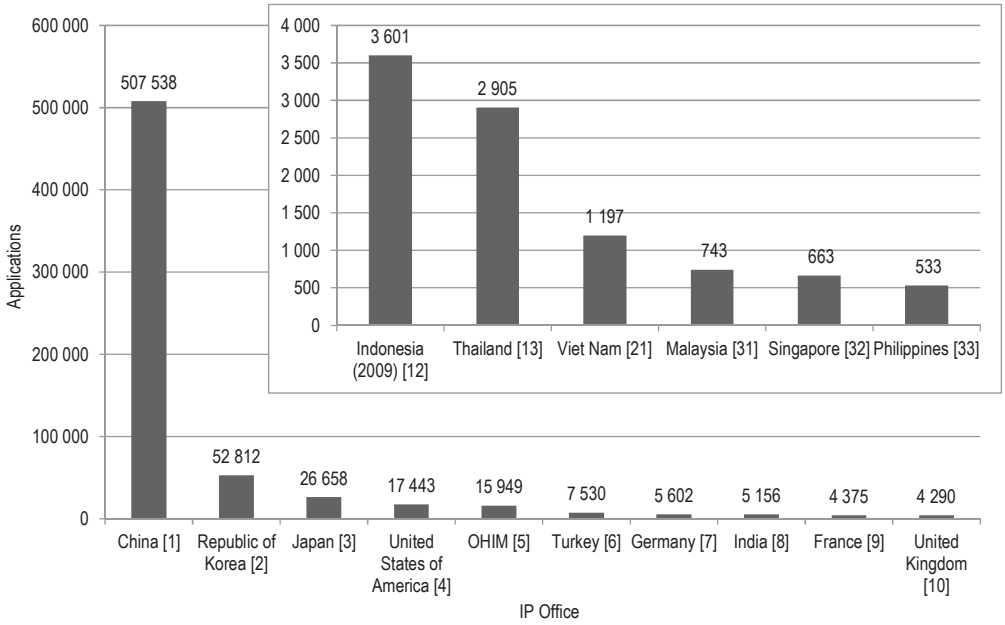
Industrial design protection under industrial design law (No. 31 of 2000) is widely obtained by Indonesian national stakeholders (Figure 3.16). The number of industrial design applications in Indonesia is remarkable compared to other types of IP, except for trademarks. Industrial design applications at DGIPR ranked 12th compared to all 93 IP offices with available data on design (Figure 3.17).

Figure 3.16. Design applications for Indonesia



Source: WIPO Statistics Database, http://ipstatsdb.wipo.org/ipstats/patentsSearch.

Figure 3.17. Resident design applications for selected IP offices, 2011*



Notes: *Or most recent available year. Latest available year is displayed in parentheses when different from 2011. The number displayed in square brackets represents a ranking of the number of applications out of 93 offices for which data are available.

Source: WIPO Statistics Database, http://ipstatsdb.wipo.org/ipstats/patentsSearch.

IP opportunities and challenges faced by different users

Innovators in traditional and informal sectors

Traditional industries

Local and inclusive innovation in Indonesia is notable for several reasons, including the country's substantial informal sector, diversified cultural heritage, natural diversity and traditional industries. It can also provide potentially large economic returns. Traditional *bhatik* textiles and traditional furniture have export potential (UNCTAD, 2012). However, few furniture manufacturers or *bhatik* factories have developed successful branding strategies, as most producers tend to produce similar goods rather than offer new designs, patterns and materials or improve the quality of their products. Traditional producers are often not aware of business opportunities based on product differentiation and branding. Moreover, the widespread perception of limited enforcement of trademarks, trade secrets and industrial design rights weakens incentives. Industry associations should also be more actively involved, as firms are small, have limited resources and lack sufficient skills to develop and implement these strategies on their own.

Coffee and GIs/trademarks

A major coffee producer and exporter, Indonesia is taking advantage of IP in the form of GIs (Table 3.3) or trademarks. A bill concerning the management of GI is pending legislative process (DGIPR, 2011). An additional attractive feature of GI is the potential benefits they can create for local communities. Success stories such as Café de Colombia (Box 2.2) or Rooibos Tea in South Africa illustrate their potential (El Benni and Reviron, 2009). In most cases, however, opportunities still need to be exploited, and an effective administration is needed for GI management and benefit sharing. However, increasing the number of GI is not a useful approach; instead, it is better to focus on a few selected products with high potential and invest in the institutions necessary for ensuring the quality, marketing and promotion of GI.

Traditional knowledge

Indonesia is richly endowed with natural resources and enormous diversity. In addition, the country benefits from a vast reserve of traditional knowledge, closely associated with unique, endemic plant life and biological resources, including rare medical plants, traditional agricultural crops and animal breeds. The example of Dexa Medica (Box 3.4) illustrates the potential economic contribution of such knowledge and associated resources. Similar initiatives should be promoted with a view to supporting local groups who own the traditional knowledge in question.

A joint database on traditional knowledge is now being developed across several ministries and organisations, including RISTEK, LIPI, the Ministry of Agriculture (for genetic resources) and the Ministry of Education (for traditional knowledge and traditional cultural expressions). The project, which started in 2012, is a useful step in the safeguarding of traditional knowledge, but also enables domestic inventors to identify new formulas for success. The Indonesian joint database would help create a system of benefit sharing to clarify how different stakeholders, including indigenous communities, are rewarded. It will also facilitate the use of traditional assets in support of innovation.

A useful requirement for such a database and benefit-sharing system is disclosure, whereby patent applicants must indicate the source or origins of any genetic materials and traditional knowledge used for the invention. Current Indonesian patent law does not require the disclosure of source or origin of genetic resources. However, a draft amendment of the patent law, which requires the disclosure of source of origin, is awaiting parliamentary approval, and if approved is expected to be in force by 2013 or 2014.

Folklore and artistic creations

Article 10 of Indonesian copyright law says that the state holds the copyright for folklore and works of popular culture that are commonly owned, such as stories, legends, folk tales, and so on. It holds such copyright with respect to the outside world, and the government has the right to take measures against the unethical and commercial exploitation of their cultural products (Kutty, 2002). Further steps are necessary, however, to implement and regulate this provision. A draft implementing the new regulation is awaiting parliamentary approval, and, if approved, is expected to be in force by 2014.

However, more needs to be done in support of the use of folklore for economic purposes. Copyright management organisations (CMOs), for example, can facilitate folklore and artistic creations by providing access to copyright materials at competitive prices and offering adequate rewards to those owning the copyright, both of which constitute incentives for innovative businesses. Indonesia has two such organisations, one for music and one for books, both of which were created in 2002. While some consider them success stories, their role as facilitators of innovations has still to be demonstrated.

Equity and IP

In Indonesia a third party can apply for compulsory licensing of a patent by the Commercial Court if a patentee does not implement the patent in the country within 36 months after filing (Art. 75 (2)). The government can also delay the granting of a patent for five years for social or national development reasons. With the limitation of a "non-working" requirement, the government of Indonesia issues governmental use licenses over three antiretroviral drugs. The Ministry of Health can appoint Indonesian local pharmaceutical manufacturers to produce the medicines, and the patent owners of the medicines would receive compensation, which amounts to 0.5% of the sales price. Indonesia also has both an experimental use and a scientific research use exception for patents.

"Catching-up" businesses and leading "pioneer" businesses

In Indonesia, as is the case in other developing countries, firm size is positively correlated with the probability of holding quality certifications and/or patents. A higher share of skilled workers and the use of foreign technology are similarly positively correlated with IP ownership. This is likely in part a reflection of the fact that larger businesses benefit more from IP, given some of the sunk costs involved in enforcing IP (see Chapter 1).

Table 3.4. Ownership of IP and firm characteristics in Indonesia

	Quality certification	Domestic patents	Patents abroad
Firm size	+	+	+
Firm age	0	0	0
Exporter status of the firm	0	0	+
Importer status of the firm	0	0	0
Firm has its own website	+	0	0
Firm has access to financial services	0	0	0
Firm provides formal training	+	+	0
Share of skilled workers	0	+	+
Firm uses of foreign technology	+	0	+

Notes: Results are based on probit regressions and include controls for size-of-locality, sector and country-year fixed effects, as well as investment in fixed assets, and foreign and government ownership. The share of skilled workers is defined as the share of permanent full-time, non-production workers over total full-time workers. Size is defined as the logarithm of employment, and access to finance indicates whether the firm has an overdraft facility or not. Results for quality certification regressions are based on 1 027 firm observations and those for domestic and foreign patents include 1 026 and 1 021 firm observations.

Source: Paunov (forthcoming), "Democratising Intellectual Property Systems: How Corruption Reduces Opportunities" [working title], based on World Bank Enterprise Surveys.

Addressing needs for SMEs

Special measures have been taken to meet the needs of SMEs, to raise their IP awareness, to diffuse knowledge about the variety of IP instruments, lower the cost and time for application, and encourage SMEs to develop IP strategies. Nevertheless, IP awareness among SMEs is low. In response the Ministry of SMEs has engaged in an awareness-raising campaign, which has focused on regional initiatives to reach more SMEs across the territory; and the DGIPR, which also ensures fees are reduced for SMEs at the registration phase. Specifically targeted services that take into account the needs and challenges of individual firms have greater chances for successfully supporting the use of IP for innovation. This would help them develop IP strategies emulating the success of businesses such as Es Teler 77 (Box 3.5).

Box 3.5. "Es Teler 77": Trademarks as a driver of improved product and service quality

Created in 1982, Es Teler 77 is a family-owned Indonesian fast-food restaurant. The owners registered their brand name as Es Teler 77 and their service marks as Juara Indonesia and Mie Tek Tek. They invested heavily in advertising, and sponsored competitions and events that received high attention in the media. Their marketing strategy paid off as widespread recognition of the brand attracted more customers. The strategy has had international success with Es Teler 77 restaurants opening in Australia and Singapore. The company maintains its brand value by placing strong emphasis on providing quality food and beverages. Their business model is based on franchising with all franchisees receiving business strategy support from a team of experts

Source: WIPO (2012b), *Branding Success for a Champion Drink*, WIPO Programme Activities.

Unregistered design rights

A significant number of SMEs apply for industrial design protection. However, there is no unregistered industrial design protection in Indonesia that would provide companies with the opportunity to test their products in the market before investing in industrial design application and registration. Unregistered design is suitable for products sold for

over very short periods of time such as fashion brands. While unregistered industrial designs are difficult to enforce, the protection of unregistered industrial design under unfair competition prevention law would be beneficial to SMEs in Indonesia.

World leading innovative performance of "pioneer" firms

IP protection enables global enterprises to seek IP protection at home and abroad. Currently, Indonesia is a member of the PCT, and therefore national companies can apply for patents abroad through the PCT system. However, Indonesia is not yet a member country of the Madrid system, so local companies have to file for trademark registration in every country. Joining the Madrid system is under consideration and could be attractive. Statistics indicate that more needs to be done, however, to stimulate the use of international IP protection for groups of users with adequate research capacities.

Research institutions and universities

Incentives

Although some research institutions have rules specifying the percentage of royalty income that researchers can receive, they cannot implement them because of a lack of implementation regulations concerning licenses and royalties. All income generated from publicly funded projects has to be returned to the Ministry of Finance. This system has undermined incentives, as it denies researchers any potential monetary returns from commercialisation of their inventions. In a few cases, it has affected research institutions, which have seen top researchers leave the public sector to commercialise their inventions independently. Many bodies involved in supporting IP of public research institutions recognise the importance of progress on this issue.

Some public schemes aim at providing incentives to researchers to file for IP and patents, in particular. For example, researchers can receive additional research grants from the Ministry of Education, the Ministry of Science and Technology or DGIPR. In addition, the number of patent applications can help researchers to advance their career indirectly through better evaluations. However, some well-intentioned simple support schemes for researchers to file patent applications have led some to file low-quality patents to receive support without incurring overly high costs. This is a consequence of a system where filing the application itself is rewarded regardless of the granting, because researchers have neither the incentives nor the opportunity to seek commercialisation. The returns for the innovation system of these grant schemes are, consequently, relatively low. Low-quality IP is also one of the causes of the low average rate of IP exploitation by license or by sales.

Additional challenges include relatively high fees for patents and patent maintenance, which research institutions often do not make available to researchers from their short-term budgets. Short-term budgetary allocations are also hindering potential commercialisation, as funding for projects is likewise limited to short time periods, and does not extend over the full product development life cycle. In addition, constraints on research budgets act as major disincentives to researchers. These include the need to return all unspent allocations at the end of every fiscal year, and strict limits on the accumulation of additional funds, whereby all income generated from industry projects must revert to the Ministry of Finance. For this reason, several possible projects for commercialisation, some of which have obtained IP, have been abandoned *en route* without lead researchers to exploit them.

Finally, for certain institutions quality of research is not sufficiently high to obtain IP. This is not an issue IP policy can address and efforts must aim at supporting research infrastructures and increasing the number of skilled researchers. In some cases, however, research lacks sufficient quality because researchers do not take sufficient account of the existing state of the art. In this case, IP is not being exploited properly to optimise research. Only a few institutions, such as LIPI, provide technology-screening services to help researchers make use of information provided in patent application documents.

Technology transfer offices (TTOs) and commercialisation

In Indonesia, universities and public institutions could benefit far more from the innovation system if they enabled researchers to commercialise their inventions. This issue has occupied public authorities for more than a decade. Law 18/2002 states that public research institutions should establish TTOs in accordance with their capacities and abilities. Some leading governmental research institutes and universities, including the National Nuclear Energy Agency of Indonesia (BATAN), the Agency for the Assessment and Application of Technology (BPPT), the Bogor Agricultural Institute (IPB), LIPI and the Ministry of Agriculture, have set up TTOs, which have also played a role in supporting the successful IP track records. The Indonesian Agricultural Research and Development Institute for Agricultural Technology Transfer is an example of an institution that successfully handles commercialisation by providing services up to the actual innovation phase (Box 3.6).

Box 3.6. Indonesian Agricultural Research and Development Institute for Agricultural Technology Transfer

The Agricultural Research and Development Institute for Agricultural Technology Transfer, an agency under the Ministry of Agriculture, has gathered experience in licensing their research results and generating revenue for the government via the Ministry of Finance. Since 2007, the agency has produced 683 licenses including 68 licenses in 2012. The majority of licensees are national industries, but some are foreign licensees, and some products produced under the license are exported.

The Agricultural Research and Development Institute operates 64 units across the country with more than 3 000 researchers. The main IP handled by the Agency for Technology Transfer are process patents, plant variety patents, and simple patents in the area of agriculture such as fertilisers and pesticides. The Agency has 43 staff divided into small groups of three to four staff. Each group undertakes the following four activities: (i) evaluation of technology produced by their researchers; (ii) drafting and registering the invention at the DGIPR or, for animal and plant varieties, the Ministry of Agriculture; (iii) promotion of technology for outside users (i.e. potential licensees); and (iv) licensing out of technology. The Agency has fully incorporated the steps needed to support IP for innovation in its operations. In order to foster the commercialisation of technologies, the Agency has created a database of technologies, which is available to the public. The Agency also publishes a yearbook of new technology and organises regular meetings. Moreover, it conducts impact analyses of its innovations, some of which were commercially exploited while others were introduced for non-commercial purposes.

One challenge for the Agency is uncertainty regarding commercialisation. Some technologies are unstable and not yet suitable for manufacturing. The licensees have to make modifications before these technologies can be commercially exploited. They also have to undertake testing while customising the technology, often leading to a heavy financial burden. As a result, some go out of business due to the failure of customisation. Beginning next year, the TTO plans to create a "customisation" phase before licensing out technology inside the Agency. This approach is modelled on successful applications carried out by Brazilian Embrapa, which incorporates a customisation phase into its processes.

Source: OECD based on interview phase in Indonesia and Indonesian Agency for Agricultural Research and Development Institute for Agricultural Technology Transfer, Ministry of Agriculture.

The organisational structures in most research organisations in Indonesia do not yet meet up to the standards set by leading institutions and stipulated by Law 18/2002. Results from a RISTEK survey of 132 public and private universities and public research institutes in 2010 and 2011 show the following:

- Only about half of the interviewed institutions had a TTO. Not all of these were fully institutionalised within the organisational structure, and a substantial share, especially from the public sector, were *ad hoc* in nature.
- The majority of IP centres supported socialisation (i.e. awareness) and registration activities. Only a few were engaged in commercialisation activities. Most private sector centres were only involved in socialisation activities. In the case of the public sector, about one in four institutions interviewed affirmed that their TTO conducted socialisation and registration activities, and a slightly lower share only supported socialisation, while nine institutions said they were also supporting commercialisation.
- IP centres had not developed independent sources of funding and relied on tight and varying budgets received from their institutions. This had an impact on their operations. TTOs typically had few staff who did not necessarily have the skills required for the job. Furthermore, the available infrastructure was often insufficient in terms of available workspace and ICT infrastructure.
- Practices regarding ownership of IP varied across institutions, both within and across private and public institutions.

Notes

1. The composition of the interviews which were held from 26-30 November was as follows: 30% of respondents were from the Indonesian Ministry of Science and Technology (RISTEK), 17% were from other ministries and governmental institutions (including the Ministry of Information and Communication, the Ministry of Agriculture, the Investment Coordinating Board, the Coordinating Ministry of Economic Affairs, the Ministry for Cooperative & SME, and the Ministry of Trade), 13% of respondents were from the Indonesian Directorate General of Intellectual Property Rights (DGIPR), 34% were from research universities and institutesand 6% were from companies and other agencies.
2. This section draws on Chapter 6 of OECD (2013).
3. In the late 1970s, Indonesia designed an ambitious R&D programme to develop the country's technological capabilities (Hill and Thee, 1998). It consisted of a set of large-scale projects to develop certain industries from low to high-technological manufacturing. The largest project under this programme sought to build a world-class factory of small jet aircrafts. But the perceived importance of S&T subsequently faded and support dwindled. Indonesia's economic growth to middle-income status was trade-driven rather than science and technology-driven, and industrial and related policies did not, until recently, attempt to nurture innovative capacity.
4. An interview with the oldest patent law firm in Jakarta and with university lecturers in IP law revealed that the main work of patent attorneys involves significant translation work at the application stage and also at court to prove infringements based on foreign prior art documents. This is because of the substantial use of the Indonesian IP system by foreigners.
5. If IP measures are used as indicators of innovation performance, comparisons of IP applications from different countries to different IP offices are difficult as they reflect different examination standards applied by different IP offices. For this reason, international comparisons commonly compare IP applications from different countries to a single IP office, such as the United States Patent and Trademark Office (USPTO), the Japan Patent Office (JPO) and the European Patent Office (EPO), or to Patent Co-operation Treaty (PCT) applications (see OECD, 2009). These patent applications are, however, less informative in the context of emerging countries, where the number of IP applications tends to be fairly low.

References

APEC SMEIC (2007), "Innovation briefing" No. 3, *Asian Pacific Economic Cooperation*, Innovation Centre, Seoul.

APO (2012), *APO Productivity Databook*, Asian Productivity Organization, Tokyo.

Bird, K. (1999), "Industrial concentration in Indonesia", *Bulletin of Indonesian Economic Studies*, Vol. 35/1, Taylor & Francis Group, Canberra, pp. 43-73.

Deere, C. (2009), "The policies of reform in developing countries", in R. Meléndez-Oritz and P. Roffe, *Intellectual Property and Sustainable Development: Development Agendas in a Changing World*, Edward Elgar, Cheltenham.

DGIPR (2011), *Annual Report*, Directorate General of Intellectual Property Rights Ministry of Law and Human Rights, Indonesia Republic.

EIU (2012), *Country Commerce*, Economist Intelligence Unit, Indonesia.

El Benni, N., and S. Reviron (2009), "Geographical indications: Review of seven case studies world wide", *NCCR Trade Working Paper* No. 2009/15, National Centres of Competence in Research, Berne.

Hill, H., and T. Shiraishi, (2007), "Indonesia after the Asian crisis", *Asian Economic Policy Review*, Vol. 2, Japan Centre for Economic Research, Tokyo, pp. 123-141.

Hill, H. and K.W. Thee (1998), *Indonesia's Technological Challenge*, Research School of Pacific and Asian Studies, Australian National University and Institute of Southeast Asian Studies, Singapore.

IMF (2011), *World Economic Outlook Database*, International Monetary Fund, Washington DC.

IPTEK (2009), *Indicator Iptek. Science and Technology Indicators*, Indonesian Institute of Sciences, Jakarta.

ITU (2012), *World Telecommunications and ICT* (database), www.itu.int/ITU-D/ict/statistics.

JETRO *Business News* (2012), Japan External Trade Organization, Tokyo.

JPO (2008-2010) *Annual Reports*, Japan Patent Office, Tokyo.

Junaidi, A. (2011), "The contribution of competition policy to improving regulatory performance", *Presentation at the Workshop on the OECD Regulatory Reform Review of Indonesia*, OECD Jakarta.

KOMINFO (2010), *Indonesia ICT Whitepaper,* Kementrian Komunikasi dan Informatika Indonesia, Jakarta, http://publikasi.kominfo.go.id/handle/54323613/109.

Kutty, P.V. (2002), *National Experiences with the Protection of Expressions of Folklore/Traditional Cultural Expressions*, WIPO Studies, No. 2, World Intellectual Property Organization, Geneva, www.wipo.int/export/sites/www/freepublications/en/tk/912/wipo_pub_912.pdf.

LIPI (2009a), *Science and Technology Indicators Report*, Pappiptek Lipi Centre for Science and Technology Development Studies, Jakarta.

Mertins, K. (2002), Innovation in Indonesia: Assessment of the National Innovation System and Approaches for Improvement, Fraunhofer IRB Verlag, Stuttgart.

Oberman, R. et al. (2012), *The Archipelago Economy: Unleashing Indonesia's Potential*, McKinsey Global Institute, Jakarta.

OECD (2013a), *OECD Science, Technology and Industry Scoreboard 2013: Innovation for Growth*, OECD Publishing, doi: 10.1787/sti_scoreboard-2013-en

OECD (2013b), *Innovation in Southeast Asia*, OECD Publishing. doi: 10.1787/9789264128712-en

OECD (2012), "Innovation for development: The challenges ahead", in OECD, *OECD Science, Technology and Industry Outlook 2012*, OECD Publishing. doi: 10.1787/sti_outlook-2012-7-en

OECD (2011), *OECD Science, Technology and Industry Scoreboard 2011*, OECD Publishing, doi: 10.1787/sti_scoreboard-2011-en

OECD (2010a), *OECD Economic Surveys: Indonesia 2010*, OECD Publishing. doi: 10.1787/eco_surveys-idn-2010-en

OECD (2010b), *OECD Investment Policy Reviews: Indonesia 2010*, OECD Publishing. doi: 10.1787/9789264087019-en

OECD (2009), *OECD Patent Statistics Manual*, OECD Publishing, doi: 10.1787/9789264056442-en.

OECD (n.d.), National Accounts Statistics (database), www.oecd-ilibrary.org/economics/data/oecd-national-accounts-statistics_na-data-en (Accessed June 2011).

OHIM (n.d), *Community Trademark* (CTM database), http://oami.europa.eu/CTMOnline/RequestManager/en_SearchBasic# (Accessed April 2011).

RISTEK (2010a), Statistics on "R&D of Government Research Institutions – 2006", paper provided to the OECD delegation, RISTEK, Jakarta.

RISTEK (2010b), Indikator Ekonomi Berbasis Pengetahuan Indonesia 2010 [Knowledge-based Economy Indicator Indonesia 2010], Ministry of Science and Technology, Jakarta.

UNCTAD (2011), Development Dimensions of Intellectual Property in Indonesia: Access to Medicines, Transfer of Technology and Competition, UNTACD, Geneva.

UNCTAD (2012), *An Intellectual Property Strategy for Indonesia*, UNCTAD Secretariat for the Directorate General for Intellectual Property Rights, December 2012, UNTACD, Geneva.

WIPO (n.d), *IP Statistics Data Center* (database), http://ipstatsdb.wipo.org/ipstats/patentsSearch (accessed May 2011).

WIPO (n.d), *Statistics on trademarks* (database), World Intellectual Property Organization, Geneva, www.wipo.int/ipstats/en/statistics/marks/ (accessed May 2011).

WIPO (2012a), Responding to a Socio-economic Need through Innovative Research and a Profit-making IP Strategy, WIPO Programme Activities.

WIPO (2012b), "Branding success for a champion drink", *WIPO Program Activities*, World Intellectual Property Organization, Geneva, www.wipo.int/ipadvantage/en/details.jsp?id=2508 (accessed October 2012).

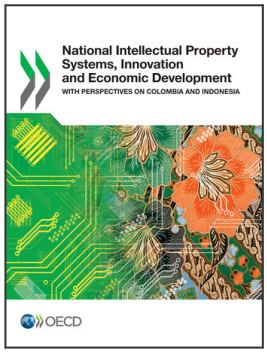
World Bank/IFC (2012), *Doing Business 2012: Doing Business in a More Transparent World*, World Bank/International Finance Corporation, Washington, DC.

WTO (2007), Trade Policy Review: Indonesia Report by the Secretariat, World Trade Organization, Geneva.

Annex 3.A1

List of Indonesian intellectual property (IP) laws

- Law of the Republic of Indonesia No. 7 of 1994 regarding Ratification of Agreement Establishing the World Intellectual Property Organization
- Law of the Republic of Indonesia No. 30 of 2000 regarding Trade Secrets
- Law of the Republic of Indonesia No. 31 of 2000 regarding Industrial Design
- Law of the Republic of Indonesia No. 32 of 2000 regarding Layout Design of Integrated Circuits
- Law of the Republic of Indonesia No. 14 of 2001 regarding Patent (and Law No. 7 of 1994)
- Law of the Republic of Indonesia No. 5 of 2001 regarding Trademarks (on amendment of Law No. 19 of1992)
- Law of the Republic of Indonesia No. 19 of 2002 regarding Copyright (on amendment No. 12 of 1997 on amendment of Law No. 6 of 1982 as amended by Law No. 8 of 1987)
- Government Regulation No. 51 of 2007 regarding Geographical Indications
- Law of the Republic of Indonesia No. 11 of 2008 regarding Information and Electronic Transfers (Cyberlaw)
- Law of the Republic of Indonesia No. 13 of 2010 regarding Horticulture
- Minister of Agriculture Regulation No. 38 of 2011 (implementing rule of Law on Horticulture) allows the registration of horticultural plant varieties.



From:

National Intellectual Property Systems, Innovation and Economic Development

With perspectives on Colombia and Indonesia

Access the complete publication at:

https://doi.org/10.1787/9789264204485-en

Please cite this chapter as:

OECD (2014), "Study of Indonesia's national intellectual property system", in *National Intellectual Property Systems, Innovation and Economic Development: With perspectives on Colombia and Indonesia*, OECD Publishing, Paris.

DOI: https://doi.org/10.1787/9789264204485-6-en

This work is published under the responsibility of the Secretary-General of the OECD. The opinions expressed and arguments employed herein do not necessarily reflect the official views of OECD member countries.

This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

You can copy, download or print OECD content for your own use, and you can include excerpts from OECD publications, databases and multimedia products in your own documents, presentations, blogs, websites and teaching materials, provided that suitable acknowledgment of OECD as source and copyright owner is given. All requests for public or commercial use and translation rights should be submitted to rights@oecd.org. Requests for permission to photocopy portions of this material for public or commercial use shall be addressed directly to the Copyright Clearance Center (CCC) at info@copyright.com or the Centre français d'exploitation du droit de copie (CFC) at contact@cfcopies.com.