

East Indonesia as the Center of Pig Production

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Abstract – One of the programs of *Nawa Cita* of the President Joko Widodo's governance is "Building Indonesia from the borderland and empower the regions and villages in the frame of unitary state". In the program, there is a clear significance that building Indonesia is no longer centered in Java Island, but it will be accelerated outside Java Island, particularly in the East Indonesia. The government has also committed to build the Tourism in the East Indonesia so that it can be the new source of economic growth in Indonesia. One of the commodities that supports tourism is the livestock sector. East Indonesia has many potential to become pork livestock such as, firstly, the potential of human resource; most of the people work as farmer and this fact becomes a strategic process to develop pork livestock. Secondly, the potential of natural resource in the East Indonesia, viewed from the available land, highly supports the pork livestock business. There are many lands which have not been optimally utilized for farming business, in a broader sense. Thirdly, the potential of social resource is the non-Muslim community that does not proscribe eating pork. Fourthly, the potential of technological resource, mainly the efficient technology in the field of pork livestock will be faster and easier to be adapted by the people. Associated with the national pork production, the provinces of the East Indonesia are the biggest population contributors. More than 50% of national pork production is in the East Indonesia. Based on the data from the General Directorate of Animal Husbandry and Animal Health in 2016, East Nusa Tenggara had the highest pig population of 1,871,717 pigs. Viewed from the growth in the last two years (2016 compared to 2015), South East Sulawesi was the highest or 12.86%, the next was Central Sulawesi (9.86%), and the North Sulawesi (4.70%), and East Nusa Tenggara was 3.27%. The development of pork livestock business in the East Indonesia is confronted to several problems such as production factor, facilities, economy & marketing, farmer's behavior and institutions; however, with strong commitment from the central and regional government, such problems will be optimistically solved. Based on the potential of natural and human resources associated with the program of *Nawa Cita* of the current government, the East Indonesia is very likely to become the center of pork livestock. The production is not merely for private parties who want to invest in pork livestock business in the East Indonesia, but also particularly in the development of fodder factory, that the transportation cost can be reduced. The government needs to set a clear livestock zoning that the investors of pork livestock obtain legal protection, that they can feel comfortable and safe in doing their business.

Keywords – The East Indonesia, Natural Resource, Human Resource and Pork Livestock.

I. INTRODUCTION

In terms of territory, the East Indonesia is the economical area based on maritime, including the provinces of East Indonesia such as South Sulawesi, West Sulawesi, South East Sulawesi, Central Sulawesi, Gorontalo, North Sulawesi, North Maluku, Maluku, East Nusa Tenggara, West Papua and Papua. The number of regencies within

those provinces is 153; South Sulawesi (24), West Sulawesi (5), South East Sulawesi (12), Central Sulawesi (11), Gorontalo (5), North Sulawesi (15), Maluku (11), North Maluku (9), East Nusa Tenggara (22), West Papua (11), and Papua (28).

Making East Indonesia as the center of pork livestock production is one of interesting and reasonable topics. It is related to the nine priority agendas by the Joko Widodo as the President and Jusuf Kalla as the vice president, the so-called *Nawa Cita*. This program is initiated to show the priority of change towards a politically sovereign Indonesia that has independence in terms of economy and personality in culture.

One of the nine programs, particularly the third program, is "Building Indonesia from the borderland and empower the regions and villages in the frame of unitary state". In that particular program, there is a very clear significance that the governance of Joko Widodo-Jusuf Kalla no longer makes Java Island as the center of development, but it will be accelerate outside the Java Island, particularly in the East Indonesia. The government has also committed to build the Tourism in East Indonesia so that it can be a new economical resource. One of the commodities that supports tourism is livestock.

Building Indonesia from the borderland means that it is the time to lead Indonesian development to small areas. The development all this time has not been spread evenly; therefore, there are many areas that are far left behind compared to other areas. It does not only affect the economy, but also affects the politics. The region that has more abundant natural resource of which the wealth has been taken by the government does not obtain proper compensation from the central government. It makes them want to be independent from the Republic of Indonesia. Such threat is very dangerous for the integrity of Republic of Indonesia.

The development of East Indonesia as the center of livestock, particularly pork livestock, is expected to become one of the alternatives to reduce food imports. The government has to be brave to start that the potential in the East Indonesia has to be well utilized so that Indonesia can be sovereign in terms of food needs. It is not enough for Indonesia to merely be able to afford the food needs. Indonesia needs to be sovereign in food needs. All this time, the government is accustomed to apply the policy of food imports to meet the national need. However, the East Indonesia has high potential for food development; it is even very likely to create a surplus.

From the program of *Nawa Cita*, it is the right moment to develop the regions in the field of livestock, particularly pork livestock. The government's commitment has been very clear and it has to be supported by many parties by contributing ideas and thoughts so that the purpose of development can be realized.

II. THE POTENTIAL OF PORK LIVESTOCK IN EAST INDONESIA

Speaking of the potential of pork livestock in East Indonesia, it actually has very great prospect. The first is the potential of human resource. The people of East Indonesia are mostly farmers and this fact becomes a strategic potential to develop pork livestock. Farming and breeding have been hereditary as the basic capital that has been embedded in our human resource. The task is how to increase the capital that we are able to become pork farmers who have advanced knowledge, skills and behavior according to the demand of current and future farming development. All the human resource involved in the field of farming should have its prosperity increased.

The second is the potential of natural resource in East Indonesia, viewed from the wide lands available to support pork livestock business. Many lands have not been utilized optimally for farming business in greater sense. Also, the price of lands for sale or for rent is cheaper compared to those in Java Island. Farming lands in East Indonesia are

more potential to open and develop due to the fact that if we associate it with the pace of growth and human population, it is not really significant compared to West Indonesia that the functional shift of the land is less and open land for pork livestock business is wider. The population in Java Island has been very high. For instance Jakarta with 11,968.79 people/km², west Java with 1,055.25 people/km² and Special Region of Yogyakarta 1,067.18 people/km². Meanwhile, the number of people in East Indonesia is rather smaller. West Papua and Papua are only inhabited by 5.6 and 6.8 people/km², respectively.

The third is the potential of social resource; it is very supporting given that the majority of East Indonesia are non-Muslim that they do not proscribe eating pork. This social resource becomes a very strong capital to develop pork livestock business in East Indonesia. They can become very potential pork producers and also consumers. Associated with national pork production, the provinces in East Indonesia contribute the most population. More than 50% national population of pigs is in East Indonesia (Table 1).

Table 1. Population of Pigs Based on Provinces in East Indonesia in 2012-2016 *)

No.	Province	Year					Growth in 2016 compared to 2015 (%)
		2012	2013	2014	2015	2016	
1.	East Nusa Tenggara	1.697.252	1.751.805	1.755.058	1.812.449	1.871.717	3,27
2.	North Sulawesi	393.724	398.466	404.968	408.270	427.450	4,70
3.	Central Sulawesi	215.446	218.992	213.657	238.584	262.115	9,86
4.	South Sulawesi	603.337	636.519	654.443	667.980	688.019	3,00
5.	South East Sulawesi	41.377	43.625	50.034	57.755	65.183	12,86
6.	Gorontalo	4.709	6.201	8.178	9.323	9.330	0,08
7.	West Sulawesi	132.475	127.888	128.668	131.839	134.476	2,00
8.	Maluku	286.470	287.994	81.312	83.730	4.189	0,55
9.	North Maluku	61.006	57.383	59.051	65.421	66.882	2,23
10.	West Papua	88.255	97.583	91.936	100.706	103.325	2,60
11.	Papua	577.407	579.024	680.099	706.108	738.714	4,62
	Total	4.101.458	4.205.480	4.127.404	4.282.195	4.371.397	2,08
	Total in Indonesia	7.900.363	7.598.694	7.694.130	7.808.087	8.114.488	3,92

Source: General Directorate of Animal Husbandry and Animal Health (cultivated).

Note: *) Temporary Number.

In Table 1, we can see that East Nusa Tenggara has the highest population of pigs of 1,871,717 pigs. However, if we see the growth in the last two years (2016 compared to 2015), South East Sulawesi is the highest, 12.86%, followed by Central Sulawesi (9, 86%), and North Sulawesi (4.70%) and East Nusa Tenggara (3.72%). If we see the

provinces in Borneo, Bali and West Nusa Tenggara, they have the highest population of pigs; 803,920 pigs (Table 2). However, the growth (2016 compared to 2015) is merely 1.13%, which is far behind North Borneo (10.00%) and West Borneo (6.72%), but it is better than South Borneo that experienced decreasing (8.12%).

Table 2. Population of Pigs Based on Provinces in Borneo, West Nusa Tenggara and Bali 2012-2016 *)

No.	Province	Year					Growth in 2016 compared to 2015 (%)
		2012	2013	2014	2015	2016	
1.	West Borneo	484.284	413.508	533.686	560.566	598.263	6,72
2.	Central Borneo	183.532	193.900	182.442	190.016	201.104	5,84
3.	South Borneo	5.257	4.064	3.407	3.361	3.088	-8,12
4.	East Borneo	88.154	91.722	64.214	68.238	72.327	5,99
5.	North Borneo	-	-	31.804	35.491	39.040	10,00
6.	Bali	890.598	840.409	817.489	794.936	803.920	1,13
7.	West Nusa Tenggara	62.768	55.615	46.127	49.016	52.288	6,68
	Total	1.714.593	1.599.218	1.679.169	1.701.624	1.770.030	4.02

Source: General Directorate of Animal Husbandry and Animal Health (cultivated).

Note: *) Temporary Number.

Table 3. Meat Production Based on Commodity in 2014-2015

No.	Type	Year		Growth in 2015 compared to 2014 (%)
		2014	2015 TN.	
Meat Production (000 ton)				
1.	Cow	497,670	523,927	5,28
2.	Buffalo	35,24	31,67	-10,12
3.	Goat	65,14	65,85	1,09
4.	Sheep	43,61	40,95	-6,10
5.	Pig	302,29	319,11	5,57
6.	Horse	2,31	2,45	5,84
7.	Free-range chicken	297,65	314,00	5,49
8.	Laying chicken	97,20	95,65	(1,59)
9.	Broiler	1.544,38	1.627,11	5,36
10.	Duck	33,18	34,84	5,02
	Total	2.918,67	3.014.607	3,29

Source: General Directorate of Animal Husbandry and Animal Health (cultivated).

Note: TN. = Temporary Number.

Based on the data in Table 3 in 2014 the contribution of pork is around 10.36% and in 2015 around 10.59% towards national pork production. The highest contribution is from broiler for 52.91% in 2014 and 53.97% in 2015.

Meanwhile, cow has 17.05 and 17.38%. It means that pork contributes as the third greatest of the national meat production. The rest is from goat, sheep, buffalo, duck, horse, and laying chicken (Figure 1).

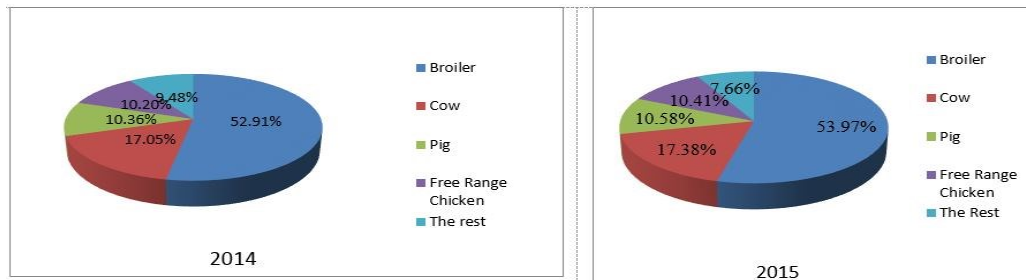


Fig. 1. Contribution of pork towards national meat production.

The fourth is the potential of technological resource, primarily the efficient technology in the field of pork livestock that will be faster and easier to adopt by the people. One of the examples is injected mating or artificial insemination for the pigs is not a difficult technology that it can be applied and accepted by the farmers. Such technology is proven to be able to resolve the problem about male pigs and increase the production of the pigs significantly. Besides the technology in East Indonesia, there are many local wisdoms or customary rituals that use pigs as its media. It surely gives positive impact towards the effort of increase in population due to the fact that the people are competing to breed pigs because it is needed for rituals or customary ceremonies.

One of the example of ceremonies is "*mapinton*" which is a ceremony to ask for safety for children done by the people of Bugbug sub-district, Karangasem Regency, Bali, in the full moon of *sasih kapat* (October) by offering roasted pig in Pura Bukit Gumang. More than a thousand roasted pig are offered in the ceremony. Also in Timbrah sub-district, which is close to Bugbug sub-district, there is a ceremony called *usaba* (asking for safety) which also offers roasted pig (Figure 2). The ceremony called *bakar batu* in Papua also uses pigs (Figure 3). Given that the need of pork is much and frequent, the people will be motivated to breed pigs.



Fig. 2. Roasted pig used as the media of ceremony by the people of Timbrah sub-district, Karangasem Regency, Bali (photo: Martawan).



Fig. 3. Bakar batu ceremony in Papua; the head of tribe shoots the pig

Source: Ratri Dwi Ramadhanny

III. PROBLEMS AND SOLUTIONS

The development of pork livestock business in East Indonesia faces several problems such as production factor, facilities, economy and marketing, farmer's behavior and institution. In terms of production, most of our farmers are small farmers with limited knowledge and skills (low level of technology and information mastery), the breeding system is dominated by extensive or semi-intensive livestock, and the animal health service that has not been optimal. The solution is increasing the knowledge of the farmer through counseling and mentoring by the Field Counseling Workers, that they are able to breed the pigs more intensively by adopting the technology and give animal health service through the workers in the center of animal healthcare.

From the aspect of facilities, there are difficulties in terms of the high price of fodder. Corns as the main fodder are still imported. Also, the price of soybeans and fish flour keeps increasing and some of those products are still imported. In several areas, particularly in East Nusa Tenggara, the availability of water becomes a different problem for pork livestock business. Water for daily need has already been difficult to gain for the people. The solution is that the government or private institution should build fodder factory in East Indonesia that the transporting distance becomes closer and it can increase the local food production (corn, soybean, bran) that it does not have to depend on imported products. The government can also give corn subsidy that the price of fodder can be cheaper. Regional government needs to help providing water that is feasible for livestock.

Aspect of economy and marketing includes most of pork farmers who still breed pigs as their side job that it is difficult for them to obtain optimal income. Besides, there is no fixed periodical marketing plan which causes the livestock sale profit is used for buying emergency needs. The farmers do not have clear information about the market, where they can sell their product continuously. The transportation facility has not been feasible that makes the travel time for transporting the animals become relatively long and it surely affects the animal condition. The quality of the pigs sold by the common farmers has not satisfied the consumers. The solution is to change the orientation of the farmers into business orientation; the management of livestock breeding has to be repaired that it can produce high quality pork. The government provides the information about the market through market survey that the farmers have the picture regarding the opportunity and need in the market to sell their products.

Aspect of socio-economical farmer's behavior is still patterned on the strong orientation of food security that puts livestock as the savings in facing the risk of failure in main farming effort. They have not become business oriented by counting the profit target thoroughly. The farmers have been comfortable if their pigs can stay alive even though the breeding time until they are sold is long enough. The solution is almost the same as the economy aspect; they need to apply the business principles, count the profit and loss that the scale of finance can be read clearly. By doing

this way, the profit and loss can be measured precisely.

Aspect of institution reveals that our farmers that are associated in the livestock group are not strong enough in terms of the development of livestock demand nowadays. There has been many livestock group, but none of them has optimally acted as cooperated institution either in terms of production/ cultivation, marketing, or cultivation of production. The livestock group is frequently utilized as the initial facility in obtaining government supporting facility. Afterwards, it does not play any more roles in accommodating the needs of the farmers. The solution is by empowering the role of livestock groups that their existence is highly appreciated by their members. The government should be able to provide monitoring through Field Counseling Workers or the Technical Executive Unit in the region.

The aspect of capital is still sensed and becomes a different problem for the farmers. Private parties have their own doubt in investing because of high risk and too long capital turnover. Bank interest rate is economically still considered too high. The solution is that the government needs to prepare and socialize a financial institution that can help the farmers in preparing soft interest loans with simple procedure (s). Pork farmers need to be given insurance as in agricultural insurance that when they fail, they will not be totally bankrupt.

IV. THE IMPORTANCE OF POLICY

Speaking of policy aspect, we cannot be free from what that has been the government policy, in this case, the General Directorate of Animal Husbandry and Animal Health. Such policy is written in Strategic Plan of Developing Animal Husbandry and Animal Health 2015-2019. The policy still applies up to now. In the policy, the purpose is *the Realization of Food Sovereignty and Safety from Livestock Supports the Strong Foundation of Sustainable Bio-industry*.

The next step is how the government policy can be translated into a more concrete program in the field of pork livestock. Pork livestock is a sub-system of bio-industry. Therefore, a policy needs to be made so that pork livestock as a bio-industry becomes stronger, more advanced and sustainable. Regional government, province and regency/city government, have to follow up such policy and coordinate that there is a unified view towards the steps to be taken.

It is very important given that in the era of regional autonomy nowadays, each of region has different views towards the policy of central government. Let alone vertically the structure of institution of Department of Agriculture can be different from one region to another in Indonesia. This condition makes policy in central level is not line with the regional government, given that the diversity of Working Unit in each region. For example, not all regions have Department of Animal Husbandry and Animal Health. In many regions, Department of Animal Husbandry is combined with Department of Agriculture or Plantation or Fishery.

Also in other development sectors, the existence of gov-

-ernment as the regulator party is always expected by pig farmers. When the number of pig population in a region has met the market need, the government and their authority can forbid imported pork products. It has happened in Bali in 2012-2013 when pigs from Java flooded Bali that the price of pigs in Bali became very cheap; IDR 12,000 - 16,000/kg alive. In such condition, pig farmers experienced bankruptcy and loss.

Another government role is in terms of managing pig marketing from partnership pattern livestock which is assumed by independent farmers as the obstruction in regional pig marketing. Independent livestock demands that partnership farmers do not sell the pigs in local market, but international one so that the price of pig will not be decreased. It has to be mediated by the government. Otherwise, it can cause restlessness among the farmers.

The fact that is often seen in the field is that pig farmers, particularly those of big scale, frequently face social problems on the spot in the form of protest from people living surrounding the piggery. Whereas, when the piggery was built by the owner, there was no settlement around the piggery. As time goes by, it can be seen that the piggery is in the center of settlement. This becomes the reason of the people to protest. Eventually, the pork livestock will be closed down even though they actually have business permit.

Learning from such phenomenon, the government should have a clear spatial plan. There has to be a mapping of area zoning for a clear and precise livestock business. If a region has been stipulated as a livestock area, then there is no settlement allowed in that area. There has to be insurance for livestock business owners to develop their business that they can do it in a comfortable way. Otherwise, they will always be haunted by the anxiety every time there is a strike or protest from the people with various reasons, such as the smell. In fact, they have invested quite big amount of capital. There has been many cases happened regarding this issue, particularly the issue of pork livestock. If it is so, the policy of agricultural development in terms of realizing sustainable bio-industry agricultural system will not succeed.

V. POTENTIAL OF LOCAL PIGS

One of the strategies to satisfy the food need from livestock and development of local livestock agribusiness of the General Directorate of Animal Husbandry and Animal Health is preservation and utilization of Indonesian local genetic resources. We have abundant genetic resources including pigs. Therefore, its preservation and utilization through various conversion and breeding program have to be continuously done.

Even though there has been no fixed number regarding how many the local pig population in Indonesia is; however, viewing the social life of people living in the village up to now in East Indonesia, they are still doing the customary ceremonies or religious ceremonies that use pigs as the media, even in certain regions they need to use local pigs. Therefore, the existence of local pigs becomes very essential. The potential of local pigs is actually still very

high to develop.

Several superiorities of local pigs include its simple cultivation, more resistant against disease, tolerant to any kind of fodder (Sihombing, 2006). Meanwhile, Budaarsa (2012) stated that local pigs, particularly balinese pigs are *dadi ajak lacur* which means that the pigs can adjust the poor living condition of the farmers because they can stay alive by eating any kind of fodder. Besides, balinese pigs need less water that they are suitable to be bred in areas with less water. The weakness is that the growth is relatively slower compared to race pigs and the mortality due to being suppressed by the mother is still high. Nevertheless, if they are bred semi-intensively or intensively, they will grow well (Figure 4).



Fig. 4. Balinese pigs that are bred semi-intensively.

VI. CONCLUSION

Based on the potential of natural and human resources, associated with the program of *Nawa Cita* of the current government, East Indonesia is very likely to become the center of pork livestock. The production is not only to satisfy the food need in the country but also for export target.

VII. SUGGESTION

The government needs to encourage private parties so that they want to invest in the field of pork livestock in East Indonesia, particularly in establishing fodder factory that the transportation cost can be reduced. The government needs to stipulate the clear zoning of livestock that the investors in pork livestock business obtain legal protection that they feel comfortable and safe in doing their business.

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AUTHOR'S PROFILE



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Born in Jembrana, Bali on December 4, 1985. Graduated with a bachelor's farm at Udayana University, Denpasar Bali in 1984. Education Master in Bogor Agricultural University, Bogor City in 1992. Completing a doctoral program at Bogor Agricultural University, Bogor In 1997. The main interest of researchers is in the field of nutrition and fodder. Now serving as LECTURE at Udayana University Faculty of Animal Husbandry. Books ever written *Babi Guling Bali dari Beternak Kuliner hingga Sesaji*. Denpasar, Indonesia: Penerbit Buku Arti, 2012. "The Performan and Carcass of Lokal Male Rabbit (*Lepus nigricollis*) Diet Feed Containing Fermented Grape Wastes". *Journal of Biological and Chemical Research*. Vol. 33, No. 1. Mei 2016. 488-495. "Additional Turmeric Powder (Curcuminoid) into Traditional Ration to Improve the Productivity of Bali Pig". *International Research Journal of Engineering, IT & Scientific Rsearch (IRJETS)*. Vol. 2 July 2016. Prof. K. Budaarsa now serves as chairman of the Association of Pigs of Indonesian Pigs. Once awarded Widya Pataka from Bali Provincial Government in 2012.