MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT

DEPARTMENT OF LIVESTOCK

SEMINAR:

"DISSEMINATION OF CONSTRUCTED WETLAND SYSTEM IN VIETNAM"

CURRENT SITUATION OF LIVESTOCK AND CHALLENGES FOR LIVESTOCK WASTE IN VIETNAM

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2. Challenges on livestock waste and animal waste water
3. Popular technologies for livestock waste treatment
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CURRENT SITUATION OF VIETNAM'S LIVESTOCK

LIVESTOCK 2011-2016

No.	Type of livestock (in million)	Year						Annual growth rate (%)
		2011	2012	2013	2014	2015	2016	
1	Buffalo	2.71	2.63	2.56	2.52	2.52	2.519	-1.45
2	Cow	5.43	5.19	5.15	5.23	5.36	5.5	0.24
3	Pig	27.06	26.49	26.26	26.76	27.75	29.08	1.45
4	Poultry	322.5	308.5	317.1	327.7	341.4	361.7	2.32

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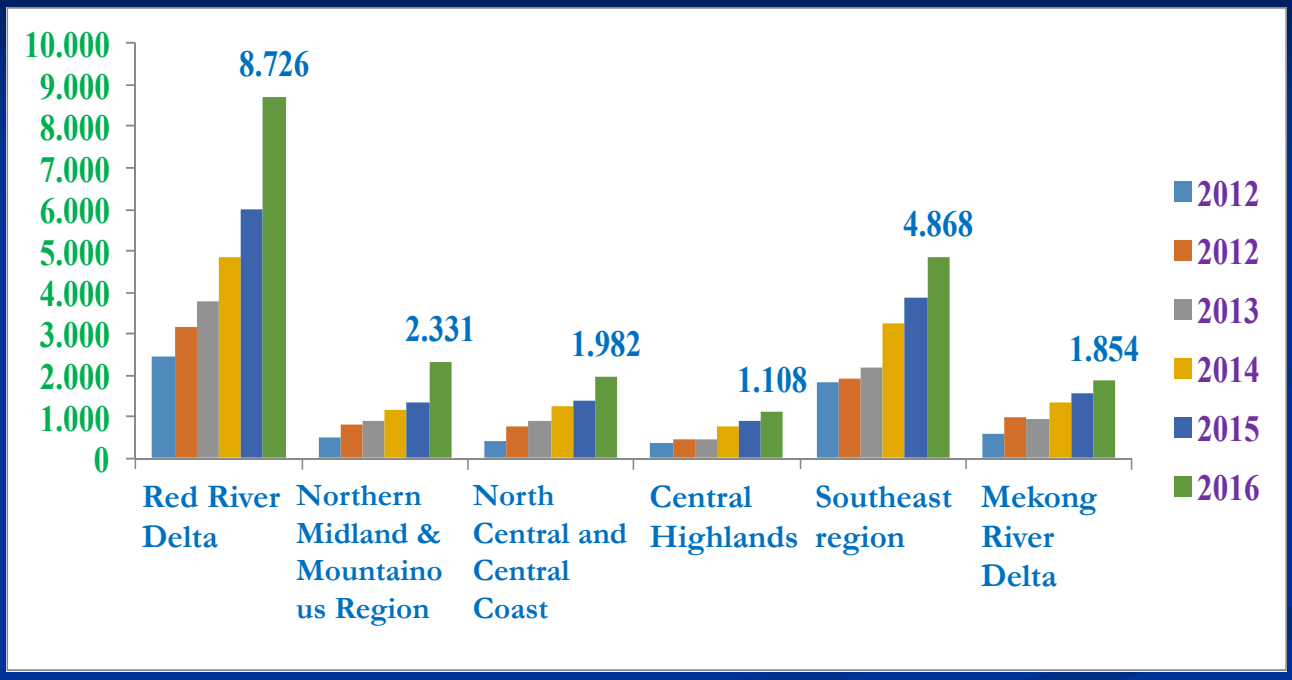
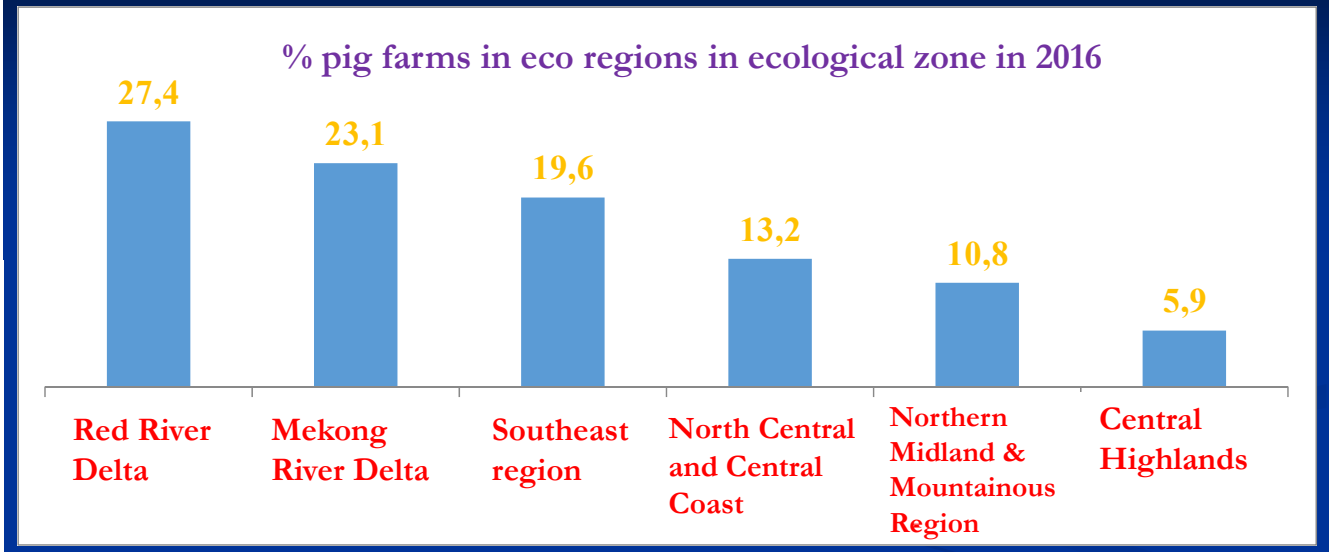
CURRENT SITUATION OF LIVESTOCK DEVELOPMENT

Development of livestock farms during 2011-2016



Total livestock famrs/farms 2011-2016: 20,869/33,488, making up 62.32%; %/year 2011-2016: 35,09% VN; Red River Delta: 37.53%; Northern Midland & Moutainous Region: 45,58%; North Central and Central Coast: 48,55%; Central Highlands: 31,55%; Southeast region: 27,35%; Mekong River Delta: 33,65%.

Pig farms



✓Total pig farms: 7,467

✓Total number of pig households: 2006: 6.33; 2011:4.13; 2016: 3.5 million households; Reduction of weighted average: 5.8%/year during 2006-2016.

CURRENT SITUATION OF LIVESTOCK WASTE TREATMENT

Solid waste from livestock in Vietnam 2011-2016:

Livestock	Manure per day (kg)	Annual waste (million tons per year)					
		2011	2012	2013	2014	2015	2016
Pig	2.5	24.69	24.18	23.96	19.54	25.32	26.53
Poultry	0.02	2.36	2.25	2.30	2.39	2.50	2.64
Cow	10	19.84	18.96	18.82	19.11	19.59	20.06
Buffalo	15	14.85	14.39	14.01	13.75	13.82	13.79
Goat/Lamb	1.5	0.66	0.73	0.74	0.91	1.03	1.18
Horse	4	0.13	0.12	0.12	0.10	0,09	0.08
Deer	2.5	0.05	0.05	0.06	0.06	0.06	0.05
Total		62.58	60.68	60.01	55.86	62.41	64.33

CURRENT SITUATION OF SOLID WASTE TREATMENT

Livestock waste in Vietnam in 2016:

TT	Livestock	Quantity (individual)	*Average amount of manure (kg/individual /day)*	Total amount of manure (million tons/year)	*Average amount of urine (kg/individual /day)*	Total amount of urine (million tons/year)
1	Pig	29,075,315	2.5	26.53	3	29.30
2	Poultry	361,720,751	0.02	2.64		
3	Cow	5,496,557	10	20.06	8	15.28
4	Buffalo	2,519,411	15	13.79	10	9.17
5	Goat/lamb	2,147,136	1.5	1.18	0.8	0.49
6	Horse	54,117	4	0.08	5	0.12
7	Deer	55,782	2.5	0.05	3	0.07
	Total			64.33		54.44

CURRENT WASTE TREATMENT AT FARMS

No.	Description	Proportion (%)	No. of farms
1	Farms undertaking environmental impact assessment reports	14.3	2,113
2	Farms with environmental protection plans	51.2	7,682
3	Farms with Certification of disease safety	7.8	1,131
4	Farms with Certification of biosecurity	2.2	346
5	Farms certified by VietGAP and others	21.3	3,310
6	Farms without any measure of waste treatment	3.2	486
	Total	100	15,068

* Population of farm households
- Total population in 2015: 91.7 million
- Population in Agriculture, forestry and fishery: 40.3 million (accounts for 44%)
- Approximately: 10 million households; **No. of livestock households: estimated 8.2 million**

CURRENT SITUATION OF WASTE TREATMENT AND FORMS OF WASTE TREATMENT APPLICABLE AT FARM HOUSEHOLDS

No.	Description	Proportion (%)	No. of farms (millions)
1	Farms with waste treatment measures	53	2.2
2	Farms without any waste treatment measures	47	1.9
3	Number of livestock households with lodgings	85	3.5
4	Number of livestock households without lodgings	15	0.6
	Total		8.2

CURRENT SITUATION OF WASTE TREATMENT AND FORMS OF WASTE TREATMENT APPLICABLE AT FARM HOUSEHOLDS

Descriptions	Total	No. of farms	No. of household
Number of biogas plants (KT1, KT2 plant + Composite + other technologies)	258,860	15,370	229,207
Total KT1, KT2 (plants)	112,438	2,264	102,618
Total Composite (plants)	47,518	594	45,407
Total of other technologies (plants)	74,420	961	73,459

BIOGAS PLANTS BY REGION

No.	Regions	Proportion (%)	Amount
1	Red River Delta	33.1	154,037
2	Northern Midland and Mountainous Region	17.9	83,301
3	North Central and Central Coast	26.6	123,788
4	Central Highlands	1.7	7,911
5	Southeast Region	10.3	47,933
6	Mekong River Delta	10.8	50,259
	Total	100	467,231

* Regionalization is symbolic and not generalized

BIOGAS PROGRAM OF MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT (28/3/2017)

NUMBER OF BIOGAS PLANT PROJECTS MANAGED BY MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT		
PROJECTS MANAGED BY MARD	TARGET	NUMBER OF PLANTS
BP	250,000	159,142
QSEAP	30,000	30,950
LCASP	65,000	43,157
LIFSAP	21,000	14,957
JICA		80
TOTAL	366,000	248,286

Reducing emissions from biogas plants

- Quantity of biogas plants nationwide: 467,231 plants;
- Under governance of Ministry of Agriculture and Rural Development: 248,284 plants
- Average emission of small-sized biogas plant (8-10m3): 6.8 ton CO_2 per plant per year;
- Total emission reduction: 6.8 x 467,231 = 3.18 million tons CO_2 equivalent per year;
- 7208/QĐ-BNN-KHCN 25/8/2016

VIETNAM'S COMMITMENT IN INDC:

1. By 2030, with domestic resources, Vietnam is committed to reducing emissions of greenhouse gases by 8% compared to conventional development scenarios.;
2. The reduction can reach 25% if Vietnam receives international assistance.
3. At the same time, Vietnam will undertake a number of adaptation activities that will increase the resilience to climate change, enabling it to contribute more to mitigating greenhouse gas emissions.

VIETNAM'S INDC IN AGRICULTURE:

1. Fermentation in the rumen;
2. Management of livestock manure;
3. Rice farming;
4. Agricultural land;
5. Reclamation of the prairie;
6. Burning of agricultural by-products.

VIETNAM'S COMMITMENT IN INDC:

According to the BAU:

1. 2010: Reduce 246.8 million ton CO_2 equivalent;
2. National Master Plan for 2020 and 2030 (not to mention industrial processes):

- 2020: 474.1 million ton CO_2 equivalent;
- 2030: 787.4 million ton CO_2 equivalent.

7208/QĐ-BNN-KHCN 25/8/2016: TKTH INDC LV Livestock 2021-2030 Plan:

1. National implementation plan:

- Biogas development in livestock (A1): 300,000 plants to reducey 1.92 million tons CO_2;
- Improved livestock feed: 160,000, reduce 0.13 million tons of CO_2.

2. International support schemes:

- (A1): 500,000 plants to reduce 3.17 million tons CO_2;
- A11: 3 million, reduce 0.24 million tons CO_2;
- A17: Reuse manure to make organic fertilizer: 20 million tons, reduce 3.4 million tons CO_2.

CURRENT MECHANISM AND POLICY

1. Decree 210/2013/NĐ-CP (19/12/2013):
   - 3 billion/livestock facility: infrastructure, including livestock waste treatment;
   - 5 billion/dairy farm: as above.
2. 50/QĐ-TTg dated 9/4/2015: 5 million/biogas plant or bio pad.
3. 08/2014/TT-BNN (20/3/2014): Livestock lodging cleaning machine; bio pads; Biogas generator (68/2013/QĐ-TTg dated 14/11/2013): loan of 100% of equipment price, 100% interest for the first 2 years and 50% interest for the third year).

EVALUATION OF CURRENT MECHANISM AND POLICIES

1. Advantages:
   - Law enforcement on environmental protection;
   - Environmental treatment: Criteria 17/19 in new rural areas;
   - There are many policies to support and diversify support.
2. Disadvantages:
   - Complex procedures, lack of effective EM mechanism;
   - Direct cash support is also common;
   - No support based on output or through production linkage.

PROPOSAL OF MECHANISM AND POLICY:

1. Livestock waste (solid, liquid) is a renewable resource. Therefore, it is necessary to have policies to encourage the treatment of organic (solid, liquid) fertilizers and organic fertilizer for plants.
2. Renewable energy: To create favorable conditions for the continuation and opening of the national power grid, the sale of electricity by enterprises and farms with biogas generators;
3. Define location, distance, density of livestock lodging, scale of livestock, density of livestock in farming system;
4. Apply environmental taxes per unit of livestock product or livestock
5. Apply the total N, P, C from livestock waste/ hectare of agricultural land.

THANK YOU FOR YOUR ATTENTION!