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**ASEAN Strategic Plan of Action for the Livestock Sub-Sector
2016-20**

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ASEAN Strategic Plan of Action for the Livestock Sub-Sector

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Background

The ASEAN Economic Community (AEC) Blueprint envisages that cooperation in food, agriculture and forestry is one of the seven key elements or approaches to create ASEAN as a single market and production base. Within agriculture, livestock sub-sector plays a key role in growth, employment, trade, food and nutrition security, poverty alleviation and gender equality. Share of agriculture in GDP usually declines with economic development but within agriculture share of livestock tends to increase due to changes in demand and dietary pattern biased towards protein rich foods. The same kind of changes are taking place in varying degrees in ASEAN Member States (AMSs) because of different levels of their development (Table 1). End year data for the three variables are for different years because those are the latest available.

Table 1 Changes in share of agriculture in national output and employment and share of livestock in agricultural output in ASEAN Member states, selected years

Country	Agric share of GDP (%)			Agric share of employment (%)			Livestock share of agric GDP (%)		
	2001	2014	% change	2001	2012	% change	2001	2013	% change
Brunei Darussalam	ns	ns	na	ns	ns	na	ns	ns	ns
Cambodia	36	30	-17	70	51	-27	31	7	-22
Indonesia	15	14	-7	44	35	-20	18	20	11
Lao PDR	44	28	-36	83	na	na	10	13	30
Malaysia	8	9	12	15	13	-13	21	24	14
Myanmar	57	36*	-37	na	na	na	na	na	na
Philippines	13	11	-15	37	32	-14	34	36	6
Singapore	ns	ns	na	ns	ns	na	ns	ns	na
Thailand	9	12	33	46	40	-13	18	20	11
Vietnam	22	18	-18	64	47	-27	23	26	13

* for 2010, which is the latest data available ns Not significant na Not available

Source: Agric output and employment shares from World Development Indicators (www.worldbank.org); Livestock share of agric output from FAO (www.FAOSTat.fao.org) both accessed on 2 August 2015.

The major livestock commodity in the region is meat though milk production and consumption, not a tradition in the past, are increasing in some richer member countries. Outputs of various types of meat and milk increased in different degrees in the AMSs. Overall, in terms of output expansion, Cambodia showed the poorest performance while Myanmar has shown the best performance. One reason for the unusually high output expansion in Myanmar might be data quality improvement in recent years compared to the

past. Only Thailand is a net exporter of meat and Malaysia is a net exporter of eggs and both the countries have expanded their export of these commodities reasonably over time. All the other countries are net importers of almost all types of meat, and the extent of import showed good degree of variation though the general trend is increased net import over time. Yet, per capita availability or consumption levels for meat are fairly small in all the countries though in several countries, substantial increase in availability on small bases are observed (Table 2).

Table 2. Changes in production, net trade and per capita availability of meat, eggs and milk in the ASEAN member states, selected years

Country	Production, 000 mt			Net trade, 000 mt			Availability, kg/capita/yr		
	2001	2013	% change	2001	2012	% change	2001	2011	% change
Brunei Darussalam									
Beef and buffalo	3.2	0.8	-75	-0.2	-3.3	1500	10.5	11.1	6
Poultry	14.1	26.9	91	-2.2	-2.0	-9	48.7	62.5	28
Pork	0.05	0.04	trace	-1.5	-1.6	6	5.8	6.6	14
Total meat	17.5	27.8	59	-4.2	-8.5	102	66.0	86.0	30
Eggs	5.0	7.0	40	-0.8	-1.6	100	12.6	15.2	21
Milk equivalent *	0.2	0.1	50	-32.9	-16.0	-51	104.6	82.5	-21
Cambodia									
Beef and buffalo	67.0	73.2	9	-0.06	-0.1	trace	5.3	5.0	-6
Poultry	27.2	26.7	-2	-0.02	-0.5	trace	2.2	1.9	-14
Pork	107.8	98.5	-8	- trace	- trace		8.4	8.0	-5
Total meat	201.9	198.4	-2	-0.09	1.3		15.8	14.9	-6
Eggs	14.9	23.0	54	-0.001	-0.2		1.1	1.4	27
Milk equivalent	20.4	23.5	15	-31.1	-22.0	-30	3.9	2.6	-33
Indonesia									
Beef and buffalo	382.3	585.9	53	-22.0	-45.9	109	1.9	2.5	32
Poultry	923.5	1872.5	102	0.07	-0.4		4.3	7.0	63
Pork	418.0	742.5	78	-0.6	-0.9	33	1.9	3.0	58
Total meat	1818.4	3316.5	82	-19.5	-47.2	142	8.0	12.9	61
Eggs	850.3	1503.7	77	6.6	-1.3		3.2	4.2	31
Milk equivalent	764.7	1388.1	82	-858.2	-2288.9	167	7.3	13.9	90
Lao PDR									
Beef and buffalo	34.4	48.2	40	0	0		6.4	7.1	11
Poultry	13.3	25.3	90	0	0		2.5	3.8	52
Pork	31.5	64.0	103	0	0		3.8	8.9	134
Total meat	79.8	139.2	74	-15.9	-20.5	29	14.7	19.9	35
Eggs	11.8	16.9	43	0	0		1.9	2.0	5
Milk equivalent	6.2	7.2	16	-21.9	-16.5	-25	4.1	3.0	-27
Malaysia									
Beef and buffalo	19.3	30.6	59	-120.8	-156.5	30	5.5	5.9	7
Poultry	751.0	1359.9	81	-10.9	-19.8	82	32.3	38.1	18
Pork	184.7	231.4	25	-5.2	-5.4	4	8.1	8.6	6
Total meat	956.1	1624.2	70	-170.7	-181.7	6	46.6	53.3	14
Eggs	408.0	678.4	66	74.9	165.2	121	11.0	13.8	25
Milk equivalent	36.3	88.4	143	-1129.9	-1294.1	15	49.3	32.2	-35
Myanmar									
Beef and buffalo	96.7	261.9	170	-0.07	-4.5		2.1	5.0	138
Poultry	291.2	1196.2	311	-0.004	-0.1		6.4	22.1	245
Pork	132.2	620.6	369	-0.032	-0.1		2.9	11.5	296

Total meat	532.4	2126.4	299	-0.1	-5.3	- large	11.7	39.6	238
Eggs	115.8	425.0	267	-0.1	-0.2		2.1	6.4	204
Milk equivalent	633.3	1708.0	170	-110.0	-106.6	-3	15.4	31.7	106
Philippines									
Beef and buffalo	255.2	296.9	16	-103.1	-109.6	6	4.5	4.4	-2
Poultry	612.0	1079.1	76	-15.3	-106.1	593	7.9	11.1	41
Pork	1265.9	1681.1	33	-22.8	-82.7	263	16.4	18.2	11
Total meat	2180.9	3128.3	43	-141.9	-308.1	117	29.4	34.5	17
Eggs	320.5	468.8	46	0.5	-1.2	140	3.7	3.9	5
Milk equivalent	10.8	19.5	81	-1480.2	-1349.0	-9	18.8	14.5	-23
Singapore									
Beef and buffalo	0.04	0.05	25	-21.8	-34.5	58	na	na	
Poultry	93.0	97.1	4	-88.0	-135.0	53	na	na	
Pork	22.5	19.6	-13	-67.4	-98.2	46	na	na	
Total meat	115.6	116.8	1	-189.9	-268.7	41	na	na	
Eggs	17.2	27.5	60	-37.9	-124.8	229	na	na	
Milk equivalent	0.0	0.0	-	-514.3	-932.0	81	na	na	
Thailand									
Beef and buffalo	149.5	194.7	30	2.9	18.1	524	2.3	2.6	13
Poultry	1241.9	1469.8	18	510.9	767.9	50	12.0	12.2	2
Pork	701.8	967.3	38	13.9	16.1	16	10.7	13.0	21
Total meat	2094.2	2633.7	26	521.8	801.1	54	25.0	27.9	12
Eggs	739.5	1063.0	44	3.0	816.1	272	9.4	11.8	26
Milk equivalent	587.7	1095.0	86	-884.5	-1165.0	32	19.9	28.4	43
Vietnam									
Beef and buffalo	194.5	379.1	95	-0.07	-286.0	2760	2.4	7.2	200
Poultry	385.4	633.0	64	0	-505.2	505	4.8	15.6	225
Pork	1515.3	3217.9	112	50.0	9.7	81	18.4	34.4	87
Total meat	2117.9	4264.8	101	50.0	-785.1	- large	26.0	57.6	121
Eggs	200.5	378.0	88	1.0	1.5	50	2.3	3.6	57
Milk equivalent	110.1	487.0	342	-798.9	-1390.5	74	11.4	15.1	32

* Milk excluding butter

Source: www.FAOSTat.FAO.org accessed on 2-4 August 2015

Total milk output in the AMSs more than doubled from 2.2 million mt in 2001 to 4.8 million mt in 2013. However, net import increased from 5.9 million mt to 8.6 million mt in 2012 i.e. by 46% (Table 2). The region accounted for about 6% of global milk trade in the 1990s which has recently increased to about 10%. Rising income and urbanization and changes in dietary preferences and tastes on the one hand and reduced import price of milk due to tariff reduction and free trade agreements with a number of rich countries, especially Australia and New Zealand, have accelerated demand for milk in the region. However, response capacity of the domestic sector has been variable among the main milk producing countries in the region. The share of domestic production in consumption decreased significantly in Indonesia, Vietnam and the Philippines, increased significantly in Thailand and marginally in Malaysia (Table 3).

In the ASEAN region, a mixture of intensive, semi-intensive and traditional small holder livestock production systems prevail and move towards intensification and scaling up is also on-going. Feed scarcity and quality is a major constraint in productivity improvement, especially in smallholder production systems. Moreover water pollution, land degradation due to nutrient loading and greenhouse gas emission are emerging as major problems in intensive systems. Latest FAO estimates of greenhouse gas emissions in the agriculture sector

show that overall livestock sub-sector contributes about 30% of the total agriculture sector emissions of gases and this share has increased marginally between 2005 and 2012 (Table 4). Contribution of the livestock sub-sector itself increased by 14% during the same period, i.e., by about 2% annually. Enteric fermentation is responsible for over 50% of gas emissions from the livestock sub-sector and the rest is from various forms of manure management.

Table 3. Domestic production of milk as a percentage of total consumption in some ASEAN countries, selected years

	1990	2000	2012
Indonesia	77.3	48.2	39.6
Malaysia	5.3	3.3	5.8
Philippines	2.1	0.6	0.7
Thailand	17.1	33.3	51.0
Viet Nam	64.3	14.7	22.6

Source: Vinod Ahuja, Dairy sector growth in Asia: Challenges, opportunities and the response. Draft paper, February, 2015.

Table 4 Greenhouse gas emission from livestock in the ASEAN region, 2005 and 2012 (CO₂ equivalent in gigagram)

	2005	2012	% change
Livestock total	121,681(100)+	139,046(100)	14.3
- Enteric fermentation	64,375(53)	72,207(52)	12.2
- Manure management	24,832(20)	28,351(20)	14.2
- Manure put on soil	10,364(9)	12,505(9)	20.7
- Manure left on pasture	22,110(18)	25,983(19)	17.5
Agriculture total	399,712	444,864*	11.3
% share of livestock in total agriculture	30.4	31.2	2.6

Note: regional total excluding Singapore as there is little agriculture there.

+ Figures in the parentheses are shares of livestock total

* For 2011 instead of 2012 as that is the latest FAO data available for total agriculture

Source: www.faostat.fao.org accessed on 2 August 2015

However, these estimates need to be interpreted with caution because they have been generated by applying various standard coefficients in fairly uniform manner while there are wide variations among the member countries in terms of scale and system of production, species composition, density of livestock, feeds and feeding systems, systems of manure management. Moreover, when manure is recycled in crop fields, it is generally seen

positively from the point of view of environmental management, hence whether it is legitimate to count any intermediate gas emission in the process of decomposition of manure as plant nutrient as environmental pollutant should be considered. Also, research has shown that productivity improvement through better feeding and management has a positive impact on the environment in terms reduced greenhouse gas emission (e.g. Gerber et al. 2011 quoted in Ahuja, 2015)

It can be reasonably assumed that agriculture will remain a key sector in AMSs, especially in the new member states, making significant contribution to growth, employment, trade and food security even though the relative importance of agriculture in the national economy will decline along with scaling up and industrialization of production. Also livestock will remain a key sub-sector within agriculture in the ASEAN region because of its contribution to high value food and nutrition, the demand for which will continue to grow with economic growth and urbanization. Role of smallholder systems will also remain important in some countries. Therefore, ASEAN policies and strategies for the sub-sector need to be designed taking into account the fact that each member country has different livestock commodity portfolio with different roles.

Evaluation of SPA 2009-2014 - Achievements and Lessons Learned

The most comprehensive inventory of activities and progress made in the livestock sub-sector was obtained from the Score Card on AEC measures prepared for the 34th SOM-AMAF held on 13-14 August 2013 and updated afterwards (ASEAN, 2014), and the Strategic Plan of Action (SPA) for the ASEAN Cooperation on Livestock (2011-15) adopted at the 22nd ASEAN Sector Working Group on Livestock (ASWGL) Meeting, held in Singapore, on 5-9 May 2014 (ASWGL, 2014). The activities were reported under seven strategic thrusts as follows:

- ST 1: Strengthening of food security arrangements in the region
- ST 2: Enhancement of international competitiveness of ASEAN food and agricultural products/commodities
- ST 3: Promotion of mitigation and adaptation measures in addressing the impact of climate change to ensure sustainable livestock production in the region
- ST 4: Development, acceleration of transfer and adoption of new technologies
- ST 5: Strengthening of cooperation on animal health and zoonosis
- ST 6: Enhancement of ASEAN cooperation and joint approaches in international and regional issues
- ST 7: Strengthening of stakeholder engagement in sustainable livestock development

Within the ASEAN Economic Community Blueprint, the livestock sub-sector is explicitly discussed only under strategic approach vii, i.e. food, agriculture and forestry (FAF). Some of the major issues related to livestock, e.g. poverty alleviation, food security, gender equality, climate change, and sustainable natural resource management are discussed under the ASEAN Socio-cultural community (ASCC) Blueprint. So it appears that ST2 and ST4-7 are

related to action lines under the AEC blueprint and ST1 and ST3 are related to action lines under the ASCC blueprint.

A review of progress in the implementation of action programmes and achievement of objectives for 2015 targets was made in 2014 as part of preparation of a new strategic plan for the livestock sub-sector for 2016-25.¹ The review considered three sources of information: the yearly records of AEC score cards, and two evaluation reports – one done by the Economic Research Institute for ASEAN and East Asia (ERIA) as a part of the Mid Term Review of AEC progress, and another done by the Asian Development Bank at the invitation of ASEAN Economic Ministers. All three sources indicated that significant progress has been made in the implementation of specific activities related to the AEC blueprint, especially on reduction/elimination of tariff; development of manuals on good animal husbandry practices and good processing and hygienic practices for a number of commodities; on capacity building in epidemiological methods; on procedures for harmonization of food safety standards and regulations; on development of criteria for accreditation of vet laboratories, vaccines production and product processing establishments; on control of some major trans-boundary animal diseases; and on capacity building for humane slaughter and halal food preparation. However, activities related to the ASSC blueprint concerning environment, poverty and food security, and gender equality, and above all on engaging the private sector in policy discussion and investment have been rarely addressed with any seriousness and effectiveness.

In terms of implementation of various programmes and activities, AMAF and SOM-AMAF are assisted by the ASWGL, which itself is aided by several permanent bodies and a number of networks. The main weakness of the current implementation mechanism is that the various secondary bodies under the ASWGL are functioning in a disjointed manner without strong vertical and horizontal linkages among them. Consequently there are duplications or overlaps in some cases and missing opportunities in others, especially production aspects are not really addressed. The review of development of production standards, disease control programmes and their implementation mechanisms indicates that there is room for consolidation of some networks and working groups for more efficient delivery.

More efficiency in project formulation in terms of providing project justification based on empirical evidence, and time required from initiation to implementation also deserve attention.

Livestock Sub-Sector Vision, Goal and Objectives for 2016-25

Taking into account the ASEAN Vision 2020, the progress made to date in implementing the ASEAN Economic Community Blueprint 2015 measures or actions in Agriculture, Food and Forestry, and the ASEAN Socio-Economic Community Blueprint 2015 measures or actions for poverty alleviation, food security and nutrition, and sustainable environmental

¹ Mohammad A Jabbar, The ASEAN Strategic Plan 2016-25 for Food, Agriculture and Forestry: The livestock Sub-Sector, Report prepared for the FAO RAP, Bangkok and ASEAN Secretariat, Jakarta, July 2014. 59pp.

management, and the remaining gaps and tasks, and emerging regional and global issues in the livestock sub-sector, the following vision, goal and objectives were defined in the Strategic Plan of Action 2016-2025 for the livestock sub-sector.

Vision: An internationally competitive, sustainable livestock sub-sector based on a single market and production base making key contribution in ASEAN integration and improving the life of its people.

Goal: Sustainable livestock production and trade contribute to growth, poverty alleviation, food security and improved nutrition in the ASEAN region.

Objectives: Recognizing differences and gaps between AMSs in livestock production systems, technologies and national capacities:

- Promote policies to facilitate investment and harmonization of production and processing standards in the livestock sub-sector for expansion of trade.
- Implement disease control measures, establish food safety, health and hygiene standards in line with international standards to reduce disease and market risks, and increase consumer safety for expansion of trade.
- Promote cooperation in research, technology transfer and institution building, and introduce regulatory measures for reducing production risks and instability, and for sustainable productivity improvement and natural resource management including livestock impact on the environment and climate change.
- Promote greater smallholder participation in market for poverty alleviation, food security, nutrition and gender equality.

The above objectives subsume actions and investments in technology, physical infrastructure, research, extension, training and institution building.

Plan of Action for 2016-20 : Strategic Thrusts and Activities

Within the strategic plan horizon 2016-25, plan of action for the 2016-20 period is proposed. This will allow a mid-period assessment of the progress made, then update the plan for the remaining period 2021-25.

Strategic thrusts are basically thematic areas for organising action programmes. Based on the major global and regional issues in the livestock sector and the objectives identified in the SPA 2016-25, the following strategic thrusts for programme development are proposed for the 2016-20 period:

Strategic Thrust 1: Enhance intra- and extra-ASEAN trade in livestock commodities

Strategic Thrust 2: Disease control and food safety to expand trade and protect human health

Strategic Thrust 3: Sustainable productivity improvement, natural resources management and livestock impact on the environment and climate change

Strategic Thrust 4: Support smallholder livestock for poverty alleviation, food security, nutrition, and gender equality

Under each thrust, three types of activities are suggested : those initiated earlier but not yet completed; those planned earlier but not yet initiated or implemented; and new activities.

Strategic Thrust 1: Enhance intra- and extra-ASEAN trade in livestock commodities.

Output 1.1: Improved policy and regulatory environment to facilitate trade

Activity 1.1.1 Monitor and take steps for elimination of any remaining non-trade barriers to increase volume of trade in livestock commodities.

Activity 1.1.2 Advocate to ASEAN Economic Ministers and ASEAN Leaders to include livestock in priority commodity list of the AEC (individual AMS may promote specific livestock commodity(ies) depending on relative importance and comparative advantage).

Activity 1.1.3 Complete the harmonization of regulatory and institutional measures for quarantine, inspection and sanitary procedures for trade in live animals, birds and livestock products.

Activity 1.1.4 Where applicable, advocate appropriate authorities to redefine SME to include small-scale livestock production and processing enterprises to facilitate their access to domestic and regional markets.

Output 1.2: Harmonized production and processing standards to promote trade

Activity 1.2.1 Complete pending activities on Manual for Good Animal Husbandry Practices for production of:

- (a) Chicken for table egg
- (b) Chicken for slaughter
- (c) Duck for slaughter
- (d) Sheep and goat for breeding
- (e) Sheep and goat for slaughter
- (f) Pig for slaughter
- (g) Pig for breeding

Activity 1.2.2 Develop Manual for GAHP for:

- (a) Duck egg
- (b) Dairy cattle
- (c) Porcine semen and embryo
- (d) Bovine (including buffalo) semen and embryo
- (e) Caprine semen and embryo

Activity 1.2.3 Develop Manual for Good Manufacturing Practices for:

- (a) Slaughterhouse and meat processing plant

- (b) Ice cream processing plant
- (c) Yoghurt processing plant
- (d) Egg processing plant
- (e) Animal feed manufacturing plant

Activity 1.2.4 Update previously published GAHP manuals on commercial broiler and layer incorporating information on veterinary drug residues in food of livestock origin.

Activity 1.2.5 Conduct training on HACCP and risk assessment giving illustrations with specific diseases.

Activity 1.2.6 Conduct training on humane slaughter of animals.

Activity 1.2.7 Conduct combined regional training courses on halal food for Food Inspectors, Food Auditors and Laboratory Analysts

Activity 1.2.8 Monitor adoption, practice and enforcement of GAHP and GMP standards to reduce inter-country differences in compliance.

Strategic Thrust 2: Disease control and food safety to expand trade and protect human health

Output 2.1 Harmonized comprehensive integrated disease control measures

Activity 2.1.1 Operationalize ASEAN Coordination Centre for Animal Health and Zoonosis (ACCAHZ) as a regional body.

Activity 2.1.2 After reorganisation of the FAF Sector governance structure, which is currently under discussion, review the TORs, governance and financing mechanisms of the existing networks and forums under ASWGL with a view to see whether there are overlaps/duplications of functions, whether there are issues/areas that are not adequately covered by existing bodies, whether and how some networks/bodies/forums may be consolidated for greater efficiency, and whether the governance structure and mechanism of various networks/bodies/forums may be standardized and synchronized with the new governance structure of FAF.

Activity 2.1.3 Increase capacity development in Veterinary Epidemiology and undertake relevant epidemiological works:

- (a) Conduct training courses on field epidemiology developed by Thailand.
- (b) Continue field epidemiology course-based Masters Programme offered in the Philippines.
- (c) Conduct training/workshop on Control and Eradication of Classical Swine Fever Using Epidemiological Techniques developed by the Philippines.

- (d) Publish report of the baseline survey conducted by Philippines on incidence of CSF in the ASEAN region conducted by the Philippines.
- (e) Take steps for mutual recognition of veterinary professionals.
- (f) Monitor Progress in implementation of the Project on Environmental Animal Health Management Initiative (EAHMI) to integrate EAHMI into the core Veterinary Service by the use of Geographic Information Systems (GIS) Technology developed by the Philippines.
- (g) Develop action plan, tools and funding mechanism for promoting One Health strategies at country level.

Activity 2.1.4 Monitor progress in implementation of programmes and projects and undertake new projects for control and eradication of economically important trans-boundary animal diseases:

- (a) Follow OIE guidelines in implementation of compartmentalization of livestock production systems by AMSs.
- (b) Participate in implementation of the Global Framework for the Progressive Control of Trans-boundary Animal Diseases.
- (c) Implement Southeast Asia–China FMD 2020 programme for control and eradication of FMD from the region.
- (d) Develop and implement plan for Expansion of Disease Free Zone in AMSs for control and eradication of FMD.
- (e) Hold workshop on a harmonized methodology for economic assessment of FMD impact at the village and higher levels.
- (f) Participate in implementation of the ASEAN Roadmap for HPAI free region by 2020 including control of zoonosis.
- (g) Participate in implementation of the emergency pandemic threats programme (EPT-2), especially focused on H7N9 Virus.
- (h) Develop and implement a plan for elimination of Rabies as an animal and human health hazard from the region by 2020

Output 2.2 Harmonized food safety standards for livestock products to protect human health and expand trade

Activity 2.2.1 Taking common ASEAN approach, monitor harmonization of the procedures in implementation of the SPS measures established by the OIE across AMSs as agreed by ASWGL.

Activity 2.2.2 Synergize ASEAN programmes on health and food safety with programmes of international organisations and bilateral partner country programmes in the region with a focus on livestock commodities.

Activity 2.2.3 Develop ASEAN biosecurity manual for commercial swine and ruminant production.

Activity 2.2.4 Adapt and implement standards on the use of antimicrobials in livestock.

Activity 2.2.5 Conduct workshop/training on Animal Identification and Traceability Systems giving illustration with respect to a specific type of animal to improve food safety standards and traceability.

Activity 2.2.6 Monitor progress in implementation of the ASEAN-China MOU on SPS collaboration to improve food safety, and animal inspection and quarantine procedures.

Activity 2.2.7 Promote production of safe and healthy livestock products by producers and processors at all levels following GAHP, GMP and HACCP guidelines.

Activity 2.2.8 Share/exchange information and expertise with other agencies to improve the quality of surveillance and the effectiveness of responses to food-borne diseases and food poisoning outbreaks of livestock origin.

Activity 2.2.9 Survey on the competency of existing network of food laboratories in ASEAN in terms of facilities and personnel to support food safety policies and regulations with a focus on livestock/livestock products.

Activity 2.2.10 Facilitate the exchange of information on best practices and experiences relating works of food laboratories in ASEAN with respect to food of livestock origin.

Output 2.3 Harmonized vet laboratory and vet product quality standards to promote collaboration among labs, and expand trade in livestock and veterinary products

Activity 2.3.1 Implement Regional Strategic Framework for Vet Laboratory Capacity Building and Networking in the ASEAN.

Activity 2.3.2 Conduct training on Bioequivalence and Harmonization of Vaccine Registration as a part of International Cooperation on Harmonization of Technical Requirements for Registration of Veterinary Medicinal Products (VICH).

Activity 2.3.3 Undertake training for skill development of vet laboratory staff.

Output 2.4 Easily accessible standard information on animal health for quick planning and decision making by various stakeholders

Activity 2.4.1 Improve the operation of the ASEAN Animal Health Cooperation website <http://asean-animalhealth.org/> with increased data content and regular update.

Activity 2.4.2 Make an inventory including profile and mailing list of Veterinary Epidemiologists and other animal health professionals at least with a Master's degree and upload on the website.

Activity 2.4.3 Make an inventory including profile of ASEAN accredited animal vaccine testing laboratories and upload on the website.

Activity 2.4.4 Develop and update disease incidence maps using epidemiological survey data.

Strategic Thrust 3: Sustainable productivity improvement, natural resources management including livestock impact on the environment and climate change

Output 3.1 More productive and globally competitive livestock sector

Activity 3.1.1 Promote multi-country collaborative research in productivity improvement and policy analysis to benefit from sharing knowledge and experiences, and economies of scale in research.

Activity 3.1.2 In order to address increasing pressure on common resources and intensified competition between food, feed and fuel, undertake research and field innovation projects on increasing feed and fodder supply, enhancing utilization efficiency of locally available feed resources, and nutrition-genetics interaction for better management of both feed and animal genetic resources.

Activity 3.1.3 In order to address problems of water footprint in intensive production systems, undertake research on water use efficiency under alternative feed-water management regimes.

Activity 3.1.4 Conduct survey to identify successful technology, industry and institutional models developed in AMSs, and facilitate their transfer and adaptation through joint ventures in the private sector as well as through public-private partnerships.

Activity 3.1.5 Implement Training Course on Buffalo Production Using Reproductive Biotechnology with ASEAN-India Joint Cooperation Fund.

Output 3.2 Resource conserving and environment friendly livestock development²

Activity 3.2.1 Develop SMART indicators to monitor water pollution, land degradation due to nutrient loading and greenhouse gas emission from increased intensification and industrialisation of livestock production and processing keeping in mind that there are different species of livestock, and types and scales of establishments.

Activity 3.2.2 Undertake advocacy with extension services for diffusion of environmentally sound farming and food processing including improved manure management technologies.

Activity 3.2.3 Conduct survey on indigenous animal genetic resources and take steps for their conservation, improvement and utilization.

Activity 3.2.4 Develop emergency response capacity to deal with animal welfare and disease control measures during and/or after natural disasters.

Strategic Thrust 4: Support smallholder livestock for poverty alleviation, improved nutrition, food security and gender equality³

Output 4.1: Livestock serve as an important pathway for poverty alleviation, improved nutrition and gender equality

Activity 4.1.1 Document success stories in ASEAN region to identify institutions like farmer groups, cooperatives, contract farming that successfully improved small-scale producers' access to quality inputs and high value markets for outputs, and disseminate it for adoption by others.

Activity 4.1.2 Make policy advocacy for low interest livestock credit accessible to the poor, especially women, through micro-credit, SME and other programmes designed for poverty alleviation.

Activity 4.1.3 Make policy advocacy for programmes/projects to encourage larger scale enterprises to perform a mentoring role for smallholders to foster adoption of innovations and participation in high value markets.

Activity 4.1.4 Make advocacy for giving priority in public sector research and technology diffusion for productivity improvement of smallholder livestock producers.

² Macro-issues and strategies to deal with climate change, environment, biodiversity and resource degradation are handled under the ASEAN Socio-cultural Community Blueprint. Some micro level issues directly related to livestock production and processing are covered here.

³ Macro-issues and strategies on poverty alleviation, food security and gender equality are handled in the ASEAN Socio-Cultural Community Blueprint. Since livestock production, especially smallholder livestock production, has potential for contribution to poverty alleviation, food security and gender equality, some of these are covered here.

Activity 4.1.5 Encourage school feeding programmes based on milk and/or eggs linked to local livestock operations to address problems of under- malnutrition among the poor.

More details on deliverables, time lines for delivery and implementation responsibilities for each proposed activity are shown in Annex 1.

Implementation

ASEAN Ministers of Agriculture and Forestry (AMAF) and Senior Officers' Meeting of AMAF (SOM-AMAF) are the highest policy and decision making bodies for implementation of agriculture and forestry related activities under the AEC. For the livestock sub-sector, the sectoral working group, ASWGL, is aided by two permanent bodies- the ASEAN Focal Point on Veterinary Products, and the ASEAN Task Force on Highly Pathogenic Avian Influenza (HPAI)- and a number of other networks, some already in place and some in the making. In the strategic plan document, rationalization and simplification of this structure was suggested. In the list of activities proposed above, specific actions have been listed to review the terms of reference, governance structure and functioning mechanism and financing mechanism of various networks and forums to see where and how the existing bodies may be reorganized for improving efficiency. This effort needs to be synchronized with overall sectoral efforts in rationalizing the governance structure of the overall sector.

Priority activities may be funded by AMSs and/or by donor resources or through bilateral collaboration. However, when donor fund or bilateral collaboration is sought, the guiding principle should be to give high priority to activities already listed or added later rather than get involved in adhoc disjointed projects. Collaboration with bilateral partners and international agencies should be to maximize regional and international public goods.

Key performance indicators should be developed for each output and activities delivering that output. Since generation of final outputs may take longer period, both final and intermediate outputs may be defined to monitor mid-term and final progress. Given that there are differences between AMSs in terms level of development, economic structure and capacity for implementation of some of the activities in the proposed action plan, it may be useful and advisable to develop regional and where applicable country level indicators.

In preparing new projects, more attention needs to be given to providing evidence based justification and potential impact in quantitative terms. Also time required from initiation to implementation of activities should be shortened compared to the past. Contingency plan should be inbuilt in projects to deal with premature discontinuation of initiatives, especially under short term projects with no forward planning to internalize them within mainstream ASEAN programmes, to make outcomes of such projects sustainable.

Review and Monitoring

If use of AEC score card is continued for annual review and monitoring, then the list of thrusts and activities should be re-structured as proposed in this action plan. Monitoring and

evaluation should be based on the KPIs developed. Other than internal monitoring, a general midterm independent external review should be done in 2018 and a final review should be done in 2020.

Annex 1: Detailed SPA - Livestock sub-sector 2016-20

Strategic Thrust/ Output	Activities/Sub-Activities	Deliverables	Timeline (including preparatory work)	Implementation responsibility (Lead, others including partners) ⁴
Strategic Thrust 1: Enhance intra- and extra ASEAN trade in livestock commodities				
Output 1.1: Improved policy and regulatory environment to facilitate trade			2016-20	
	Activity 1.1.1 Monitor and take steps for elimination of any remaining non-tariff barriers to increase volume of trade in livestock commodities.	Regularly publish new and updated regulations and statements on tariff and NTBs for easy access by business.	2016-2020	
	Activity 1.1.2 Advocate to ASEAN Economic Ministers and ASEAN Leaders to include livestock in priority commodity list of the AEC (individual AMS may promote specific livestock commodity(ies) depending on relative importance and comparative advantage).	Advocacy document showing justification for inclusion of livestock in priority commodity list.	2016-17	
	Activity 1.1.3 Complete the harmonization of regulatory and institutional measures for quarantine, inspection and sanitary procedures for trade in live animals, birds and livestock products.	Publication of harmonized procedures	2016-17	
	Activity 1.1.4 Where applicable, advocate appropriate authorities to redefine SME to include small-scale livestock production and processing enterprises to facilitate their access to domestic and regional markets.	Advocacy document with justification to redefine SMEs to include small-scale livestock production and processing enterprises	2016-17	
		Regulation by SME authorities redefining SME as above	2016-17	

⁴ To be identified by ASEC and ASWGL

Output 1.2: Harmonized production and processing standards to promote trade			2016-20	
	<p>Activity 1.2.1 Complete pending activities for development of Manual for Good Animal Husbandry Practices for production of :</p> <ul style="list-style-type: none"> (a) Chicken for table egg (b) Chicken for slaughter (c) Duck for slaughter (d) Sheep and goat for breeding (e) Sheep and goat for slaughter (f) Pig for slaughter (g) Pig for breeding 	Published manuals	2016-17	
	<p>Activity 1.2.2 As planned earlier, develop Manual for Good Animal Husbandry Practices for production of :</p> <ul style="list-style-type: none"> (a) Duck egg (b) Dairy cattle (c) Porcine semen and embryo (d) Bovine (including buffalo) semen and embryo (e) Caprine semen and embryo 	Published manuals	2016-18	
	<p>Activity 1.2.3 As planned earlier, develop Manual for Good Manufacturing Practices for:</p> <ul style="list-style-type: none"> (a) Slaughterhouse ad meat processing plant (b) Ice cream processing plant (c) Yoghurt processing plant (d) Egg processing plant (e) Animal feed manufacturing plant 	Published manuals	2016-18	
	<p>Activity 1.2.4 Update previously published GAHP manual on commercial broiler and layer incorporating information on veterinary drug residues in food of livestock origin.</p>	Published updated manual on commercial broiler and layer	2016	
	<p>Activity 1.2.5 Conduct training on HACCP and risk assessment giving illustrations with specific diseases</p>	Training materials and inventory of batches of trained personnel	2016-18	
	<p>Activity 1.2.6 Conduct training on humane slaughter of animals in Vietnam and in other countries on need/request basis</p>	Batches of trained personnel	2016-19	

	Activity 1.2.7 Conduct combined regional training courses on halal food for Food Inspectors, Food Auditors and Laboratory Analysts	Batches of trained personnel	2016-19	
	Activity 1.2.7 Monitor adoption, practice and enforcement of GAPH and GMP standards to reduce inter-country differences in compliance.	Annual monitoring report on extent of adoption of approved standards for various commodities by AMSs, capacity gaps, corrective measures taken, and plan ahead.	2016-20	
Output 2.1 Harmonized comprehensive integrated disease control measures			2016-20	
	Activity 2.1.1 Operationalize the ASEAN Coordination Centre for Animal Health and Zoonosis (ACCAHZ).	Fully functional ACCAHZ	2016-18	
	Activity 2.1.2 After reorganisation of the FAF Sector governance structure, which is currently under discussion, review the TORs, governance and financing mechanisms of the existing networks and forums under ASWGL with a view to see whether there are overlaps/duplications of functions, whether there are issues that are not adequately covered by existing bodies, whether and how some networks/bodies/forums may be consolidated for greater efficiency, and whether the governance structure and mechanism of various networks/ bodies/forums may be standardized and synchronized with the new governance structure of FAF.	Review report on findings on TOR, governance mechanism, action plan and funding mechanism of the various networks, forums and bodies and recommendations for any rationalization or modification for greater efficiency. Action on recommendations	2016-17 2017	
	Activity 2.1.3 Increase capacity development in Veterinary Epidemiology and undertake relevant epidemiological activities :	See below		
	(a) Conduct training courses on field epidemiology developed by Thailand	Administration of the course , report on participation and outcome.	2016-18	
	(b) Continue field epidemiology course-based Masters Programme offered in the Philippines	Progress report on course administration, participation and outcome.	2016-20	
	(c) Conduct training/workshop on Control and Eradication of Classical Swine Fever Using Epidemiological Techniques developed in the	Administration of the course developed earlier, report on participation and outcome.	2016-18	

	Philippines			
	(d) Publish report of the baseline survey on incidence of CSF in the ASEAN region conducted by the Philippines	Publish baseline report and disseminate widely through different outlets	2016-17	
	(e) Take steps for mutual recognition of veterinary professionals	Proposal with justification and steps for implementation, then report on follow up for implementation	2016-18	
	(f) Implement the Project on Environmental Animal Health Management Initiative (EAHMI) to integrate EAHMI into the core Veterinary Service by the use of Geographic Information Systems (GIS) Technology developed by the Philippines	Progress report on implementation, participation, outcome and replicability in other countries	2016-18	
	(g) Develop action plan, tools and funding mechanism for promoting One Health strategies at country level.	Proposal containing concept, justification, action plan and funding mechanism.	2016-20	
	Activity 2.1.3 Monitor progress in implementation of programmes and projects and undertake new projects for control and eradication of economically important trans-boundary animal diseases:	See below	2016-20	
	(a) Follow OIE guidelines in implementation of compartmentalization of livestock production systems by AMSs	Annual report documenting extent of implementation in each AMS, outcomes, gaps and reasons, and steps ahead.	2016-20	
	(b) Participate in implementation of the Global Framework for the Progressive Control of Trans-boundary Animal Diseases	Annual progress report on implementation of the programme, outcomes, gaps and reasons and new initiatives taken.	2016-20	
	(c) Implement Southeast Asia–China FMD 2020 programme for control and eradication of FMD from the region.	Annual progress report on activities undertaken, achievements, gaps and reasons and plans ahead	2016-20	
	(d) Develop and implement plan for Expansion of Disease Free Zone in AMSs for control and eradication of FMD.	Annual progress report on plan development and implementation, outcomes, and plan ahead.	2016-20	
	(e) Hold workshop on a harmonized methodology for economic assessment of FMD impact at the village and higher levels	Proposed course outline, and implementation plan by Lead country. Organization of the course, and report on participation and outcome	2016-17 2018-20	

	(f) Participate in implementation of the ASEAN Roadmap for HPAI free region by 2020 including control of zoonosis.	Annual progress report on activities undertaken, outcomes, gaps and reasons and plan ahead.	2016-20	
	(g) Participate in implementation of the emergency pandemic threats programme (EPT-2), especially focused on H7N9 Virus	Annual progress report on activities undertaken, outcomes, gaps and reasons, and plan ahead.	2016-20	
	(h) Develop and implement a plan for elimination of Rabies as an animal and human health hazard from the region by 2020	Proposal on the plan and implementation procedure by lead country. Agreement by participating AMSs for implementation and follow up	2016-17 2018-20	
Output 2.2 Harmonized food safety standards for livestock products to protect human health and expand trade			2016-20	
	Activity 2.2.1 Taking common ASEAN approach, monitor harmonization of the procedures in implementing the SPS measures established by the OIE across AMSs as agreed by ASWGL.	Annual monitoring report on extent of harmonization of procedures for implementing OIE SPS measures by individual AMSs, gaps and reasons and plan ahead.	2016-20	
	Activity 2.2.2 Synergize ASEAN programmes on health and food safety with programmes of international organizations and bilateral partner country programmes in the region with a focus on livestock commodities.	Document summarizing synergies and differences between ASEAN programmes on health and food safety with programmes of international organizations and bilateral partner country programmes in the region with a focus on livestock commodities	2016-18	
	Activity 2.2.3 Develop ASEAN biosecurity manual for commercial swine and ruminant production.	Published manual	2016-18	
	Activity 2.2.4 Adapt and implement standards In the use of anti-microbials in livestock.	Published manual and monitoring report on progress in implementation.	2016-20	
	Activity 2.2.5 Conduct workshop/training on Animal Identification and Traceability Systems giving illustration with respect to a specific type of animal to improve food safety standards and traceability.	Proposal on workshop/training including course outline, implementation plan.	2016-17	
		Course delivery, report on participation and outcome	2017-18	

	Activity 2.2.6 Monitor progress in implementation of the ASEAN-China MOU on SPS collaboration to improve food safety, and animal inspection and quarantine procedures.	Annual progress report on implementation, outcomes and gaps, and plan ahead	2016-20	
	Activity 2.2.7 Promote production of safe and healthy livestock products by producers and processors at all levels following GAHP, GMP and HACCP guidelines	Produce extension/communication materials and publicise through various outlets, e.g. extension agencies, websites of farmer organisations and business organisations, etc.	2016-20	
	Activity 2.2.8 Share/exchange information and expertise with other agencies to improve the quality of surveillance and the effectiveness of responses to food-borne diseases and food poisoning outbreaks of livestock origin	Regular monitoring report on exchange of information with ASEAN Rapid Alert System for Food and Feed, and other agencies dealing with food-borne diseases and food poisoning outbreaks of livestock origin.	2016-20	
	Activity 2.2.9 Survey on the competency of existing network of food laboratories in ASEAN in terms of facilities and personnel to support food safety policies and regulations with a focus on livestock/livestock products.	Survey report identifying current capacities and gaps of food laboratories in AMSs to handle livestock/livestock product origin food safety issues.	2016-18	
	Activity 2.2.10 Facilitate the exchange of information on best practices and experiences relating works of food laboratories in ASEAN with respect to food of livestock origin	Produce publicity materials on best practices and experiences in the works of standard food laboratories with respect to food of livestock origin and share with accredited laboratories in the region	2016-18	
Output 2.3	Harmonized vet laboratory and vet product quality standards to promote collaboration among labs, and expand trade in livestock and veterinary products		2016-20	
	Activity 2.3.1 Implement Regional Strategic Framework for Veterinary Laboratory Capacity Building and Networking in the ASEAN	Document containing strategic framework for veterinary laboratory capacity building and networking, and implementation plan	2016-17	
		Annual progress report of implementation progress	2017-20	
	Activity 2.3.2 Conduct training on Bioequivalence and Harmonization of Vaccine	Course justification, outline and implementation plan.	2016-17	

	Registration as a part of International Cooperation on Harmonisation of Technical Requirements for Registration of Veterinary Medicinal Products (VICH)	Course administration and report on participation and outcome	2017-18	
	Activity 2.3.3 Undertake training for skill development of Vet laboratory staff	Proposal containing justification, target personnel for training, training course outline and implementation plan. Course administration, participation and outcome	2016-17 2017-20	
Output 2.4	Easily accessible standard information on animal health for quick planning and decision making by various stakeholders		2016-20	
	Activity 2.4.1 Improve the operation of the ASEAN Animal Health Cooperation website http://asean-animalhealth.org/ with increased data content and regular update.	Regularly updated website with increased data content.	2016-20	
	Activity 2.4.2 Make an inventory including profile and mailing list of Veterinary Epidemiologists and other animal health professionals at least with a Master's degree and upload on the website.	An inventory including profile of Vet Epidemiologists and other vet professionals uploaded on the website.	2016-18	
	Activity 2.4.3 Make an inventory including profile of ASEAN accredited animal vaccine testing laboratories and upload on the website.	An inventory including profile of accredited vaccine testing labs uploaded on the website.	2016-18	
	Activity 2.4.4 Develop and update disease incidence maps using epidemiological survey data.	GIS maps containing disease incidence data for the region updated regularly	2016-20	
Output 3.1	More productive and globally competitive livestock sector		2016-20	
	Activity 3.1.1 Promote multi-country collaborative research for productivity improvement and policy analysis to benefit from sharing knowledge and experiences, and economies of scale in research.	Create an <i>ad hoc</i> task force to develop an action plan on collaborative research on productivity improvement and policy analysis.	2016-18	
	Activity 3.1.2 In order to address increasing pressure on common resources and intensified	Design and implementation of multi-country collaborative research and field	2016-20	

	competition between food, feed and fuel, undertake research and field innovation projects on increasing feed and fodder supply, enhancing utilization efficiency of locally available feed resources, and nutrition-genetics interaction for better management of both feed and animal genetic resources.	projects		
	Activity 3.1.3 In order to address problems of water footprint in intensive production systems, undertake research on water use efficiency under alternative feed-water management regimes.	Design and implementation of multi-country collaborative research	2016-20	
	Activity 3.1.4 Conduct survey to identify successful technology, industry and institutional models developed in AMSs, and facilitate their transfer and adaptation through joint ventures in the private sector as well as through public-private partnerships.	Survey report with inventory of transferable technology, industry and institutional models Jointly developed plans/projects by interested parties for transfer/adaptation of technology/industry/institution and their implementation.	2016-18 2018-20	
	Activity 3.1.5 Implement Training Course on Buffalo Production Using Reproductive Biotechnology with ASEAN-India Joint Cooperation Fund	Document containing course outline, implementation plan. Administration of the course, report on participation and outcome.	2016-17 2017-20	
Output 3.2 Resource conserving and environment friendly livestock development			2016-20	
	Activity 3.2.1 Develop SMART indicators to monitor water pollution, land degradation due to nutrient loading and greenhouse gas emission from increased intensification and industrialisation of livestock production and processing keeping in mind that there are different species of livestock, and types and scales of establishments.	Published report on SMART indicators to be used by AMSs Annual report on monitoring data following SMART indicators	2016-18 2018-20	
	Activity 3.2.2 Undertake advocacy with extension services for diffusion of environmentally sound technologies in farming and food processing	Produce advocacy/good practices extension materials and disseminate widely among extension agencies.	2016-20	

	including improved manure management.			
	Activity 3.2.3 Conduct survey on indigenous animal genetic resources and take steps for their conservation, improvement and utilization.	Survey report containing inventory of indigenous species and breeds of animals and birds in the region with information on habitat, current population, recent trends in population change etc. Develop plan/projects for conservation/improvement/utilization of resources and implement.	2016-18 2018-20	
	Activity 3.2.4 Develop emergency response capacity to deal with animal welfare and disease control measures during and/or after natural disasters	Proposal containing nature and extent of emergency response preparation required and components of preparation, modes of administration, funding mechanism, and follow up action required.	2016-20	
Output 4.1: Livestock serve as an important pathway for poverty alleviation, improved nutrition and gender equality			2016-20	
	Activity 4.1.1 Make policy advocacy for low interest livestock credit accessible to the poor, especially women, through micro-credit, SME and other programmes designed for poverty alleviation.	Brief document justifying low interest livestock credit for smallholders, especially women, and dialogue with credit agencies	2016-18	
	Activity 4.1.2 Document success stories in ASEAN to identify institutions like farmer groups, cooperatives, contract farming that successfully improved small-scale producers' access to quality inputs and high value markets for outputs, and disseminate it for adoption by others.	A study report containing inventory of successful institutions that helped smallholder access to quality input and high value output market. Publicise the survey result widely through various outlets to potential uses .	2016-17 2017-20	
	Activity 4.1.3 Make policy advocacy for programmes/projects to encourage larger scale enterprises to perform a mentoring role for smallholders to foster adoption of innovations and participation in high value markets.	A document showing mutual benefits of partnership between large and small scale livestock enterprises , and justification for public sector support to facilitate such collaboration, and disseminate the document widely.	2016-20	
	Activity 4.1.4 Make advocacy for giving priority in public sector research and technology diffusion	A document showing impact of smallholder livestock development	2016-20	

	for productivity improvement and market access of smallholder livestock producers.	projects on poverty alleviation, food security, and gender equality and further justification for public sector research and technology diffusion for productivity improvement and market access of small scale producers, and follow up for project formulation and implementation.		
	Activity 4.1.5 Encourage school feeding programmes with milk and/or eggs linked to local livestock operations to address problems of under-nutrition among the poor	Encourage dialogue with concerned ministries/agencies like Education, Health and Finance, Agriculture/Livestock, FAO, UNICEF and local livestock development projects/agencies and industries to design and introduce school feeding programmes.	2016-20	