Designing employees' inventions compensation strategy for R&D Centers in South-East Asia & China

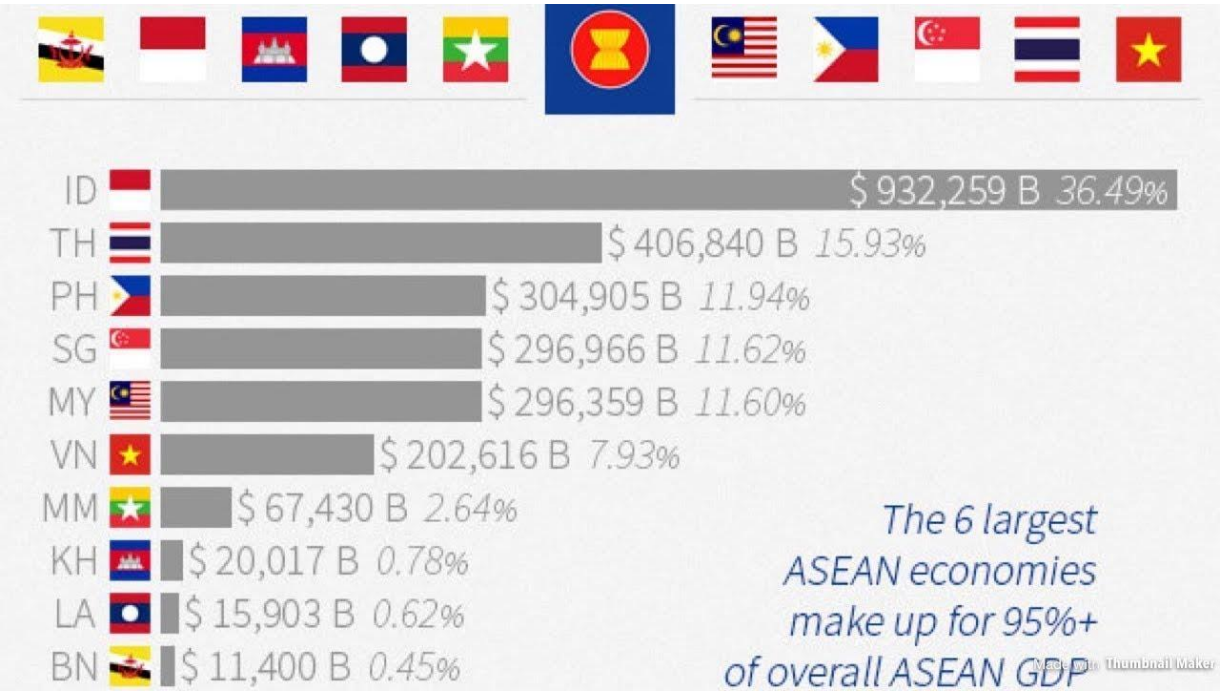
By Fabrice Mattei, Partner, with the help and contributions of Ms Lucy Wang, Senior Associate (China) Mr. Kin Wah Chow, Partner (Indonesia), Mr. Edmund Baranda, Partner (Philippines) Mr. Prasit Siricheepchaiyan, Partner (Thailand), Ms. Kamolchanok Sinhaseni, Senior Associate (Thailand), Ms. Yen Vu, Partner (Vietnam) Ms. Vannary Tep, Senior Associate (Cambodia).

The growth of R&D activities in ASEAN (The Association of South-East Asian Nations) raises number of issues especially the uncertainty about employees' right to inventions benefits. In large part this is due to the unclarity or uncompletedness of national laws and the absence of benchmarks for compensation. Although those concerns merit senior-level attention, they can be managed effectively. In this article, our experts review the contours of China and Southeast Asia's legislations in a bid to develop wining strategies for managing employee's inventions.

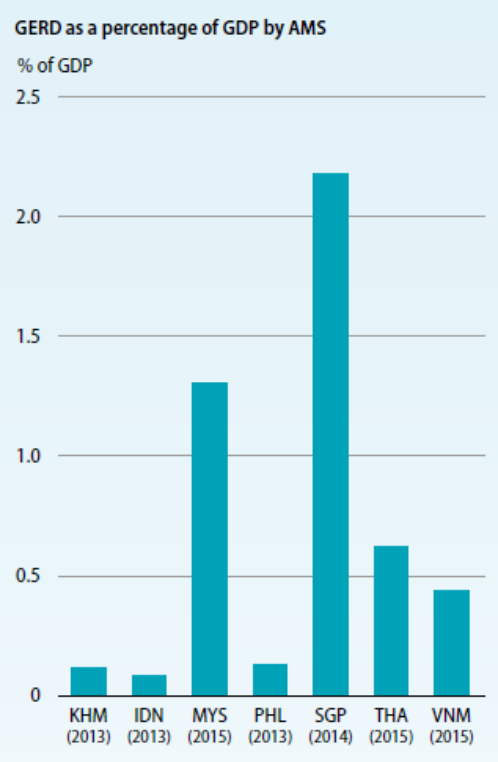
1. INNOVATION IN ASEAN

1.1 Diversity and convergence within ASEAN

ASEAN is undergoing rapid changes and becoming more closely integrated into fast-evolving regional production and R&D centers. Expanding and deepening their capacities in science, technology and innovation (STI) provides an opportunity for ASEAN Member States (AMS) to move up the value chain and tackle societal challenges. The region presents also a great diversity. One of the most obvious difference is the size of the country and economy. ASEAN consists of relatively small countries in terms of land or population such as Singapore or Laos, but also larger ones such as Indonesia and Myanmar. Indonesia has by far the region's largest economy and most populous country with a share of approximately 37 % of ASEAN GDP[1].



[1] Gross domestic product (GDP) of the ASEAN countries from 2008 to 2018 (in billion U.S. dollars, Statista available at https://www.statista.com/statistics/796245/gdp-of-the-asean-countries/ last visited by the author on April 14, 2019.



Another disparity between AMS is their innovation capability. The Global Innovation Index (GII) of 2018 published by Cornell University, INSEAD, and the World Intellectual Property Organization[2] highlights this diversity and the typology of factors contributing to innovations:

"ASEAN economies are making great progress in innovation indicators, yet with significant differences in performance. Singapore has the highest scores among ASEAN members in many of the selected indicators, excluding expenditure on education (topped again by Viet Nam), tertiary enrolment (where Thailand leads the ASEAN countries), gross capital formation (topped again by Brunei Darussalam), ICT service exports (topped again by the Philippines), and trademarks by origin (topped by Viet Nam this year)."[3]

According to GII 2018, Malaysia moves up two positions to 35th. Thailand jumps forward seven positions, reaching the 44th place. Viet Nam gains another two positions, ranking 45th this year showing positive trends[4].

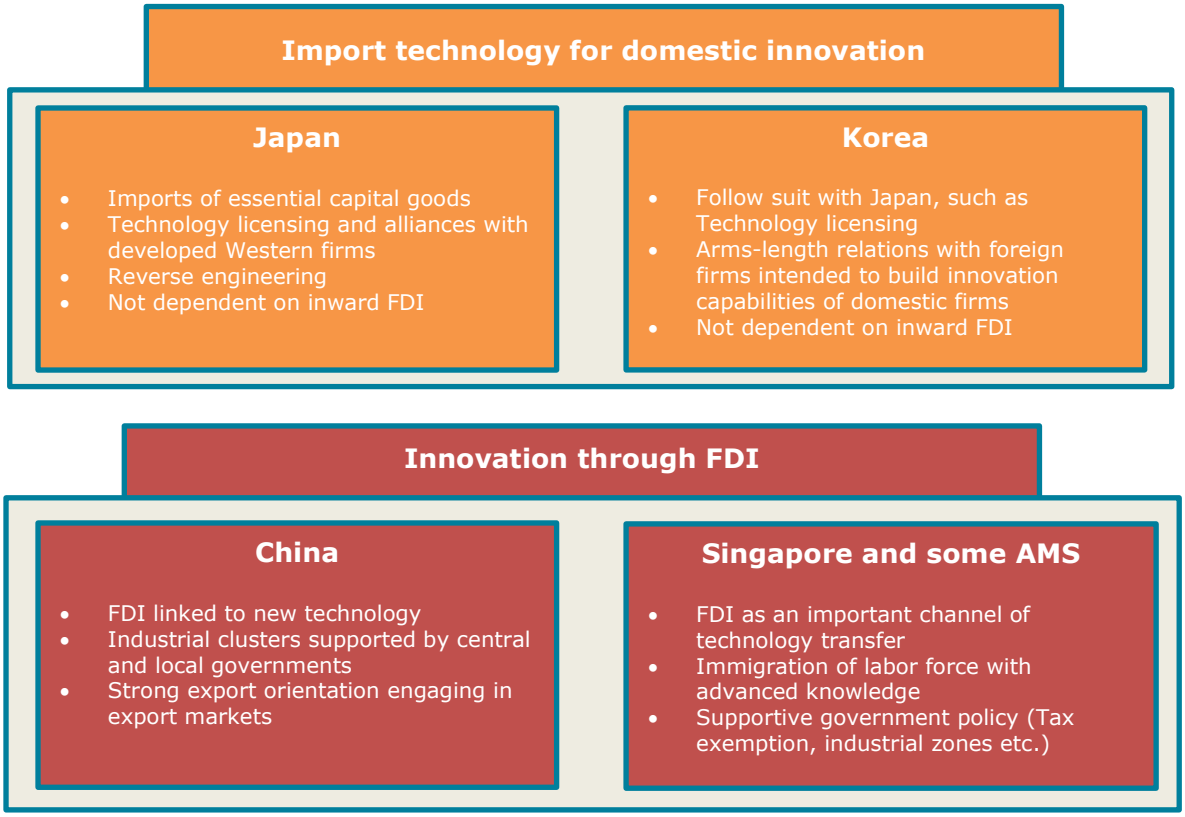
R&D expenditures between AMS also vary greatly[5] and the large discrepancy means that innovation policies for individual AMS aren't well harmonized.

1.2 Innovation systems in transition[6]

Although AMS are at very different stages of innovation, they have traced and followed a unique growth trajectory. In contrast to the pattern of industrialization in Japan, Taiwan, and South Korea in the 1950s to 1980s where the development of indigenous firms and industries was at the center (e.g. automotive industry, optical industry), ASEAN have utilized the mechanics of production networks extended by multinationals and have jump-started their industrialization processes[7]. They have then further proceeded to the formation of industrial agglomeration such as Board of Investment zones in parallel with the fragmentation of production where both "international" production networks and "domestic" vertical links of production have developed hand in hand especially in automotive, optical and semi-conductor sectors. This growth strategy has proved to be successful in accelerating industrialization.

Two prominent types of National Innovation System (NIS) have been used by leading Asian countries as a strategic way to catch up with Western developed countries. One emphasizes domestic industrial resources to be utilized for innovation; the other relies on technologies and skills transferred from foreign countries, including through FDI. The first type of NIS was adopted by Japan and Korea, and the second by China and Singapore as well as many AMS more recently.

[2] Global Innovation Index 2018 available at https://www.globalinnovationindex.org/Home last visited by the author on April 14, 2019.
[3] See supra note 2.
[4] See supra note 2.
[5] Center for Research and Development Strategy, Japan Science and Technology Agency Current Status on Science and Technology in ASEAN Countries 2015, available at : https://www.jst.go.jp/crds/pdf/en/CRDS-FY2014-OR-02_EN.pdf last visited by the author on April 14, 2019
[6] The author has borrowed this expression from the book "Asia's Innovation Systems in Transition" edition 2006, Bengt-Ake Lundvall, Patarapong Intarakumnerd, Jan Vang, Published by Edward Elgar Publishing Limited.
[7] Fukunari KIMURA, Tomohiro MACHIKITA, Yasushi UEKI, Technology Transfer in ASEAN countries: some evidence from buyer-provided training network data, May 2015 ERIA Discussion Paper Series. Ando and Kimura, Two-dimensional fragmentation in East Asia: Conceptual framework and empirics, International Review of Economics & Finance, 2005, vol. 14, issue 3, 317-348.



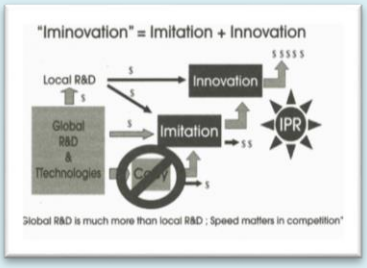
Following the analyses of Intal et al. (2014)[8] and the Japan Science and Technology Agency (2015)[9], AMS can be roughly divided into the following five groups:

Groups	Countries
Frontier	Singapore is the only ASEAN member in the 'frontier' phase of innovation, and its innovation capability, based on solid domestic R&D, is almost at the same level as that of developed Western countries.
Catch up	Malaysia and Thailand are in the 'catch-up' phase, and its innovation capability is relatively high, just behind that of Singapore. Thailand has recently joined the "Catch up" category and is looking to reinvent itself as an automotive research and development (R&D) centre, starting with a proposed USD 105 million automotive test centre on its eastern coast to develop new automotive technology. For years, Thailand has been a regional base for some of the world's top car makers such as Toyota Motor Co and Honda Motor Co, banking on its reputation as an assembly line and auto parts producer. "We need to upgrade ourselves to be more value-added," Thavorn Chalassathien, vice chairman of the Federation of Thai Industries.
Learning	Indonesia, the Philippines and Viet Nam are in the 'Learning' phase, which is characterized by the acquisition of innovation capability. These countries have significant potential to improve their innovation capability as their economies grow in the future.
Initial	Cambodia, Lao PDR, and Myanmar are in the 'initial condition' phase, which means they still need to establish nation-building infrastructure and institutions to set up their innovation capability.

[8] Intal, P. Jr., Y. Fukunaga, F. Kimura, P. Han, P. Dee, D. Narjoko, and S. Oum (2014), 'Competitive and Dynamic ASEAN', in ASEAN Rising: ASEAN and AEC beyond 2015. Jakarta: Economic Research Institute for ASEAN and East Asia, pp. 165–211.
[9] Japan Science and Technology Agency (2015), Current Status on Science and Technology in ASEAN Countries, Center for Research and Development Strategy, Paper No. CRDSFY2014-OR-02-EN.

Brunei is difficult to place in any of these categories because the country depends on its natural-resources-driven economic model. But the country is now aware of the necessity for industrialization through innovation.

Intal et al. (2014)[10] provide a useful matrix table to illustrate the development stages of each AMS and the policies needed at each innovation phase which we have reproduced below and slightly adapted based on developments made between 2014 and 2019.

Phases	Basic infrastructure	High tech infrastructure	Network cohesion	Global integration
Initial conditions Cambodia, Lao PDR, Myanmar	Political stability and efficient basic infrastructure.	Emergence of demand for technology.	Social bonds driven by the spirit to compete and achieve.	Linking with regional and global markets.
Learning Philippines, Indonesia, Viet Nam	Strengthening of basic infrastructure with better customs and bureaucratic coordination.	Learning by doing and through 'iminovation[11]. 	Expansion of tacitly occurring social institutions to formal intermediary organizations to stimulate connections and coordination between economic agents.	Access to foreign sources of knowledge, imports of material and capital goods, and FDI inflows. Integration in global value chain.
Catch-up Malaysia, Thailand	Smooth links between economic agents.	Creative destruction activities start here through imports of machinery and equipment, licensing and creative duplication. Some level of patent filings not just locally but also in the rest of ASEAN and developed countries such as US and japan.	Participation of intermediary and government organizations in coordinating technology inflows, initiation of commercially viable R&D.	Licensing and acquisition of foreign capabilities. Upgrading synergies through technology imports. Emergence of strong technology based exports. Access to foreign human capital, knowledge linkages and completeness in high tech products and collaboration with R&D institutions.
Frontier Singapore	Novel infrastructure developed to save resource costs and stimulate short lead times	R&D labs to support creative accumulation activities. Generating knowledge new to the universe. Technology shapers generate invention and design patents extensively here. Strong and sustained level of patent filings and non patent literature for domestic made inventions.	Participation of intermediary organizations in two-way flows of knowledge between producers and users.	Connecting to frontier nodes of knowledge, and competitive export of high tech products.

[10] See supra note 8.

[11] The term "iminovation" was first heard from Professor, Dr. Montri Chulavatnatol during an interview conducted by the author on behalf of the European Patent Office in 2002.

1.3 ASEAN Declaration on Innovation

There is a great need for region-wide innovation policies to enhance ASEAN's presence and create a competitive and dynamic ASEAN in the global economy. The ASEAN Economic Community (AEC) Blue Print 2002[12] encourages indigenous innovation and creativity and The ASEAN Intellectual Property Rights Action Plan 2016-2025[13], initiative 16 supports schemes for MSMEs and creative sectors. The declaration of Innovation in the ASEAN which was adopted by AMS on November 13, 2017 at the 31st ASEAN Summit in the Philippines[14] recognizes the need for policies to promote excellence and relevance in public research and encourage stronger links among government, academia, industry and society in order to strengthen the impact of STI. The Declaration has 8 items summarized below:

1. Recognize the opportunities and benefits arising from innovative start-ups and disruptive technologies;

2. Promote and reward innovative firms and businesses that generate employment opportunities by carrying out collaboration, capital investment, and cross-border transactions through digital technologies;

3. Stimulate innovation literacy and education and training in STI;

4. Enhance the policy and regulatory environment for Micro, Small, and Medium-sized Enterprises (MSMEs) and provide better support;

5. Foster a hospitable and dynamic intra-ASEAN policy environment for innovative research and technology transfer; and broaden supportive fiscal and non-fiscal policies for innovative R&D in both local and foreign owned firms in the region;

6. Harness STI to facilitate the realization of UN's Sustainable Development Goals by promoting further use of STI to address global challenges and societal concerns such as food security, health, energy, water, transport, environment, and disaster related problems, so as to improve the well-being of the ASEAN people in the urban and rural communities;

7. Encourage establishment of regional networks of joint research, capacity-building and innovation initiatives that focus on topics relevant to ASEAN, and enhance STI collaboration with global partners through such network organizations;

8. Promote the use of the Intellectual Property Rights (IPR) system that facilitates research collaboration, technology commercialization and an innovation culture.

Item 8 emphasizes the importance of the role that IPR should play in enhancing research, collaboration and innovation. In this context, employees' invention benefits are likely to play a growing importance in coming years.

1.3 Growing influence of China on AMS economies

A number of factors, both exogenous and endogenous, to the ASEAN region, shape the AMS economies and among them China has a strong impact through the increasing trade and investment flows and cross-border flows of various forms of knowledge and transfer of technologies. China is reshaping the industrial landscape

[12] The ASEAN Economic Community (AEC) Blue Print is available at http://www.asean.org/archive/5187-10.pdf last visited by the author on April 14, 2019.
[13] The ASEAN Intellectual Property Rights Action Plan 2016-2025 is available at https://www.aseanip.org/Portals/0/ASEAN%20IPR%20ACTION%20PLAN%202016-2025%20(for%20public%20use).pdf?ver=2017-12-05-095916-273 last visited by the author on April 14, 2019.
[14] The ASEAN Declaration on Innovation is available at https://asean.org/wp-content/uploads/2017/11/01-ASEAN-DECLARATION-ON-INNOVATION-as-of-Oct16-Final-for-Adoption-clean....pdf

of ASEAN economy in different ways. On some AMS China's surging for raw materials had an important impact, others have benefited from the relocation of industries. Overall, the economies of Southeast Asia have gained from China's increasing demand for a broad range of goods and investments.

2. EXPANSION OF R&D CENTERS IN AMS

ASEAN is increasingly becoming the R&D's home of major multinational companies such as:

Malaysia	Thailand	Vietnam	Philippines	Indonesia	Singapore
Shell, Honda, Yanmar Sony, Selborne, Danone, Motorola Etc.	Honda, Nissan, Toyota, Kao Chemicals, Kubota, Nisshin Stanley East West Seeds Etc.	Panasonic, Samsung, Virbac, Toshiba, Bosch, Humax Etc.	Canon Dost Packaging Samsung Etc.	Huawei, Wilmar, Yamaha, Bridgestone Etc.	Hitachi, Abbott Mitsui Chemicals Etc.

It is particularly true for Japanese companies, as per the following examples:

Corporate R&D centers of Hitachi[15]	R&D centers of Honda R&D Co., Ltd [16]
	

Various factors explain the rapid expansion of R&D centers in ASEAN, for instance:

- ✓ The rationale for investing in R&D in ASEAN has shifted from low cost (early 2000s) to skills and competencies;
- ✓ R&D centers aim to capture market opportunities. Companies are aware that they need to put their R&D operations much closer to the 600 million customers' basis that ASEAN offers as part of their offensive strategies;
- ✓ Companies are also investing in R&D as a defensive strategy. Asia's nascent corporate landscape has the potential to create highly disruptive innovations able to reshape whole industries in specific sectors (e.g. semi-conductor, rubber & polymer, steel, medical devices, hygienic products). Products designed in these markets have different specifications for different price points, giving rise to smart products and process that are low-cost and could easily go global.
- ✓ R&D is shifting from products localization to product creation and development in ASEAN. Traditionally, many firms used their R&D teams in ASEAN to "localize" existing innovations by simplifying them to make them more affordable. In contrary, today, many R&D centers are focused on developing new products addressing both local and global needs.

[15] http://www.hitachi.com/rd/about/location/index.html last visited by the author on April 14, 2019.
[16] http://world.honda.com/RandD/global/ last visited by the author on April 14, 2019.

For example:

⇨ *Mr. Kyoichi Tanada, President Toyota Motor Thailand - 2014 said "Toyota understands that the potential of the Thai people is very high. In the future looking beyond production to R&D, there may be the chance that our Thai employees will design the cars as well as produce them"[17]. This follows General Electric's programme known as "In China for China", whereby products for the Chinese market are developed and created by researchers working in China. Many of GE's products are focused on clean energy, a field that the Chinese government is keen to promote among domestic companies[18]. Siemens has a similar tratego for R&D in emerging Asia called "SMART" (Simple, Maintenance-friendly, Affordable, Reliable, and Timely-to-market). The idea is to have an innovation process that differs from the way the company practices R&D in other parts of the world, and which develops products appropriate to local markets in Asia[19].*

- Companies also recognize that the process to pursue innovation in emerging markets is usually different than in developed countries. They innovate at greater speed and lower cost, and are better at exploring "adjacent opportunities", and pursuing co-innovation with partners. Companies have put in place programmes to emulate the best R&D practices of their local Asian competitors, combining those lessons with their own best practices.

For example:

⇨ *Asia is home to three of Canon's global network of 9 R&D facilities worldwide. Located in China, Philippines and India. The R&D facility in Philippines specializes in the development of electronic application equipment and software. Canon strategy consists in moving towards the day when products will be developed and produced in Asia specifically for the growing Asian market, moving away from "localization" of products[20].*

- In locating R&D centres in ASEAN countries, the overriding consideration is generally the availability of skilled workers. Government policy, free trade agreements concluded with other nations and the degree to which governments support education and promote technology adoption seem also to be a key consideration.

For example:

⇨ Abbott, which already has plants in China and India, has recently invested $24 million to open a R&D center as well as a trial-product factory in Singapore. Singapore was chosen because it has free trade agreements with many other Asian nations, including China, the members of the AEC and Japan. This makes it easy to move trial products between Singapore and other major Asian countries[21].

ASEAN economy will continue to grow faster than most others around the world. As a result, it is expected the region will become an ever more important customer base for global companies. These companies will keep investing in R&D in the region in order to get closer to the customer base.

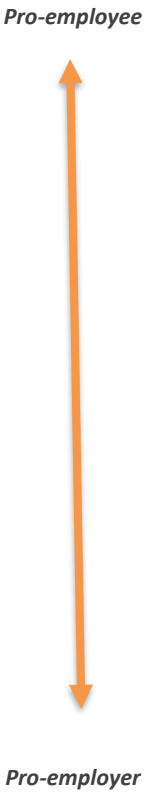
[17] http://www.boi.go.th/index.php?page=opp_automotive last visited by the author on April 14, 2019.
[18] http://www.geglobalresearch.com/blog/innovate-in-china-innovate-for-china last visited by the author on April 14, 2019.
[19] http://www.siemens.com/innovation/en/about-research-and-development.htm last visited by the author on April 14, 2019.
[20] http://www.canon-asia.com/personal/web/company/about last visited by the author on April 14, 2019.
[21] http://asia.nikkei.com/Business/Companies/Abbott-Laboratories-finds-a-home-in-Singapore last visited by the author on April 14, 2019.

3. DISPARITIES BETWEEN AMS' LEGISLATIONS ON EMPLOYEES' INVENTION BENEFITS

The ASEAN Economic Community (AEC) Blue Print 2002[22] and ASEAN IP Framework 2016-2025 encourage indigenous innovation and creativity and. As part of the promotion efforts, it is stated that AMS inventors' employee benefits shall match with equitable economic development of AEC[23]. Often the modes of implementing treaties, agreements and declaration towards intellectual property reveal the vitality of traditional legal attitudes of nations[24]. ASEAN is not an exception. Vietnam and Thailand appear as "pro-employee" providing benefits to employees and clear basis for calculation compensation they are entitled to. On the contrary, Singapore and Philippines are "pro-employer". In the middle, countries entrust their IP Office or court with the duty to calculate employees' invention benefits (e.g. Indonesia).

Overall, there is much uncertainty about employees' rights to benefits. In large part this is due to the lack of details and/or the unclarity of national laws and the absence of benchmarks. The lack of harmonization amongst ASEAN legislations does not help. Even where a right to compensation can be established, the amount is often difficult to estimate. Against this background, this section considers the legal framework in the most R&D active jurisdictions for compensating employees for their inventions. The jurisdictions considered are the Cambodia, Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam which we divided into three categories: pro-employee, moderate and pro-employer. We also use China as a comparison.

Countries	Employee's right to be named as inventor	Employee's right to compensation	Basis for assessing the compensation level	Overall assessment of the legislation
Vietnam	✓	✓	✓	Pro-employee
Thailand	✓	✓	✓	Pro-employee
China	✓	✓	✓	Pro-employee
Indonesia	✓	✓	✓	Moderate
Malaysia	✓	✓	✓	Moderate
Cambodia	✓	X	X	Pro-employer
Philippines	✓	X	X	Pro-employer
Singapore	✓	X	X	Pro-employer



[22] http://www.asean.org/archive/5187-10.pdf last visited by the author on August 12, 2015.
[23] See supra note 22.
[24] C. Antons, 'Harmonisation and Selective Adaptation as Intellectual Property Policies in Asia', in: C. Antons, M. Blakeney and C. Heath, Intellectual Property Harmonisation Within ASEAN and APEC, Kluwer Law International, The Hague 2004, pp. 113-114.

3.1 Pro-employee countries

VIETNAM

According to the IP Law of 2005 (amended and supplemented in 2009)[25], patent rights for inventions made by employees belong to the entity or individual, including the employer, that has provided financial and material basis for the inventor in the form of assignment or work order, unless the parties have agreed otherwise. The employee is entitled to a personal right to the patent technology (i.e. named as the inventor in the papers relating to the patent as well as in any material in which this technology is announced or introduced[26]). The personal right shall be protected for infinite period of time[27]. Wrongful indication of inventor may be subject to warning or a fine of between VND 500,000 and 1,000,000 (USD23 and 46)[28]. The employee is also entitled to receive remuneration in accordance with the law[29].

Article 135 of the IP Law provides for an obligation to pay remunerations to authors of inventions, industrial designs or layout designs unless otherwise agreed upon by the parties. The minimum level of remuneration payable to the employee is provided for as follows:

- 10% of the profit amount gained by the employer from the use of the employee's invention, industrial design or layout-design; or
- 15% of total amount received by the employer in each payment for licensing of an invention, industrial design or layout-design.

Where an invention, industrial design or layout-design is jointly created by more than one employees, the remuneration level provided above shall be applicable to all co-inventors who shall agree by themselves on the division of the remuneration amount. The obligation to pay remunerations to authors of inventions, industrial designs or layout-designs shall exist throughout the term of protection of such inventions, industrial designs or layout-designs.

The value is calculated after the patent has been exploited, by considering all available evidence. To date, there is no detailed guidelines for the determination of profit amount gained by the employer from the use of the employee's invention, industrial design or layout-design as specified in Article 18 of Decree 103.

Unless otherwise agreed between the employer and employee, the payment of remuneration must be made no later than 30 days as from the date of receipt by the employer of the licensing fee or from the date of receipt by the employer the profit amount gained by the employer from the use of the employee's invention, industrial design or layout-design; if invention, industrial design or layout design is used continuously, each payment period must not exceed six (6) months from the end of the preceding payment period[30].

If the invention is created by the employee outside the labor process, relations and time, and the employee does not use any tool, facility or utility of the employer, that invention must be considered as belonging to the employee.

Although Vietnamese Labour Code of 2012[31] does not directly address employees' invention benefits, Article 23.2 provides for cases where the employer is entitled to request a written agreement or undertaking from the employee to keep content of a technology secret for a certain duration when that employee's works directly relates to a technological secret. Article 126.1 further provides a case in which the employer is entitled to

[25] Article 86 of the IP Law.
[26] Article 122 of the IP Law.
[27] Article 18 of Governmental Decree 103/2006/ND-CP dated 22 September 2006 (amended and supplemented by Governmental Decree 122/2010/ND-CP dated 31 December 2010) (Decree 103).
[28] Article 6 of Governmental Decree 99/2013/ND-CP dated 29 August 2013.
[29] Articles 135 and 132.2 of the IP Law.
[30] Article 18 of Decree 103.
[31] the Labor Code was adopted by the National Assembly of Vietnam on 18 June 2012 and came into force on 01 May 2013 (amended and supplemented by Civil Procedure Code 2015 and the Law amending some articles concerning planning in some Law/Code).

dismiss the employee if the employee discloses technological secret or violates the intellectual property rights of the employer.

There has been a dispute on the inventorship and the remuneration rights of the inventors to invention. Because there is no detailed guidance's on employee invention, it is recommended that the employer should clearly set out as much details as possible on definition of employee inventions, rights and obligation of the employee and the employer, specific amount of remuneration, payment term, etc. in its own internal working regulations. This is also recommended under Article 119 of Vietnamese Labour Code of 2012.

Underlying rationale	Moral rights to be name as inventor	Employee's rights to compensation	Basis for assessing the compensation level	Time frame for claims	Does the patent/design need to be granted?
Employer owns the invention unless agreed otherwise if the employer has provided financial and material basis (tool etc) for the inventor in the form of assignment or job order.	Yes	Yes	Yes. Minimum level of remuneration of 10 % of profit amount and 15 % of the total amount received.	The right to compensation is automatic, and does not need to be specifically claimed.	According to plain interpretation of IP Law, the obligation to pay remuneration when patent/design is granted and the obligation to pay remuneration is said to exist throughout the term of protection of such inventions, industrial designs or layout-designs.

THAILAND

The relevant legislations are the Thai Patent Act[32] and Ministerial Regulation No. 24[33]. Employers or people commissioning work to their employees have the right to apply for patents for inventions made during an employment or work-for-hire contract, unless a contract states otherwise. The same applies to employment contracts which do not require employees to exercise inventive activities, but under which the employee has made an invention using any means, data, or report put at his or her disposal during employment[34].

The Patent Act further states that an employer has the right to file for a patent and an employee-inventor has the right to receive remuneration in addition to his or her regular salary if the employer gains certain benefits from the current or future use of the invention. This right to receive remuneration cannot be exempted by any provisions in the employment contract[35].

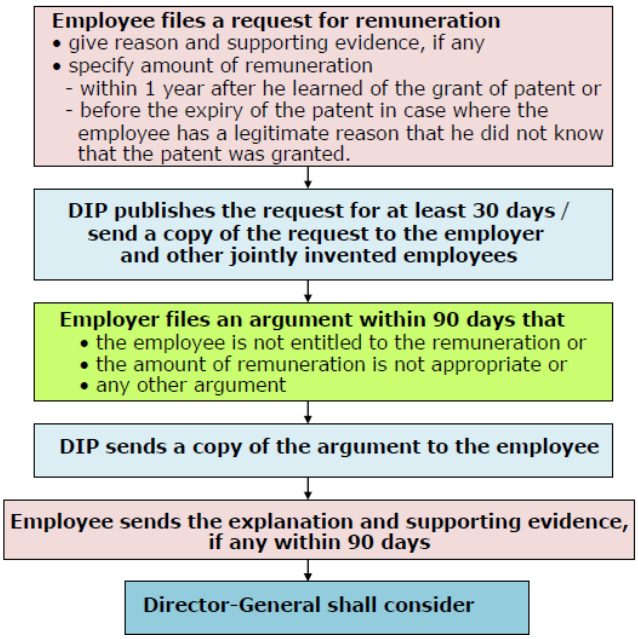
In the event the employer and employee disagree on the entitlement and/or remuneration amount, the employee or employer can submit a request to the Director-General (DG) of the Department of Intellectual Property. The DG has the authority to order the amount of remuneration as he or she deems fit, taking into account the employee's salary, the invention's importance, the current and future benefits of the invention, and other circumstances, as listed in the Ministerial Regulation Number 24. The regulation provides guidelines for determining remuneration which the DG can consider as follows:

- The employee's work responsibilities and nature of duties;
- The diligence and skills used by the employee in the invention or design of the product.

[32] Patent Act B.E. 2522 as amended by the Patent Act (No. 2) B.E. 2535 and the Patent Act (No. 3) B.E. 2542.
[33] Ministerial Regulation no. 24 B.E. 2542 (A.D. 1999).
[34] Section 12 of the Patent Act.
[35] Section 11 of the Patent Act .

- The diligence and skills used by any other employees jointly involved with the first employee in the invention or design of the product, including the advice or assistance of any other employee who is not the inventor or joint designer.
- The employer's assistance in the invention or design of the product by providing financing, advice, recommendations, facilities, preparation, or procurement of factors or services for the testing, development, or usability of the invention or design.
- The employer's current or future benefits from permitting others to use the invention or design of the product, including transfer of the patent or subordinate patent to another party.
- The total number of employees who jointly made the invention or design of the product.

The procedure for requesting the Director-General of the Department of Intellectual Property to fix the amount of remuneration is summarized below:



Underlying Rule	Moral rights to be named as inventor	Employee's rights to compensation	Basis for assessing the compensation level	Time frame for claims	Does the patent need to be granted?
Employer owns the invention unless agreed otherwise if (i) the invention is made in an employment contract or a contract for performing a certain act or (ii) the employee has made the invention using any means, data or report that his employment has put at his use even though the employee is not required to exercise any inventive activity.	Yes	Yes	Yes.	Yes, within 1 year after learning of the grant of the patent or before the expiry of the patent.	Yes

CHINA

China pays more and more attention to inventors' benefits. In the first patent law adopted in 1984, the law stipulated the employer is entitled to file a patent application and own the invention and did not stipulate any reward/remuneration of inventors. In the second revision of the patent law in 2000, although the reward/remuneration of inventor of service inventions was introduced, the stipulation functions as a guidance only, yet lacks maneuverability. In the implementing Regulation of the Patent Law 2010, a more detailed provision is given regarding the reward and remuneration to the inventor. Where the employer did not sign a contract with the inventor or has not provided in it rules regarding the reward and remuneration, after the patent is granted, RMB 3000 for invention (about USD 450) or RMB 1000 (USD 150) for utility model/design will be awarded to the inventor as a reward. When the patent is exploited, no less than 2% of the profit will be given to inventor(s) of the invention or utility model as remuneration, no less than 0.2% when it comes to a design patent. When the employer authorized other to exploit its patent, not less than 10% of the fee will be given to the inventor. The patent law is now undergoing its fourth revision. The revised Law is expected to be passed in 2019. According to the released draft law, it clarifies the incentive mechanism for inventors to reasonably share the benefits of service invention so as to promote the exploitation of the innovation.

Specifically, as early as 2015 Chinese State Council issued the Regulations on Service Invention (draft for review) to solicit public input, which means China intends to promulgate independent regulations for service invention although the patent law and its implementing regulations stipulate it already. The draft of provision of Service Invention focuses mainly on protecting the legitimate rights of the service inventor. Specifically, in order to safeguard inventor's right of authorship and rights of receiving rewards and remuneration, the draft provides that inventor has the right to know the relevant information of service invention in terms of filing patent application, assignment or licensing, and the employer shall listen to what the inventor has to say and inform the inventor regarding regulation of the employer' rewards and remuneration and determination of a specific inventor's rewards and remuneration. In addition, the draft fully respects the autonomy of will of the parties, namely if the parties had legally reached an agreement involving establishment of the ownership or the reward and remuneration, such agreement should be applied as priority. For purpose of preventing the employer from depriving or limiting inventor's rights in disguised form, the draft imposes limits on the principles of priority of agreement by providing that any provision involving abrogation of rights enjoyed by the inventor according to the regulation, or any provisions or agreements with additional requirements on the enjoyment of or exercise of rights are void; the draft also provides the standard for minimum amount of reward or remuneration in the absence of such agreement between the employer and inventor to ensure a basic security for the inventor's rights. Below is a comparison of the stipulations regarding the amount of reward and remuneration and other inventor's right between the current patent law or regulations enforced and the Regulations on Service Invention (draft for review) waiting for promulgated.

	Current patent law 2008 /Implementing regulations 2010	Regulations on Service Invention 2015 (draft for review) by the State Council
Ownership for invention when accomplished by job order	Employer	Employer (including within one year after leave)
Ownership for invention when accomplished by using the material and technical conditions of an employer	Contract/rules shall prevail. Without a contract or rules, the employer owns	Contract/rules shall prevail. Without a contract or rules, the employer owns
Moral rights to be name as inventor	Yes	Yes
Employee's rights to awards after patent grant and Minimum level when no agreements beforehand, time frame for payment	RMB 3000 for invention (about USD 450) or RMB 1000 (USD 150) for utility model/design, 3 months after obtaining the right	200% of the monthly average wages of its in-service employees for invention; and monthly average wages for other IP right. 3 months after granting
Employee's rights to compensation and	2 % of profit amount for invention/utility model, or 0.2% for	5 % of profit amount for invention and 3% for other IP, or 0.5% of the revenue for invention

Minimum level when no agreements beforehand; time frame for payment	design; or 10% of the total license/assignment fee No time frame	and 0.3% for other IP; or 20% of the total license/assignment fee; 3 months after year end/license fee received
Time frame for claims/payment	The right to compensation is automatic, and does not need to be specifically claimed.	The right to compensation is automatic, and does not need to be specifically claimed.
Does the patent/design need to be granted?	Yes, after patent is granted and throughout the term of protection	Yes, after patent is granted and throughout the term of protection

The above shows that China is a "pro-employee" country providing benefits to employees with clear basis for assessing their compensation including rewards after granting and remuneration when the patent is exploited. Minimum level is increasing dramatically especially in the draft Regulations on Service Invention. However the Draft Regulation on Service Invention has been pending for 4 years since the Legislative Affairs Office of the State Council publicly solicited opinions On April 2, 2015. We have reasons to believe that the balance between the benefit of employer and employee is seen as a challenge in China. The final version is still not confirmed. As a result, the current patent law and its regulations are still prevailing when it comes the inventors benefits in China.

3.2 Moderate countries

INDONESIA

The Patent Law[36] provides that unless agreed otherwise in an employment contract, the employer is entitled to obtain a patent in respect of an invention made in an employment relationship. Likewise an invention made by an employee or a worker using data and or facilities available in his work even though the employment contract does not require him to produce an invention belongs to the employer.

An inventor shall be entitled to receive compensation by considering the economic benefit that can be obtained from the invention. The amount may be paid in a lump sum, a percentage or a combination of both together with a gift or bonus, combination of percentage with a gift or bonus or any other forms agreed by the parties, the amount shall be determined by the parties[37]. It is difficult to ascertain in advance the economic benefit of an invention. One option is to pre-determine the reward to preempt future claim in the event of future success. There is some uncertainty in giving effect to such agreement but it helps to reduce the likelihood of an exorbitant claim in the future.

[36] Article 76-78 of the Implementing Regulations of the Patent Law of the People's Republic of China 2010.
[37] Article 6 of Patent Law of the People's Republic of China (Draft Amendment) Dec 2018.
[38] Regulations on Service Invention (draft for review) 2015
[39] Article 12 of the Law no. 13 of 2016.

(1) The party entitled to a Patent of an Invention made in an employment relationship shall be the party providing the employment, except otherwise agreed.
(2) The provision as described in paragraph (1) shall also apply to an Invention made by an employee or a worker who uses the data and/or facilities available at his work though the agreement does not require him or her to make an Invention.
(3) The Inventor as described in paragraph (1) and paragraph (2) shall be entitled to a reasonable reward by considering the economic benefits obtained from the Invention.
(4) The reward as described in paragraph (3) may be paid:
(a) in a lump sum of a particular amount;
(b) in percentage;
(c) in a combination of a lump sum of a particular amount and a gift or a bonus;
(d) in a combination of percentage and gift or bonus; or
(e) in another form as agreed between the parties;
in the sum as agreed by the concerned parties.
(5) In the case an agreement is not reached on the assessment and determination of a reward, the Commercial Court shall make the decision.
(6) The provisions described in paragraph (1), paragraph (2) and paragraph (3) shall not completely nullify the rights of the Inventor to have his or her name mentioned in the Patent Certificate.

Where no agreement can be reached regarding the determination of the amount of compensation, the Commercial Court may be requested to decide the matter. The inventor has the moral right to be named as the inventor in the patent certificate.

Rule	Moral rights to be named as inventor	Employee's rights to compensation	Basis for assessing the compensation level	Time frame for claims	Does the patent/design need to be granted?
Employer owns the invention unless agreed otherwise if (i) the invention is made in an employment relationship or (ii) the employee has used data and or facilities available at his work even though the employee is not required to exercise any inventive activity	Yes	Yes	Yes	It is arguable that a patent should have been filed before a claim can be made. We are not aware of any court ruling on this point to date.	No. The compensation is technically payable before the grant of a patent however we believe that the court is not likely to grant compensation without the patent having been granted.

MALAYSIA

Under the Patent Act 1983, the right to a patent or a utility innovation belongs to the inventor. However, there are two situations in which the owner will not be the inventor:

- In the absence of any contrary provision in the contract of employment, the rights to a patent made in the performance of such contract (e.g. the employee is hired to provide a solution to a technical problem) shall be deemed to pass to the employer[38];
- Where the employee, though not required to engage in any inventive activity in his contract of employment, makes an invention in the field of activities of his employer. This provision is also subject to a contrary agreement between the parties and also that the employee must have used data or means placed at his disposal by his employer[39].

Inventions outside these two situations are the property of the employee.

The word "data" would include information gained only because of the placement of the inventor in the particular work environment. Confidential information would fall within this category. Possibly other information which is not strictly confidential may be included. For example, where the employee is placed in the complaints department, he would be in possession of information relating to the defects and shortcomings of a particular product, which he would otherwise not be in possession of. It is not clear whether it applies also to special knowledge or expertise gained by the employee while in employment. "Means" presumably includes the use of equipment and machinery of the employer, materials, and possibly even the use of other workers in the employment of the employer.

Where the employer is entitled to an invention made by its employee under either section 20(1) or (2) of the Patent Act, the employee is entitled to equitable remuneration. Section 20(3) of the Act provides that the rights conferred on the inventor under subsection (1) and (2) shall not be restricted by contract.

[38] Section 20(1) of the Patent Act 1983.

[39] Section 20(2) of the Patent Act 1983.

Section 20(1) of the Act, which confers the ownership of the rights to a patent for an invention made by an employee to the employer, contains the following provision:

> "*… where the invention acquires an economic value much greater than the parties could reasonably have foreseen at the time of concluding the contract of employment … the inventor shall be entitled to equitable remuneration which may be fixed by the Court in the absence of agreement between the parties*."

The employee shall demonstrate that the invention has "*acquired an economic value much greater than the parties could reasonably have foreseen*". Further, the employee shall persuade the Court as to the amount that would be considered "*equitable remuneration*".

Underlying rule	Moral rights to be named as inventor	Right to compensation	Basis for assessing the compensation level	Time frame for claims	Does the patent/design need to be granted?
Employer owns the invention, unless agreed otherwise, if (i) the employee is hired to provide a solution to a technical problem or (ii) has used data or means placed at his disposal by his employer to make the invention even though the employee is not required to exercise any inventive activity.	Yes	Yes	Yes	No	No

3.3 Pro employer countries

CAMBODIA

The Cambodian Law on the Patents, Utility Model Certificates and Industrial Designs of 2003 (The Patent Law) provides that a right to a patent shall belong to the inventor.[40] Further, the Law furnishes that when an invention is made in execution of an employment contract, the right to the patent shall belong, in the absence of contractual provisions to the contrary, to the employer.[41]

Nevertheless, the Patent Law is silent on the economic rights to the employee. In addition to the Patent Laws, its implemented regulation - the Prakas (Declaration) on the Procedure of the Grant of Patents and Utility Model Certificates of 2007 does not provide the details on remuneration system or compensation entitled by the inventor for his patented invention. Cambodian Labour Law, as well, does not address the issue of employee's invention benefit during the employment contract.

The inventor has the moral right to be named as the inventor. The Patent Law states that the inventor shall be name as such in the patent, unless in a special written declaration signed by him and addressed to the Registrar he indicates that he does not wish be named. Any promise or undertaking by the inventor made to any person to the effect that he will make such a declaration shall be without legal effect[42].

[40] Article 10 of The Law on the Patents, Utility Model Certificates and Industrial Designs of 2003 (The Patent Law).

[41] Article 14 of The Patent Law.

[42] Article 15 of The Patent Law

In the absence of relevant regulation, when the agreement regarding the determination of remuneration cannot be reached or any dispute related to the invention of employee during their employment contract as such arises, the competent/ common court shall have the jurisdiction to decide the matter[43] [44].

Rule	Moral rights to be named as inventor	Employee's rights to compensation	Basis for assessing the compensation level	Time frame for claims	Does the patent/design need to be granted?
Where an invention is made in execution of an employment contract, the right to the patent shall belong, in the absence of contractual provisions to the contrary, to the employer.	Yes	N/A	N/A	N/A	N/A

PHILIPPINES

The legal framework governing relations between employers and employees in the field of intellectual property rights is primarily found in Republic Act No. 8293, the so-called Intellectual Property Code. Other issues involving employer-employee relations in the field of intellectual property rights are governed by the Labor Code of the Philippines and in the absence of applicable provisions in the IP Code and Labor Code, certain provisions of the Civil Code of the Philippines on Contract of Labor shall apply.

The original owner of the right to patent depends on whether the inventive activity is a part of the regular duties of the employee[45].

If the employee made the invention in the course of his employment, the patent shall belong to:

i) the employee, if the inventive activity is not a part of his regular duties even if the employee uses the time, facilities and materials of the employer;

ii) the employer, if the invention is the result of the performance of his regularly assigned duties, unless there is an agreement, express or implied, to the contrary.

However, the provision is silent as to economic rights to the employee. Therefore, this provision tilts the balance in favor of the employer.

- *If the employer is the original owner, what are the conditions for this attribution?*

  The IP Code requires the inventor to be identified in a patent application. Section 32.2 of the IP Code states: "No patent may be granted unless the application identifies the inventor. If the applicant is not the inventor, the Office[46] may require him to submit said authority."However, the IP Code is silent as to whether employees have a right to compensation in return for the transfer of rights over their creations to their employers. When the purpose of employment focuses on invention, the employee has received full compensation for his or her inventive work. Since the employer is the original owner, the employee cannot demand a separate financial compensation apart from his salary since he is not the owner to begin with. Nevertheless, an employee may be entitled to a separate financial

[43] Article 123 of The Patent Law
[44] Article 389 of The Labor Law of Cambodia
[45] Section 30.2 of the IP Code.
[46] Intellectual Property Office.

compensation if it is expressly granted in the employment contract. Thus, the availability of the right to financial compensation depends on the stipulations of the subject contract.

- *If the employee is the original owner, whether the employer has the right to have the patent transferred to him and under what conditions?*

  If the inventive activity is not a part of the employee's regular duties, despite the utilization of the time, facilities and materials of the employer, the employee is considered the original owner of the invention. Such rule can be considered absolute, subject to no other qualification such as an agreement to the contrary, hence, the employer has no right to have the right to patent transferred to him. The parties cannot therefore validly agree in advance that even works created by the employee outside of the performance of his regularly assigned duties shall belong to the employer. However, if the employee transfers or licenses to the employer the rights over his invention through contracts of assignment, licensing or technology transfer arrangements, royalty payments will most likely be stipulated and serve as the consideration for the contract. There is no statutory computation for compensation or the amount of royalty payments. The only standard provided by the IP Code is that the royalty payments must be "appropriate" for technology transfer arrangements.

Underlying rationale	Moral rights to be named as inventor	Rights to compensation	Basis for assessing the compensation level	Time frame for claims	Does the patent/design need to be granted?
Employer owns the invention, unless agreed otherwise, if the invention is the result of the employee's performance of his regularly assigned duties.	Yes	No	No	No	No

SINGAPORE

An invention made by an employee in the course of his employment is taken to belong to his employer[47]. The conditions for this attribution are that the invention must have been made in the normal course of duties of the employee and the invention might reasonably be expected to result from the carrying out of his duties. At the time the employee made the invention, he must also have been mainly employed in Singapore or his employer must have had a place of business in Singapore to which he was attached.

Section 49 of Patent Act

1) Notwithstanding anything in any rule of law, an invention made by an employee shall, as between him and his employer, be taken to belong to his employer for the purposes of this Act and all other purposes if:

(*a*) the invention was made in the course of the **normal duties** of the employee or in the course of duties falling outside his normal duties, but specifically assigned to him, and the circumstances in either case were such that an invention might reasonably be expected to result from the carrying out of his duties; or

(*b*) the invention was made in the course of the duties of the employee and, at the time of making the invention, because of the nature of his duties and the **particular responsibilities** arising from the nature of his duties he had a **special obligation** to further the interests of the employer's undertaking.

[47] Section 49(1) of the Singapore Patents Act 1994, revised in 2005

(2) Any other invention made by an employee shall, as between him and his employer, be taken for those purposes to belong to the employee.

The attribution of moral rights are protected by the Copyright Act (sections 188 - 190). This protects the false attribution of an author's name to a modified version of his work. No such protection is conferred under the Patent Act.

The Patents Act does not accord right to compensation unless specified in employment contract. The employer is not legally liable for making any payment and may decide, at its absolute discretion, whether to offer a financial incentive and may freely specify any financial compensation in a contract.

Rule	Moral rights to be named as inventor	Right to compensation	Basis for assessing the compensation level	Time frame for claims	Does the patent/design need to be granted?
Employer owns the invention, unless agreed otherwise, if (i) invention was made in the course of the employee's normal duties or (ii) outside but specifically assigned to him or (iii) in the course of the duties of the employee and, at the time of making the invention, because of the nature of his duties and the particular responsibilities arising from the nature of his duties he had a special obligation to further the interests of the employer's undertaking.	Yes	No	No	No	No

4. CONCLUSION

The disparities in regulating employees' invention benefits between ASEAN countries are significant. At one end, in Singapore, employees' claims for benefits seem very challenging to make. At the other, in China, Vietnam or Thailand, compensation schemes are available, awaiting employees to use them. Other countries, such as Indonesia would assess compensation at the time when the invention is made, typically award lower amounts of compensation than other countries. The lack of court cases ruling on employees' invention benefits also contribute to uncertainty when it comes to implementing companies' policies on inventions' benefits. Employers can seek to alter statutory provisions for compensation through entering into contractual arrangements with the employee providing voluntary invention compensation schemes with pre-determined lump sums or royalty payments for any commercialized inventions. These arrangements are designed to reduce the number of disputes regarding compensation and provide more financial certainty for employers. However, their enforceability and ability to override effectively the relevant statutory provisions vary between AMS. Employers with employees located across AEC have little choice but to become familiar with the various different national regimes and develop corresponding strategies.