The ASEAN Strategic Plan 2016-25 for Food, Agriculture and Forestry: The Livestock Sub-Sector

Mohammad A. Jabbar

Final Draft Prepared for

The FAO RAP, Bangkok and The ASEAN Secretariat, Jakarta

July 2014

Table of Contents

Acknowledgements

The author is grateful to the Food and Agriculture Organisation Regional Office for Asia and the Pacific for giving him the opportunity to prepare this paper to support the ASEAN Secretariat for preparation of the ASEAN new vision for the 2016-25 period. The author is especially grateful to Mr Purushottam Mudbhary, Dr Vinod Ahuja and Dr Joachim Otte of the FAO for their support and feedback; to the ASWGL Chair Mr. Yap Him Hoo and other members of the group for their input; to Mr. Pham Quang Minh, Assistant Director/Head of the Agriculture Industries & Natural Resources Division of the ASEAN Secretariat for facilitating the task in various ways. Interaction with Dr Sisira Jayasuriya, the Overall Consultant and other consultants responsible for preparation of papers for the other sub-sectors was highly beneficial. However, the author alone is responsible for the content of the paper.

PART 1: INTRODUCTION

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 subsector plays a key role in growth, employment, trade, food and nutrition security, poverty alleviation and gender equality. Current cooperation in agriculture encompass several action lines in the livestock sub-sector within the 2011-1015 strategic plan framework. The ASEAN is undertaking a review of the performance of the 2011-15 SPA and on that basis define a new vision for the 2016-25 period.

The purpose of this review paper is to assess the current status of the livestock sub-sector, nature and extent of current ASEAN cooperation in the sub-sector, achievements made and new initiatives underway, and based on regional and global issues in the frontline of this sector; define new vision for the sub-sector for the 2016-2025 period.

1.1 ASEAN and Agriculture Cooperation

"ASEAN cooperation in the agriculture sector dated back as early as 1968, with cooperation in food production and supply. In 1977, the scope of cooperation was broadened to include the greater area of agriculture and forestry as the needs have increased. Currently, the specific areas under the cooperation in food, agriculture and forestry include food security, food handling, crops, livestock, fisheries, agricultural training and extension, agricultural cooperatives, forestry, and joint cooperation in agriculture and forest products promotion scheme" (AMAF, quoted in ERIA, 2012). Even though agriculture remains a key element in the ASEAN's policy and strategy for development, the status of the sector has evolved along with the ASEAN's economic progress. At present, the relative importance of the agriculture sector in the national economies of the ASEAN Member States (AMSs) varies widely.

Based on recent changes in GDP and employment shares, some features of the sector can be identified that have implications for policy and strategy for the AEC roadmap. First, GDP and employment shares in primary production are almost non-existent in Brunei and Singapore, fairly small in Indonesia, Malaysia, Philippines and Thailand, and quite important in Cambodia, Laos, Myanmar and Vietnam (Table 1). Second, as would be normally expected, GDP and employment shares have declined in most of the countries, especially in new member states where small scale agriculture dominates. In Malaysia and Thailand, contrary to expectation, GDP shares increased to some extent but employment shares decreased. This may indicate trend in scaling up or industrialization of production. In Vietnam, employment share declined at a higher rate than GDP share which also indicate scaling up of production. In Cambodia, GDP share remained fairly constant but employment share slightly increased. Third, normally, 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. However, livestock share of agricultural output show variable pattern in the AMSs: it has slightly decreased in some countries and increased in others. It may be reasonably assumed that agriculture will remain a key sector especially in the new member states even though the relative importance of agriculture in the national economy will rapidly decline along with scaling up and industrialization of production.

Between 2000 and 2012, in real terms total value of livestock outputs increased in the AMSs at varying extent (Table 2). Production increased by 2.8 times in Myanmar, more than doubled in Vietnam, by 70-78% in Malaysia, Indonesia and Brunei, by 36-49% in Thailand, Singapore, the Philippines and Lao PDR, but almost stagnated in Cambodia. The exceptionally large production increase in Myanmar is questionable. There might have been overestimation of output in recent years or underestimation in earlier years.

Table 1 Share of agriculture in national output and employment and share of livestock in agricultural output in ASEAN Member states, 2001 and 2010

Country	Agric share of GDP (%)			Agric share of employment (%)			Livestock share of Agric output (%)		
	2001	2010	% change	2001	2010	% change	2001	2010	% change
Brunei Darussalam	1.1	0.8	-28	1.4	na	na	na	na	na
Cambodia	36.7	36.0	-2	70.2	72.3	3	31.4	13.8	-56
Indonesia	15.3	15.3	0	43.8	38.3	-13	17.8	17.5	-2
Lao PDR	45.5	30.8	-32	82.7	na	na	10.1	9.2	-9
Malaysia	7.7	10.4	+35	15.1	13.3	-12	20.5	23.1	13
Myanmar	57.1	36.4	-36	na	na	na	na	na	na
Philippines	13.2	12.3	-7	37.2	33.2	-11	33.9	36.1	6
Singapore	0.1	0.01	-10	0.3	0.2	-33	84.0	77.5	-8
Thailand	9.1	12.4	+36	42.4	38.2	-10	17.5	20.1	15
Vietnam	23.2	20.6	-11	63.6	48.7	-24	23.4	27.9	19

Source: Agric output and employment shares (ERIA, 2012); Livestock share of agric output : www.FAOStat.fao.org accessed on 23 May 2014

Table 2 Indices of livestock production in the ASEAN member states (2004-06 =100)

Country	**2000**	**2012**	**% change**
Brunei Darussalam	86.7	148.7	72
Cambodia	91.1	92.8	2
Indonesia	74.4	132.8	78
Lao PDR	83.0	123.6	49
Malaysia	78.2	132.8	70
Myanmar	50.2	188.2	275
Philippines	84.4	123.7	47
Singapore	72.0	101.5	41
Thailand	96.0	130.1	36
Vietnam	68.2	144.8	112

Note: Production includes value of meat and milk from all sources, dairy products such as cheese, and eggs, honey, raw silk, wool, and hides and skins.
Source: http://data.worldbank.org/indicator/AG.PRD.LVSK.XD accessed on 7 June 2014.

The major livestock commodity in the region is meat though milk consumption, not a tradition in the past, is increasing in some richer member countries. Changes in production, net trade and per capita availability (a proxy for consumption) for meat, eggs and milk between 2001 and 2010 are shown in Table 3. Several features emerge.

Table 3. Production, net trade and per capita availability of meat, eggs and milk in the ASEAN member states, 2001 and2010

Country	Production, 000mt			Net trade, 000mt			Availability, kg/capita/yr		
	2001	2010	% change	2001	2010	% change	2001	2009	% change
Brunei Darussalam									
Beef and buffalo	3.2	0.8	-75	-0.2	-2.8		10.5	4.9	-53
Poultry	14.1	18.8	33	-2.2	-1.9		48.7	53.0	9
Pork	0.05	0.05	0	-1.5	-1.9		5.8	7.7	33
Total meat	17.5	19.8	13	-4.2	-7.4	-76	66.0	67.5	2
Eggs	5.0	7.0	40	-0.8	-0.6	-30	12.6	13.4	6
Milk equivalent	0.2	0.1	-50	-32.9	-16.6	-50	104.6	104.5	-1
Cambodia									
Beef and buffalo	67.0	72.7	9	-0.06	-0.07		5.3	5.4	2
Poultry	27.2	28.2	4	-0.02	-0.02		2.2	2.3	4
Pork	107.8	100.0	-7	-trace	-trace		8.4	8.9	6
Total meat	201.9	200.9	-1	-0.09	-0.3	233	15.8	16.6	5
Eggs	14.9	22.3	50	-0.001	0	na	1.1	1.5	36
Milk equivalent	20.4	23.8	17	-31.1	-13.4	43	3.9	4.3	10
Indonesia									
Beef and buffalo	382.3	472.0	23	-22.0	-117.1		1.9	2.2	16
Poultry	923.5	1565.6	70	0.07	-0.5		4.3	6.0	39
Pork	418.0	695.0	66	-0.6	-0.4		1.9	2.7	42
Total meat	1818.4	2448.7	35	-19.5	-113.9	-484	8.0	11.6	45
Eggs	850.3	1381.8	63	6.6	-0.002	na	3.2	4.5	41
Milk equivalent	764.7	1313.2	72	-858.2	-1897.9	-121	7.3	11.4	56
Lao PDR									
Beef and buffalo	34.4	45.2	31	0	-0.001		6.4	7.4	16
Poultry	13.3	23.9	80	0	0		2.5	3.6	44
Pork	31.5	58.7	86	0	0		3.8	10.1	165
Total meat	79.8	129.2	62	0	-0.001	na	14.7	21.3	45
Eggs	11.8	15.3	30	0	0	na	1.9	2.1	10
Milk equivalent	6.2	7.0	13	-21.9	-14.0	36	4.1	2.0	-51
Malaysia									
Beef and buffalo	19.3	28.9	50	-120.8	-136.7		5.5	5.6	2
Poultry	751.0	1249.2	66	-10.9	-16.9		32.3	38.3	19
Pork	184.7	234.0	27	-5.2	-11.1		8.1	7.6	-6
Total meat	956.1	1514.3	58	-170.7	-185.8	-9	46.6	52.3	12
Eggs	408.0	600.6	47	74.9	89.1	-19	11.0	12.1	10
Milk equivalent	36.3	66.2	82	-1129.9	-1199.3	-6	49.3	36.4	-26
Myanmar									
Beef and buffalo	96.7	234.3	142	-0.07	-20.0		2.1	3.7	76
Poultry	291.2	1120.3	285	-0.004	-3.3		6.4	18.6	190
Pork	132.2	585.3	341	-0.032	-0.6		2.9	9.5	227
Total meat	532.4	1981.9	272	-0.1	-24.5		11.7	32.1	174
Eggs	115.8	380.7	229	-0.1	-0.4	-300	2.1	5.0	138
Milk equivalent	633.3	1619.9	156	-110.0	-82.9	25	15.4	28.5	85
Philippines									
Beef and buffalo	255.2	300.0	18	-103.1	-123.8		4.5	4.4	-2
Poultry	612.0	898.8	47	-15.3	-95.9		7.9	10.0	27
Pork	1265.9	1628.8	29	-22.8	-71.3		16.4	18.3	12
Total meat	2180.9	2899.5	33	-141.9	-292.6	-106	29.4	33.6	14
Eggs	320.5	465.1	45	0.5	-0.3		3.7	4.4	19
Milk equivalent	10.8	15.9	47	-1480.2	-1342.9	9	18.8	13.2	-30
Singapore									

Beef and buffalo	0.04	0.04	0	-21.8	-30.6		na	na	-
Poultry	93.0	94.5	2	-88.0	-119.0		na	na	-
Pork	22.5	18.8	-16	-67.4	-97.3		na	na	-
Total meat	115.6	113.4	-2	-189.9	-255.2	-34	na	na	-
Eggs	17.2	21.6	26	-37.9	-75.8	-100	na	na	-
Milk equivalent	0.0	0.0	na	-514.3	-962.5	-87	na	na	-
Thailand									
Beef and buffalo	149.5	222.9	49	2.9	11.8		2.3	2.9	26
Poultry	1241.9	1301.0	5	510.9	658.2		12.0	11.6	-3
Pork	701.8	862.0	23	13.9	11.4		10.7	11.2	5
Total meat	2094.2	2387.5	14	521.8	661.4	27	25.0	25.8	3
Eggs	739.5	980.4	33	3.0	9.0	200	9.4	10.4	11
Milk equivalent	587.7	911.0	55	-884.5	-804.6	9	19.9	21.8	10
Vietnam									
Beef and buffalo	194.5	384.3	98	-0.07	-92.1		2.4	3.3	37
Poultry	385.4	531.4	38	0	-506.7		4.8	10.5	118
Pork	1515.3	3036.4	100	50.0	9.6		18.4	10.2	-45
Total meat	2117.9	3987.2	88	50.0	-656.9	-1214	26.0	49.9	92
Eggs	200.5	321.1	60	1.0	2.1	110	2.3	5.6	143
Milk equivalent	110.1	338.7	208	-798.9	-1168.7	-46	11.4	11.5	1

Note: Milk excluding butter
Source: www.FAOStat.FAO.org accessed on 30 May 2014

First, since the countries vary in size, comparison of volumes of production and trade are not very meaningful. Production levels of meat, eggs and milk increased at varying extent in the member countries between 2001 and 2010 though small bases in some cases make percentage changes in production look very high. The figure for Myanmar is questionable as already mentioned. A minor exception is that pork production in Cambodia and beef production in Brunei decreased.

Second, in case of meat trade, only Thailand is a net exporter and its net export of meat increased reasonably. All the other countries are net importers of almost all types of meat and the extent of import increased over time. However, overall volume of net import was equivalent to about 5% of total meat output in the member countries. The growing imbalance between export and import can be guessed from the following figures. In 2001, 10 member countries together exported a total of 600,480 mt of meat of various types, 87% of that was exported by Thailand alone. In 2010, export volume increased by only 25% and share of Thailand in total export remained at 89% signifying no or little diversification among the exporting countries. On the other hand, in 2001, 10 countries imported a total of 555,172 mt of meat of which Singapore and the Philippines shared respectively 35 and 25%, the other eight countries accounted for the remaining 40%. In 2010, import increased 2.8 times to 1,569,066 mt of which Vietnam, the Philippines and Singapore shared respectively 38%, 19% and 17% indicating some diversification in import among the countries. In 2001, import volume was 92% of export volume while in 2010, it was 216% of export volume. Increased net import of meat is the result of low output growth and high increase in demand propelled by income, population and urban growth.

Third, total milk output in the member countries increased from 2.2 million mt in 2001 to 4.3 million mt in 2010, i.e. domestic production doubled in 10 years. However, net import increased from 5.9 million mt to 7.5 million mt i.e. by 28%. More interestingly, net import volume in 2001 was equivalent to 2.7 times the volume of overall domestic production and it was 1.7 times in 2010. The region accounted for about 6% of global milk trade in the 1990s which has recently increased to about 10% (FAO, 2013). Rising income and urbanization and

changes in dietary preferences and tastes on the one hand and reduced import price due to tariff reduction and free trade agreements with a number of rich counties, especially Australia and New Zealand, the major milk exporters, have accelerated demand for milk in the region.

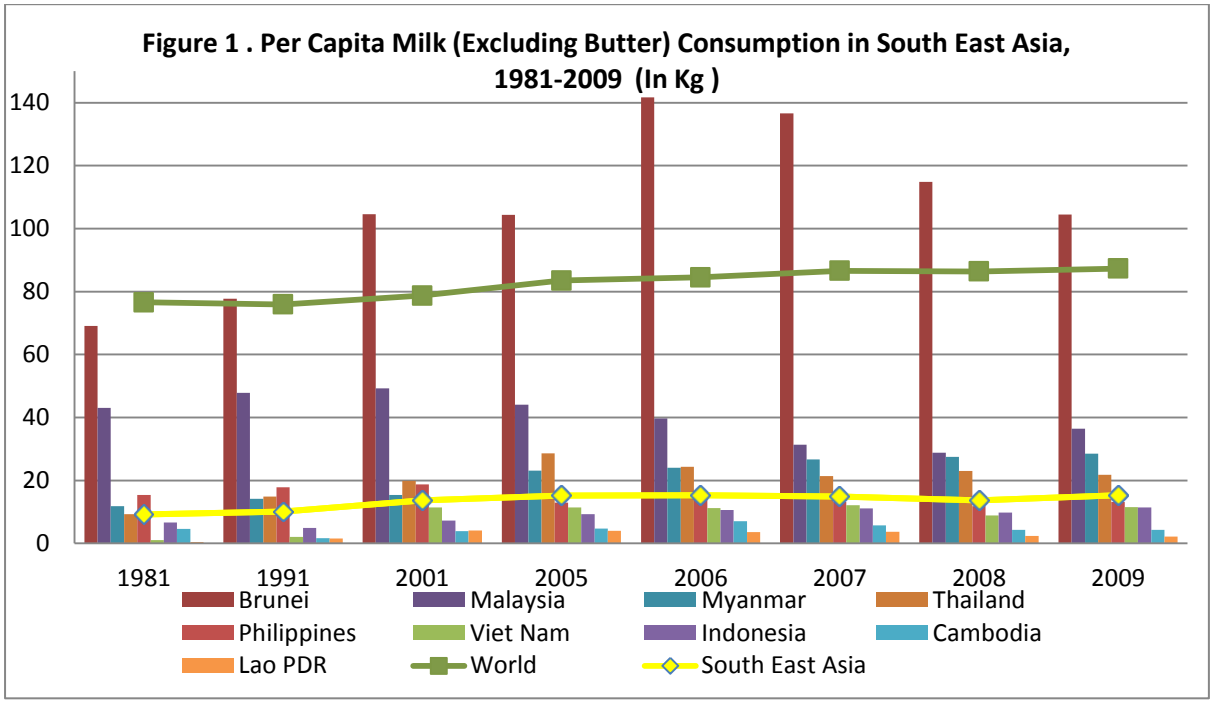
Fourth, per capita availability or consumption levels for meat are fairly small in all the countries compared to some of the neighbouring Asian countries. For example, combined total beef, pork and broiler consumption per capita in China, Taiwan, South Korea and Japan in 2010 was respectively about 50, 70, 55 and 45 kg (www.FAOstat.fao.org). Only Brunei had higher consumption level than China, South Korea and Japan. Consumption level increased at varying rates across the countries though small bases make the percentage changes look fairly high. Brunei, Malaysia and Vietnam top the list in terms of total meat consumption per capita, with Thailand, Myanmar and Philippines lying in the middle with the rest at the lower end. Among meat types, pork is the most important consumption item in Vietnam and the Philippines, poultry is most important in Malaysia, Brunei and Thailand and beef consumption is evenly distributed across the countries.

In case of milk, only Brunei has above global average per capita consumption. Malaysia, Thailand and Myanmar also have above East Asia average consumption (Figure 1). In the other member states, milk consumption levels are still low though it is increasing slowly.

Future production, trade and consumption scenarios are difficult to predict. A lot will depend on global economic situation and policies of richer countries and growth and structural changes within the ASEAN region both in response to global changes and to fulfil its own long-term goal towards achieving a single market and production base. Projections for all the AMSs are not readily available. Food and Agricultural Policy Research Institute (FAPRI) at the Iowa State University, USA, the United States Department of Agriculture, and The International Food Policy Research Institute, Washington, DC publish global outlook on agriculture using different simulation models. All three models cover a wide variety of agricultural commodities, especially those traded globally, and generate global as well as country specific projections for some major countries and regions of interest. These models are run on the basis of a number of assumptions with respect to macroeconomic factors that influence commodity markets, e.g. population, urbanization, economic growth rates, exchange rates impacting on trade flows, energy outlook, especially energy prices and prospect of biofuels, weather conditions etc. Since these assumptions may change over time or in the long run, projected figures should be interpreted as trends rather than as single valued expectations.

However, projections for the ASEAN region or all of its member states are not generated by these models partly because of the small size of most of the ASMs. Only the FAFRI model output generates country specific projections for Indonesia, the Philippines, Thailand and Vietnam perhaps because these are relatively large in size. The most recent projections for meat and milk production, consumption and trade to 2020 on 2012 as the base are shown in Table 4. It appears that production, per capita consumption of all types of meat and milk will increase significantly in all the four countries but with the exception of Thailand, which will remain a net exporter of meat, net import of all types of meat and milk will increase to meet the gap between supply and demand. Vietnam is projected to decrease its net import of pork and eventually become a net exporter by 2020, though net import of beef and broiler will increase. In Thailand, net exports of beef and pork are projected to decline to some extent and that of broiler is projected to increase. Results of an IFPRI impact model run shows that for the region as a whole, milk production and demand will increase and net import will also increase (Daite *et al.*, 2013, Figure 2).

From the brief review above, it can be reasonably assumed that agriculture will remain a key sector 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 as well as economic growth, livelihood and trade. 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.



Source: Daite *et al*. (2013)

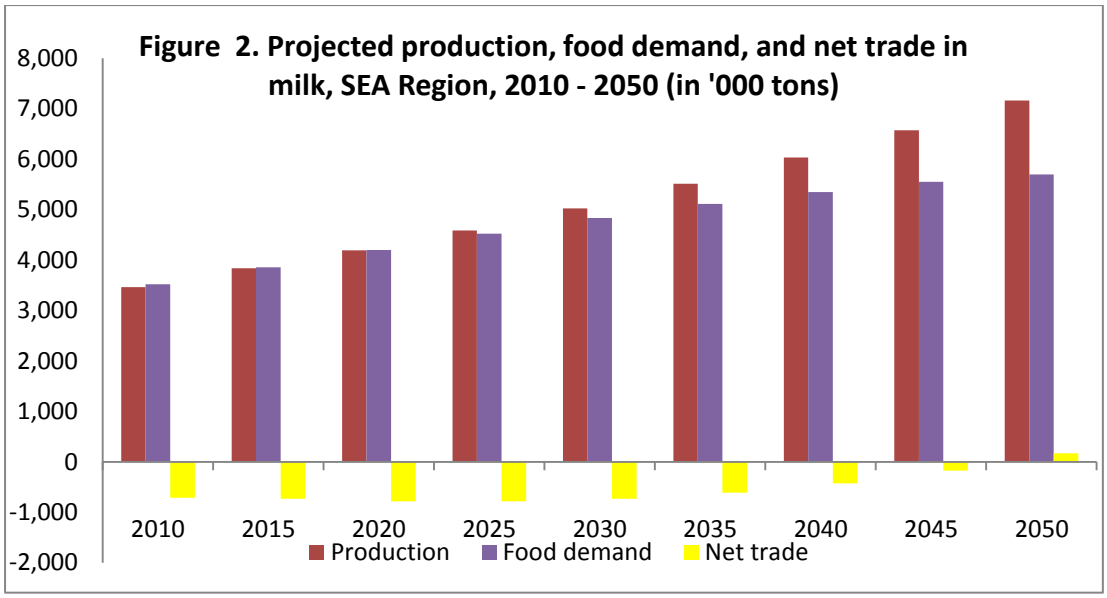


Table 4 Projections for consumption and net trade in beef, pork, broiler meat and milk to 2020 for selected ASEAN member states

Country	Production, 000 mt			Per capita consumption kg/year			Net trade , 000 mt		
	2012	2016	2020	2012	2016	2020	2012	2016	2020
Indonesia									
Beef and veal	464	499	522	1.9	2.0	2.0	-17	-15	-23
Pork	593	639	677	2.4	2.5	2.6	-1	-5	-13
Broiler	1570	1764	1921	6.2	6.8	7.2	40	14	-16
Total	2627	2902	3120	10.5	11.3	11.9	22	-6	-52
Milk	803	912	1004	2.9	2.9	3.1	-233	-271	-313
Philippines									
Beef	237	219	220	3.7	3.6	3.6	-151	-187	-207
Pork	1394	1678	1758	13.5	14.2	14.9	-16	97	-23
Broiler	797	931	1005	8.6	9.2	9.8	-94	-96	-168
Total	2428	2828	2983	25.8	27.0	28.3	-261	-186	-398
Milk	17	19	22	1.5	1.7	1.9	-99	-114	-135
Thailand									
Beef and veal	445	492	507	6.3	6.7	7.2	26	31	6
Pork	766	823	859	11.3	11.8	12.3	8	17	5
Broiler	1455	1634	1778	13.2	14.4	15.3	570	648	713
Total	2666	2949	3144	30.7	32.9	34.8	604	696	724
Milk	982	1027	1179	14.3	16.4	19.1	-132	-154	-173
Vietnam									
Beef and veal	282	292	326	3.1	3.3	3.6	-5	-24	-25
Pork	1953	2122	2275	21.8	22.3	22.9	-41	-6	12
Broiler	320	333	352	7.3	7.9	8.5	-348	-423	-490
Total	2555	2747	2853	32.2	33.6	35.0	-394	-453	-503
Milk	299	363	598	2.8	3.4	4.1	-87	-109	-157

Note : milk excluding butter and cheese
Source : http://www.fapri.iastate.edu/outlook/2012/ for meat;
http://www.fapri.iastate.edu/outlook/2011/ for milk

1.2 ASEAN Current Cooperation in Food, Agriculture and Forestry Sector

1.2.1 The position of the livestock sub-sector in ASEAN cooperation in agriculture and its weaknesses

The AEC Blueprint envisages four inter-related and mutually reinforcing key characteristics or pillars of the Community: **(a) a single market and production base,** (b) highly competitive economic region, (c) a region of equitable economic development, and (d) a region fully integrated in the global economy. The Blueprint further envisages that Pillar A:single market and production base, shall comprise seven key elements or strategic approaches : (i) free flow of goods, (ii) free flow of services, (iii) free flow of investment, (iv) free flow of capital, and (v) free flow of skilled labour, (vi) the priority integration sectors, and **(vii) food, agriculture and forestry**.

The livestock sub-sector is explicitly discussed only under strategic approach vii, i.e. food, agriculture and forestry (FAF), with only an indirect link with approach i, i.e. free flow of goods (Table 5). Strategic approach vi: the priority integration sectors, do not yet include livestock , and livestock is not mentioned in any of the other strategic approaches as those are mostly of a general regulatory and facilitating nature.

Table 5 Matrix of ASEAN Economic Community Pillars and Strategies

Strategic approaches	ASEAN Economic Community Pillars			
	A. Single market & production base	B. Competitive economic region	C. A region of equitable econ dev.	D. Integrated in global economy
i	**Free flow of goods (including livestock)**	Competition policy	**SME development (excludes livestock)**	Coherent approach towards external economic relations
ii	Free flow of services	Consumer protection	Initiative for ASEAN integration	Enhanced participation in global supply networks
iii	Free flow of investment	Intellectual property rights		
iv	Free flow of capital	Infrastructure development		
v	Free flow of skilled labour	Taxation		
vi	Priority integration sectors	E-Commerce		
vii	**Food, Agric and Forestry (including livestock)**			

Source: ASEAN (2013)

The main weakness of the above scope for cooperation in the livestock sub–sector is that potential contribution of the sub-sector to growth, equity, employment and food security through production and trade remains unexploited. For example under pillar C: A region of equitable economic development, Small and Medium Enterprise (SME) Development has been adopted as one of the two strategic approaches. However, SME is generally defined in terms of processing, marketing and services and not for primary production. Yet small and medium scale poultry, pig and dairy production and processing enterprises dominate the livestock sub-sector in the AMSs. So policy and investment support to the livestock sub-sector through the strategic approach or window SME has great potential for contribution to equitable economic development in the region.

Moreover, the ASEAN Socio-Cultural Community (ASCC) Blueprint envisages six characteristics or pillars of the Community: (a) human development, (b) social welfare and protection, (c) social justice and rights, (d) ensuring environmental sustainability, (e) building the ASEAN identity, and (f) narrowing the development gap. Among these, under characteristics **b: social welfare and protection**, several strategic approaches have been proposed, of which only the **strategy b3: enhancing food security and safety** includes some livestock related issues. Strategic approach **b1: poverty alleviation**, could include the role of livestock in poverty alleviation but there is no reference to livestock under this strategic approach. Also under characteristics **d: ensuring environmental sustainability**, several strategic approaches have been proposed of which **strategic approach d8: promoting sustainable management of natural resources and biodiversity, and approach d10:**

responding to climate change and addressing its impacts, have some relevance to livestock related issues though they are not explicitly mentioned. We will see later that as a result of lack of explicit attention given to livestock in defining the scope and action lines under the ASCC strategic objectives that has potential role for livestock, there is lack of interaction with the livestock activities under the AEC blueprint through strategic approach FAF.

So, the main focus of this paper will be on strategic approach vii: Food, Agriculture and Forestry under the AEC blueprint. Linkage between livestock and other strategies under the ASCC blueprint will also be discussed separately under crosscutting issues. There is also scope for cross-referencing livestock related actions under the AEC blueprint with actions under ASCC blueprint.

1.2.2 Current situation and progress of ASEAN cooperation in the livestock sub-sector

1.2.2.1 The presentation format

Under the pillar Single Market and Production Base, one of the seven approaches is Priority Integration Sectors. In this priority list, livestock is not included. Consequently, this sub-sector did not receive as much systematic attention in implementation of the AEC blueprint as its importance in the region would justify. Documentation of activities and progress to date has been inadequate to make a comprehensive assessment of the current situation. The most comprehensive inventory of activities and progress may be found in the Score Card on AEC measures prepared for the 34th SOM 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). However, the presentation formats vary between the two documents. The Score Card listed activities in line with the AEC blueprint listing but the ASWGL document used the following hierarchy for presenting the SPA activities: **Strategic Thrust**>Action programme> Activities> Sub-Activities. Accordingly, seven strategic thrusts have been identified 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

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. Since the main ASEAN policy focus for the livestock sub-sector is under the AEC blueprint with some indirect linkage with ASCC blueprint, in this paper, the main topics will be arranged first with respect to the AEC blueprint in the following order: ASEAN pillar or characteristics> Strategic approach>Strategic objective>Action programme> Activities/sub-activities. And the activities and sub-activities listed in the SPA document will be rearranged to fit the above structure. Then the same approach will be followed to present activities under the ASCC blueprint. It needs to be

emphasized that the AEC score card as well as the ASWGL SPA progress report mainly indicate whether and how much of the planned action lines and activities have been completed; they do not indicate the intermediate or final output and outcome of those completed activities towards achievement of the AEC goal of a single market and production base. The type and extent of monitoring and evaluation required to assess the quantitative impact of various action lines and activities on the AEC goal are yet to be done.

1.2.2.2 Activities and achievements under the AEC Blueprint

To accomplish AEC pillar A: Single Market and Production Base, under strategic approach vii: Food, Agriculture and Forestry, three strategic objectives and related priority action areas relevant to livestock are as follows:

Strategic objective: Enhance intra-and extra-ASEAN trade and long-term competitiveness of ASEAN Food, Agriculture and Forestry products/commodities

Action i *Monitor implementation of CEPTA-AFTA schemes for agricultural products*

Action iii *Establish Good Animmal Husbandry Practices (GAHP), Good Hygiene Practices (GHP), Good Manufacturing Practices (GMP), and Hazard Analysis critical Control Point (HACCP) based systems for agricultural and food products with significant trade/trade potential by 2015*

Action iv *Harmonise the quarantine and inspection/sampling procedure by 2010 and Sanitary and Phytosanitary measures for agricultural, food and forestry products with significant trade/trade potential, in accordance with international standards/guidelines, where applicable, by 2010*

Action viii *Harmonise the animal (both terrestrial and aquatic animal) health control for safety of food of animal origin through a common bio-security management standards scheme, in accordance with international standards/guidelines, where applicable by 2015.*

Strategic objective : Promote cooperation, joint approaches and technology transfer Among ASEAN Member Countries and international, regional organisations and private sector

Action i *Develop joint strategies/positions on issues of related interest to ASEAN with international organisations such as WTO, FAO, World organisation for Animal Health (OIE), CODEX, Convention on International Trade in Engendered Species of Wild Fauna and Flora (CITES), and dialogue partners.*

Action ii *Promote collaborative research and technology transfer in agriculture, food and forestry products*

Action iii *Establish strategic alliances and joint approaches with the private sectors in*

promoting food safety, investment and joint venture opportunities for promotion of agricultural products and market access

Strategic objective : Promote ASEAN agricultural cooperatives as a means to empower and enhance market access of agricultural products, to build a network mechanism linking agricultural cooperatives, and to fulfil the purpose of agricultural cooperatives for the benefit of farmers in the region

Action i *Strengthen strategic alliance between agricultural cooperatives in ASEAN through bilateral, regional and multilateral cooperation*

Action ii *Establish business linkages among the potential agricultural cooperatives with ASEAN*

Action iii *Promote direct investment and strategic partnership with ASEAN agricultural cooperatives producers, consumers and traders*

The actions or **measures** (terms respectively used in the AEC blueprint and the AEC Score Card) under the above objectives are related a) to improved production and quality control practices to meet increased demand for safety and quality standards in food and agriculture in the ASEAN and international markets; b) to strengthening relations and linkages and collaboration with partner institutions in the ASEAN and other international organisations to undertake collaborative research and technology transfer as well as have more uniform ASEAN positions in the international arena; and c) to strengthen strategic and business linkages including direct investment among agricultural cooperatives in the region.

Under each strategic objective and priority action areas or measures, specific activities/sub-activities have been implemented and initiated. What follows is an inventory of livestock related activities/sub-activities and achievements during 2011-15 under each proposed **action area or measure** under each strategic objective. The inventory is derived from the AEC Score Card for Agriculture, Food and Forestry and the ASWGL Strategic Plan 2011-15 inventory and related background documents, where applicable.

Strategic objective : Enhance intra-and extra-ASEAN trade and long-term competitiveness of ASEAN Food, Agriculture and Forestry products/commodities

Action i ***Monitor implementation of CEPTA-AFTA schemes for agricultural and forest Products.***

The aim of this action programme is to achieve tariff-free intra-ASEAN trade in agriculture and forestry products by 2015 for ASEAN-6 and by 2018 for the remaining 4 member states. Two policy instruments have been used for the purpose - reduction or elimination of common effective preferential tariff (CEPT) and assignment of most favoured nation (MFN) status.

Significant progress has been made in this respect. Average tariff rates on imports in ASEAN-6 reached 0.04 percent in 2012 while in CLMV, it reached at 1.37 percent (Figure 3). For agro-based products under priority integration sectors which **exclude livestock,** ASEAN average CEPT rate decreased from 4.63% in 2002 to 1.18% in 2010. Already six countries have reached the zero CEPT rate ahead of the 2015 target (Table 6). MFN rates have also declined though at a slower rate than CEPT.

However, separate statistics on changes in CEPT rates on livestock commodities are not available. Applied MFN rates on dairy products appear to be lower than on other agro-based commodities (Table 7).

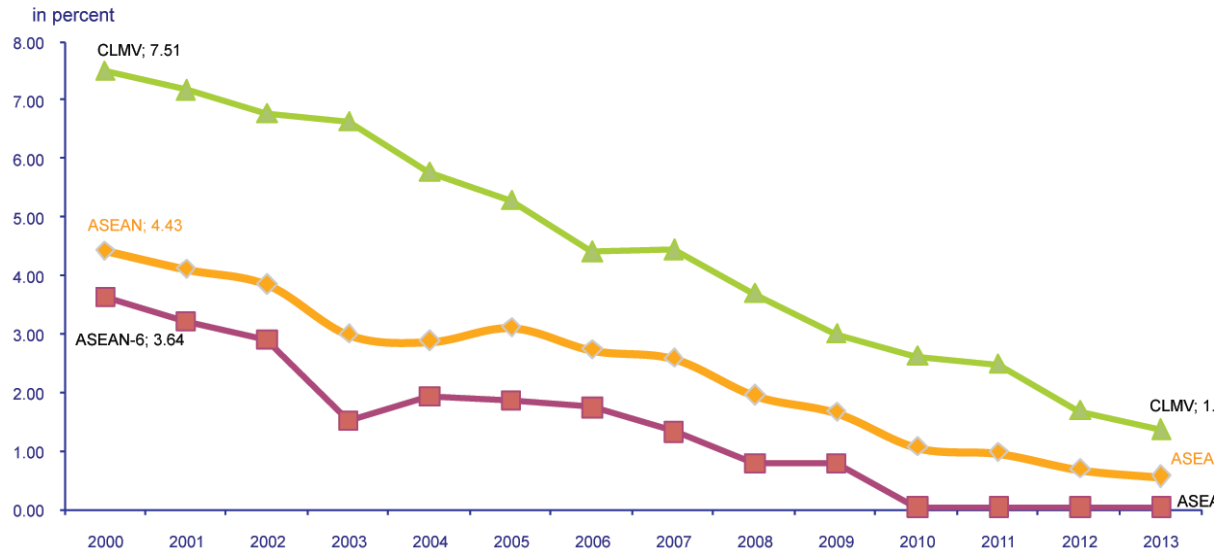


Figure 3 Average Tariff Rates on Intra-ASEAN Imports

Source:http://www.asean.org/resources/publications/asean-publications/item/asean-community-in-figures-acif-2013?

Table 6 ASEAN tariff rates on agro-based commodities under priority integrations sectors, (excluding livestock) 2002 and 2010

Country	CEPT rate		MFN rate	
	2002	2010	2002	2010
Brunei	0.00	0.00	0.00	0.00
Cambodia	7.67	4.51	14.59	13.31
Indonesia	3.39	0.00	3.61	4.59
Lao PDR	11.54	3.78	19.91	21.01
Malaysia	1.78	4.51	3.18	1.69
Myanmar	3.09	0.00	4.73	4.82
Philippines	4.59	0.00	8.03	8.71
Singapore	0.00	0.00	0.00	0.00
Thailand	6.95	0.04	34.46	23.68
Vietnam	7.23	2.70	21.91	13.42
ASEAN average	4.63	1.18	11.04	9.12

Source: ERIA (2012)

Table 7. Tariffs (in percent) on dairy products, ASEAN member states, 2012

Country	Average applied MFN rates	Range of rates in ATIGA***
Brunei	0	0
Cambodia	22.3	5
Indonesia	5.6	0
Lao PDR	9.2*	5 - 10
Malaysia	2.5	0
Myanmar	3.7	0 - 5
Philippines	3.9	0
Singapore	0	0
Thailand	21.4**	0
Viet Nam	8.8	5

*As of 2008 **As of 2011 ***ASEAN Trade in Goods Agreement

Sources: WTO Tariff Profiles; ASEAN Tariff Schedules quoted in Daite et al (2013)

ASEAN as a group has also forged free trade agreements (FTAs) with other non-ASEAN countries in the Asia-Pacific Region. Specifically, ASEAN has existing individual FTAs with China, Japan, South Korea, India, and Australia and New Zealand which all intended to foster freer trade with these countries mainly through tariff reduction and trade facilitation. The ASEAN region being a net importer of dairy products, the lowering of tariffs with these partners, especially with Australia and New Zealand which are the dominant exporters of milk products, is expected to enhance import. Based on country commitments in the establishment of the ASEAN-Australia-New Zealand Free Trade Area (AANZFTA), current tariff rates on dairy products have been lowered: 0% in Brunei, Singapore, Australia and New Zealand; 0-5% in Indonesia and the Philippines; 3-5% in Myanmar; 5-10% in Lao PDR; 7-20% in Viet Nam; and 0-30% in Thailand. Only Malaysia imposes Tariff Rate Quotas, with in-quota tariffs at 20% and out-quota rates of 45%. The further expansion of FTAs to other regional and economic blocs that serve as ASEAN's important trading partners in dairy products, such as Europe and North America, can help further boost the flow of dairy products in the region (Daite *et al.*, 2013).

Apart from tariff policy, several non-tariff measures (NTM) and non-tariff barriers (NTB) may also constrain trade, especially when tariff rates decline. The primary aim of NTMs and NTBs are to protect human, plant and animal health of the imposing country as well as to facilitate domestic and export trade by assuring consumers about the safety and quality of the products. There are a wide range of NTMs, including SPS, TBTs, import bans, quotas and licenses, finance measures (Abler, 2010).

The MTR review of AEC 2015 stated that "The AMSs, through the ATIGA, agreed not to adopt or maintain NTMs except in accordance with their WTO rights and obligations or in provisions of ATIGA. Moreover, they agreed to ensure transparency of NTMs to be implemented especially through the ASEAN Trade Repository. They agreed not to adopt or maintain any prohibition or quantitative restriction except in accord with WTO and ATIGA. Finally, they endeavoured to eliminate other non-tariff barriers if so determined by the CCA, ACCSQ, AC-SPS, the working bodies under ASEAN Directors-General of Customs and other related bodies, to be recommended to the AFTA Council through the SEOM. Thus, NTMs are to be addressed by a number of ASEAN bodies. Specifically, for example, technical barriers to trade (TBTs) are to be addressed by the ASEAN Consultative Committee on Standards and Quality (ACCSQ); sanitary and phytosanitary (SPS) measures by the ASEAN Committee on

Sanitary and Phytosanitary (AC-SPS), and custom related measures by the ASEAN Directors-General of Customs" (ERIA, 2012). The report also showed that NTM and NTB restrictiveness indices for agriculture commodities in the ASEAN region have declined significantly.

The outcome of reduced CEPT, MFN and NTBs and NTMs should be reflected in the pattern of intra-ASEAN trade. By 2012, overall intra-ASEAN trade reached 24.3% of all trade - 25.8% of export trade and 22.8% of import trade - with wide variation among the AMSs (Table 8). Trade in agricultural commodities show slightly better performance. Intra-ASEAN export of agricultural commodities increased from 20% in 2001 to 22% in 2010 but intra-ASEAN import of agricultural commodities increased from 24% in 2001 to 31% in 2010. However, the share of livestock commodities is negligible in agricultural commodity trade. Commodity composition of intra-ASEAN agricultural trade shows four major livestock commodity groups based on HS code and they accounted for only 7.1% of the frequency of trading in 2000 and that decreased to 5.8% in 2010 (Table 9). Intra-ASEAN share of total live animal trade remained at about 50% in both the years, the share of dairy products and bird eggs increased from 17.2% to 24.8% but shares of meat and other products remained at less than 10% of total trade, which imply that these commodities are primarily traded with extra-ASEAN countries.

Table 8 Share of Intra-ASEAN trade in overall ASEAN trade by country, 2012

Country	Share of export trade %	Share of import trade %	Share of total trade %
Brunei Darussalam	13.2	43.6	19.8
Cambodia	13.3	37.0	27.6
Indonesia	22.0	28.1	25.1
Lao PDR	44.1	33.3	38.0
Malaysia	26.8	27.9	27.3
Myanmar	36.5	44.9	40.7
Philippines	18.9	22.9	21.1
Singapore	31.8	21.0	26.6
Thailand	24.7	17.3	20.9
Vietnam	15.3	18.4	16.8
Total ASEAN	25.8	22.8	24.3

Source:http://www.asean.org/resources/publications/asean-publications/item/asean-community-in-figures-acif-2013?

Table 9. Position of selected livestock commodities in intra-ASEAN commodity trade, 2000 and 2010

Statistics	Live animals		Meat and edible offal		Dairy products, bird eggs		Products of animal origin	
	2000	2010	2000	2010	2000	2010	2000	2010
Frequency distribution of intra-ASEAN agriculture trade (%)	2.6	1.7	0.6	0.4	3.7	3.6	0.2	0.1
Intra-ASEAN trade share, by commodity (%)	50.5	50.7	5.2	5.8	17.2	24.8	13.8	9.9

Source: ERIA (2012)

The trade potential of a commodity from a country depends on its comparative advantage. Estimated revealed comparative advantage of four livestock commodity groups in 2000 and 2008 in seven out of the 10 ASEAN member states are shown in Table 10. It appears that only

Vietnam had some degree of revealed comparative advantage in dairy products and bird eggs, and products of animal origin in 2000 but lost that in 2008. None of the other countries had revealed comparative advantage in any of the other livestock commodities in any of the two years. This may partly explain the low level of intra-ASEAN trade in these commodities.

Table 10. Revealed comparative advantage index for selected livestock commodities in selected ASEAN member states, 2000 and 2008

Country*	Live animals		Meat and edible offal		Dairy products, birds eggs		Products of animal origin	
	2000	2008	2000	2008	2000	2008	2000	2008
Cambodia	0.02	0.02	0.00	na	0.43	0.00	0.03	0.00
Indonesia	0.43	0.31	0.03	0.02	0.40	0.46	0.16	0.08
Malaysia	0.66	0.63	0.01	0.01	0.24	0.43	0.13	0.05
Philippines	0.03	0.07	0.00	0.05	0.08	0.69	0.12	0.06
Singapore	0.03	0.02	0.01	0.02	0.15	0.26	0.09	0.10
Thailand	0.29	0.37	0.98	0.06	0.16	0.21	0.82	0.25
Vietnam	0.14	0.06	0.23	0.14	**1.38**	0.25	**1.56**	0.25

***** Indices for Brunei, Laos and Myanmar were not calculated by ERIA
Source: ERIA (2012)

A more general explanation about low intra-ASEAN trade overall is provided by a recent ADB study on progress on AEC 2015. The study suggested that ASEAN is lagging behind in achieving its 2015 target of creating a single market and production base integrated in the global economy because of the failure to do away with NTBs (Austria, 2013). The author suggested that NTBs have replaced tariffs as "protective measures" in some cases. And the factors that have contributed to the slow progress in addressing NTBs include difficulty in identifying which among the NTBs are effective barriers to trade as government regulations, procedures, and administrative requirements have evolved over the years in response to developments in each member country, and they are not easy to harmonise or do away with. Lack of compliance due to uneven development of the AMSs has been also mentioned as a reason for slow progress in removing NTBs. Another important reason for lagging behind intra-ASEAN trade targets is lack of progress in liberalizing intra-ASEAN trade in services (Nikomborirak and Jitdumrong, 2013). However, it is not clear to what extent the low levels of intra-ASEAN trade in livestock commodities are due to remaining tariff rates or NTB and NTMs.

ASEAN policy and strategy on trade and investment has taken a further step from CEPTA-AFTA scheme to eliminate tariff towards more openness and globalisation through the formation of the Regional Comprehensive Economic Partnership (RCEP) by the 10 ASEAN Member States and its Free Trade Agreement Partners (Australia, China, India, Japan, the Republic of Korea and New Zealand). Consistent with the RCEP Leaders' Joint Declaration on the Launch of Negotiations for the RCEP of 20 November 2012 and the Guiding Principles and Objectives for Negotiating the RCEP endorsed by RCEP Ministers on 30 August 2012, the RCEP negotiations to be concluded by the end 2015 will aim to:

i. achieve a modern, comprehensive, high-quality and mutually beneficial economic partnership agreement establishing an open trade and investment environment in the region to facilitate the expansion of regional trade and investment and contribute to global economic growth and development; and
ii. boost economic growth and equitable economic development, advance economic cooperation and broaden and deepen integration in the region through the RCEP, which will build upon our existing economic linkages.

Action iii ***Establish Good animal Husbandry practices (GAHP), Good hygiene Practices (GHP), Good Manufacturing Practices (GMP), and Hazard Analysis Critical Control Point (HACCP) based systems for agricultural and food products with significant trade/trade potential by 2012***

The aim of this action programme is to harmonise quality and safety standards of livestock production processes and products within the ASEAN region and also over time align with international standards to facilitate both intra- and extra-ASEAN trade.

Several initiatives and activities have been undertaken during the 2011-15 period with varying levels of implementation (Table 11). Criteria for accreditation of production establishment have been prepared for a number of enterprises and others have been initiated and some others are yet to be initiated. Similarly, criteria for accreditation of milk processing establishments and hermetically-sealed meat products have been prepared and criteria for several others are yet to be done. For broiler and layer, food safety module of ASEAN GAPH has been prepared and TOR for environment and food safety modules are under discussion. Also steps have been taken for practicing humane slaughter of animals and for halal slaughter and preparation of meat. All these activities, when fully completed and adopted will contribute to harmonise standards for production of livestock in the AMSs and enhance both intra and extra-ASEAN trade in animal products.

Table 11 Plan and progress in establishing good production and manufacturing practices in the livestock sub-sector

Activity/sub-activity	**Plan and Progress**
(i) Develop and finalise ASEAN GAHP for Broiler and Layers	At the 22nd ASWGL meeting, Singapore, 5-9 May 2014: • Indonesia led draft finalized at the 3rd meeting of the ASEAN GAHP Project for the Food Safety Module of GAHP was approved for endorsement by SOM-AMAF. It was suggested that the document be considered ASEAN Standard for GAHP for Broiler and Layer production in the region. It was expected to play a key role in preventing/ minimizing food safety incidents as it covers elements of biosecurity, workers' health and safety. It was suggested to add animal welfare and measures to reduce environmental impact in the manual. • It was decided that TOR developed for preparation of Animal Welfare and Environment Module, and ASEAN GAHP strategic plan would be submitted to ASWGL for approval through ad referendum.
(ii) Develop and finalize criteria for accreditation of livestock production establishments for :	Criteria have been developed, approved by relevant bodies and published by ASEAN for a number of enterprises and others are in progress or planned as below:
• Day old chicks and duckling	ASEAN Livestock Publication Series (LPS) 3A
• Cattle and buffaloes for slaughter	LPS 3B
• Cattle and buffaloes for breeding	LPS 3C
• Poultry for breeding	LPS 3D
• Chicken for table egg	LPS 3F (in progress)
• Pig for breeding	LPS 3G
• Pig for slaughter	LPS 3H
• Chicken for slaughter	LPS 3I (in progress)
• Sheep and goat for breeding	LPS 3J (in progress)
• Sheep and goat for Slaughter	LPS 3K (in progress)
• Ducks for slaughter	LPS 3L (in progress)
• Duck eggs	To be done, no milestone defined

• Dairy cattle	To be done, no milestone defined
• Horses for sporting event	To be done, no milestone defined
• Porcine semen and embryo	To be done, no milestone defined
• Bovine semen and embryo	To be done, no milestone defined
(iii) Develop and finalize criteria for accreditation of livestock product establishments	
• Criteria for milk processing establishments	A manual prepared under the leadership of Malaysia was adopted at the 22nd ASWGL meeting, Singapore, 5-9 May 2014 for approval by SOM-AMAF as a regional guideline to be implemented by competent authorities of AMSs for the accreditation of milk processing establishment for the purpose of trade in milk and milk products within ASEAN. To effectively implement the criteria, it was recommended that each AMS need to develop its own template to monitor the implementation of the Criteria and incorporate the Criteria to their national legal system as it would be endorsed by AMAF Leaders. .
• Criteria for hermetically-sealed meat products	A manual prepared under the leadership of Malaysia was adopted at the 22nd ASWGL meeting, Singapore, 5-9 May 2014 for approval by SOM-AMAF as criteria to be applied to manufacturing meat products in hermetically-sealed containers that are intended for export within ASEAN countries. It was recommended that each AMS shall develop its own system to monitor the implementation of the criteria at national level.
• Meat processing	LPS 4D (in progress)
• Ice cream processing plant	To be done, no milestone defined
• Yoghurt processing plant	To be done, no milestone defined
• Animal feed plant	To be done, no milestone defined
• Egg processing plant	To be done, no milestone defined
(iv) Promote humane slaughter of animals to add value and facilitate trade	Conducted training on humane slaughter of cattle and pigs on 3-4 December 2013 in Bangkok in collaboration with WSPA. WSPA support to promote humane slaughter in Indonesia ongoing and a request for support from Vietnam under review.
(v) Capacity Building on Halal Food (2008-2015)	ASEAN Working Group on Halal Food conducted the following activities: • Training of Trainers for Halal Food Inspectors was held on 11-14 January 2011 in Kuala Lumpur • Training of Trainers for Halal Food Auditors was held on 24-26 October 2011 in Jakarta • Training of Laboratory Analyst was held in Thailand on "Halal Forensic Laboratory Training Course for IMT-GT and ASEAN Scientists" during 26-30 September 2011, Bangkok
(vi) Veterinary drug residues in food of livestock origin	It has been agreed that veterinary drug residue in food of livestock origin will be included under the current ASEAN GAHP to avoid duplication. Indonesia has been requested to take lead to incorporate the issues to one of the modules under GAHP and bring the issue to the Adhoc Taskforce on GAHP to further discuss the possibility to incorporate the MLRs to the current draft GAHP.

Source: http://www.asean.org/communities/asean-economic-community/ category/ publications/asean-publication/; ASEAN (2014); ASWGL (2013, 2014).

Action viii ***Harmonise the animal (both terrestrial and aquatic animals) health control for safety of food of animal origin through a common bio-security***

management standards scheme, in accordance with international standards/guidelines, where applicable, by 2015

The aims of this action programme are also to harmonise health, sanitary and safety standards of livestock products within the ASEAN region and also over time align with international standards to facilitate both intra- and extra-ASEAN trade. Several initiatives and activities have been undertaken so far with varying levels of implementation. These fall into three main thematic areas:

a) Develop a comprehensive, integrated and concerted approach for effectively addressing economically important Transboundary Animal Diseases (TADs)
b) Facilitate intra-ASEAN trade in animal vaccines
c) Harmonise Sanitary and Phytosanitary (SPS) measures for livestock products with significant trade/trade potential by 2015 (2012-2015)

Specific actions/initiatives under the above thematic areas and their progress in implementation are presented below.

a) Develop a comprehensive, integrated and concerted approach for effectively addressing economically important Transboundary Animal Diseases (TADs).

A manual for compartmentalization of poultry farming has been finalized following OIE guidelines to deal with possible outbreak of Avian Influenza (Table 12). Also a road map for making ASEAN HPAI free by 2020 is under preparation. A manual for compartmentalisation of ruminant production is in progress. Activities for FMD control have a history of over 20 years and efforts are still continuing in collaboration with OIE, China and other partners. Initiatives for control of H7N9 virus, Brucellosis, Classical Swine Fever and BSE are also ongoing. In order to objectively assess the risks of these diseases and plan control measures accordingly, effort is underway to enhance capacity for risk analysis through training of staff of AMSs.

Table 12 Activities and progress on control of transboundary animal diseases

Sub-activity	Plan and Progress
(i) Development of guidelines on compartmentalization of livestock production (2014-15)	• In the backdrop of several Avian Influenza outbreaks in some AMSs, especially the 2003 SARS pandemic which was successfully tackled by the ASEAN-Centred cooperation, proposal to prepare ASEAN Biosecurity Management Manual for Commercial Poultry Farming was endorsed by the 32nd AMAF Meeting in Cambodia on 8-9 August 2011.Thailand was identified as the lead country for Poultry. • The ASWGL agreed to adopt the OIE Guidelines on Compartmentalisation. Emphasising on the need for the practical implementation of the Guidelines at the national level, the ASWGL agreed that the scope of the implementation guidelines to be developed would focus on the crucial aspects of disease control and trade facilitation, using a progressive approach in their implementation. • ASEAN Bio-Security Manual for Commercial Poultry Farming – Broiler and Meat Type Duck prepared by Thailand was approved at the 22nd ASWAL meeting held in Singapore, 5-9 May 2014. The manual will serve as the common standard for implementing biosecurity measures for poultry farms in the region. It was agreed to develop harmonized template matrix to monitor and evaluate the implementation of the Manual. Thailand also prepared a draft Questionnaire Template for monitoring or auditing implementation, on

	which comments were invited . The final template shall be circulated to AMS by Thailand as a reference to monitor the implementation of the ASEAN Manual at national level. • A preliminary draft manual on biosecurity for ruminants developed by Malaysia and progress on the manual on poultry by Thailand were discussed at the 22nd ASWAL meeting held in Singapore, 5-9 May 2014 and endorsed for further refinement with input from AMSs contact points.
(ii) Control and Eradication of economically important animal diseases	
• FMD	• The Southeast Asia- China FMD 2020 roadmap to prevent, control and eradicate FMD by 2020 in South-East Asia and China has been developed. Lead country Thailand reported that the 20th Meeting of the OIE Sub-commission for FMD held on 11-14 March 2014 in Nay Pyi Taw, Myanmar agreed to the drafting of the 3rd Edition of the SEACFMD 2020 roadmap and encourage the participation of ASEAN Secretariat and/or the chair of the ASWGL in the Sub-commission and other relevant meetings. • Regional cooperation programme on Highly Pathogenic and Emerging Diseases (HPED) in South and Southeast Asia being implemented with FAO and OIE collaboration and EU funding. Established an ASEAN Support Unit in Bangkok to coordinate and implement the project. • Under HPED project, operationalized the Vaccine Bank in Southeast Asia and distributed 800,000 FMD vaccine to Cambodia, Lao PDR and Myanmar under SE Asia regional programme. OIE suggested AMSs to submit FMD samples in a timely manner to OIE Reference Laboratories. (Note:EU project will finish in December 2014. Sustainability of ongoing activities through internalizing under ASEAN or finding alternative funding is still unclear) • With FAO collaboration, capacity development in Epidemiology is ongoing (see later) • Thailand also reported that a Workshop on a harmonised methodology for economic assessment of FMD impact at the village level will be organized on June 10-12, 2014 in Bangkok, Thailand**.** • Expansion of Disease Free Zones in AMSs for control and eradication of FMD has been under discussion but progress is unclear.
• Avian Influenza	• Developed an ASEAN Roadmap for HPAI Free region by 2020. Outcome of the 10 year ASEAN cooperation on this has not been comprehensively assessed. • A proposal to review the Terms of Reference of the HPAI Taskforce to accommodate zoonotic diseases in the region and to develop tools to monitor the implementation of the ASEAN HPAI Roadmap was discussed at the 22nd meeting of ASWGL, Singapore, 5-9 may 2014. However, a decision on this was postponed due to unavailability of funds. It was suggested that AMSs seek support from development partners to further implement the activity.
• H7N9 virus	• At the 22nd meeting of the ASWGL in Singapore, 5-9 may 2014, FAO reported that the emergency pandemic threats programme (EPT)-2, is under preparation consolidating the capacities and efforts built during the AI, EPT-1 and other related programmes. Since these activities are in line with proposed ACCAHZ's scope and activities, e.g. laboratory and epidemiology capacity development (se later), it was recommended at the Meeting that AMSs submit their Action Plan to FAO to implement the programme on emergency assistance for surveillance of influence of H7N9 virus in poultry and other animal population in the South Asia region.
• BSE	• It was noted that there was no ASEAN-wide mechanism for surveillance on

	BSE. Some countries collect data but do not share widely. For example, Thailand reported that she conducts regular surveys on BSE but does not report to OIE. Thailand has proposed to conduct a regional workshop on risk assessment (see below)
• Brucellosis	• Lead country Thailand reported that its National Institute of Animal Health (NIAH) conducted "The 4th FAO-APHCA/OIE/DLD Regional Workshop on Brucellosis Diagnosis and Control in Asia- Pacific Region - Proficiency test and way forward" in Chiang Mai on 19-21 March 2014. • NIHA's negotiation to get recognition as an OIE Reference Laboratory for Brucellosis diagnosis through a twining programme with the OIE Reference Laboratory for Brucellosis in France (ANSES) is still ongoing.
• Classical Swine Fever	• Proposal for a training/workshop for two participants from each member country on Control and Eradication of CSF Using Epidemiological Techniques in Animal Health submitted by the Philippines in May 2012 was considered at the 22nd meeting of ASWGL, 5-9 May 2014. It was recommended for further development using ASEAN guideline for ASEAN funding . • Philippine is conducting a baseline survey on CSF incidence to prepare a regional CSF profile to plan better control measures. AMSs were requested to respond to the survey questionnaire.
(iii) Improve capacity in risk assessment	• A draft concept paper on Regional Workshop on Development and Application of Risk Assessment Tools for BSE and Animal Disease Control in ASEAN presented by lead country Thailand was discussed at the ASWGL meeting, 5-9 May Singapre. The objectives of the workshop are (i) to share relevant information pertaining to assessment of risks of BSE and priority animal diseases in ASEAN (ii) to strengthen capacities of ASEAN Member States in carrying out BSE and animal disease risk assessment and (iii) to discuss and initiate the development of tools to support the application of BSE and animal disease risk assessment. The concept paper was recommended for further development and endorsement by ASWGL.
(iv) Improve capacity in Hazard Analysis and Critical Control Point (HACCP) techniques	To be done but no milestone defined
(v) Animal Identification and Traceability System (AAITS)	• A draft concept paper has been developed by Malaysia to conduct the first meeting/workshop in September-October 2014 to discuss the issues involved, scope for adoption in the region, options and tools available and way forward for implementation. The paper need further development and fund for execution.
(vi) ASEAN Mekong Basin Livestock Development Cooperation	• Mekong Basin Animal Quarantine Network (Coordinating Country – Malaysia). Not discussed at the ASWGL meeting in Singapore in May 2014 but included in ASWAL SPA (2011-2015) document. Progress is unclear.

b) Facilitation of the intra-ASEAN trade in animal vaccines

Adequate supplies of high quality vaccines are essential for eradication and control of endemic diseases. In order to standardize vaccine production, distribution and trade within the ASEAN and to ensure supply throughout the region with proper efficacy, manuals have been prepared for registration of vaccines, accreditation of vaccine production establishments and testing laboratories, standards for good manufacturing practices, code of practices for storage and transportation etc (Table 13). Because of efforts over several years, appreciable progress has been made in this domain and more work is underway.

Table 13 Activities and progress for standardization of production and trade of animal Vaccines in the ASEAN member states.

Sub-activity	Plan and Progress
(i) Manual of ASEAN Standards for Animal Vaccines	Completed and published as Livestock Publication Series (LPS) 2A
(ii) Manual of ASEAN Rules and Procedures for Registration of Animal Vaccines	Completed and published as LPS 2B
(iii) Manual of ASEAN Standards for GMP of Animal vaccines	Completed and published as LPS 2C (**see below at number x)**
(iv) Manual of ASEAN Accreditation Criteria for animal vaccine testing laboratories	Completed and published as LPS 2D
(v) Manual of ASEAN Code of practices for the commercial storage, transportation and handling of animal vaccines	Completed and published as LPS 2E
(vi) Protocol for accreditation of animal vaccine testing laboratories in AMSs	Completed and published as LPS 2F
(vii) Guidelines on registration for animal vaccines	Completed and published as LPS 2G
(viii) ASEAN standard requirements for Foot-and-Mouth Disease vaccine for cattle and buffaloes- inactivated (revised)	Discussed at the 22nd ASWGL meeting, 5-9 May 2014, Singapore and recommended for submission to SOM-AMAF for endorsement
(ix) ASEAN standard requirements for FMD vaccine for pigs – Inactivated (revised)	Discussed at the 22nd ASWGL meeting, 5-9 May 2014, Singapore and recommended for submission to SOM-AMAF for endorsement.
(x) ASEAN Guidelines on Good Manufacturing Practices (GMP) for Animal Vaccines.	Discussed at the 22nd ASWGL meeting, 5-9 May 2014, Singapore and recommended for submission to SOM-AMAF for endorsement. **(note: is it different from iii above?)**
(xi) Re-accreditation of the Veterinary Biologics Assay Division, Pakchong, Thailand as the Animal Vaccine Testing Laboratory	Discussed at the 22nd ASWGL meeting, 5-9 May 2014, Singapore and re-accreditation was endorsed. The lists of the vaccine for accreditation and reaccreditation are as follow: Re-accreditation: i. Newcastle Disease Vaccine, live ii. Infectious Bronchitis Vaccine, live iii. Duck Virus Enteritis Vaccine, live iv. Newcastle Disease Vaccine, inactivated v. Infectious Bronchitis Vaccine, inactivated vi. Egg Drop Syndrome Vaccine, inactivated vii. Fowl Cholera Vaccine, inactivated Accreditation: i. IBD Vaccine, live ii. IBD Vaccine, inactivated
(xii) Re- accreditation of the National Veterinary Drug Assay Laboratory (NVDAL), Gunung Sindur, Bogor, Indonesia	• The request from Indonesia National Focal Point for ANFPVP was endorsed and the list of vaccines for re-accreditation and new accreditation are as follows: Re-accreditation • Newcastle Disease Vaccine, live • Newcastle Disease Vaccine, inactivated • Marek's Disease Vaccine, live • Infectious Laryngotracheitis Vaccine, live • Infectious Bronchitis Vaccine, live

	• Infectious Bronchitis Vaccine, inactivated • Egg Drop Syndrome ’76 Vaccine, inactivated • Fowl Cholera Vaccine, inactivated New accreditation on: • Haemaphilus paragailinarum vaccine, inactivated
(xiii) Rules of Procedure (ROP) and Plan of Action (POA) of the National Focal Points for Veterinary Products	• Draft of ROP and POA of the ANFPVP was discussed and in view of the key role played by ASEC, request was made to ASEC to provide secretariat support to ANFVP and develop a TOR for that purpose.
(xiv) International Cooperation on Harmonisation of Technical Requirements for Registration of Veterinary Medicinal Products (VICH)	• ASEC reported at the 22nd ASWGL meeting, 5-9 May 2014, Singapore that VICH guidelines are not mandatory for VICH members. Thailand supported the ASEAN’s approach and believed that the ASEAN harmonisation rules should be similar to those of VICH. Indonesia, Philippines and Thailand being currently the countries in the lead of veterinary vaccines’ harmonisation, Thailand suggested that training on harmonisation of vaccines registration as well as bioequivalence should be provided at the next VOF meeting, though further discussion on the exact meaning of training in this context would be needed. Need for more communication on VICH activities and guidelines was also recommended.

c) Harmonise Sanitary and Phytosanitary (SPS) measures for agricultural, food and forestry products with significant trade / trade potential by 2015 (2012-2015)

Food safety has become a global issue from the point of view of both consumer protection and trade. OIE is the global body responsible for standard setting in animal health. However, OIE standards reflect developed country food standards and their enforcement mechanisms – regulatory as well as institutional structures- that have evolved over time. Developing countries need to make extra effort to develop and enforce standards in line with OIE standards in order to ensure domestic food safety as well as expand export. Since most producers and processing firms are usually small scale with varying standards, developing and harmonising SPS standards are daunting tasks. The ASEAN member states also have similar problems given the differences in production systems and scales between the AMSs.

Efforts in ensuring food safety in ASEAN are implemented under the ASEAN Socio-Cultural Pillar based on the relevant health action lines of its 2009 – 2015 Blueprint. The Philippines and Thailand have initiated some steps to formulate food safety legislation and control system. However, in order to have a more coordinated and cohesive approach in dealing with food safety at the regional level, in support of the ASEAN Single Market and Production Base, the ASEAN agreed for the development of a Food Safety Regulatory Framework with the support from the ASEAN Regional Integration Support by EU (ARISE) Project. While this is ongoing, AMSs have taken steps to identify SPS measures required for harmonisation of animal health standards with OIE standards and ways to implement them. The ASEAN has agreed to facilitate the process of harmonisation of SPS standards in animal health rather than to harmonise SPS measures per se (Table 14).

Table 14 Activities implemented to harmonise SPS standards in animal products in the ASEAN

Activity/sub-activity	**Plan and Progress**
Identify SPS measures required for harmonisation, agree among relevant bodies, and implement	• SPS measures required for harmonisation identified and discussed at relevant ASWGs Meeting (ASWGL, ASWGFi, ASWGC) and agreement among relevant bodies on the identified SPS measures reached. • Agreed that ASWGL will provide technical inputs concerning measures related to animal health and safety of animal products to SPS Committee/ATIGA. ASWGL agreed to harmonise the **procedures** in implementing the SPS measures rather than to harmonise SPS measures *per se* as OIE is the international competent agency responsible for the standard setting for animal health. Communication with AANZFTA as regards to the SPS cooperation is being conducted. • Coordinate with the development of a general regional food safety regulatory framework currently under way.

Strategic objective: Promote cooperation, joint approaches and technology transfer among ASEAN Member Countries and international, regional organisations and private sector

Action i *Develop joint strategies/positions on issues of related interest to ASEAN with international organisations such as WTO, FAO, World Organisation for Animal Health (OIE), CODEX, Convention on International Trade in Engendered Species of Wild Fauna and Flora (CITES), and dialogue partners.*

The ASEAN collaboration with external bodies is of two types. In some cases, the ASEAN has responded to programmes of a relevant organisation or country in the region and in other cases one or more organisations or country has responded to an ASEAN initiative. The initiatives and activities undertaken during the 2011-15 SPA period to establish collaboration (MOU) with bilateral and dialogue partners are described in Table 15. All of these are related to control of animal diseases and capacity in the animal health sector.

Table 15 Collaborative activities between ASEAN and external organisations and countries on animal health and disease control

Activity/Sub-activity	Plan and Progress
(i) ASEAN-FAO cooperation in Agriculture and Forestry	• General MOU signed in 2013 under which FAO is providing technical experts to AMSs to develop the new vision of ASEAN Cooperation on Food, Agriculture and Forestry towards 2020. One of the experts is for the livestock sub-sector. FAO also supports AMSs to develop the ASEAN Integrated Food Security Framework, Strategic Plan of Action 2015-2020 by providing technical experts. • A collaboration with EU-HPED Programme (FAO component) (Dec 2009-Dec2014) is ongoing. This includes support for development of Regional Strategic Framework on Livestock Communication, establishment of ACCAHZ. Also SOM-AMAF endorsement is sought for development of Regional Strategic Framework for Veterinary Epidemiology Capacity Development, One Health strategies at country level, relevant action plans and tools for promoting One Health strategy at country level. • Regional Strategic framework for Laboratory Capacity Building and

	Networking in Southeast Asia developed. Implementation arrangements under ASEC coordination being discussed. • ASEAN Laboratory Directors' Forum established; and its TOR and action plan developed, and Focal Points identified. • Reference Diagnostic Laboratories (RRDLs) for AI, FMD and CSF established (2008-2009). Malaysia, Thailand and Viet Nam were appointed as the RRDLs for the AI, FMD and CSF, respectively. • Draft Regional Strategic Framework for Veterinary Epidemiology Capacity Development prepared and reviewed. • ASEAN Ad-hoc Veterinary Epidemiology Group established and its TOR, plan of action developed and Focal Points identified. Recommended that AVEG should integrate/merge with the ASEAN Coordinating Centre for Animal Health and Zoonoses (ACCAHZ) **(**Note: since integration is proposed, it is unclear why need to create AVEG?)
(ii) ASEAN-OIE MOU on Technical Cooperation	• General MOU Signed in 2008 covering among others: (i) development of appropriate measures to support the control and prevention and eradication of animal diseases (ii) design and setting up of epidemiological surveillance, disease reporting and animal health information systems and emergency procedure for disease outbreak, and (iii) strengthening of the Veterinary Services by supporting training courses in veterinary fields. These are being implemented through specific projects. • A collaboration with EU-HPED Programme (OIE component) (Dec 2009-Dec2014) is ongoing. This includes participation in the SECFMD campaign and support for FMD vaccines to Cambodia, Lao PDR and Myanmar, and Rabies vaccines to Indonesia and the Philippines; and request from Vietnam under review. • 8 AMSs conducted Public Veterinary Service performance evaluation, 6 on GAP analysis and 3 have applied for veterinary legislation initiative. WSPA collaborated to look into capacity and method of handling animal welfare issues (see later). • In view of expiry of the HPED project in December 2014, in order to sustain the activities under the project especially the vaccine banks, it was suggested to explore the possibilities of seeking support from EU and other potential donors for additional contributions to the World Animal Health and Welfare Fund to maintain the Vaccine/Antigen Bank and possible purchase from the Regional Vaccine Bank by countries, international and regional organizations. • AMSs are participating in a FAO/OIE initiative on the Global Framework for the Progressive Control of Transboundary Animal Diseases (GF-TADs) (2008-2015). A five year action plan has been endorsed at the 6th GF-TADs in 2012 incorporating the following principles :(i) prevention and control mechanisms of TADS, in particular at source, are a Global Public Good, (ii) early detection, early warning and rapid response are key to the fight against priority TADs and (iii) appropriate collaboration between the animal and human health authorities is key for success.
(iii Animal-Human Health collaboration around Rabies	• Viet Nam (AEGCD) is developing a concept paper to propose AEGCD-ASWGL joint consultative meeting in cooperation with OIE/FAO/GARC/WSPA and WHO for elimination of Rabies as an animal and human health hazard from the region by 2020. It will be aligned with the ASEAN plus three initiative for elimination of Rabies by 2020. The draft will be circulated for comments before submission to higher authorities. The JVC meeting was proposed to be held in July 2014 with a view to submit the proposal to SOM-AMAF meeting in Aug/October for endorsement.
(iii) Common stands on OIE standards/issues	• It has been suggested that the AMSs may consider OIE General Section as a Platform to coordinate and state ASEAN Common position for animal health/ disease issues. The ACCAHZ PrepCom has been requested to discuss the matter as one of the ACCAHZ's functions in coming meetings. • Subject to approval by AMSs, the Chair of ASWGL may represent ASEAN position on OIE standards issues.

(iv) ASEAN-WSPA technical cooperation	Under general MOU and through participation in projects funded by other donors: • Supported implementation of humane slaughter of animals • Promoted humane sustainable farming • Supported establishment of ACCAHZ (see later) • Supported activities under ASEAN Agreement on Disaster Management and Emergency Response partnership group including ways to help animals during disasters with feed supply and veterinary care implemented, for example after flooding in Thailand and after typhoon in the Philippines. • If WSPA is interested to promote relationship with SOM-AMAF level, WSPA has been requested to develop detailed proposal (goals, objectives, activities etc) and propose in the next Meeting of ASWGL in 2015 for further consideration.
(v) Strengthening veterinary field epidemiology	• A Philippines led initiative on Strengthening Animal-Human Networks through a Field Epidemiology Training Programme for Veterinarians (FETPV) in AMSs is implemented through a Master's programme in Veterinary Epidemiology with a view to (i) design and implement epidemiological studies and surveillance system, (ii) evaluate the risks and relevant factors pertaining to specific diseases and (iii) to formulate an appropriate prevention or control strategy or a research study. • Thailand conducted a Field Epidemiology Training Programme (FETP) of two year duration, which in 2013 has been changed to a modular approach programme. In 2014, FETPV will organize the second batch of the First Module starting on 26 May 2014. The first module entitled "Basic Epidemiology and Surveillance Data Analysis", beginning with one month introductory course on epidemiology and biostatistics is a joint training course for medical doctor, public health personnel and veterinarians.
(v) Sub-regional Environmental Animal health management initiative	• A Philippines led Project on Environmental Animal Health Management Initiative (EAHMI) intends to integrate EAHMI into the Veterinary Service core by the use of Geographic Information Systems (GIS) Technology with the Veterinary Epidemiology Section of the Animal Health and Welfare Division of the Bureau of Animal Industry (BAI). The Philippines expressed commitment to assume a regional role in maintaining the EAHMI website (www.eahmi.org) and conducting secondment programme (with BAI providing support for accommodation and meals; accepts secondees by letter request).The Philippines welcomed any suggestion from ASWGL in implementing regional EAHM activities.
(vi) ASEAN-China MOU on SPS collaboration	• Draft MOU reviewed and being considered by AMSs and China. Expected to be signed at the 36th AMAF meeting in Myanmar in August 2014. • Technical Working Group (TWG) on food safety, and Animal inspection and quarantine established.
(vii) ASEAN-India Cooperation on Agriculture and Forestry	• A Thai project proposal prepared in February 2012 to conduct a Training Course on Buffalo Production Using Reproductive Biotechnology with ASEAN-India Joint Cooperation Fund was considered at the 4th Meeting of the ASEAN-India Working Group on Agriculture and Forestry (AIWGAF), which was held on 18-19 March 2014 in Putrajaya, Malaysia, and endorsed in principle for support. ASEC will follow up with Thailand for further steps for implementation.
(viii) ASEAN GCC MOU: ASEAN-GCC Work plan on Food Security and Agricultural Investment	Activities under the following areas are envisaged: • Strengthening livestock production and animal disease control • Conduct training/workshop on livestock farm and animal health management (including biosafety) 2014 Led by Indonesia • Conduct training/ workshop on transboundary animal diseases prevention and control 2014 Led by Thailand It is unclear, if any progress has been made
(ix) ASEAN-Russia Cooperation on agriculture and food security	• Cooperation on food safety is envisaged but it is unclear if any progress has been made.

Action ii ***Promote collaborative research and technology transfer in agriculture, food and forestry products***

Effective management of animal health will require epidemiological disciplinary capacity for proper surveillance and quick detection and diagnosis of diseases; proper laboratory capacity in terms of physical facilities and technical manpower to analyse and interpret disease data; and an effective communication network or infrastructure to quickly share and disseminate information. Keeping the above in view, specific activities pursued and planned are described in Table 16.

Table 16 Activities for capacity building in animal health management and coordination in the ASEAN member states

Activity/Sub-activity	Plan and progress
(i) Establish ASEAN Coordinating Centre for Animal Health and Zoonoses (ACCAHZ)	• A draft of the establishment agreement prepared by a Preparatory Committee is under review, comments and inputs from AMSs are expected by 15 July 2014. The committee will remain in force until 2016 to facilitate establishment of the Centre. Related issues including financial arrangement- both interim and long-term, and principle of contribution by AMSs (equal or unequal) possible use of resources from the Animal Health Trust Fund for interim activities are also under discussion.
(ii) Develop and Implement Regional Strategic Framework for Laboratory Capacity Building and Networking in ASEAN (Lab Framework)	• The ASEAN Laboratory Directors' Forum has been established to enhance laboratory capacity for detection, rapid response and control of HIDs. The Forum has agreed to develop and implement Regional Strategic Framework for Laboratory Capacity Building and Networking in ASEAN (Lab Framework) • May consider preparation of a plan for skilled laboratory staff development.
(iii) Develop Regional Strategic Framework for Veterinary Epidemiology Capacity Development and Networking in Southeast Asia (Epi Framework)	• An ASEAN Veterinary Epidemiology Group (AVEG) has been established. With FAO collaboration, AVEG is developing a draft Regional Strategic Framework for Veterinary Epidemiology Capacity Development and Networking in Southeast Asia (Epi Framework) and other associated plan of action including One Health strategies at country level to be submitted for SOM-AMAF endorsement. • May consider preparing the ASEAN mailing list for zoonoses
(iv) Develop a Regional Strategic Communication Framework for ASEAN	• The ASEAN Ad-Hoc Communication Group for Livestock (ACGL) has been established which has developed a draft Regional Strategic Communication Framework for ASEAN, and also developed the structure and components of the ASEAN Animal Health Cooperation website, http://asean-animalhealth.org/. which has been launched at the AMAF Meeting in 2013. The website is an information-sharing platform for ASEAN and is envisaged to be a data warehousing facility that will facilitate dissemination and sharing of relevant documents and/or information relating to animal health initiatives in the region as a way of informing the Member States, stakeholders, and relevant partners on these activities. • The website will incorporate activities currently being handled by the Animal Health and Production Information System in ASEAN (AHPISA) as there are few activities under this network. • Integration of ACGL into ACCAHZ has been recommended for sustainability. Since the EU-HPED programme- FAO component, which funded the website, will end by 31 December 2014, alternative funding source need to be found.
(v) Establishment and implementation of ASEAN Regional	• The primary purpose is to link with the World Animal Health Information System (WAHIS) being managed by the OIE. A draft paper is under preparation by Singapore with assistance of OIE describing features of the

Animal Health Information System (ARAHIS)	system, functional mechanism and costs. • Whether ACGL can cover the proposed functions of ARAHIS may also be considered.
(vi) Establishment of ASEAN Animal Health Trust Fund	• The fund has been created with contributions from AMSs to finance priority activities, especially to meet emergency needs and start up expenses of activities for which full funding has not yet been obtained. Only a few activities have been funded out of this Trust Fund. The current balance of the fund is US$1,465, 621.
(vii) Mutual Recognition of Veterinary professionals	• Initiative will be taken for discussion on Mutual Recognition Agreements (MRA) for vet professionals at the 23rd meeting of ASWGL. It may be noted that the ASEAN Coordinating Committee on Services (CCS) established an Ad-hoc Expert Group on MRAs under its Business Services Sectoral Working Group in July 2003 to begin negotiations on MRAs in services. Subsequently, the CCS established the Healthcare Sectoral Working Group in March 2004, which undertook negotiations on MRAs in the healthcare sector under its regular agenda. CCS has concluded seven (7) MRAs including the medical services signed by the ASEAN Economic Ministers (AEM). • The AVEG may lead the proposal preparation ffor MRA on vet professionals for discussion.
(viii) Support the implementation of ASEAN Rapid Alert System for Food and Feed	• It is unclear which Focal Point is the liaison for this. Whether ACGL can handle this may be given consideration.
(ix) Reinforce the ASEAN Food Security Information System (AFSIS) project towards a long-term mechanism by linking AFSIS with AHPISA	• It is unclear which Focal Point is the liaison for this. Whether ACGL can handle this may be given consideration.

Action iii ***Establish strategic alliances and joint approaches with the private sectors in promoting food safety, investment and joint venture opportunities for promotion of agricultural products and market access***

Two sets of activities were envisaged for private sector involvement in policy making and promotion of investment:

a) Invite relevant private sector in ASEAN livestock related meetings to encourage private sector investment in livestock and joint venture opportunities
b) Invite relevant private sector, CSO and NGO at ASEAN livestock related meetings for the development and implementation of livestock policies and programmes

However, practically not much has happened in this domain. It was mentioned earlier that an ADB study on progress in AEC 2015 implementation found that awareness among the business community about AEC 2015 and AEC Score Card was low, which was a reason for slow progress in liberalisation of trade and investment in general (see more on this below). So the livestock sub-sector faced the same situation.

Strategic objective : Promote ASEAN agricultural cooperatives as a means to empower and enhance market access of agricultural products, to build a network linking agricultural cooperatives, and to fulfil the purpose of agricultural cooperatives for the benefit of farmers in the region

The following action areas were planned in the AEC 2015 targets:

Action i *Strengthen strategic alliance between agricultural cooperatives in ASEAN through bilateral, regional and multilateral cooperation*

Action ii *Establish business linkages among the potential agricultural cooperatives with ASEAN*

Action iii *Promote direct investment and strategic partnership with ASEAN agricultural cooperatives producers, consumers and traders*

Actual activities pursued are summarised in Table 17. It appears that some collaboration and exchange of information has occurred between the cooperatives of some AMSs, but there is little or no collaboration in the dairy and livestock related activities.

Table 17. Collaboration among cooperatives in the AMSs

Activity/sub-activity	Plan and progress
(i) Data and Information Exchange	The ACEDAC website (www.cpd.go.th/cpd/acedac) has been established and hosted by Cooperative Promotion Department of Thailand. The Website acts as a tool for information exchange in regard to ASEAN cooperation in Agric Cooperatives. It is not clear if livestock and dairy cooperatives are covered, at least there is no evidence that these are covered. .
(ii) Dairy Products Marketing	The Union of Indonesia Dairy Cooperative/GKSI offered joint cooperation in processing and production of Ultra High Temperature (UHT) and Sweetened Condensed Milk (SCM). Considering the poor response from other ASEAN Member States and realizing the requirement of milk for domestic consumption, Indonesia withdrew the Project.
(iii) Beef farming	MOU on the importation of goats of Ettawa breed (Jamnapari) between the Johor State Farmers' Organization and Krida Satwa Cooperative of Indonesia has been signed. Malaysia offered cooperation on the importation of cattle from ASEAN Member States.
(iv) Organise the ASEAN Cooperatives Business Forum	The 1st ACBF was held on 9 July 2007 in Bali, Indonesia; 2nd ACBF on 24 June 2008, Vientiane; 3rd ACBF, 29 June 2009, Penang; 4th ACBF, 28 June 2010, Nay Pyi Taw. Malaysia will organise the 5th ACBF. It is unclear what has been achived in concrete terms and whether livestock sector has been included in the discussions**.**
(v) Implement work plan on Food Marketing System of Selected Agricultural Cooperatives. (2012-2015)	Ongoing . It is unclear if livestock and livestock products are included.

1.2.3 Surveys on Performance and Outcomes of Selected AEC Measures

a) The ERIA survey among government officials

As a part of the Mid Term Review study on AEC, the Economic Research Institute for ASEAN and East Asia (ERIA) conducted a perception survey in 2011 among key informants on their perception of the performance and outcome of the regional cooperation initiatives on food, agriculture and forestry in the AEC blueprint. A total of 39 respondents – 37 government officials and 2 in the private business- provided mainly qualitative ratings or responses on their perception of the level of performance and outcome of a selected menu of AEC action areas or measures. The responses on livestock related measures are summarised below.

(i) Harmonise the quarantine and inspection/sampling procedures with ASEAN or international guidelines

This measure was expected to be implemented by 2010-11. Responses were received from Brunei, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines and Thailand (Table 18). The responses show that quarantine and inspection procedures are already harmonized with ASEAN guidelines for livestock products along with crops, fisheries, food processed products, and forestry products in Malaysia, Myanmar, Philippines and Thailand. Brunei and Indonesia only responded on forestry products quarantine procedures. Brunei has not yet harmonized it, while Indonesia has already done it. In Lao PDR, actions on crop, livestock and fisheries are unclear and for food processed and forestry products, the quarantine procedures have not been harmonized yet.

Table 18 Perception of respondents on the harmonisation of the quarantine and inspection/ sampling procedures with ASEAN or international guidelines and their benefits and costs to stakeholders in selected AMSs

AEC measure for:	Indonesia	Lao PDR	Malaysia	Myanmar	Philippines	Thailand
Crops		Not sure	Yes	Yes	Yes	Yes
Livestock		Not sure	Yes	Yes	Yes	Yes
Fisheries		Not sure	Yes	Yes	Yes	Yes
Food processing		No	Yes	Yes	Yes	Yes
Forestry products	Yes	No	Yes	Yes	no	Yes
Benefit for :						
Farmers/producers	Substantial	Much	Substantial	Substantial	Substantial	Much
Processing industry	Very much	Much	Substantial	Substantial	Much	Much
Traders	Much	Much	Substantial	Substantial	Much	Much
Product competitiveness	Much	Much	Much	Much	Much	Substantial
Consumers	Very much	Much	Much	Substantial	Substantial	Minor
Cost to						
Farmers/producers	Substantial	Minor	Substantial	Minor	None	None
Processing industry	Much	Minor	Substantial	Substantial	Substantial	Substantial
Traders	Substantial	Minor	Substantial	Substantial	Minor	Substantial
Product competitiveness	Minor	Minor	Substantial	Minor	Substantial	Substantial
Consumers	Much	Minor	Substantial	Minor	Substantial	Minor

Source: ERIA (2012)

The questions on benefits and costs of harmonisation were asked in a generic way rather than for specific categories of products. Generally harmonisation has been rated as much or

substantially beneficial to all kinds of stakeholders. On costs, perceptions are variable : Lao PDR considered the costs minor for all stakeholders, Malaysia considered it substantial for all stakeholders, and other countries considered low for some and high for other stakeholders. However, whether these general ratings on benefits and costs apply to livestock products remain unclear. Moreover, since no objective data are provided, the perceptions may indicate expectations rather than actual values.

(ii) Establish Good Agriculture / Aquaculture Practices (GAP), Good Animal Husbandry Practices (GAHP), Good Hygiene Practices (GHP), Good Manufacturing Practices (GMP), and HACCP based systems for agricultural food products with significant trade/trade potential

Good animal husbandry practices and good production practices in other domains were expected to be implemented by 2012-13. The responses indicate that these have been initiated earlier and are continuing in Malaysia, Philippines and Thailand and have started operating in Indonesia, Lao PDR and Myanmar (Table 19). Perception on benefits and costs vary between countries and stakeholder types. Here also, questions on benefits and costs were not asked for specific product type, so benefits and costs of livestock related measures can't be ascertained clearly. Moreover, these are perhaps expectations rather than actual situations as in some cases the practices have just been started and in others these are continuing but there is no objective data on the benefits and costs.

Table 19 Perception of respondents about good production practices and their benefits and costs to stakeholders in the AMSs

AEC measure with respect to:	Indonesia	Lao PDR	Malaysia	Myanmar	Philippines	Thailand
Good agric practices	Started	Started	Continuing	Started	Continuing	Continuing
Good aquaculture practices	Started	Started	Continuing	Started	Continuing	Continuing
Good animal husbandry practices	Started	Started	Continuing	Continuing	Continuing	Started
Good hygiene practices	Started	Started	Continuing	Started	Continuing	Continuing
Good manufacturing practices	Started	Started	Continuing	Started	Continuing	Continuing
Benefit for :						
Farmers/producers		Much	Much	Much	Substantial	Very much
Processing industry		Much	Much	Much	Much	Very much
Traders		Substantial	Much	Much	Substantial	Much
Product competitiveness		Substantial	Much	Much	Substantial	Very much
Consumers		Much	Much	Much	Much	Very much
Cost to:						
Farmers/producers		Minor	Much	Substantial	Substantial	None
Processing industry		Minor	Much	Substantial	Much	Much
Traders		Minor	Substantial	Substantial	Substantial	Much
Product competitiveness		Minor	Much	Substantial	Substantial	Much
Consumers		Substantial	Substantial	Substantial	Substantial	None

Source: ERIA (2012)

(iii) Collaborative research and technology transfer

Respondents were asked about research collaboration and technology transfer among AMSs and also between AMSs and East Asian partner countries in the areas of crops, aquaculture, livestock and forestry. No comprehensive ratings were available from the responses. However, respondents reported that some collaboration exist among some members in crops including

horticulture (fruits and flowers) and fisheries but very little or none in livestock and forestry. In the same way, some collaboration between some member states and East Asian partners exist in crops and fisheries through various regional networks and international organisations like IRRI and World Fish but virtually none on livestock except that only Philippines mentioned sporadic collaboration in livestock.

These rather general picture about lack of collaboration may be more a reflection of the lack of awareness of the respondents to this survey rather than the reality. Perhaps few respondents were drawn from the research and extension domains, and fewer still from livestock related institutions.

(iv) Strategic alliances and joint approach with the private sectors in food safety, investment and joint venture opportunities, as well as promotion of agricultural products and market access

The respondents did not provide any systematic rating but generally observed that the strongest alliances and joint approaches prevail in the promotion of agricultural products and market access especially in the Philippines, Malaysia and to a lesser extent in Myanmar. In the Philippines, cooperation with private sector appears to be strong on the promotion of food safety. In Lao PDR , cooperation prevails mostly in investment and joint venture opportunities. Cooperation in Indonesia and Thailand is described as essentially fair and not very strong. There is no specific information on collaboration among livestock production and processing enterprises in any of the AMSs.

(v) Promote ASEAN agricultural cooperatives as a means to enhance farmers' power and market access

This was expected to be achieved through building strategic alliances, making business linkages and promoting direct investment between cooperatives in the region. The respondents reported that cooperatives in most of the AMSs have built varying degrees of alliances with sister organisations in other countries on a bilateral basis or through regional networks. Such alliances provide platforms for sharing general information on cooperatives and their roles for mutual learning. But business linkages and direct investment agreements are virtually non-existent. There is no specific information on alliances between dairy and livestock cooperatives.

b) The ADB survey among the business communities

While ERIA was conducting the AEC Blueprint Mid Term Review in 2011 at the invitation of the ASEAN Economic Ministers (AEM), about the same time, at the invitation of the ASEAN Secretariat, the Asian Development Bank in collaboration with the Institute of Southeast Asian Studies conducted an analysis of the barriers and impediments in realizing the ASEAN Economic Community by 2015. As a part of that study, ADB had conducted a survey among representatives of the business communities in the ASEAN member states. Responses from Malaysia were not received due to unforeseen circumstances. Total sample size from the nine countries was 381 firms (Hu, 2013). The samples were drawn from over 47 two-digit ISIC (Rev 3) industries, with the majority representing manufacturing and service industries. Food, agriculture and forestry had a small representation: 23 (6.04%) industries representing manufacture of food products and beverages, only 4 (1.05%) industries representing

agriculture, hunting and related services, and only 1 (0.26%) industry representing forestry, logging and related services were included in the sample.

The survey revealed that the level of awareness of AEC 2015 on the part of many business decision-makers was low; only 55% of the respondents were aware of AEC 2015 targets and only 14% were aware of AEC scorecard. The survey attributed this lack of awareness to the fact that not much actual regional economic integration was taking place or at least respondent firms were not involved in any such integration. The respondents also mentioned that the main barriers to greater intra-ASEAN trade were the different regulatory standards in different AMSs, excessive regulations, and the lack of information. Majority of the respondents used internet as the source of their business related information but those who had some knowledge about AEC 2015 got it from the government source rather than through the internet. Also a third of the respondents mentioned tariff as a barrier. This implies that either they were unaware of the preferential tariff rates and, in most cases, of the zero tariffs supposed to be enjoyed by intra-ASEAN trade, or perhaps tariff is still being imposed by customs authorities on intra-ASEAN traded goods despite the agreements arrived at to eliminate it. This finding, however, is consistent with various other surveys pointing to very low utilization rates of AFTA or other preferences.

Thus the survey among government officials under the MTR study and the survey among the members of the business communities in the ADB AEC evaluation study revealed complimentary information. The government officials perceived that cooperation among private sector operators in the ASEAN was low and poor in most cases while the business community explained that the reason for low investment and collaboration was lack of awareness as well as different regulatory standards and excessive regulation. This lack of awareness has been considered as a major reason for slow progress in removing NTB and NTM barriers to trade and in liberalising trade related services to facilitate investment because businesses could not play their part in the process of policy making for liberalisation of trade and investment.

1.3 Global and Regional Issues for the Livestock Subsector and Challenges for the ASEAN Community *(Including Cross Cutting Issues)*

Highly significant changes in livestock production have occurred globally over the last six decades. Meat production has increased from around 120 million tons in 1970 to more than 270 million tons in 2010; over the same period, milk production has increased from around 400 million tons to more than 690 million tons. The annual growth rate for meat was 1.9% in developed countries and 8.1% in developing countries; for milk, 0.7% in developed countries and 4.1% in developing countries. Higher growth rates in the developing countries occurred from lower bases, so changes in absolute volume in the developing countries were still modest compared to the developed countries. Trade in meat increased from about 15 million tons to about 35 million tons and that of milk from 32 million tons to 56 million tons. Trade in live animals and animal products contribute 40% of the value of agricultural output globally but about 30% of agricultural output in developing countries (World Bank, 2009; Ahuja, 2013; Guyomard *et al.*, 2013).

These changes have been driven by both demand and supply-side factors. Livestock related issues on top of the current global agenda are i) rising demand for livestock products, especially in the developing countries, and its implications for livestock product and feed trade, ii) livestock , climate change and natural resources degradation, iii) livestock, food safety and public health. Other issues on the global agenda but with a particular focus on the developing countries are iv) role of livestock in poverty alleviation, food security and gender equality, and v) public and private sector roles in livestock production, animal health management, extension and research (World Bank, 2009; Ahuja, 2013).

1.3.1 Rising demand for livestock products and implications for trade

In the developed world, growth in the demand for livestock products has slowed down very much as consumption levels are quite high and reached saturation levels. In fact, over consumption, obesity and related health problems among a significant segment of the population has become a major concern. On the other hand, since the mid 1980s, demand for livestock products has been increasing rapidly in the developing countries propelled by income and population growth and urbanisation. The food transition from calorie dominant foods to include higher value food commodities like livestock products, fruits and vegetables has been taking place at a faster rate in the developing countries in the recent past than it occurred in the developed countries at comparable income levels. The phenomenon dubbed as the 'livestock revolution' is still on because consumption levels in the developing countries are still quite low and improved genetics, feeding and breeding have made it possible to produce more uniform quality livestock products under different scale and modes of industrial organization with increased productivity to meet increasing demand. Moreover, demand for food including livestock products is driven by an increasingly complex food chain with food products that are more and more of uniform quality and standard, processed, sophisticated, and ready to eat and increasingly sold in supermarkets and eaten away from home (Delgado *et al.*, 1999; Narrod *et al*., 2011). These features are already in evidence in varying degrees in the AMSs.

However, because of insufficient growth in the production of livestock commodities in the developing world, demand-supply gap has been increasing which is being met by imports from the developed world. Globally about 10-12% of output or consumption of livestock products is internationally traded compared to over 40% for fish, and this ratio has been slowly increasing.

While trade is beneficial for both developed country producers and developing country consumers, excessive dependence on trade may have other externalities. Developing countries heavily depend on imported feed, especially soybean and maize, for non-ruminant production because they are deficient in high quality feed supply, and importing feed is cheaper and easier than importing finished products. But it is argued that livestock supply 13% of energy to the world's diet but consume one-half the world's production of grains to do so (Smith *et al.*, 2013). On the other hand, there is increasing demand for grains as a source of biofuel. So there is controversy on whether the demand for soybean and maize as feeds and fuel has negative impact on demand and prices of these as food, especially for poor people. There is also concern that increased production of soybean and maize as feed may create pressure on scarce water and natural resources and can cause degradation of these resources. However, if the overall nutritional quality and value of livestock products are considered for the millions of under-consuming malnourished developing country consumers, the gap between energy input and output may significantly reduce and appear more realistic and acceptable from nutrition, health and welfare viewpoints. To meet rising demand and to reduce dependence on import, developing countries need to significantly increase investment in livestock R and D for significantly improving productivity and for more efficient use of feeds and natural resources for livestock production. A particular area that needs attention is the efficient use of crop by-products as feeds and post-slaughter animal by-products as feeds and other uses both for improving productivity and for protecting the environment.

1.3.2 Livestock, climate change and natural resources degradation

In spite of multiple functions of livestock for improving human nutrition, livelihood and welfare, in recent times livestock has been blamed for making excessive demand on water, for creating water pollution and soil degradation due to nutrient loading in intensive production systems and land degradation due to over grazing in pastoral systems in aid rangelands, erosion of generic diversity due to adoption of more homogenised breeds in industrial production systems. In the humid tropics, deforestation to make way for livestock production is also blamed for land degradation. In smallholder crop-livestock mixed farming systems, livestock is thought to play a more balanced role by allowing nutrient cycling and providing inputs by one enterprise to the other – crops providing feeds and livestock providing power and manure. Alongside resource degradation, livestock is blamed for contribution to global warming through greenhouse gas emission. It is claimed that considering emissions along the entire commodity chain, the livestock sub-sector currently contributes about 18 percent of total human-induced greenhouse gas emission equivalents, including about 9 percent of total carbon dioxide (CO_2), 37 percent of methane (CH_4), and 65 percent of nitrous oxide (N_2O) emissions. This reportedly exceeds the emissions of the global-transport sector (World Bank, 2009).

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. For that reason water pollution, land degradation due to nutrient loading and greenhouse gas emission are emerging as major problems. 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 20). 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.

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.

Table 20 Greenhouse gas emission from livestock in the ASEAN region, 2005 and 2012 (CO_2 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 6 June 2014

1.3.3 Livestock, food safety and public health

While livestock products are critical for improving the nutrition of poor people in the developing countries, uncontrolled intensive production and larger scale production pose various health risks not only locally but also globally due to trade. In developing countries, often industrial production systems co-exist with traditional smallholder systems of production with possibilities of disease transmission. Risks of diseases for both livestock and people also increase because of high densities of genetically homogenous animals and birds around human habitations, rapid turnover and movement of animals and birds, increased interaction between people, livestock and wildlife, increased use of antimicrobial substances that create resistance genes in microbes. In the recent past, 75% of the newly emerging human diseases are of animal origin. Highly Pathogenic Avian Influenza, SARS virus, diseases of trade like FMD and CSF and livestock induced food-borne diseases have been affecting millions of people and causing huge economic losses. The ASEAN region has been a hot spot for the outbreak of some of these diseases in recent years. The dynamics of human-animal-ecosystem interface, the process of intensification and resource degradation driven by population and market (demand) pressure and increasing role of trade in global livestock product markets are critical reasons for the increased disease burden and transmission of diseases between people and animals locally, regionally and globally ((World Bank, 2009; Ahuja, 2013; FAO, 2013).

New international food safety standards and regulations are being crafted to deal with these problems but large gap remains between the developed and developing countries in terms of defining and enforcing those standards due to lack of regulatory, institutional and skilled manpower in the developing countries. Also there is increasing realization that strategies need to be designed to prevent disease occurrences rather than responding and fire fighting outbreaks, often at great cost and not very effectively. There is also realization that human, animal and ecosystem health need to be understood, analysed and manoeuvred in an integrated manner to address these emerging complex problems. *One Health* and Eosystem Health are being discussed as paradigms or organising principles for such analysis and policy making though concrete progress is still far away. Implementation of such approaches will require local, national and international level participation and coordination supported by appropriate risk management policies and tools such as trans-disciplinary multi-stakeholder approach to problem analysis and diagnosis, and prescription of solutions.

1.3.4 Livestock, poverty alleviation, food security and gender equality

Globally, incidence of poverty – proportion of population living at below US$1.25 a day - has more than halved between 1990 and 2010 (Table 21). Among the poor regions, East Asia and Pacific achieved the greatest success in reducing poverty along with rapid economic growth; South Asia achieved some success but the situation in Sub-Saharan Africa remained precarious with nearly half of the population still below poverty line in 2010.

Table 21 Changes in incidence of poverty 1990-2010 in regions of the world

Region	1990	2002	2010 (estimate)
East Asia and Pacific	56.2	27.6	12.5
South Asia	53.8	44.3	31.0
Sub-Saharan Africa	56.5	55.7	48.5
World	43.1	30.8	20.6

Source: http://data.worldbank.org/indicator/AG.PRD.LVSK.XD accessed on 7 June 2014.

Within the East Asia and Pacific region, poverty reduction in the ASEAN member states varied widely. In the more advanced ASEAN-6, population below poverty line decreased from 29% in 2000 to 15% in 2010 and in CLMV (Cambodia, Lao PDR, Myanmar and Vietnam), the incidence decreased from 45% to16% over the same period (ASEAN, 2014b).

Globally about 1 billion poor people, most of them in Africa and Asia, depend on livestock for their livelihoods. A good number of them are located in the ASEAN region. Livestock provide income, high value nutritious food, power and manure for crop production, serve as an asset for investment and saving and perform various other social and cultural functions which usually do not enter into the valuation of livestock products and services. In many societies, women own and manage a significant proportion of livestock and they use income from livestock for education of children and to meet other household needs. The poor in the ASEAN have the same kind of relationship with and dependence on livestock. Overall livestock can play a key role in income generation and reducing income inequality within and between households and communities.

Although incidence of rural poverty in the region declined over time, the potential of livestock for reduction of poverty has not been fully exploited. Smallholder livestock still generate a

large share of livestock output though this share is variable across countries and declining at varying rates with intensification and expansion of larger scale production. Smallholder livestock has been facing challenges from two forces for its survival and contribution to the economy and society.

First, smallholders are losing an increasing share of the expanding livestock product markets because of their inability to meet the quality, safety, uniformity and standards demanded at the higher end of the market. Smallholders are by nature diverse and they do not have adequate access to technology, inputs and services required to produce high quality products demanded by consumers and supplied by new market outlets like supermarkets. Also because of economies of scale in production and processing, smallholders are unable to compete with industrial production systems. This problem can be overcome by proper policy support to create institutional mechanisms e.g. contract farming, farmer cooperatives and farmer groups to link smallholder with upper end high value markets. Such institutions may facilitate individual as well as collective investment for adoption of improved technology for increasing productivity, and improving processing and marketing (World Bank, 2009; Ahuja, 2013).

Second, globalisation, trade liberalization and competition in the market is opening up domestic markets to foreign products, which may be cheaper, of better standard and quality, hence more preferred by higher income consumers. While globalisation and trade liberalisation are desirable polices for achieving overall economic growth, its negative consequences at least at the intermediate stage need to be addressed so that smallholders do not face abrupt marginalisation and extinction.

This argument is supported by the findings of a simulation model of the Indonesian economy. As part of the MTR of AEC roadmap, a simulation model of the Indonesian economy has been run to assess the impact of trade liberalisation and productivity growth. Given the large size and diversity of the Indonesian economy, the simulation result may be taken as a representative picture of the ASEAN economy. The model ran three scenarios under a set of assumptions with respect to the macro-economic parameters and behaviour of production and consumption sectors. The scenarios modelled are (1) agricultural trade liberalization only; (2) general trade liberalization for all traded commodities including manufactures; and (3) general trade liberalization together with 10 percent increase in the productivity of factors of production in agriculture. Because of the underlying assumptions, the model results should be treated as trends rather than as actual values.

The results show that agricultural trade liberalization alone has very little effect on national output, minimal price deflationary effect, and virtually no effect on national welfare proxied by real household consumption (Table 22). Most crop output growth show declining trend but three livestock outputs (livestock, slaughtering, poultry) show positive growth rates. With declining agricultural output, the unskilled labour in the sector suffer as their real wages decrease while that of skilled labour increase, in both cases marginally. Therefore the poverty impact of agricultural liberalization is to worsen income distribution and the poverty status of most rural households even if there are welfare benefits to the urban households.

The results of general trade liberalization show more positive impact on national output and real household consumption and on wages of both unskilled and skilled labour, with greater increase for the skilled workers. Some of the agricultural products show increased growth under this scenario, but all three livestock outputs show negative growth trend, a reflection of the fact that without protection, livestock outputs would have no comparative advantage and

would not survive. General trade liberalization worsens the income distribution in the country as it reduces the poverty of urban households and the richer rural households but worsens the poverty rates among the poorest rural households.

Under the scenario with trade liberalisation plus 10 percent increase in the productivity of factors of production in agriculture, the impact on national output and welfare is significantly higher. Agricultural productivity including that for all three livestock commodities increase significantly with deflationary effect on prices, and all the factors of production benefit from it and all of the household types register declines in poverty rates (the highest decline in poverty occurs among the poorest rural households). So the distribution of income improves across the board.

Table 22 Macroeconomic and Agricultural Output Effects of Trade Reform and Productivity in Indonesia- Simulation model results

Indicators/ sectors	Scenario 1: Trade reform - all agricultural commodities	Scenario 2: Trader reform – all traded commodities	Scenario 3: Trade reform + 10% increase in agricultural productivity
Macro-aggregates			
Real GDP, expenditure side (GDP deflator)	0.01	0.54	1.72
Real household consumption (CPI deflator)	0.00	0.54	2.86
Consumer price index	-0.28	-2.19	-1.57
Inequality (Gini coefficient)	Increased	Further increased	Significantly decreased
Industry			
Paddy	-0.55	1.73	6.01
Beans	-17.32	-7.28	28.44
Maize	-14.43	-10.14	10.65
Cassava	-1.28	10.76	6.06
Vegetables and fruit	-2.98	-4.27	10.27
Other food crops	-10.71	0.93	34.46
Rubber	-3.48	-11.71	8.75
Sugarcane	-31.11	-8.42	16.39
Coconut	3.09	1.41	12.72
Oil palm	8.65	-13.82	4.78
Tobacco	-1.63	50.53	1.95
Coffee	-4.46	44.97	-0.07
Tea	-4.16	42.16	1.55
Cloves	-9.72	6.95	25.79
Fibres	16.22	-38.83	47.29
Other non-food crops	-8.01	-26.65	42.78
Other agriculture	-1.24	-2.91	15.94
Livestock	**4.25**	**-7.67**	**17.44**
Slaughtering	**0.31**	**-2.25**	**13.32**
Poultry	**0.59**	**-0.68**	**8.50**

Source: Warr(2012) in ERIA (2012)

These results clearly indicate that livestock can significantly contribute to national output growth and poverty alleviation. Even under conditions of low or reduced crop sector growth having negative consequences for poverty, livestock output show positive growth with a moderating effect on poverty, i.e., negative effect on poverty is minimised by positive livestock sub-sector growth. When liberalization negatively affects the entire agriculture sector including livestock, poverty situation worsens. But when liberalisation is combined with productivity growth, livestock shows positive output growth along with crops with significant contribution to poverty alleviation. [1]

Therefore adequate attention to the role of livestock is desirable to achieve higher and equitable development. In order to achieve productivity growth, general investment facilitation for the sector will be needed along with increased collaboration and investment in research in the agriculture sector, especially in livestock subsector. Good statistics and good empirical evidence matter for proper planning to exploit the potential of livestock for fostering growth and equity (see http://www.fao.org/docrep/019/i3706e/i3706e.pdf).
.

1.3.5 Public and private sector roles

In spite of its contribution to growth, employment, poverty alleviation, and food and nutrition security, livestock is under-resourced and under-funded throughout the developing world both from national governments and international organisations. World Bank funding for livestock declined (in constant 1991 dollars) from 1974 to 1992, especially for stand-alone livestock projects. Only four per cent of the loans given to the agriculture and rural development sector were for livestock projects although livestock were components in some integrated agricultural projects. This happened in spite of the fact that the success rate for livestock projects increased from 43 per cent during 1974-1983 to 64 per cent in 1988 whereas that for agricultural projects decreased from 75 to 55 per cent in the same period. Projects have often failed in their initial objectives because inappropriate technologies or institutions were used or because they were implemented in an unfavourable policy environment (Blackburn and de Haan, 1993). In national budgets, livestock sub-sector is usually allocated a much smaller share compared to its contribution to GDP. CGIAR core budget allocation to livestock research is not congruent with the value of livestock products especially when the values of non-food products and services are included.

This declining funding trend and policy neglect continued through the 1990s and beyond with adverse consequences as growth in livestock sub-sector was driven mainly by the private sector. Even though private sector is to be commended for responding to rising marker demand for livestock products, unregulated investment and growth, sometimes aided by lack of appropriate policy or policy distortions, generated significant negative externalities. Prominent among these are a) outbreak of a number of diseases posing serious risks for public health, b) water pollution, soil degradation and degradation of other natural resources, c) increased emission of greenhouse gases enhancing global warming, d) marginalisation and exclusion of smallholders from the market by industrial production systems.

[1] A study based on analysis of a large nationwide survey in India showed that the probability of a household being poor decreased at a higher rate with increased proportion of household income derived from livestock compared to the income derived from crop - the marginal effect of livestock income on poverty was -0.36 versus -0.25 for crops, implying that the growth in the livestock sub-sector would have a larger impact on poverty reduction (Birthal and Negi, 2012).

These problems have emerged because private investors have not always taken decisions keeping wider long-term social interests in view. Experiences have shown that because of the 'public good' nature of these problems, their handling and solution require strong public policy and intervention at all levels – local, national and international- and combined effort of both public and private sectors. Appropriate policies and effectively enforced regulations are required to mitigate the negative externalities and risks posed by all the above problems. Such policies and regulations should ideally maintain incentives for private investors to invest while protecting the interests of the wider society (World Bank, 2009; Ahuja, 2013).

In the ASEAN region, the relative importance of the major negative externalities may vary to t between the more advanced ASEAN-6 and the new members. But disease control is perhaps at the top of the agenda for all countries both for domestic food safety as well for expanding trade. Given the 'public good' nature of this and other problems, and limited capacity in the region, stronger standalone public sector investment as well as through stronger public-private partnerships will be needed to move forward. Private participation in policy design is a key in this process and given low awareness and participation by private sector so far (see above), extra effort will be needed to engage them actively in policy dialogue. Otherwise costs of inaction both in terms of direct economic costs and lost opportunities would be immense.

1.4 Recommendations

The livestock sub-sector makes important contribution to national output, employment and food security in the ASEAN region though its relative importance varies across the AMSs. As expected, with economic growth, share of agriculture in national output is declining in the more advanced AMSs while the share of livestock within agriculture is increasing. While intensive and larger scale production and processing are emerging in the more advanced states, smallholder livestock still dominates in the less developed AMSs where they play key roles in poverty alleviation, food security and nutrition and gender equality.

Livestock is not yet on the priority commodity list in the AEC blueprint. The blueprint focuses on trade and associated issues like standards and food safety to promote trade. Several objectives and action lines under the ASCC blueprint have scope for inclusion of livestock in fostering growth, food security, nutrition and gender equality but livestock is not explicitly mentioned under those action lines (see later). Therefore it is recommended that either

a) production and trade of livestock should be included in the priority commodity list under the AEC blueprint , or
b) scope for livestock production should be given more emphasis under the AEC blueprint along with food safety, food standards and health, or
c) scope for livestock to perform its multiple roles in the economies should be explicitly recognised under the appropriate action lines under the ASCC blueprint.

A relevant question is whether livestock as a whole or any specific commodity should be include in the priority commodity list. Practically inclusion of all livestock commodities may be difficult and unnecessary at this stage. Choice of commodity for inclusion may be made depending on the relative importance of a commodity in terms of output and trade –actual and potential. The list can be expanded over time.

Some appreciable progress has been made in developing criteria for good husbandry, good production and processing establishments, and good hygiene and sanitary standards. However, actual practice, adoption or enforcement of those criteria appears to be variable. Because of

diversity in production systems, levels of development and capacity, there seem to be some lax in compliance, which is still voluntary at the national level. The imperative is that steps should be taken to reduce gaps in capacity in terms of regulations, institutions, laboratories and manpower if significant progress is to be made in harmonization of standards to promote trade.

The MTR of AEC 2015 progress identified heavy workloads of ASEAN meetings and weak coordination among three ASEAN blueprints and related bodies as a major problem that needs to be addressed to make efficient use of available scarce time and resources (ERIA, 2012). This phenomenon is also apparent in the livestock sub-sector where there are several networks and bodies with overlapping mandates that can be easily consolidated. A major reason for duplication and multiplicity of networks or bodies is the mechanism of collaboration with external partners. In some cases, ASEAN tries to respond to the regional programmes of international bodies like FAO, OIE, WSPA, while in other cases, ASEAN or individual AMSs seeks external support through projects on its own initiatives. Such short-term project based collaboration create problem of sustainability and unbalanced progress. Since external collaboration is essential to enhance ASEAN capacities in some aspects of livestock development, more emphasis may be given on defining ASEAN gaps at both regional and country levels, and short, medium and long term needs to fill those gaps. Then determine what can be done by ASEAN on its own with own resources, and where collaboration with external bodies is necessary, and forge links on that basis within the scope of regional programmes of external bodies.

Effective disease control will require strong disciplinary capacity in Epidemiology, good laboratory with proper equipment and skilled manpower, and a good communication network to collect, share and disseminate information, and a strong coordination mechanism to link the above three elements. All of these are currently being pursued under various initiatives but in an apparently disjointed manner, without proper links. Also animal production issues are not addressed. So there o is a need to consolidate various efforts under the leadership of ASWGL. Ideally, the proposed ACCAHZ can be reformulated as the ASEAN Coordination Centre for Animal Production and Health (ACCAPH) to include production aspects and developed as the secretariat of the ASWGL with four arms – the Epidemiology Network, the Network of Vet Labs and Vet Products, the Animal Health Communication Network and the Network for Production and Processing standards. Then activities of other related bodies/networks/forums may be subsumed under the above institutional framework. The ACCAPH will serve as the secretariat of ASWGL to perform routine functions, as ASWGL meets only once a year without a secretariat. ACCAHP need not have its own laboratories. It can simply be a coordinating institution with accredited laboratories in the region under its reach and supervision to perform specific functions for the region alongside their national mandates. Where necessary external assistance may be procured to implement it and links with regional programmes of international bodies may be pursued from the strategic objectives and vantage points of the ASEAN institutional framework.

Private sector participation in policy making, investment and trade is so far disappointingly poor because of lack of awareness and adequate efforts to engage them. Same is the situation in case of cooperation among livestock cooperatives. Without private sector investment in better technology for production, processing and marketing - either individually or through various institutional forms such as cooperatives, public-private partnerships etc - productivity improvement, better quality and standards required for fostering trade can’t be achieved. Priority action is required in this area.

PART 2 : STRATEGIC PLAN ON ASEAN COOPERATION IN FOOD, AGRICULTURE AND FORESTRY (2016-2025)

2.1 Vision, Goal and Objectives

Taking into account The ASEAN Vision 2020 (http://www.asean.org/news/item/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 management, and the remaining gaps and tasks, and emerging regional and global issues in the livestock sub-sector, the following vision, goal and objectives may be defined for the livestock sub-sector for the 2016-25 period.

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 and food security (improved nutrition) in the ASEAN region

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

- Facilitate investment and institution building in the livestock sub-sector for sustainable productivity improvement, greater smallholder participation in market, and harmonization of production and processing standards.
- Facilitate harmonization of food safety, health and hygiene standards in line with international standards to reduce disease risks and increase consumer safety
- Promote policies to minimise negative externalities of livestock on human health, biodiversity, natural resources and the environment.
- Promote research and development to improve technology and productivity, and facilitate harmonization of methods and standards for livestock data and information generation as a basis for more accurate evidence based policy making to facilitate livestock development and trade.

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

2.2 Strategic Thrusts and Actions

Strategic thrusts are basically thematic areas for organising action programmes. The major global and regional issues in the livestock sector have been discussed earlier. Therefore, it may be useful to use those problem areas as strategic thrusts for programme development as follows:

- Market and trade
- Climate change and resource degradation
- Food safety and public health (encompassing disease control)
- Poverty alleviation, food security and gender equality
- Public and private sector roles

Thrust 1: Market and trade

- The priority commodity list under the AEC blueprint should be expanded to include production and trade of livestock commodities. Choice of livestock commodity or commodities for inclusion in the list may be made depending on the relative importance of meats and milk in terms of output and trade –actual and potential.
- Since intra-ASEAN trade in livestock commodities is still very small while extra-ASEAN import of livestock commodities is increasing in response to rising demand, attention should be given to eliminate any remaining tariff and remove nontrade measures and non-trade barriers to promote intra-ASEAN trade.
- In order to reduce dependence on imports to meet rising demand, and to remain competitive in the global market, emphasis should be given on research and development for improving technology and productivity.
- Include small-scale livestock production and processing enterprises in the definition of SMEs and create institutional mechanism to facilitate their access to domestic and regional market.

Thrust 2: Food safety and public health (encompassing disease control)

- Progress made in developing criteria for good husbandry, good production and processing establishments, and good hygiene and sanitary standards should be continued and further strengthened by promoting actual practice, adoption or enforcement of those criteria. Inter-country differences in compliance should be drastically reduced.
- High priority given to disease control should be continued and further strengthened. Capacity and effectiveness of control programmes should be enhanced by harmonising the multiplicity of networks, forums and short-term project-based activities.
- Establish strong disciplinary capacity in Epidemiology, good laboratory with proper equipment and skilled manpower, and a good communication network to collect, share and disseminate information, and a strong coordination mechanism to link the above three elements. Ideally this can be achieved by developing the proposed ACCAHZ as the regional coordinating institution of animal health with three arms – the Epidemiology Network, the Laboratory Directors' Forum, and the Animal Health Communication Network. All other networks and forms can be subsumed under this structure.
- Synergise ASEAN programmes on health and food safety with programmes of international organisations and bilateral partner country programmes in the region.

Thrust 3: Climate change and resource degradation

- Formulate and enforce regulations to control water pollution, land degradation due to nutrient loading and greenhouse gas emission from increased intensification and industrialisation of livestock production and processing. This can be done either by incorporating livestock related environmental standards in the guidelines for GAHP, Good Production and Processing Establishments, or in the general environmental regulations, or by formulating separate environmental regulations for the livestock sub-sector given that there are different species of livestock, and types and scales of establishments.
- Incorporate strategies for addressing livestock related issues or problems in natural or environmental disaster management programmes.
- Link with global efforts in generating and documenting empirical evidence on livestock contribution to greenhouse gas emission and environmental degradation.

Thrust 4: Poverty alleviation, food security and gender equality

- In micro-credit and other programmes targeted to poverty alleviation, especially among women to achieve gender equality, give priority to livestock credit as means to acquire productive asset for income generation.
- In the definition of SME, include small-scale livestock production and processing enterprises and make SME credit and services accessible to such enterprises
- To improve small-scale producers' access to quality inputs and high value markets for outputs, promote producer groups, cooperatives and contract farming in livestock.
- Generate empirical evidence on impact of micro-credit and SME credit and services to small-scale livestock enterprises on poverty and gender to reinforce this measure to promote equitable development in the ASMs. Good statistics and good empirical evidence matter for proper planning to exploit the potential of livestock for fostering growth and equity.

Thrust 5: Public and private sector roles

- Increase private sector participation in policy discussion, programme and project formulation for livestock development to increase awareness about opportunities for investment and development in the sub-sector.
- Provide incentives for private sector investment in the sub-sector directly and through public-private partnership to improve productivity and standards to expand trade.
- Encourage larger scale enterprises to perform a mentoring role by linking with SMEs in the sector to foster adoption of innovations and participation in high value markets.

PART 3: ASEAN COORDINATION MECHANISM IN FOOD, AGRICULTURE AND FORESTRY FOR CROSS-CUTTING ISSUES

3.1 Cross-cutting Issues

At the ATAF meeting on 6-7 March 2014 in Jakarta, the following cross-cutting issues were listed for consideration:

- Food Security and Nutrition
- Food Safety
- Transboundary Animal Diseases Cooperation
- Haze Pollution
- Climate Change Adaptation and Mitigation
- Bioenergy
- Gender
- Disaster Risk Reduction and management

All of these have direct or indirect link with livestock except perhaps haze pollution. However, it is proposed that **biotechnology** and **poverty alleviation** should be added to the list, and poverty and gender should be treated together as there are common problems and opportunities under these two issues.

Of these, food safety and transboundary animal diseases are partly addressed through activities under the AEC blueprint. All the other issues are related to measures or actions under the ASCC blueprint. Under pillar B of the ASCC: **Social welfare and protection,** strategic approach B1 is **Poverty alleviation and strategic approach B3 is Enhancing Food Security and Safety.** Under pillar D**: Ensuring environmental sustainability,** strategic approach D8 is **Promoting sustainable Management of Natural resources and Biodiversity** and strategic approach **D10 is Responding to climate change and addressing its impacts.** Under these approaches, there are several strategic objectives and corresponding action programmes (ASEAN, 2011). However, the position or role of livestock has not been explicitly mentioned in any objective or action programme.

The recently published mid term review of the ASCC 2015 blueprint mentioned that out of the total 339 action lines in the blueprint, 306 or 90% have been addressed through the conduct of various activities by ASCC sectoral bodies; remaining 33 or 10% that fall into cross cutting domains were not adequately addressed. In the social welfare and protection domain which encompass poverty, gender, food and nutrition security and food safety issues, 97% of the proposed action lines have been addressed. Similar success has been reported for the environmental sustainability, natural resources management and climate change domain (ASEAN, 2014b). But there is no mention if any action line under the above domains included any activity related to livestock. Perhaps none has been included.

3.2 Current Status and Possible Future Directions

What follows below is an inventory of relevant strategic objectives under the strategic approaches and action programmes where livestock related activities may be initiated directly or linked to already initiated activities under AEC blueprint.

Strategic approach B1: Poverty alleviation

Strategic objective : Fully address socio-economic disparities and poverty that persist across ASEAN Member States including achieving the MDG goal of eradicating extreme poverty and hunger.

Action v Families living under poverty to be aided with appropriate support system to enable them to become self-reliant;

Action vi Strengthen ASEAN cooperation in microfinance, including strengthening cooperation and networking between microfinance institutions in poverty-stricken areas with due regard to local values and traditions as well as addressing the phenomenon of the feminisation of poverty;

Action vii Work towards the establishment of an ASEAN data bank on poverty incidence and poverty reduction programme, which can be shared among Member States;

There is no mention of livestock in the above action lines but livestock has potential role to address poverty and gender equality. For example:

- Poor people, particularly poor women, may be provided with livestock, especially small stocks, as an income generating asset as a pathway out of poverty (ILRI, 2011). In many societies livestock are an important asset of smallholder households and women in such households own and /or mange a significant proportion of livestock. So giving poor people access to such assets along with access to good quality inputs and market for output can make significant contribution to poverty alleviation. This type of activity may be more relevant in new member states where smallholder livestock sub-sector is still a very important component of agriculture.
- Lack of cash or capital is often a constraint for poor households to acquire assets to generate income. Microfinance agencies may provide loan for livestock, to women in particular, to relax cash constraint. Livestock credit constitutes a significant proportion of micro-credit in Bangladesh, the birth place of micro-credit, and also elsewhere, and such credit has been found very effective in generating stable income for the poor. Under Pillar 3 of AEC, SME development has been adopted as a strategy for equitable development through reduction of disparity within and between countries. SME is generally defined in terms of manufacturing and services but there is no reason to exclude livestock, especially small scale processing enterprises in the livestock sub-sector. With SME support, agriculture in general and livestock in particular can play a key role in poverty alleviation and reduction of income inequality.
- More investment in research and research collaboration will be needed for enhancing productivity, so livestock related research should be given more attention than it has been receiving. Alongside technology research, socio-economic research should also receive proper attention. Research based evidence on linkage between livestock as a pathway out of poverty may reinforce the asset and credit provision activities.

Strategic Approach B3: Enhancing food security and safety

Strategic objective : Ensure adequate access to food at all times for all ASEAN peoples and ensure food safety in ASEAN Member States

At the macro level, food security initiative has been defined in terms of building ASEAN Plus Three Emergency Rice Reserve (APTERR), an initiative under the AEC Blueprint. In terms of food safety, the ASEAN Task Force on Codex, which operates within the AEC blueprint framework, is responsible for coordinating the process for harmonisation of Codex standards. Four Codex standards are to be harmonized, namely the Codex General Standard on Labelling for Pre-Packaged Foods, the Codex General standard for the Labelling of Food Additives when sold as such (Codex STAN 107), the Codex General Guidelines on Claims (CAC GL 1) and the Codex General Standard on Nutrition Labelling. But it is unclear, which, if any, livestock product is covered in the Codex harmonization list.

But livestock has potential role in ensuring food security and safety at both producer and consumer levels. Out of 16 prescribed action lines under the above strategic objective of ASCC, 12 action lines have scope for inclusion of livestock. These are as follows:

Action i	Harmonise national food safety regulations with internationally accepted standard, including quarantine and inspection procedures for the movement of plants, animals and their products;
Action ii	Strengthen the work of ASEAN Coordination Committee on Food Safety to better coordinate all ASEAN Food bodies/subsidiaries, and the implementation of their work programmes;
Action iii	Promote production of safe and healthy food by producers at all levels;
Action iv	Develop model food legislative framework and guidelines and strengthen food Inspection and certification system from farm to table in ASMs;
Action v	Develop further the competency of existing network of food laboratories in ASEAN to facilitate the exchange of information, findings, experiences, and best practices relating food laboratories works and new technology;
Action vi	Strengthen the capability of ASEAN Member States to conduct risk analysis;
Action vii	Enhance consumer participation and empowerment in food safety;
Action xii	Encourage the application of environmentally sound technologies in farming and food processing;
Action xiii	Improve the quality of surveillance and the effectiveness of responses to food-borne diseases and food poisoning outbreaks through, among others, information sharing and exchange of expertise;
Action xiv	Enhance advocacy to promote production of safe and healthy food by producers and education and communication to communities for empowerment in food safety;
Action xv	Provide opportunities such as forums, meetings to facilitate coordinated actions among stakeholders geared for promotion of food security and safety;
Action xvi	Integrate these actions into a comprehensive plan of action with the ultimate goal of improving health outcomes.

But some of these that relate to food safety are marginally addressed under the AEC blueprint and none under the ASCC blueprint. Therefore, there is a need to initiate livestock related activities where there is scope for doing so.

Strategic Approach D8: Promoting sustainable management of natural resources and biodiversity

Strategic objective : Ensure ASEAN's rich biological diversity is conserved and sustainably managed toward enhancing social, economic and environmental wellbeing

Among the prescribed action programmes to achieve this objective, the following have scope for inclusion of activities to conserve and promote diversity in animal genetic resources:

Action i	Achieve by 2010, a significant reduction in the current rate of loss of Biodiversity through implementing relevant national, regional and international programmes of work;
Action ii	Promote collaboration, sharing of lessons learnt on access and equitable sharing of genetic and biological resources by 2015;
Action v	Take appropriate measures to minimise impacts of transboundary movement of living modified organisms in accordance with the Cartagena Protocol on Biosafety by 2015;
Action vi	Establish a functional regional network to promote capacity building in Developing inventory of the biological resources and biosafety measures of the ASEAN Region by 2015;
Action vii	Enhance the role and capacity of the ASEAN Centre for Biodiversity (ACB) to function as an effective regional centre of excellence in promoting biodiversity conservation and management;
Action viii	Promote the involvement of local community to maintain biodiversity Conservation and forest health by 2015:
Action x	Promote regional cooperation on sustainable management of biodiversity such as sharing research and development experiences, exchange of experts, and training;
Action xi	Strengthen efforts to control transboundary trade in wild fauna and flora through the ASEAN Action Plan on Trade in Wild Fauna and Flora 2005-2010 and the ASEAN Wildlife Enforcement Network (ASEAN-WEN) to implement commitments to Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES);
Action xii	Explore cooperation among ASEAN Member States to conduct joint survey and monitoring of migratory wildlife;

It has been mentioned earlier that one of the consequence of uncontrolled private sector led livestock development has been the loss of genetic diversity of animals and birds. But virtually nothing is being done with respect to livestock except two minor initiatives as follows:

- In 2009, an agreement was reached for establishment of the ASEAN Centre on Biodiversity. However, it is still to be made fully functional and it is unclear if livestock are included in its mandate.
- In 2013, Malaysia floated a new proposal to ASWGL titled " Promote diversification of animal breeds and animal feed and scale up community-based food security initiatives". Since ASWAL basically works within the AEC framework, there is a need for coordination between AEC and ASCC through ASWGL to implement this proposal.

Strategic approach D10: Responding to climate change and addressing its impacts

Strategic objective : Enhance regional and international cooperation to address the issue of climate change and its impacts on socio-economic development, health and

the environment ,in ASEAN Member States through implementation of mitigation and adaptation measures, based on the principles of equity, flexibility, effectiveness, common but differentiated responsibilities, respective capabilities, as well as reflecting on different social and economic conditions

Among the prescribed action programmes to achieve the above objective, the following have relevance for inclusion of livestock:

Action i	Encourage ASEAN common understanding on climate change issues and where possible, engage in joint efforts and common positions in addressing these issues.
Action iii	Promote and facilitate exchange of information/knowledge on scientific research and development (R&D), deployment and transfer of technology and best practices on adaptation and mitigation measures, and enhance human resource development;
Action v	Develop regional strategies to enhance capacity for adaptation, low carbon economy, and promote public awareness to address effects of climate change;
Action ix	Promote public awareness and advocacy to raise community participation on Protecting human health from the potential impact of climate change

However, nothing is really being done under the ASCC blueprint. In the ASWGL strategic plan 2011-15, the following activities are listed but it is unclear if there is any concrete step to implement them:

- Promote waste management control programmes in animal farms.
- Collaborate with ATWGARD on the implementation of the JAIF-funded projects
    - to promote sustainable livestock production systems that minimizes GHG emissions from livestock.
    - Japan Biomass Project (but not clear what objective is there for livestock**)**
    - FAO BEFS Project (but not clear what objective is there for livestock)

Strategic approach B7: Building disaster-resilient nations and safer communities

Strategic objective: Strengthen effective mechanisms and capabilities to prevent and reduce disaster losses in lives, and in social, economic and environmental assets of ASEAN Member States and to jointly respond to disaster emergencies through concerted national efforts and intensified regional and international cooperation.

Twelve action lines have been proposed to achieve the above objective. But none of the action lines explicitly include any activity on livestock. In fact, the action lines indicate that the narration ‘ …to prevent and reduce disaster losses in lives..’ in the strategic objective actually refers to human lives rather than human and animal lives.

However, in the real world, human and animals can’t be separated in disaster affected areas. In fact, livestock are more vulnerable to death, accident and loss during a disaster and afterwards due to lack of feed, water and veterinary treatment. In post disaster relief and recovery efforts, the focus is usually on human beings – alive or dead, but livestock often remain unattended. Dead corpses lying everywhere, especially in water, is often a source of public health hazard due to spread of various diseases. Since livestock are an important asset of the poor people,

death or loss of livestock may severely affect their lives and livelihood. These facts have been recognized after the Indian Ocean tsunami in 2004 as post-tsunami relief and recovery programmes gave some attention to livestock as well.

Recently the ASEAN Agreement on Disaster Management and Emergency Response and Partnership (AADMERP) Group has been established with the following objectives: undertake disaster risk assessment; develop strategies for prevention and mitigation; build capacity for preparedness and response; and plan for recovery. All of these are focused on human being and social, economic and environmental assets with no explicit mention of livestock anywhere. However, of late the group has become sensitive to disaster related livestock issues. WSPA has also joined the group with some concrete as well as advocacy work. For example,

- Working together with Red Cross, WSPA supported Thailand during the 2013 flooding through provision of animal feed and veterinary support for about 3000 animals.
- Concluded a Letter of Agreement between WSPA Thailand and other 6 stakeholders for disaster management in Thailand in September 2013 to strengthen cooperation in helping animals during disasters.
- Provided technical and funding support to the Philippines in response to the Haiyan disaster. WSPA has also been part in the creation of the Animal Relief and Rehabilitation Philippines (ARRP), a multi-agency and multi-stakeholder mechanism. Assisted in the development of Emergency Guidelines for Companion Animals in the Philippines.

It is advisable to make AADMERP more sensitive to livestock as an asset and a source of livelihood of large number of people in disaster affected areas.

3.3 Summary

In summary, theoretically the cross-cutting issues related to livestock cut across action lines under both the AEC and the ASCC blueprints. Practically, some issues are being addressed under the AEC blueprint but issues relevant to action lines under ASCC blueprint are virtually left out because of lack of knowledge and appreciation about the scope for using livestock to foster growth, trade and reduce poverty and inequality. It is desirable to address this neglect and gap in implementation. Where there are overlaps between the actions and activities under the AEC and the ASCC blueprints, efforts are needed by ASWGL for better coordination, simplification of operational mechanism and reduction of the number of working groups and networks.

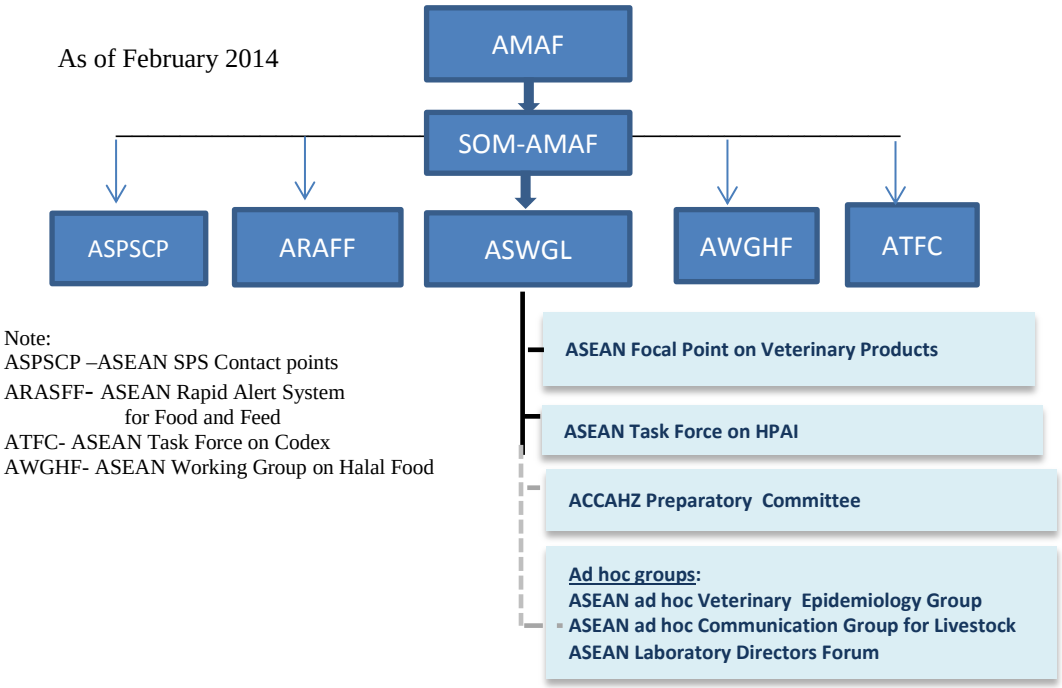
PART 4: IMPLEMENTATION, MONITORING AND EVALUATION

4.1 Implementation of the Strategic Plan *

Currently 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 the strategic approach A7: Food Agriculture and Forestry. These two bodies are aided by several Sectoral Working Groups, Thematic Working Groups, Task Forces, Expert Working Groups and Network Focal Points etc. These bodies usually propose and recommend new initiatives, activities or programmes to the SOM-AMAF for consideration or approval, monitor and report progress of implementation of approved activities. However, there is inconsistency between sectors in terms of hierarchy of the secondary bodies, and their terms of reference, management and working mechanism. For example, the distinction between a Task Force and an Expert Working Group within a sector or between sectors is unclear. Some Task Forces operate directly under the SOM-AMAF with dedicated secretariat while others operate under the relevant sectoral working group. The frequency of meetings and the tenure of group chairs also vary. By definition task forces and expert working groups are supposed to be temporary bodies with specific time bound TORs, rather than as permanent entities on the organogram. It is advisable to use similar nomenclatures for similar bodies across sectors, and as far as possible follow similar management and operational procedures.

For the livestock sub-sector, the organogram shows that 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). Four other temporary or ad-hoc groups are also working: a committee is working on establishment of the ASEAN Coordination Centre for Animal Health and Zoonosis, an Epidemiology Group, a Communication Group and a Laboratory Directors' Forum have been established and their TOR and operational mechanisms are currently under preparation (Figure 4).

Figure 4. Structure of ASEAN cooperation in the livestock sub-sector



Note:
ASPSCP –ASEAN SPS Contact points
ARASFF- ASEAN Rapid Alert System for Food and Feed
ATFC- ASEAN Task Force on Codex
AWGHF- ASEAN Working Group on Halal Food

The ASWGL also supposedly has indirect linkage with the ASEAN SPS Contact Points, the ASEAN Task Force on Codex, the ASEAN Working Group on Halal Food, and the ASEAN Rapid Alert System for Food and Feed. However, the organogram does not show how these links are actually managed or operated i.e. it is unclear who within ASWGL is responsible for making liaison with these bodies.

Outside this organogram, the following bodies or forums are also functioning or are in the pipeline for establishment:

- The ASEAN Regional Animal Health Information System (ARAHIS) to link with the World Animal Health Information System (WAHIS) operated by the OIE
- Animal Health and Production Information System in ASEAN (AHPISA), which is being proposed to be merged with the Adhoc ASEAN Communication Group on Livestock (ACGL)
- There are also disease specific projects or programmes for FMD, Rabies, CSF which are coordinated through different forums.

The main weakness of the current cooperation structure 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 elements in others, especially production aspects are not adequately 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. It is therefore recommended that cooperation in the livestock sub-sector may be re-organised under the ASWGL as follows. The ASWGL will remain the main coordinating and recommending body for the sub-sector with routine coordination and operation managed by the ASEAN Coordination Centre for Animal Production and Health (ACCAPH) as the secretariat of ASWGL which will have four arms :

i) **the Epidemiology Network**, incorporating the functions of the Task Force on HPAI and other disease specific groups. It will also cover zoonosis as animal health essentially includes that.

ii) **the Network of Vet Labs and Vet Products** incorporating the functions of the Laboratory Directors' Forum and Focal Points on Veterinary Products. This network will maintain liaison on International Cooperation on Harmonisation of Technical Requirements for Registration of Veterinary Medicinal Products (VICH).

iii) **the Network for Animal Production and Processing Standards** incorporating the functions of the Task Force on Halal Food and Humane Slaughter as these are essentially part of production and processing standards. This network will also maintain liaison with the Task Force on Codex and SPS Focal points.

iv) **the Animal Health Communication Network** incorporating the functions of the The ASEAN Regional Animal Health Information System (ARAHIS) and links with WAHIS, as well as the Animal Health and Production Information System in ASEAN (AHPISA). This network will maintain liaison with the ASEAN Rapid Alert system for Food and Feed.

The ACCAPH will serve as the secretariat of ASWGL to perform routine functions, as ASWGL meets only once a year. It need not have its own laboratories. It can simply be a coordinating institution with accredited laboratories in the region under its reach and supervision to perform specific functions for the region alongside their national mandates.

In terms of actual activities, many initiatives have been taken to implement the strategic plan of action 2011-15. These are mainly focused on health, safety and standard setting and they possibly fall into the following categories:

- ASEAN initiated and implemented with own resources
- ASEAN initiated and implemented with external collaboration
- ASEAN responding to external initiatives
- AMSs initiated and implemented with external support having regional implication
- AMSs responding to external initiatives having regional implication

Not all of these are mutually exclusive. SOM-AMAF are the ultimate policy making bodies but at the intermediate level, the sectoral working groups, in this case ASWGL, and various other networks, their national focal points and other such contact points/entities, ASEC and external collaborators are involved in initiation and implementation of activities. National Focal Points basically serve as the communication gateways as they usually do not carry executive decision making power, which may lie at higher levels in the national bureaucracy. So, much time and effort is required for coordination and collaboration to implement these multifaceted activities, some of them with significant duplication between networks/agencies. The records of ASWGL SPA indicate that the time required from initiation to implementation of some activities is quite long. Premature discontinuation of initiatives, especially under short term projects with no forward planning to internalize them within mainstream ASEAN programmes may make outcomes of such projects unsustainable.

A cursory look at some of the projects in preparation or in the pipeline indicates that more attention need to be given to providing evidence based justification for such projects. A major role of ASEC may be to facilitate AMSs or various networks in preparation of new programmes based on sound evidence. For example, proposal for conducting a training programme or programme to control a specific disease should be backed by cost and benefit flows, even if such information may be initially imperfect. One of the objectives may then be to generate more evidence or data to substantiate such programme and thus improve the quality of data base. A concerted effort should be made to make project outputs additive, or even multiplicative and cumulative to make long term progress. Disjointed projects with one –off output may not serve that goal.

4.2 Monitoring and Evaluation

There is room for improving the monitoring and evaluation process. In the current score card, distinction between intermediate and final output of an activity or action is not always clear. Since some programmes and activities may take substantial time to accomplish fully, it is useful to define intermediate and final outputs with milestones for each action and activity and monitor progress accordingly. Outputs and milestones may be specified at both national and regional levels as all AMSs may not be able to make progress at the same speed.

4.3 Partnership and Resource Mobilisation

Strategy for resource mobilization and partnership will partly depend on the mechanism for project development. If programmes are developed to address ASEAN needs and priorities, most likely own resources will be primarily sought for implementation. If programmes are developed to respond to regional programmes of external bilateral or multilateral partners, the

nature of partnership and resource mobilization will be externally driven. Even when external partnership and resources are sought, the driving force should still be ASEAN needs and priorities with a view to leverage own scarce resources by accessing external resources, especially skills not available locally or regionally.

4.4 Conclusion

The livestock sub-sector makes important contribution to national output, employment and food security in the ASEAN region though its relative importance varies across the AMSs. While intensive and larger scale production and processing is emerging in the more advanced states, smallholder livestock still dominates in the less developed AMSs where they play key roles in poverty alleviation, food security and nutrition and gender equality.

Current ASEAN cooperation in the livestock sub-sector is focused on trade and associated issues like standards and food safety to promote trade. Some appreciable progress has been made in developing criteria for good husbandry, good production and processing establishments, and good hygiene and sanitary standards. However, actual practice, adoption or enforcement of those criteria appears to be variable because of diversity in production systems, levels of development and capacity. The imperative is that steps need to be taken to reduce gaps in capacity in terms of regulations, institutions, laboratories and manpower if significant progress is to be expected in harmonization of standards to promote trade. The productivity gap between advanced and lagging member states should be exploited as an opportunity to increase overall regional productivity by reducing the productivity gaps.

Disease control is a high priority activity in the region and several initiatives targeting specific disease and overall animal health management are currently being implemented within the framework of the AEC blueprint. However, there is considerable scope for addressing growth, poverty alleviation, food and nutrition security and gender equality through increased investment in improved technology to increase livestock productivity and better institutions to improve market access for smallholder producers. These aspects are currently under the domain of the ASCC blueprint but activities and programmes in the livestock sub-sector are virtually nonexistent. There is a need to correct this imbalance in the new vision for the livestock sub-sector so that livestock production and trade can facilitate or play a key role in ASEAN integration towards a single market and production base.

Disease control and food safety and hygiene are key areas of current ASEAN cooperation. Effective disease control will require strong disciplinary capacity in Epidemiology, good laboratory with proper equipment and skilled manpower, and a good communication network to collect, share and disseminate information, and a strong coordination mechanism to link these above three elements. These are currently being pursued under various initiatives but in an apparently disjointed manner, without proper links. There is room for consolidation of some of the networks for more cost effective and efficient delivery of services.

With scaling up and industrialisation, the negative externalities of livestock in the form of demand for scarce resources like water and feed grain and water and soil degradation and greenhouse gas emission may increase unless forward planning is done to address them along with development. Private sector participation in policy making, investment and trade is currently very poor. More efforts are needed to promote private sector investment in better technology for sustainable and environment friendly production, processing and marketing.

References

Alber D (2010) Nontariff Measures in Food and Agricultural Trade. Farm Foundation, Illinois, USA. Available at http://www.farmfoundation.org/news/articlefiles/363-Abler%20Farm%20Foundation%20May%204%202010.pdf

Ahuja, Vinod (ed.) (2013) Asian Livestock **:** Challenges, Opportunities and the Response. Proceedings of an international policy forum held in Bangkok, Thailand, 16-17 August 2012. Animal Production and Health Commission for Asia and the Pacific, International Livestock Research Institute and Food and Agriculture Organization of the United Nations. Bangkok.

ASEAN (2011) ASEAN Socio-Cultural Community Blueprint. 2nd print. ASEAN Secretariat, Jakarta, Indonesia. Available at http://www.aseansec.org/5187-10.pdf

ASEAN (2013) ASEAN Economic Community Blueprint. 6th print. ASEAN Secretariat, Jakarta, Indonesia. Available at http://www.aseansec.org/5187-10.pdf

ASEAN (2014a) ASEAN Economic Community Scorecard – Charting Progress toward Regional Economic Integration, Annex 8: A7- Food, Agriculture and Forestry. Jakarta: ASEAN Secretariat. (http://www.aseansec.org/documents/scorecard_final.pdf)

ASEAN (2014b) Mid-Term Review of the ASEAN Socio-Cultural Community Blueprint (2009-2015). ASEAN Secretariat, Jakarta, Indonesia.

ASWGL (2013) Strategic Plan of Action (SPA) for the ASEAN Cooperation in Livestock (2011-2015. Approved at the 21st ASWGL Meeting22-24 May 2013, Manila, Philippines.

ASWGL (2014) Draft Report of Twenty Second meeting of the ASEAN Sectoral Working Group on Livestock (22nd ASWGL), 7-9 May 2014, Singapore.

Austria M S (2013) Non-Tariff Barriers: A Challenge to Achieving the ASEAN Economic Community. In : Sanchita Basu Das, Jayant Menon, Rodolfo Severino, and Omkar Lal Shrestha (eds) The ASEAN Economic Community: A Work in Progress. Institute of Southeast Asian Studies, Singapore and Asian Development Bank, Manila. .pp.31-94

Birthal P S and Negi D S (2012) Livestock for higher, sustainable and inclusive agricultural growth. *Economic and Political Weekly (Supplement*), 47 (26 & 27):89-99.

Blackburn H and de Haan C (eds) (1993) Livestock development projects: Past, present and future. Proceedings of an informal meeting of donor representatives involved in livestock development, organized by USAID and the World Bank, 4-6 December 1993, Paris, France. World Bank, Washingtonne DC, USA.

Daite R, Ramirez P and Staal S (2013) Dairy trade and regional integration in the Southeast Asian region. An issues paper prepared for the World Milk Day Celebration, June 1, 2013, Bangkok, Thailand.

Delgado C, Rosegrant M, Steinfeld H, Ehui S and Courbois C (1999) Livestock to 2020:The Next Food Revolution IFPRI 2020 Discussion Paper 28. Available at http://www.ifpri.org/sites/default/files/publications/pubs_2020_dp_dp28.pdf

ERIA (2012) ASEAN Economic Community Blueprint Mid-Term Review : Integrative Report. Economic Research Institute for ASEAN and East Asia, Jakarta, Indonesia.

FAO (2013) *World Livestock 2013 – Changing Disease Landscapes.* Rome.

Guyomard, H, Manceron, H, and Peyraud, Jean-Louis (2013) Trade in feed grains, animals, and animal products: Current trends, future prospects and main issues. *Animal Frontiers*, 3(1): 14-18.

Hu A G (2013) ASEAN Economic Community Business Survey. In : Sanchita Basu Das, Jayant Menon, Rodolfo Severino, and Omkar Lal Shrestha (eds) The ASEAN Economic Community: A Work in Progress. Institute of Southeast Asian Studies, Singapore and Asian Development Bank, Manila. pp. 443-82

ILRI (2011) Livestock - A Pathway Out of Poverty. Interim Strategy of the International Livestock Research Institute, 2011–2012. International Livestock Research Institute, Nairobi, Kenya.

Narrod C, Tiongco M, and Scott R (2011) Current and predicted trends in the production, consumption and trade of live animals and their products. *Rev. Sci. Tech. Off. Int. Epiz*. 30(1):31–49.

Nikomborirak D and Jitdumrong S (2013) ASEAN Trade in Services. In : Sanchita Basu Das, Jayant Menon, Rodolfo Severino, and Omkar Lal Shrestha (eds) The ASEAN Economic Community: A Work in Progress. Institute of Southeast Asian Studies, Singapore and Asian Development Bank, Manila. Pp. 95-140

Smith J, Sones K, Grace D, MacMillan S, Tarawali S, and Herrero M (2013) Beyond milk, meat, and eggs: Role of livestock in food and nutrition security. *Animal frontiers***,** 3 (1): 6-13.

Warr P (2012) Agricultural Liberalization within the ASEAN Economic Community: Effects on Indonesia and Thailand'. (*mimeo*)

World Bank (2009) Minding the Stock – Bringing Public Policy to Bear on Livestock sub-sector Development. Report No. 44010-GLB. Agriculture and Rural Development Department, The World Bank, 1818 H Street NW, Washington, DC, USA.