



Sustainability Report

IPB University

2018

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Sustainability Report 2018

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Inspiring Innovation with Integrity

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MESSAGE FROM RECTOR

Sustainable Development Goals has become key global platform to create a better world for human life. The rapid increasing economy has been contributing to the deterioration of the ecosystem that diminishes its capacity to provide goods and environmental services as well as decrease the quality of life. The prevailing economic systems were mainly driven by economic growth and changes it brings about and further have also created significant gaps in the community. Changes in the way humans run the economy, interact in the society and with the ecosystem are indispensable in such a condition. Therefore, it needs a substantial commitment of the global community on the achievement of SDGs.

Indonesia, as a developing economy country, has a strong commitment to SDGs and has set up SDGs Roadmap and targets toward 2030. Indonesia aims at reducing poverty rate (Goal 1) no more significant than 4.33 percent in 2030, decreasing Food Insecurity Experience Scale (FIES) by 3.30, the prevalence of stunting by 10 percent, prevalence of wasting by 3 percent and increasing agriculture value added per worker until IDR 62.65 Million (Goal 2). For Goal 3, Indonesia attempts to decrease maternal mortality by 131 per 100000 live births and under-five death by 18.8 per 1000 live births. In achieving quality education (Goal 4), Indonesia has set up targets to increase reading and mathematics proficiencies by 67.2 percent and 35.5 percent for 4th graders, and 50.0 percent and 38.0 percent for 9th graders, respectively. Targets for other goals are 0.11 percent of the proportion of

women married before 15 years (Goal 5), 100 percent improved drinking water and sanitation (SDG 6), 26.1 percent renewable energy mix (SDG 7), 5.4 percent GDP per capita growth and 3.8 percent unemployment rate (SDG 8). Measurable targets for SDGs 9 to 17 have also specified in the Roadmap of SDGs Indonesia toward 2030.

IPB University, a leading university in Indonesia, has strong commitment to this global platform. Contributions of IPB University in SDGs are apparent not only due to the strong commitment but also due to the core businesses of IPB University that have related to SDGs in developing science and technology in the fields of tropical agriculture, ocean and biosciences. This Sustainability Report was written to indicate contributions of IPB University on SDGs in many areas of activity including campus operation, learning process, research, innovation and business development, publication, community engagement as well as partnership. We present this report not only to show our commitment but further to bring inspiration and spirit to the public and to convince ourselves that together by Inspiring Innovation with Integrity, we can create a better world for us and future generations.

Rector,

Prof. Dr. Arif Satria





IPB UNIVERSITY PROFILE

Historical Context

“Food is a matter of the Nation's Life and Death” was a key message of President Sukarno in his historic speech when he laid the first stone of Faculty of Agriculture - the University of Indonesia in Bogor in 1952. This faculty was the forerunner of Institut Pertanian Bogor (IPB) established in 1963. The statement of the highest leader at the time emphasized that overcoming and preventing hunger for all people was the purpose and mission of establishing IPB. IPB developed so that Indonesia could achieve the Second Goal of the Sustainable Development Goals (SDGs), more than 60 years before the SDGs itself formulated. The goals in the Sustainable Development Goals are the ultimate humanitarian goals, which have existed since the beginning of civilization. To get out of poverty, eliminate hunger, maintain health, and encourage quality of life, and other goals are the basic desires of nations, although the formulation can differ from time to time. Therefore, the involvement and efforts of IPB to contribute to the achievement of these

goals have also taken place since its establishment.

IPB was actively involved in the development of the Mass Guidance program (BIMAS), which began with the involvement of IPB lecturers and students in the late 1960s and continued until rice self-sufficiency was achieved in the mid-1980s. The program not only prevented Indonesia from conditions of mass starvation (SDG-2) but also significantly reduced rural poverty (SDG-1).

IPB - through Prof. Sajogjo and the Center for Development Studies - in the mid-1970s also made a real contribution to the achievement of SDG-2 by producing a short publication on calculating the Poverty Line, which later became a principle approach to count the number of poor people in Indonesia. IPB also became one of the first institutions of higher education to conduct gender studies, which in the 1980s took the form of a Center for Women's Studies. IPB also developed a series of studies, discussions and direct actions in the field related to Social Forestry; one of the first to establish a Center for Environmental Studies; develop a series of studies, technological breakthroughs, and field practices in the development of ocean and coastal areas,

marine and fisheries aquaculture studies, integrated pest control, conflict resolution, rural industrialization development, nutrition education, and family science education programs, and agribusiness development to increase employment and economic growth.

There is a long list of various efforts made by IPB that contribute to the achievement of humanitarian goals - which in 2015 formulated as the Sustainable Development Goals. Such roles from time to time also gets amplification through the part of IPB teaching staffs and alumni who occupied important positions in decision-making from executing programs as well as in the highest positions such as The President, Ministers, Deputy Ministers, or CEOs in various organizations and companies. Some of them quantitatively recorded to the achievement of specific goals, while some others have become precondition for achieving that goal.

The above background provides a broader and deeper context regarding the IPB's role in supporting the achievement of SDGs. There are linkages between activities carried out by IPB and other parties, and recent achievements cannot be separated from what has been done in the past. Such conditions have been quite well in boosting the achievement of the targets, but on the other hand also create difficulties in measuring the contribution of one activity to a single and/or overall achievement of SDGs.

Campus Population

IPB employees consist of lecturers and education personnel, namely: Government employees, permanent employees, and temporary employees. The number of IPB employees or human resource (HR) up to 31st December 2018, was 4,060 people, with the following details: Government employees 2,567 people, consisting of 1,205 (29.68%) lecturers and 1,362 (33.55%) educational staff; IPB Permanent Employees or employees appointed with the Rector's Decree are 99 people (2.44%), all are

lecturers; Temporary employees or contract employees 1,394 people, consisting of 51 people (1.26%) lecturers and 1,343 people (33.08%) educational staff. Details of the number of IPB's HR as of 31st December 2018 presented in Figure 1.

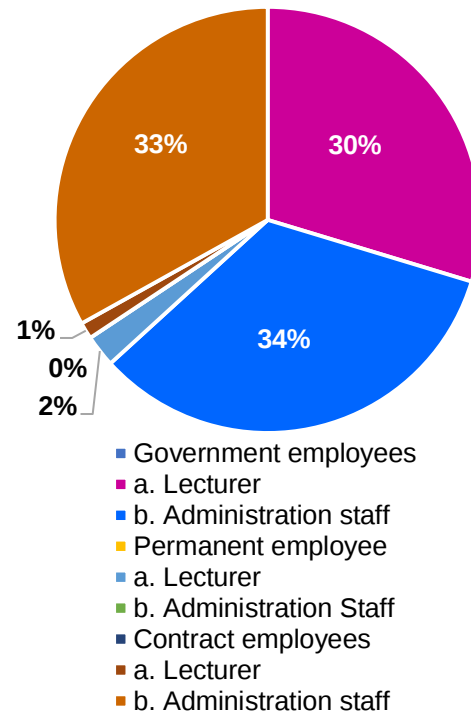


Figure 1. Number of HR of IPB in 2018

IPB lecturers based on gender, namely 772 people (59.20%) are male, and 532 people (40.80%) are female (Figure 2).



Figure 2. Proportion of IPB Lecturers by Gender

IPB lecturers based on their education level: 870 people (66.72%) had doctoral degrees (S3), and the remaining 434 people (33.28%) had master's

degrees. The composition of IPB lecturers based on their level of education presented in Figure 3.

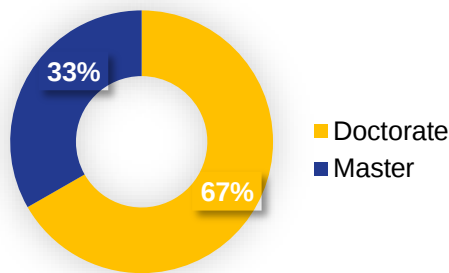


Figure 3. Proportion of IPB Lecturers Based on Education Level

Based on its functional position, lecturers with Lector (Associate Supervisor) and Head Lector positions constituted the most, with 367 people (30.46%) and 357 people (29.63%), respectively. There were 220 professors (18.26%), Expert Assistants totaling 192 people (15.93%), and 69 lecturers who did not yet have functional positions (5.73%). The composition of IPB lecturers based on functional positions presented in Figure 4.

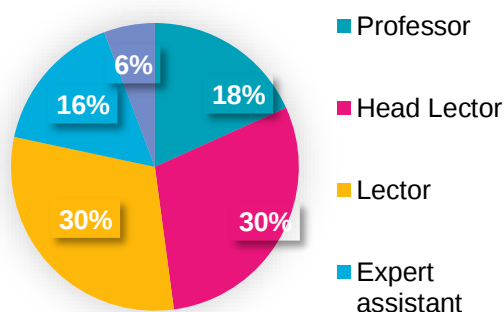


Figure 4. Composition of IPB Lecturers Based on Functional Positions

IPB lecturers who have received certification totaled 1,089 people (83.51%) of the total IPB lecturers, totaling 1,304 people. Educational staff are IPB employees who are appointed by IPB based on educational requirements, expertise and ability to facilitate the implementation of the Institute's activities. In 2018, government employees of the teaching staff of IPB totaled 1,362 people (53.06%) of the total civil servants of IPB. Of these 912 people (66.96%) were male

and 450 people (33.04%) were female. The level of education of IPB's teaching staff is mostly 703 people (51.62%) having a high school education, 299 undergraduate graduates (21.95%), 137 diplomas (10.06%), 107 people masters (7.86%), Junior High School 66 people (4.85%), elementary school 47 people (3.45%), and doctorates three people (0.22%). The condition of IPB's teaching staff by sex and level of education in 2018 is presented in Figure 5 and Figure 6.

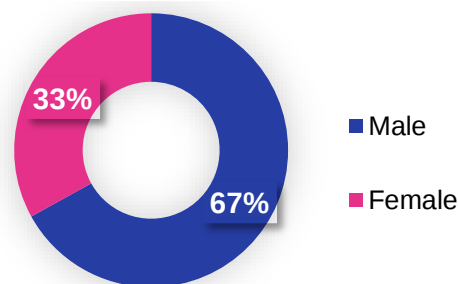


Figure 5. IPB Education Personnel Based on Gender

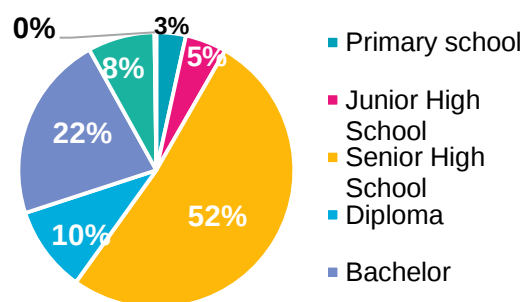


Figure 6. Education Staff of IPB based on Education Level

IPB as a higher education institution, organizes four types of educational programs, namely undergraduate (S1), master (S2), doctoral (S3), and diploma (S0) education programs. The data on the number of IPB students presented here is data as of 30 September 2018. The total number of IPB students enrolled (student body) for the four educational programs is 29,868 people, with details of undergraduate education students 17,828 people (59.69%), masters 4,184 people (14.01%), doctorates 1,362 people (4.56%), and diplomas (S0) 6,494 people

(21.74%). Details of students based on educational programs presented in Figure 7.

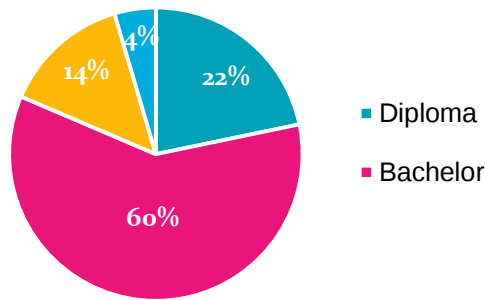


Figure 7. Details of Students Based on Educational Programs

Campus Area

IPB University is a state university based in Bogor. Before it was formalized in 1963, IPB was a faculty of agriculture at the University of Indonesia. On September 1st, 1963, Indonesia's First President, Ir. Soekarno laying the first stone of campus construction as well as marking the inauguration of the Bogor Agriculture Institute as an independent college. There are five campuses spread across several locations with special designation:

1. Dramaga Campus of IPB as a rector's office and a center for teaching, teaching and learning activities S1, S2 and S3. In addition, social facilities and public facilities are provided.
2. The Baranangsiang Campus of IPB as a center for research and community empowerment activities and executive postgraduate education.
3. IPB Gunung Gede campus as a center for management and business education activities.
4. IPB Campus of Cilibende as a center for vocational education diploma activities.
5. IPB Taman Kencana Campus.

IPB University also has field laboratories which spread in various regions:

- The Biology Department Field Lab is located behind Wisma Amarilis and is

adjacent to the Silvalestari C4 Dormitory. In this 1000 m2 area, students can conduct various studies and experiments in it.

- Integrated field laboratories located in several fostered locations such as in Pasirukem Village, Kec. Cilamaya Kulon, Kab. Karawang (integrated sheep); Sukamulya Village, Kec. Cilamaya Kulon, Kab. Karawang (Mushroom Cultivation; Trash Bank); Losarang Village, Kec. Losarang, Kab. Indramayu (Integrated Catfish Cultivation); and in Timika, Papua Province.
- Laboratory of the Faculty of Fisheries and Marine Sciences: Babakan Experiment Pool, Pelabuhan Ratu Marine Field Station, Ancol Marine Laboratory.
- The Animal Food Industry laboratory room located in the Field Laboratory of the Faculty of Animal Husbandry, on Jalan Kayu Manis, Darmaga Campus of IPB, Bogor.
- Laboratory of the Faculty of Agricultural Technology, Laboratory Agriculture Equipment and Machinery Field.



Image: Dramaga Campus of IPB



Image: The Baranangsiang Campus of IPB



Image: IPB Gunung Gede Campus



Image: IPB Campus of Cilibende



Image: IPB Taman Kencana Kampus

Our Mandate and Vision

IPB University vision for 2019-2045 specified in Governmental Regulation 66/2013 is to become a techno-socio entrepreneurial university leading in enhancing nation's dignity through internationally standard higher education in tropical agriculture, ocean and biosciences acknowledged at the global community.

In this regard, mission of IPB University constitutes:

1. to prepare educated human resources that are advanced, professional and having entrepreneurial manner in tropical agriculture, ocean and biosciences;
2. to lead in science, technology and art in respective fields; as well as
3. to transform sciences, technology and art for the good of the people and quality life.

In order to achieve this long-term vision, a short-term vision of 2019 – 2023 has been set up to bring IPB University becoming a research-based university that leads in innovations for nations' independency toward an internationally-

standard techno-socio entrepreneurial university in tropical agriculture, ocean and biosciences. With the above vision, the formulation of the objectives of IPB 2019-2023 as an intermediate goals are: (1) to produce superior techno-sociopreneur graduates who have noble character, have a strong nationalism and leadership spirit and be able to become a trend setter of innovation and change; (2) produce transformative science, technology and art for the creation of quality of sustainable life; (3) making IPB a determinant of current trends in the fields of agriculture, marine and tropical biosciences; (4) produce concrete innovations in driving the people's economy in the agriculture, marine, animal husbandry and forestry sectors as well as strengthening national industries; (5) making IPB as a university that is always proactive in solving community problems and determining the direction of national policy; and (6) making IPB a pioneer in developing a modern management system for higher education.

To realize this goal, there are 5 (five) main strategies, namely: (1) affirming IPB as an anchor academic excellence that produces superior techno-sociopreneur graduates with character; (2) construct innovation ecosystems that are adaptive to the transformation of digital society; (3) capitalizing on current achievements to strengthen the role of IPB as a strategic alliance in regional and national development; (4) building a spirit of joint progress and transformation of a culture of excellence by strengthening the engagement of the IPB academic community within the framework of bureaucratic reform with the principle of learning organization; and (5) bridging and playing an active role in building local, national and global connectivity.

To support this strategy, there are 10 main programs: Education, Research, Community Empowerment, Innovation and Business Development, Organization, Human Resources, Finance, Facilities and Infrastructure, Information and Communication Technology, Student and Alumni Affairs. These programs are implemented with a new funding strategy

sourced from the National Budget, Regional Budget, Foreign Funds, and Community Funds, including from the results of business development. This will also be followed by a system of quality assurance and monitoring and evaluation of performance in an accountable and effective manner.

Milestone 2019-2023

2019	2020	2021	2022	2023
Excellent innovation ecosystem	Engaged & Competent human capital	Excellent innovation	Enriched & Empowered Society	Local-Global inter-connectivity

Figure 8. IPB University's Milestone 2019-2023

The main programs will be implemented in the work themes and milestones 2019-2023 as follows:

1. Excellent innovation ecosystem, in 2019 the creation of conditions that can foster motivation, creativity, and academic freedom with conducive remuneration policies, adequate academic infrastructure, and creating new opportunities for growth in innovation;
2. Engaged and competent human capital, in 2020 the development of a spirit of progress together with productive and innovative works of the IPB academic community;
3. Excellent innovation, in 2021 the development of superior innovation accompanied by the growth of business start-ups and new technopreneur,
4. Enriched and Empowered Society, in 2022 the development of superior society together with IPB innovation and technopreneur;
5. Local-Global interconnectivity, in the year 2023 in the form of the creation of local-global innovation

connectivity that encourages IPB innovation increasingly worldwide.

Agro-Maritime 4.0

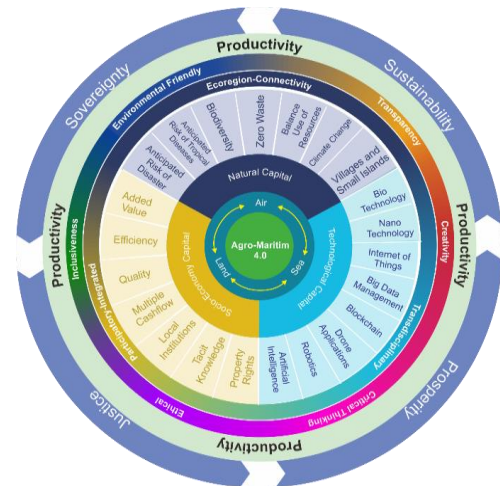


Figure 9. Concepts of Agro-Maritime 4.0

IPB University is aware that the Industrial Revolution 4.0 is something that cannot be avoided. The options are either to become the object of disruption or to enhance capacity to manage the disruption to create value for national wealth. We choose the latter; therefore, we are devoting our efforts to building commitment and formulating the concept that we call Agro-Maritime 4.0, as a fundamental framework. Agro-Maritime 4.0 constitutes a development platform that integrates management of terrestrial and marine areas, implemented by enhanced social and economic capital and the optimal use of digital technology through transdisciplinary, integrated, and participatory approaches, and using the principles of inclusiveness, transparency, environmental friendliness, creativity, critical thinking, and ethics to improve national productivity and achieve sustainability, prosperity, justice, and sovereignty, the ultimate goals of national development.

Agro-Maritime 4.0 considers agricultural, marine, and bioscience-based resources (called agro-maritime resources) to be the engine of future

growth; therefore, the villages, small islands, and cities have critical roles as centers of growth. In particular, villages and small islands constitute frontier economies for an archipelagic country like Indonesia because of their crucial role in making up an economic buffer zone, which provides raw materials, tourism, and maritime and environmental services, and biodiversity. Connectivity among regions and islands is indispensable to running the economy better, to eliminating inequity, and to secure national security and sovereignty. In this digital era, the application of the IoT in various forms of technology has a significant role in improving the growth of villages and small islands and also provides a solution to land constraints, by generating agricultural products through plant factory automation or urban farming. Agro-Maritime 4.0 widely applies the IoT to create precision in agro-maritime resource management through AI, drone application, robotics, blockchain, genetical engineering, nanotechnology, and many other ways. Many advantages and benefits are created by application of digital technology.

CAMPUS OPERATION



Transportation

The transportation system plays an important role in the level of pollutants and carbon emissions in the campus environment. Transportation policies to limit the number of motorized vehicles, use of campus buses and bicycles will encourage the creation of a healthier environment. The pedestrian policy will trigger and encourage students and staff to preferably walk within the campus area and avoid using private vehicles. The use of environmentally friendly public transportation will reduce the carbon footprint around the campus.

IPB has tried to reduce the number of cars actively used and managed by University, i.e. from 82 in 2017 to 78 in 2018. There was also a reduction in the number of motorcycles entering the university daily, i.e. from 1244 in 2017 to 1155 in 2018. However, this is not followed by the reduction of the number of cars entering the university daily, from 1683 in 2017 to 1921 in 2018. Currently, IPB is operating regular and free 31 shuttles with an average 33 passengers per shuttle. The total trips of each shuttle service per day have increased from 267 in 2017, and 275 in 2018. In addition, IPB also provides free

Zero-Emission Vehicles (ZEV) with 690 bicycles and 35 electric cars in 2018. To support efforts in emission reductions, IPB also provides pedestrian paths designed for safety, convenience, and in some part with disabled-friendly features.

Green transportation is an environmentally friendly transportation system developed to reduce environmental impacts due to the use of fossil fuels. This initiative will be part of the Green Campus program in 2019-2023. For this reason, efforts are needed to maximally reduce the use of motor vehicles that produce greenhouse gas emissions by encouraging a culture of walking and facilitating the development of public transportation infrastructure with the lowest possible emission levels.



Image: IPB University's Bicycle



Image: IPB University's Electric Bus



Image: IPB University's Electric Cart

Biodiversity and Landscape



Image: LSI Lake



Image: Landscape Arboretum



Image: Rector's Park

IPB Dramaga campus covering an area of approximately 267 ha, is one of the largest campus areas in Indonesia, has a large green open space. IPB has a total area on campus covered in planted vegetation around 74% of the campus area. The campus is surrounded by three rivers, namely the Ciapus River in the north and west, the Cihideng River in the south and the Cisadane River in the west. The three river ecosystems make the Dramaga IPB campus to have a unique landscape and ecosystem, living space and habitats for various types of wildlife and plants.

Biodiversity is the main pillar and a supporting system for the sustainability of the green campus. The biodiversity within the Dramaga Campus of IPB has become an important study material for students and lecturers and a priceless natural laboratory. They are mostly living in the

forest area that covers around 46% of the total campus area. There are several main areas with various biodiversity, i.e. at Forestry Faculty Arboretum, Bamboo Arboretum, Biofarmaka, Cikabayan Campus Forest Park, Al-Hurriyyah forest complex, River border habitat (riparian), Rector's Park, Landscape Arboretum and LSI Lake. During the last 15 years, IPB has identified 21 types of mammals, 97 species of birds, 12 types of amphibians, 36 reptile species, 75 kinds of butterflies, and 173 species of woody plants or tree species within these locations and in campus in general. IPB has huge and many building areas. Only less than 30% of the total building area has implemented a smart building implementation.

The campus also produced renewable energy with capacity around 2350 kW from biodiesel and 9 kW from solar power. The greenhouse gas emission reduction program has been initiated started through the initial measurement of gas emission reduction. The total carbon footprint divided by the total campus population was around 63,46 metric tons per person in 2017 and 80.45 in 2018.

One of the targets of Green Campus is to implement green energy through reducing the use of electricity derived from fossil fuels and replacing with alternative energy sources such as solar cells, hydroelectric power plants (MHPP), biogas and biomass-based bio-energy.

The green movement is also needed as it will be able to create a green culture among the academic community by prioritizing environmental behavior by saving electricity, saving water, reducing paper and reducing plastic waste. IPB has identified problems, solutions, strategies and programs related to Energy Efficiency and Low Emission Criteria in its 2019-2023 Green Campus road map.

Waste Management

Referring to legislation No. 36/2009 on Health, IPB as a workplace is obliged to guarantee the availability of a healthy environment that free from bad risks to

health. One way to create a healthy environment is through the management of various types of waste. So far, the university has conducted a recycling program to reduce the use of paper and plastic on campus, such as double sided-printing policy, the use of tumbler, the use of the reusable bag, and print when necessary. Organic waste has been partly composted, while the inorganic waste was partly recycled. There was an increase in the university effort in inorganic waste treatment, where less than 50% partially recycled in 2017 into more than 50% (50-70% treated) in 2018. Toxic waste is well treated, completely contained, inventoried and handled by the university. Meanwhile, sewerage disposal is treated individually in the septic tank and put in centralized treatment before disposal.

IPB has developed a roadmap on waste management as part of the Green Campus initiative that covers details on planned activities, milestones, deliverables and risks for the next 5 years starting from 2019 to 2023. It is targeted that in 2019, the activities will be focused on:

- i. Setting waste management goals
- ii. Assessment of waste identification and characterization (solid, liquid, gas, B3) throughout the IPB campus
- iii. Development of a short-, middle-, and long-term waste management programs. Through these activities, IPB will be able to identify the identity and characteristics of the arranged waste and to have a legal basis and regular budget on its waste management program.



Image: IPB University's Waste Segregation



Image: Compost Processing



Image: Biogas Processing

surface runoff volume. For the water recycling program, the implementation is also at an early stage through the initial measurement of potential water recycle as well as feasibility study and promotion. There is an increase in the use of water efficient appliances (water tap, toilet flush, etc.) at IPB, where less than 50% water-efficient appliances installed in 2017 and increase to more than 50% installed in 2018.



Image: IPB University's Water Drinkable

Water Management



Image: IPB University's Water Sewered

As part of the Green Campus initiative, IPB has identified several programs for the Water Friendly/Sensitive Campus goal. The alternative programs needed are water network repairs, bathroom equipment replacements, education campaigns to conserve water use, making water drinkable stations, making well points according to ecological concepts, and constructing pilot areas for water reuse. These programs are expected to be implemented based on the 2019-2023 road map.

Energy

IPB is expected to become a Water-Friendly Campus, a campus that can manage its water well to meet the needs and sustainability of its environment, with the water-friendly culture for all its academic community. By adopting "water sensitive city", IPB has identified six stages need to be implemented in order to achieve this goal, i.e. i) Water supply campus, ii) Water sewered campus, iii) Water drainage campus, iv) Waterway campus, v) Water cycle campus, and vi) Water-friendly/sensitive campus.

Water conservation program implementation at IPB is at the early stage that includes initial measurement of potential water conserved and potential

Energy efficiency and climate change become one of the criteria in IPB's green campus planning. In the 2019-2023 IPB Strategic Plan, IPB green campus was described as a campus of IPB with a high commitment to building a culture of increasing energy efficiency, conserving resources and improving the quality of the environment by educating to create healthy living and a conducive learning environment in a sustainable manner. IPB has huge and many building areas. Only less than 30% of the total building area has

implemented a smart building implementation. However, the effort to increase efficiency in the use of energy has been started. There was a small decrease in electricity usage per year from around 18033435 kWh in 2017 into 17933931 kWh in 2018. The campus also produced renewable energy with capacity around 2350 kW from biodiesel, and 9 kW from solar power. The greenhouse gas emission reduction program has been initially started through the initial measurement of gas emission reduction. The total carbon footprint divided by the total campus population was around 63,46 metric tons per person in 2017 and 80.45 in 2018.

One of the targets of Green Campus is to implement green energy through reducing the use of electricity derived from fossil fuels and replacing with alternative energy sources such as solar cells, hydroelectric power plants (MHPP), biogas and biomass-based bio-energy. The green movement is also needed as it will be able to create a green culture among the academic community by prioritizing environmental behavior by saving electricity, saving water, reducing paper and reducing plastic waste. IPB has identified problems, solutions, strategies and programs related to Energy Efficiency and Low Emission Criteria in its 2019-2023 Green Campus road map.



Image: Alternative Energy

Health and Well-being

IPB University in supporting health and well-being in accordance with SDG 3 (Good Health and Well-Being) has an IPB polyclinic consisting of 2 places namely the Baranangsiang IPB Polyclinic and the Dramaga IPB Polyclinic. On January 26, 2018 the Polyclinic changed its name to the Health Unit in accordance with the MWA Regulation on Organization and Work Procedure of Bogor Agricultural University Number 1 / IT3.MWA / OT / 2018 with the task of serving the health care needs and basic medical treatment of lecturers, and the teaching staff as well as the nuclear family and students which functions as the coordinator of all clinics in the IPB environment, planning and developing the health service system; health unit resource planning and development; guidance and development of health functional personnel; providing basic health services and first aid, including examinations, treatment and actions of general practitioners and dentists; providing health services for new students of IPB (S0, S1, S2 and S3) and the implementation of a referral system to hospitals for patients in need.

Service assignments are carried out by 3 clinics namely Baranangsiang Clinic, Diploma Clinic and Darmaga Clinic. The Health Unit increases service to 2 shifts with additional service hours from 07.00 to 14.00 and continued from 14.00 to 21.00 WIB. On Monday - Friday, Saturday 1st shift servants are 07.00 -14.00 WIB. In the development of the health service system IPB entered into a cooperation agreement between the Vice Chancellor for Resources, Planning and Finance as the leader of the Health Unit with the Health Insurance Administering Agency Cibinong branch in order to support government programs in providing certainty of protection and social welfare for all people; especially to the residents of IPB. Service activities in 2018 namely incidental activities in the form of assisting various activity committees in IPB as a health team.

The Health Unit has conducted general health services held at the

Darmaga pratama clinic and the Baranangsiang Clinic. Health service activities include:

1. Examination, treatment and actions by general practitioners.
2. Dental examinations, treatments and actions.
3. Laboratory examination.
4. Midwifery Examination
5. Field Services.
6. HR Development
7. Equipment Procurement

The number of people treated for general and dental treatment in 2018 totaled 16,196 people, with a composition of 14,007 people taking general treatment and 2,189 dental treatment. The number of people treated according to identity is presented in Figure 10.

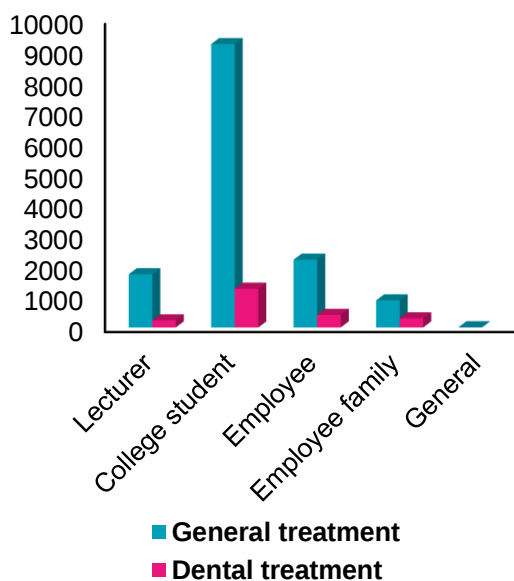


Figure 10. Number of visits that treated to IPB Health Unit in 2018

Sport Facilities

IPB University in realizing SDG 3 also provides several sports facilities such as an indoor gymnasium which is the main building for each student's sports activities. The facility is located on the Dramaga University IPB Campus. Various sports events at the faculty and faculty level of IPB were held at the Gymnasium facility, which includes futsal, basketball, and

aerobics. The gymnasium also facilitates students and lectures to conduct sports courses for first-year students.

Gelanggang Olahraga (Gelora)



Gymnasium field is multifunction football field facility shaped of oval with athletic racecourse track in the border of the field. The athletic track is having length of 400 m and wide of 10 m. The field itself is having area of 105 x 70 m². The field is always favored by the students for daily sports activities or weekend sports events. Other than that, gymnasium field is also used for other campus events such as student orientation (MPKMB), Gebyar Nusantara Nights, events of Dies Natalis of IPB University, and others.

Agrifitness



Agrifitness is an indoor sport fitness facility located in Wisma Landhuis (Landhuis Guesthouse), IPB University Dramaga Campus. This facility is intended for guests that staying in the guesthouse.

Horse Track and Horse-Riding Facilities

Horse-riding facilities is in the practical field area of Faculty of Animal Husbandry, IPB University. In the area there are grassland and horse track for students' horse-riding practices. There are 17 horses are stabled in the facilities.

Aside of horse-riding, the facilities also famous for entertainment, prewedding and pre-graduation.



Archery Site Facility



IPB University has archery sport facility for students and public use. Every

Sunday, students shares about archery through sharing session. During sharing session, student tells about tips and tricks related to practical archery to other IPB University students or public.

Basketball Field, Badminton, Tennis, and Futsal Facilities



IPB University have three basketball fields, two badminton fields, three tennis fields, and two futsal fields that scattered in several places in IPB University Dramaga Campus and Cilibende Campus.

EDUCATION FOR SUSTAINABLE DEVELOPMENT

Study Program



Figure 11. Study Program Matrix Linkage

IPB University has 17 Diploma study programs (Vocational Schools), 32 Undergraduate study programs and 124 Postgraduate study programs (Masters and Doctorates). Study programs at IPB have contributed to the Sustainable Development Goals (SDGs), especially at SDG 9 (Industry, innovation, and infrastructure - Building strong infrastructure, promoting sustainable industries, and encouraging innovation) of 52, 94 %. The second-largest contribution to SDG 15 (Life on land - Manage forests sustainably, fight land conversion to the desert, stop and rehabilitate land damage, stop biodiversity extinction) by 15.69%. SDG 3 (Good health and well-being, promoting healthy living and supporting welfare for all ages) also contributed 11.76%.

The relationship between the main option categorization with the second and third options for SDGs 12 has the highest relationship between objectives, namely 13 study programs with close links with SDG 9 (8 study programs), SDG 3 (2 study programs) and SDG 15 (2 study programs). The relationship between the

two highest objectives SDGs 4, namely 10 study programs, with close links with SDG 9 (15 study programs) and SDGs 15 (2 study programs).

The relationship between the main option categorization with the second and third options for SDGs 12 has the highest relationship between objectives, namely 13 study programs with close links with SDG 9 (8 study programs), SDG 3 (2 study programs) and SDG 15 (2 study programs). The relationship between the two highest objectives is SDGs 4, namely 10 study programs, with close links with SDG 9 (15 study programs) and SDGs 15 (2 study programs).

Student Final Project

The final project of students in 2018 amounted to 5,790 consisting of 4,668 undergraduate student theses, 686 master theses of master's students and 436 doctoral student dissertations. The final project was mostly from Communication and Community Development study programs, the second from Veterinary Medicine and the third-highest from Computer Science. Contribution of student final assignments to SDG 11 (Sustainable Cities and Communities), SDG 3 (Good Health and Well-being) and SDG 9 (Industry, Innovation and Infrastructure). The number of the final project per study program can be seen in Figure 12.

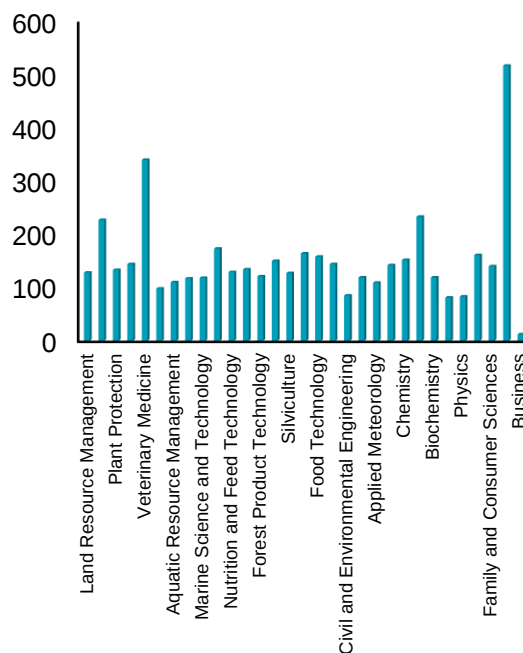


Figure 12. Number of Final Project

Student Activity (KKN, IGTF, PKM)

IPB University in an effort to improve the performance of learning service activities for students, every year LPPM IPB has consistently carried out and improved various activities which include, among others, Real-Thematic Work Lectures (KKN-T), Real National Work Lectures (National Community Service Program), IPB Goes to Field (IGTF) and PKM (Student Creativity Program). In each program several activities were carried out, namely socializing with the community, carrying out the main activities, and making documentation and journals. Participants will participate in all activities but have responsibility for one of the three activities mentioned above. Each program is guided by one or more supervisors and is led by one or more senior student assistants. The program implementation in the field is carried out in coordination with the local regional government.

IPB KKN has grown from 1970 to 2019, and since 2017 the KKN-T is mandatory for students until now KKN-T activities are participated by 9 faculties in IPB, in 2020 all faculties in IPB will take part in KKN activities. The purpose of the IPB's KKN-T activities is to help solve

agricultural problems in the broadest sense that exist in the community and synergize with development activities that are being carried out by the local government. IPB KKN-T is designed in accordance with the vision, mission, strategic plan, competence and science and technology of IPB and its implementation is integrated between faculties/departments, multi and interdisciplinary between professions in IPB. This KKN is useful in alleviating problems in an area, especially in remote villages, according to the needs of the people in the village.

Expectations of the output of the implementation of KKN-T activities can improve students' hard skills, soft skills and character, understand ways of thinking and work interdisciplinary and cooperation between sectors, able to work systematically, can utilize science and technology in development, able to carry out social closeness, and can be a bridge liaison for universities, private and government.

IPB Goes to Field is an educational activity in the form of student learning with the community by living, adapting, and working together with the community. The status of IPB Goes to Field activities is non-curricular which is carried out voluntarily by interested students. The purpose of IPB Goes to Field is to facilitate IPB work partners and improve students' ability to overcome development problems in the community.

Higher education is expected to produce graduates who have the academic ability and have good soft skills because students are the power of development and at the same time are the key to opening a better future for the nation. More broadly, tertiary institutions have three main roles in the development and development of civilization, namely (1) developing science and technology, (2) producing quality graduates, and (3) mediating in social and national life. Bogor Agricultural University (IPB) is one of the tertiary institutions in agriculture that has a high academic reputation both nationally and internationally. Bogor Agricultural

University is expected to produce graduates who not only have a high achievement index (hard skills) but are also sensitive to agricultural problems, social problems in the countryside, able to find solutions with high creativity, and have a vision for the future of agriculture in Indonesia. To carry out the three roles of the above universities, IPB initiated an activity called IPB Goes to Field (IGTF), in which a number of IPB students and lecturers took to the field to solve problems in the community. With this program, IPB helps the community overcome their problems, while at the same time providing students with learning experiences to live together and work together with the community. In its implementation in the field, IPB Goes to Field involved other relevant stakeholders, such as community leaders, local government, private sector, industry, and NGOs. The Institute of Research and Community Service (LPPM) of IPB in 2018 released 251 students to participate in the IPB Goes to Field (IGTF) and ASEAN SLP activities to various regions in Indonesia and Malaysia.

Student Creativity Program (PKM) was developed in order to deliver students to the level of enlightenment of creativity and innovation based on mastery of science and technology and high faith. The purpose of PKM is to channel student creativity and innovation, as well as to improve the achievements and reputation of students and institutions.

Students are prepared to become intellectual leaders, independent and wise entrepreneurs through the PKM program so that they could implement their abilities, skills, attitudes, responsibilities, build teamwork and develop independence through creative activities in the occupied field of science. PKM is intended for students throughout Higher Education through the provision of funds that are competitive, accountable and transparent. The criteria include core activities such as activity material, education stratum, number of members, accompanying lecturers, cost allocation.

Six types of PKM activities offered, namely: PKM Research (PKM-P), PKM

Application of Technology (PKM-T), PKM Entrepreneurship (PKM-K), PKM Community Service (PKM-M), PKM Scientific Articles (PKM-AI), PKM Written Idea (PKM-GT). PKM-P, PKM-T, PKM-M, PKM-K and PKM-GT programs that have passed the selection, are evaluated for implementation and declared eligible to be invited to the National Scientific Week (PIMNAS) for further evaluation. Specifically, for PKM-AI not included in PIMNAS, but for PKM-AI groups who have passed the selection will be given an award in the form of incentives of IDR. 3 million and his work was published in the Journal of Student Creativity. IPB University has carried out PKM following the mandate launched by DP2M DIKTI, in 2018 PKM with agriculture-related as much as 35 percent had passed the PIMNAS selection.

Student Admission (Ketua OSIS, BUD, UTM, SBMPTN, SNMPTN, HAFIDZ, Foreigners Registration Process)

Bogor Agricultural University or IPB University is one of the best state universities in Indonesia that receives a quota of prospective new students with a capacity of 40% through the SNMPTN (National Selection Entrance to State Universities), 40% through SBMPTN (Joint Selection Entrance to State Universities), and 20% through IPB Mandiri Selection Talent Entrance IPB (UTMI), Regional Envoy Scholarship Pathway (BUD), and Chairman of the Student Council OSIS (intra-school students organization) Chairperson Path - International and National Achievement Path / PIN (Including Hafizh Quran Path).

The admission of new students of IPB is based on the principle of education for all which opens the widest possible access for all Indonesian Citizens and Foreign Citizens who meet the requirements of IPB to continue their studies at certain types and levels of education at IPB. IPB has various interesting study programs in the Saintek (science and technology) group. In fact, some majors which are usually included in

the Soshum (social humanities) group at other universities, enter the Saintek group in IPB, such as Syariah Business and Economics.

Entrance to IPB University has its own charm, especially through special invitation selection (UK Selection). UK Selection is a pathway for accepting new undergraduate students based on academic considerations and exceptional achievements of prospective high school/equivalent graduates who have received awards in certain academic/scientific fields on a national and international scale or organized by IPB, or have outside capabilities usual in the field of sports/arts, Hafidz Al-Quran, which is considered worthy to be invited to be a student of IPB through a special selection process.

Foreign students can be accepted into various Indonesian-language programs at the Graduate School with the provisions of mastering Indonesian, meeting the applicable requirements, and submitting proof of special permission (approval) from the Ministry of National Education. Foreign students who take part in international programs are not required to master Indonesian. Foreign students can be accepted as Research Students with a term of one year. The study period of research students can be extended according to applicable regulations. Provisions regarding the status of research students are outlined in an academic regulation.

RESEARCH AND INNOVATION

Focus Research



Figure 13. Fields of Research

Indonesia without hunger and poverty

IPB University committed to alleviating poverty and famine in the world through science development and various research to produce new innovations and beneficial to mankind. IPB University had conducted 546 research during 2018 and the highest proportion is 139 (25%) of total research in IPB University aiming for SDG 2 (Fig.14). Researchers at our IPB University conducted Collaborative Research between major or department in the IPB University and also with other institutions or universities. Totally 106 research conducted through collaboration or Center Research at IPB University to reduce hunger and poverty problems.

Good health and welfare

IPB University putting attention on health and welfare issues (SDG 3) especially for rural society, hence 43 or 17.4% of research in IPB targeted to approach SDG 3. Those research at IPB

University has influenced policies for improving the quality of life to protect their health and maintain the incomes, particularly for those marginalized across previous policy and research.

Research in number

Five hundred forty-six of the research conducted by IPB University probably produces more than one goal for one study. All research in IPB University already classified by 17 SDGs (Sustainable Development Goals) as seen in fig.13. Most of the research (25%) in IPB University propose for SDG 2 (End poverty in all its forms), following by 17% of SDG 3 (health), and 16% of SDG 9 (infrastructure and industrialization). Based on 17 SDG's, IPB university produces 57.9% of total research targeted on one goal, 37.5% with two goals, and 4.6% with three goals (Fig.15).

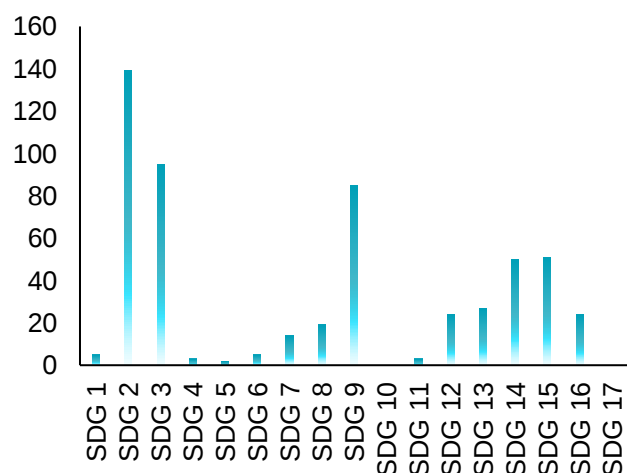


Figure 14. Research on IPB University (classified by SDG's)

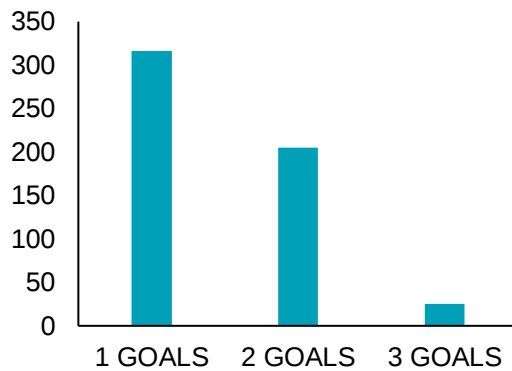


Figure 15. Comparative studies of research by single option and multi option

Publications



Figure 16. Publications

IPB is very committed to the development of research and innovation that results in a change in society and industry for sustainable development. Most of IPB's scientific publications focus on SDG 9, 14 and 15. This shows that IPB is very concerned about important aspects of generating sustainable development through innovative technological advancements that still maintain the preservation of resources and the environment. IPB publications also show many things related to the reduction of loss of natural habitats and biodiversity to keep maintaining the balance of nature both land, sea and air.

During 2018, IPB produced 3254 articles in books, published articles in

journals or scientific proceedings, articles in newspapers/magazines, etc. Scientific articles that are published in both national and international journals are the main contributors as a whole of IPB publications at 67%. Publications in scientific articles published in reputable international journals (indexed Scopus) in IPB 2018 were 998. The highest proportion of these international publications was included in SDG 9 (21.6%) and followed by SDG 15 (19.6%) and SDG 14 (SDG 14 (SDG 14) 2.2%). Based on 17 SGD's, IPB University produces 61.2% of total international publications targeted on one goal, 33.7% with two goals, and 5.2% with three goals (Fig.16).

Innovation Related SDGs

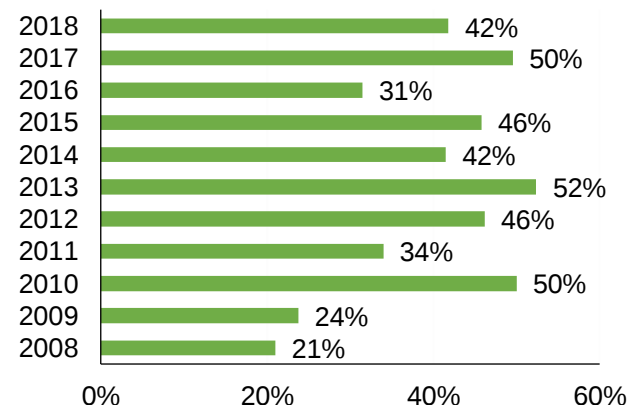


Figure 17. IPB's Contribution to Total National Innovations in 2008-2018

The changed tagline or motto of IPB University into **"Inspiring Innovation with Integrity"** is one of the new promises which is more distinctive compared to other universities. The word innovation in the motto showed that IPB is strongly committed to increasing the innovation's quality and quantity produced. This can be seen through innovative works which always dominating compared to other universities in 2008-2018 (Figure17.) Thus, IPB is considered as the most productive university that produces innovative works.

Between 2008-2018, the total number of innovations produced by IPB

was 461. Indeed, all the innovations produced by IPB were its contributions to the realization of SDG's goal number 9 (Industry, Innovation, and Infrastructure). Other than that, all the innovations have the linkage to achieve some of the other SDGs. From 461 innovations, 48% of them contributed to 3 SDGs at the same time, and 52% to 2 SDGs at the same time. The variation of linkages of IPB's innovation in 2008-2018 shows that innovations produced by IPB have a high value of use.

As shown in Figure 18 and 19, Innovations produced and Intellectual Property Rights by IPB always strongly connected to SDG number 12 (Responsible Consumption and Production), SDG number 2 (Zero Hunger), SDG number 3 (Health and Well Being), and SDG number 14 (Life below water). This is highly relevant to IPB's role as a pioneer in Agro-Maritime 4.0. Based on the qualitative analysis done by the writer, IPB's innovations have led to digitalization in the agricultural and maritime sectors, which highly connected in order to achieve SDG number 12.

If we carefully observe, from 17 SDGs goals initiated by the UNDP, SDG number 12 is a core to achieve the other goals. Because the unsustainability problem arises from un-responsibility or

minimum responsibility of producers and consumers in the economic cycle from all life's aspects. Thus, IPB Innovations can be considered to have a high creation power in order to achieve the SDGs.



Figure 18. Innovation 2008-2018



Figure 19. Intellectual Property Rights 2018

COMMUNITY ENGAGEMENT AND PARTNERSHIP

Community Engagement



Figure 20. Community Engagement By Goals

IPB University is one of the tertiary institutions which is fully committed to encouraging the achievement of 17 goals, 169 targets and 241 indicators through the Tridharma of Higher Education in Sustainable Development Goals (TPB / SDGs). The contribution of IPB University's community empowerment per SDGs based on primary options amounts to 1,970 programs (Fig. 20), with the highest percentage in SDGs 4 (31%), which is about education - ensuring decent and inclusive quality education and encouraging lifelong learning opportunities for everyone. This is in accordance with the capacity of IPB as a university that prioritizes quality education. The second highest percentage is SDGs 2 (11%), zero hunger - ending hunger, achieving food security and improving nutrition, and promoting sustainable agriculture. IPB university as a university which focuses more on agriculture, marine, tropical biosciences is in accordance with the goals of sustainable development. The categorization of community empowerment from 1,970, which achieved

one goal is 1,050 (30%), which has two goals 804 (41%) and three goals as many as 116 (6%). It means that the community empowerment of IPB University is still focused on one goal, lacking relations between other goals.

The relationship between the main option categorization with the second and third options for SDGs 4 (education) has the highest relationship between objectives, as many as 379 programs with close links with SDGs 9 (Industry, innovation, and infrastructure) (64 programs), SDGs 16 (peace and justice) (59 programs) and SDGs 2 (Zero Hunger) (56 programs). It means that IPB as a tertiary institution has implemented the Sustainable Development Goals well and in accordance with its objectives, namely education, with the relation of quality education that has innovation, sustainable industrialization, also encourages a just, peaceful and inclusive society. Community empowerment of IPB is also closely related to ending hunger, achieving food security and improving nutrition and promoting sustainable agriculture.

The relationship between the two highest goals is SDGs 2 (Zero hunger), which is as much as 145 programs, with a close relationship with SDGs 3 (Healthy and prosperous life) (32 programs). This means that IPB as a university that mainstreams in agriculture, marine, and tropical biosciences has achieved its goal by providing innovation to the community in achieving food security and improving nutrition, promoting sustainable agriculture, with close links in promoting healthy living and supporting welfare for all ages in Indonesia.

Partnership

IPB University has cooperation agreements with various categories of partners both with the central government (ministries; non-ministerial and non-

structural institutions), local governments (provincial and district/city), accredited tertiary institutions A and B (state universities and private universities), BUMN, private sector, others (foundations, NGOs, CBOs, etc.), and multi-institutions, with the number of cooperation agreements in 2018 of 1,010. The percentage of cooperation agreements based on partner categories can be seen in Figure 21.

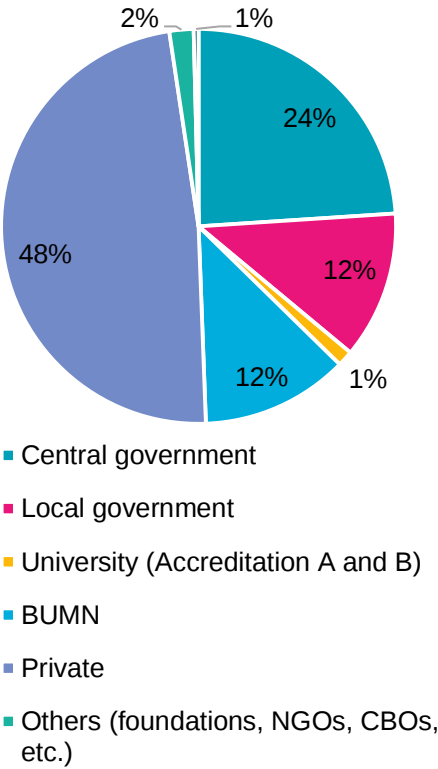


Figure 21. Percentage of Cooperation Agreements Based on Partner

CONTRIBUTION TO SDGS

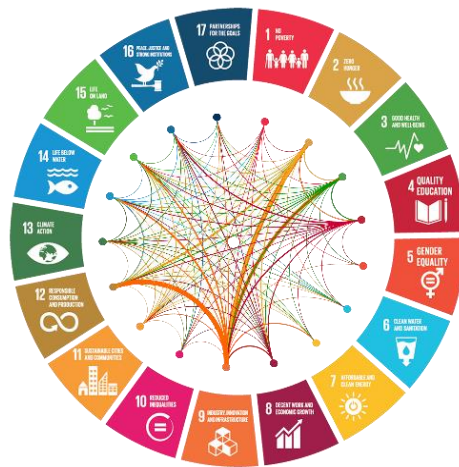


Figure 22. Summary of IPB's Contribution on SDGs

IPB University contributes to SDG 9 (Industry, Innovation, and Infrastructure), SDG 2 (zero hunger), SDG12 (responsible consumption and production) and SDG 3 (healthy and prosperous life) as strength of higher education. Since 1980 IPB has contributed to SDG 2 (zero hunger) and SDG 1 (without poverty), through the development carried out by IPB both the development of study programs, research and innovation, publications, community empowerment. IPB is always strongly connected to SDG 12 (Responsible Consumption and Production), SDG 2 (Zero Hunger), SDG 3 (Health and Welfare), and SDG 14 (Marine Ecosystems). This is very relevant to the role of IPB as a pioneer in AgroMaritime 4.0.

Based on the development of higher education Tridharma and the forms of cooperation that have been carried out by IPB, the strength of the study programs developed has contributed to SDG 12, SDG2 and SDG 4. While in research and innovation SDG 12, SDG 3 and SDG 9. Publications make strong contributions to SDG 2, SDG 12, SDG 9 and SDG 15. Intellectual property rights (IPR) IPB contributed to SDG 9, SDG 12, SDG 3 and SDG 2. Likewise, community service by IPB contributed to SDG 4, SDG 9, SDG 6 and SDG 12. The sliced contribution from the whole developed by IPB is conical on SDG 9, SDG 2, SDG 12 and SDG 3 (Fig. 22).



Contribution to SDGs



