



**NATIONAL PROGRAM FOR
RABIES CONTROL AND ELIMINATION IN VIET NAM
IN THE PERIOD FROM 2017 TO 2021**

December/ 2016

MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT – MINISTRY OF HEALTH

Name of project:

RABIES CONTROL AND ELIMINATION IN VIET NAM

2017 – 2021 PERIOD

Responsible Agency: Ministry of Agriculture and Rural Development and Ministry of Health.

Key implementing units:

Department of Animal Health – Ministry of Agriculture and Rural Development

Department of Preventive Health

National Institute of Hygiene and Epidemiology- Ministry of Health

People’s committees from provincial to national levels

Co-ordinating units:

1. Ministry of Finance
2. Ministry of Planning and Investment
3. Ministry of Information and Communications
4. Ministry of Education and Training
5. The relevant sectors of Ministry of Agriculture and Rural Development
6. The relevant sectors of Ministry of Health

Time frame for implementation of the Program: 05 years, from 2017 to 2021

Total estimated expenditure for the program (within 5 years):

335.509.760.000 VND

- Central budget: 38,763.320.000 VND.
- Local budget: 296.745.000.000 VND.

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PART I: OVERVIEW OF RABIES DISEASE

GENERAL CHARACTERISTICS OF RABIES DISEASE

Rabies is a viral disease of the nervous system that causes acute inflammation of the brain and spinal cord. It is transmitted between animals and to humans. The rabies disease has been described from 3000 year ago and found in all hot-blooded animals and transmitted to human through excretion contaminated rabies virus from bites, licking stain from rabid animals. Clinical signs of the rabies disease in humans include fear of water (hydrophobia) and wind, convulsions, paralysis leading to death. Once the symptoms appear, the mortality rate is 100% (for both humans and animals). However, human rabies can be prevented completely and preventive treatment with vaccines and anti-rabies serum. Rabies vaccination for both humans and animals (mostly dogs) is the most effective approach for prevention and control of rabies.

Rabies is categorized in List B of Infectious Diseases according to Viet Nam Law on Prevention and Control of Infectious Diseases.

1.1 Pathogen

Rabies virus is the type species of the Lyssavirus genus of the Rhabdoviridae family, and has a single stranded RNA genome and a lipid bilayer envelope. Rabies virus has weak resistance, is easily inactivated by temperature and destroyed by lipid dissolvent (soap, ether, chloroform, acetone); very sensitive to ultraviolet rays and easily inactivated in alcohol solutions, iodized alcohol.

The diagnosis of rabies on humans is mostly based on typical clinical symptoms of the disease and the history of exposure to rabies viruses. Testing for rabies can be made by the following laboratory techniques: fluorescent antibody test (FAT), Reverse transcription polymerase chain reaction (RT-PCR), antibody detection (ELISA, RFFIT, FAVN). However, in fact, due to the danger of rabies, once bitten by suspected rabies animals, the victims must be monitored and urgently received prophylaxes treatment without waiting for the rabies testing results of the animals.

1.2. Rabies sources, incubation and transmission duration

Warm-blooded mammals such as wolves, wild dogs, house dogs, cats, weasels, foxes, civets and other mammals are natural reservoirs of rabies virus. In America and Europe, rabies virus has been found in bats. In Viet Nam, dogs are the main rabies virus carrier.

The incubation period of rabies disease can vary greatly. The typical incubation period for rabies is normally 1-3 months, but it can be as little as nine days or as long as several years in some rare cases.

The incubation period depends on the size, severity and location of the bites, the distance from the location of the bites to the brains, the number of infiltrated viruses. The severer and closer to the central nerves system, the shorter the incubation period

The transmission period in household dogs is between 3-7 days (maximum 10 days) before the rabid dogs appear clinical symptoms of rabies disease and throughout the illness period. In humans, the viruses are discharged through excretion (saliva, tear drops, urine...) of the infected people throughout the illness period. However, it is greatly rare that the disease can be transmitted from humans to humans.

Clinical symptoms in suspected rabid dogs can be divided into two forms: furious and dumb (or paralytic), sometimes the dogs have had symptoms of both forms, furious at the early stage and paralytic in the later stage.

a) The furious form only account for $\frac{1}{4}$ of the cases: movement responses are extremely stimulated, including overt aggression and attack behavior; light noise can cause the dogs bark furiously (2-3 days after the symptoms appeared). The dogs leave the house and often they do not come back. On their way, the dogs can bite anything, eat anything, attack other dogs, and also human. Then, these dogs die due to the paralysis in breathing muscles and exhaustion.

b) Dumb rabies is characterized by paralysis in part of its body, half of the body, or of the two back legs; normally jaw muscles are often paralyzed with running saliva. The dogs can neither bite nor bark but only snort.

For puppies, rabies symptoms are often not typical but rabid puppies all die within 10 days since the first rabid symptoms are shown.

Cats are less vulnerable to rabies than dogs. Rabies in cat also develops like dogs. The rabid cats often lurk in hidden places. The cry is hoarse like that emitted during the period of rut and the animals can bite if they are touched.

1.3. Rabies infection routes

The most common mode of rabies virus transmission is through the bite, scratches or licking of rabid animals on wounded skin. It has also been reported that rabies virus can be transmitted from human to human through viscera and organ transplantations and bites or contacts with the excretion of the rabid victims.

Besides, transmission has been rarely documented via other routes such as contamination of mucous membranes due to contacts or breathing in the air containing rabies virus in bat caves or accidents in laboratories.

1.4. Infection

All mammals are infected to rabies virus, at different levels. Animals with highest infection include dogs, cats, foxes, weasels, bats and then buffaloes, cows, pigs, monkeys, bears, rats... Humans are also highly infected to rabies virus and if they are vaccinated against rabies, there are antibodies that fight against rabies viruses.

PART II. RABIES SITUATION AND PREVENTION METHODS

2.1. Rabies situation in the world and in Asia

Rabies is often circulated in 150 countries in the World with 3,3 billions people in Asia, Africa and Latin America at the high risk of rabies disease. According to statistics by the World Health Organization (WHO), each year, rabies causes 60,000 human deaths (99% of these got rabies infection from dog, four out of ten victims are children under 15 year old, and 95 % of these occurred in Asian and African) and 15 million people have exposed to rabies disease and received prophylaxis treatment (in which 40% are children with the age from 4 to 15 year old in Asian and African), this lead to an estimated loss of 8.6 billion USD to global economies each year. Moreover, according to WHO, if PEP is not implemented, rabies human deaths can reach 330,304 each year. Rabies deaths are mostly reported in developing countries in Africa (40%), Asia (55%). Countries with high rabies deaths in Asia are India (20,000), China (3,300), Bangladesh (1,500), Nepal (200). In South East Asia, 8 out of 11 countries have reported rabies virus circulation in their country (excluding Singapore, Malaysia and Brunei Darussalam). From 2004 to date, the number of rabies deaths in Asia, South East Asia is in increasing trend and the disease is developing in a complicated manner.

In Asian countries, about 26 million people received Post-Exposure Prophylaxis (PEP) a year. In China, the figure is 15 million people. In European countries, only over 71,500 people are provided with PEP a year.

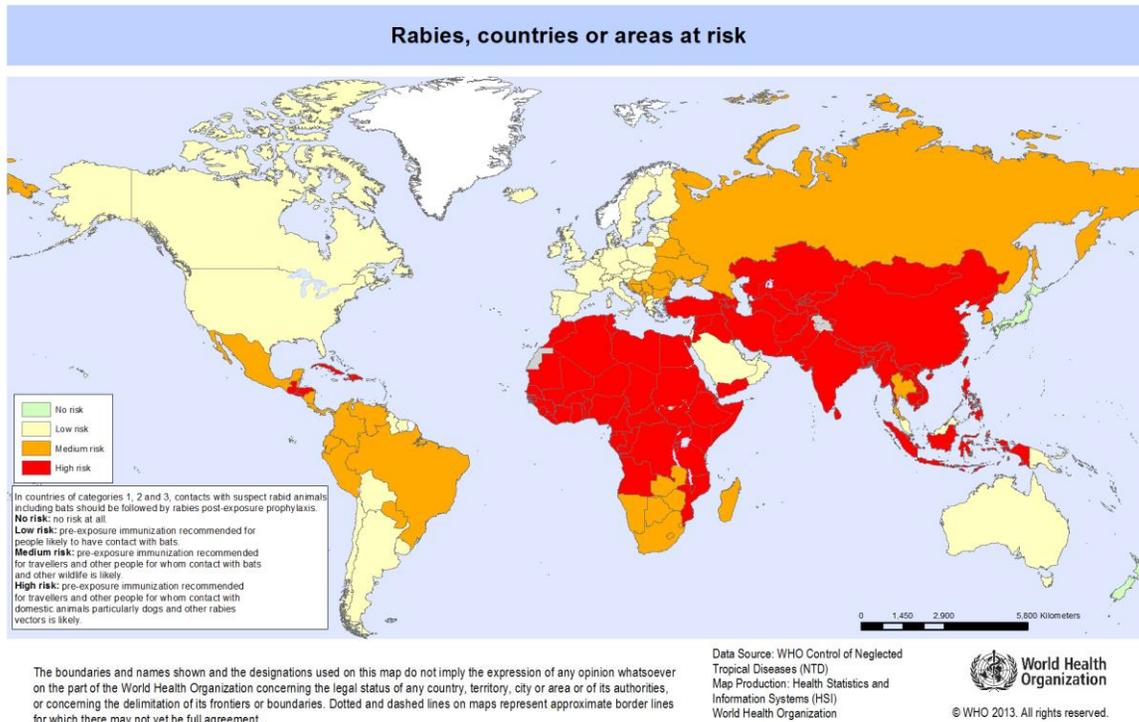


Figure 1: Rabies, countries or areas at risk- WHO 2013

(Vietnam located in the area with high risk of rabies disease transmitted to human)

Table 1: The rabies situation in human and animals in South East Asia countries

Countries	Rabies in human	Rabies in dog	Rabies report to OIE			Surveillance program	Dog vaccination program
			Dogs	Cats	Wildlife animals		
Brunei	No	No	Yes	Yes	Yes	Yes	No
Cambodia	Yes	Yes	No	No	No	Yes	No
Indonesia	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Laos	Yes	Yes	Yes	Yes	No	Yes	Yes
Malaysia	No	No	Yes	Yes	Yes	Yes	Yes
Myanmar	Yes	Yes	Yes	Yes	No	Yes	Yes
Philippines	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Singapore	No	No	Yes	Yes	Yes	Yes	No
Thailand	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Việt Nam	Yes	Yes	Yes	No	No	Yes	Yes

2.2. Rabies situation in Vietnam

2.2.1. Rabies situation in humans

In Viet Nam, rabies has been circulating for many years and reported since 1974. However, the rabies information before 1990 is very poor due to the lack of active investigation, statistic and reports activities in that period.

Although, post exposure prophylaxis treatment against rabies has been conducted at several city/provincial health care units for people exposed to suspected rabies animals, but there are still the high number of people died of rabies reported annually. According to rabies surveillance reports made by National Institute of Hygiene and Epidemiology showed that rabies death cases in human have been reported for the past 25 consecutive years and always ranked at the top of 24 communicable diseases in Vietnam.

Year	Rabies vaccinated people	Rabies deaths	Notes
1991	87,625	282	Within 5 years: +There were 2001 people died of rabies, 400 cases/year on average
1992	145,272	404	
1993	130,604	398	

Year	Rabies vaccinated people	Rabies deaths	Notes
1994	361,877	505	+ There were 1,167,238 people received PEP, 233,448 people/year on average
1995	441,860	412	
1996	487,125	285	Within 5 years: +There were 758 people died of rabies, 152 cases/year on average
1997	537,228	160	
1998	487,680	129	
1999	569,558	94	+ There were 2,649,757 people received PEP, 529,951 people/year on average
2000	568,166	90	
2001	552,653	65	Within 5 years: +There were 314 people died of rabies, 63 cases/year on average
2002	637,185	47	
2003	635,815	34	
2004	607,720	84	+ There were 3,018,624 people received PEP, 603,725 people/year on average
2005	585,251	84	
2006	567,173	82	Within 5 years: +There were 405 people died of rabies, 90 cases/year on average
2007	450,023	131	
2008	380,450	91	
2009	280,453	68	+ There were 1,981,249 people received PEP, 396,250 people/year on average
2010	303,150	78	
2011	342,731	110	Within 5 years: +There were 458 people died of rabies,
2012	400,308	98	

Year	Rabies vaccinated people	Rabies deaths	Notes
2013	371,153	105	92 cases/year on average
2014	394,979	67	+ There were 1,900,409 people received PEP, 380,082 people/year on average
2015	391,238	78	
Total	10,5423,028	3,946	

Table 2: The numbers of people vaccinated against rabies and rabies deaths cases in human throughout the country from 1991 – 2015

- From 1991 to 1995, on average, there were about 400 rabies death cases in human per year (8 times higher than encephalitis and 4 times higher than dengue fever). The number of highest rabies deaths in a province was 131/year and more than 10 provinces/cities reported 45-131 rabies deaths/year.

- In 1996, the Prime Minister issued the Directive No. 92/TTg on strengthening Rabies Prevention and Control. Since there, the activities on rabies prevention and control has received more attention from local authorities at all levels and the network that provides PEP for people exposed to suspected dogs has been expanded to a large scale, to various districts. By early 2007, there were 936 health care units that are able to serve rabies vaccination for human nationwide and there patient records have been managed, monitored and reported regularly to it's provincial PMC (preventive medicine center). As the result, the number of rabies fatalities has been decreased remarkably. By 2003, there were only 34 rabies deaths all over the country and province where observed the highest rabies fatality is only five. Thus, within 12 years from 1996 to 2007, there was an average of 107 rabies deaths each year, decreased by 293 deaths per year compared to the 1991-1995 period. However, the number of rabies deaths was still much higher compared to other communicable diseases in Viet Nam.

- From 2011-2015 that is the period of implementing national program on rabies control and prevention. The number of rabies deaths had decreased significantly with an average of 95 deaths/year and about 380,000 people bitten by dogs have received PEP annually

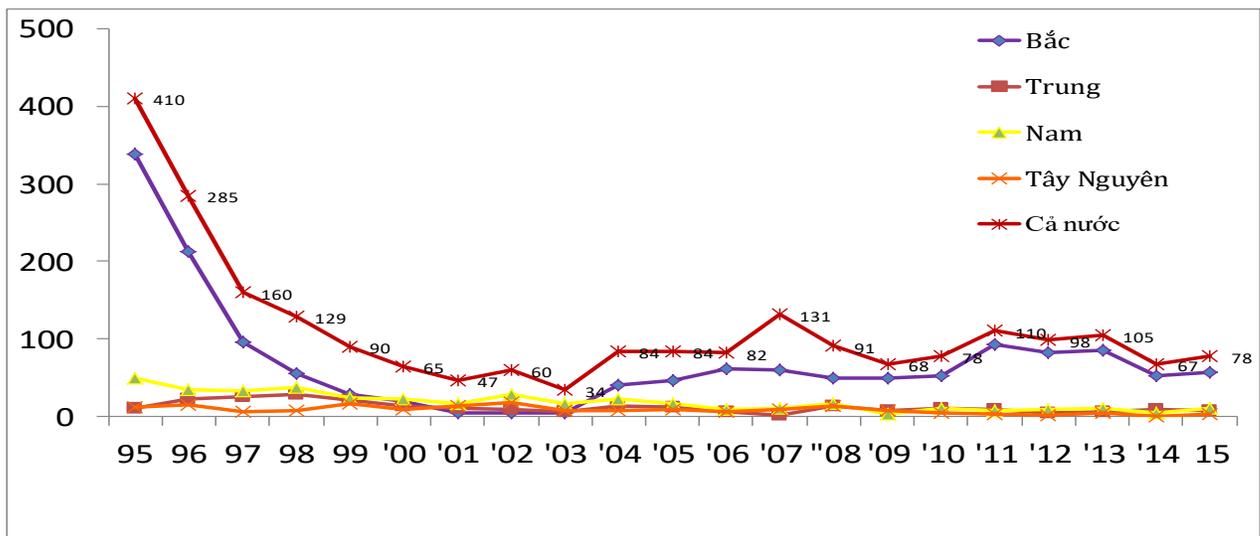


Chart 1: Human rabies deaths by regions in Viet Nam in the period from 1995 to 2015

- In 2015, there were 78 rabies deaths occurring throughout the country. The report on rabies situation in the recent years have indicated that the highest rabies deaths in human have mainly occurred in northern and central northern mountainous provinces (Sơn La, Yên Bái, Lai Châu, Sơn La, Lạng Sơn, Phú Thọ, Nghệ An, Cao Bằng, Hà Giang, Điện Biên, Tuyên Quang, Hoà Bình, Thái Nguyên, Quảng Nam, Vĩnh Phúc and Bình Phước).

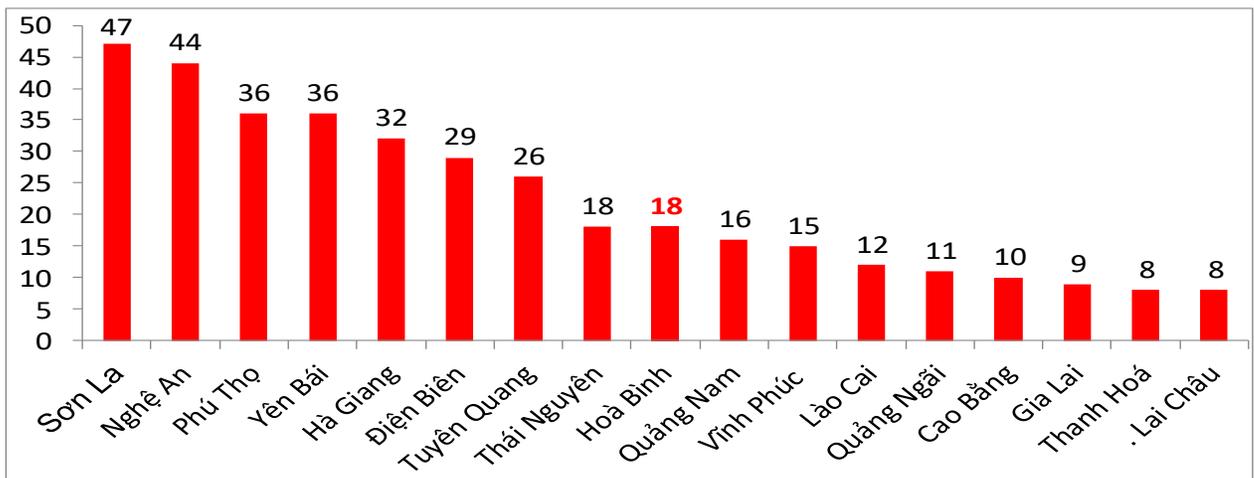


Chart 2: Provinces with highest rabies deaths reported (2011- 2015)

According to rabies surveillance results on humans in the past recent years have indicated that of those who have been vaccinated against rabies 89.2% are bitten by domestic dogs, 8.7% bitten by cats, 1.6% due to contacts with dogs and 0.5% are bitten by other animals such as rats, monkeys...etc

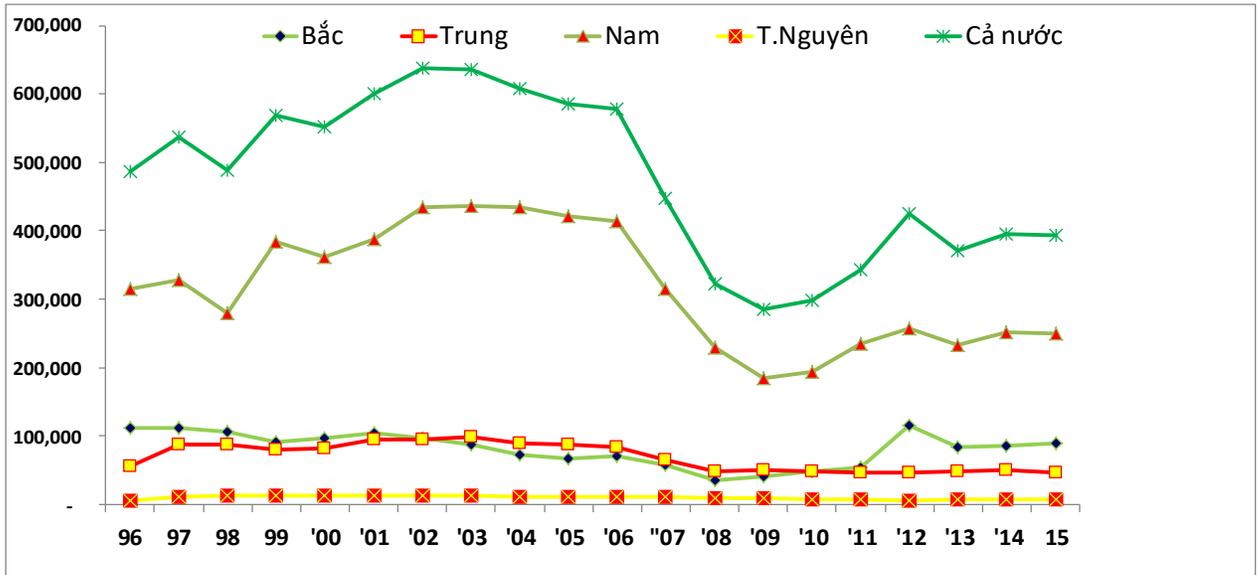


Chart 3: The number of peoples vaccinated against rabies by regions in Viet Nam in the period of 1996-2015

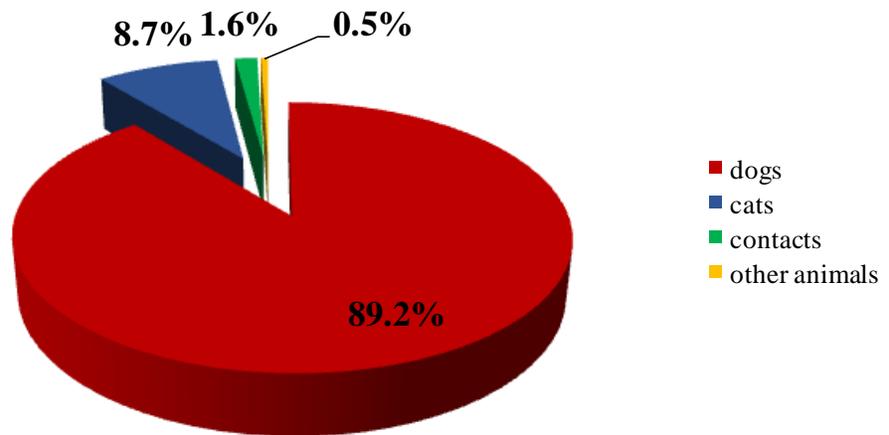


Chart 4: Distribution of animals that bite those people who come for vaccinations

Human rabies surveillance data has revealed that rabies disease occurs throughout the year and often increases in hot season, from May to August. The disease can be seen in any age groups, but mostly in children under 15 year old (accounting for more than 40%) and most of the rabies deaths were due to not being vaccinated against rabies, 98% of these cases were bitten by domestic dogs or having contact with dogs such as taking care of sick dogs or slaughtering dogs, cat accounted for the remaining amount and no case has been reported to be caused by wildlife animals so far.

2.2.2. Rabies situation in animals

According to incomprehensive statistics on rabies surveillances data in animals, from 1991-1995, there were 2.600 rabies outbreaks in animals

(mainly among dogs, cats). In particularly in 1996, there were 587 rabies outbreaks reported, causing the deaths for 16,800 animals, 97% of these were dogs, 3% were cats and other cattle.

Table 3: Rabies in animals from 2008 to 2015

Year	The number of provinces	The number of districts	The number of communes	The number of dogs died and destroyed
2008	5	7	28	110
2009	2	4	8	25
2010	8	14	42	150
2011	5	6	11	58
2012	8	19	34	268
2013	10	20	27	260
2014	23	53	65	125
2015	27	52	63	85
To 11/2016	23	55	60	88

However, according to reports prepared by the number of provincial sub-departments of animal health from 2008 to 2014, there were more than 100 rabies dogs detected in over 30 communes of 20 districts of 10 provinces annually. Poor rabies surveillance activities have resulted in inability to detect rabies outbreaks in animals, in many case, rabies outbreaks in animals can only be detected after rabies cases to be found in human. The number of provinces that have reported rabies outbreaks in animals is much lower than the number of provinces, districts and communes reported rabies outbreaks in humans.

During the past many years, the vaccination rate on dog population has still been low (below 50%). According to reports prepared Departments of animal health, in 2015, there have more than 9 million domestic dogs. However, of these, only 3.89 million dogs were vaccinated (equivalent to 42.9%). Only 17/63 provinces and cities have reported to reach vaccination coverage rate for over 70% of their dog population, 10/63 provinces have reported to reach the vaccination coverage rate between 50-69%. The remaining of 36 provinces has reached the vaccination coverage rate of below 50% of the total domestic dog population, in particularly 10 provinces have only reached the vaccination coverage of below 10% of their dog population.

Table 4. Rabies vaccination situation on dogs

Year	Total dog population	Vaccination rate (%)
2011	8,585,856	37.8
2012	8,437,861	38.2
2013	8,239,877	44.2
2014	8,195,809	47
2015	9,080,802	42.9
2016	7.721.720	38,5

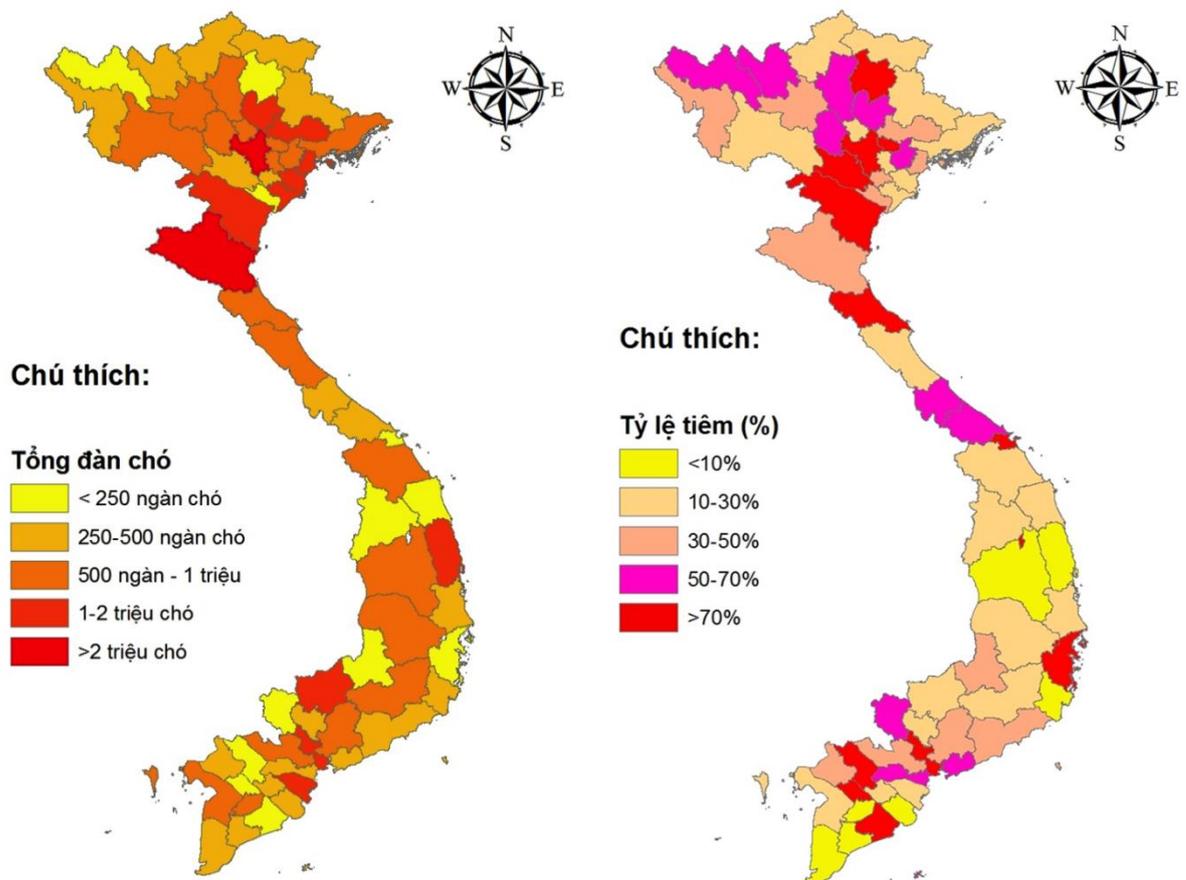


Figure 3: Distribution map of domestic dogs and vaccination coverage rates in 2015

In 2016, Ministry of Agriculture and Rural Development has investigate the size of domestic dog population nationwide and the data showed that there

are about 7,7 millions dogs in 3,9 millions households. However, there is only about 2,9 millions dogs vaccinated against rabies (the data updated up to 6/2016), accounting for 38,5% dog populations. The statistics also indicated that only 22% provinces/cities in nationwide have reached the vaccination coverage rate of 70% of their dog populations and 56% provinces/cities have reached the vaccination coverage rate of less than 50 % of their dog population.

2.3. The achievements of rabies prevention and toward elimination program in the period from 2011 to 2015 in Viet Nam:

2.3.1. Achievements:

The budget approved for “National rabies prevention and elimination program in the period of 2011-2015” for Animal Health sector is about 157 billion vnd (in which the budget granted from government is about 16,3 billions vnd and the remaining of 129,9 billions vnd is of contribution from local budget). Due to financial shortage and lack of co-ordination activities with MoH, as the result, not many activities have been deployed in 2014-2015. On the other hand, budget granted for Ministry of Agriculture and Rural Development until now is only 5,4 billions vnd, not as plan, that was used to build 03 regional laboratories for diagnostics of rabies disease in animals and spend for organizing rabies communication training workshop for local animal health workers; the allocation of local budget is limited and has not contributed much for rabies prevention activities in this period. Although the lack of budget, but rabies prevention and elimination plan has achieved the positive and specific results as following

The national program for rabies control and elimination in Viet Nam has received the attention, drastic direction of Government, Ministry of Agriculture and Rural Development and local authorities at all levels, as the result, the primary dog population and the list of household raising dog have been investigated nationwide which served as the basic for implementing thoroughly vaccination campaign for domestic dog population.

Deploying various rabies communication campaigns on television to raise community responsibility to join a hand to fight rabies disease

Various communications about rabies have been conducted to raise awareness of rabies prevention in animals among community, provide the guidance to handle the wound causing by suspected rabid animals, report the number of human cases attached by suspected animals that has been implemented in many provinces at high risk. On the other hand, the activities in response to “World Rabies Day” that have been conducted continuously 10 years since the World event launched. As the consequence, the awareness among community, human health sector, veterinary sector, authorities at all

levels about rabies prevention responsibility has been improved significantly.

The human and animals health sectors have established a surveillance system for rabies on humans and animals from central to provincial/city and district levels that have duty to collect and analyze rabies dogs, suspected dogs, human rabies cases data. In order to let the system works smoothly, human and animals health workers have been trained and practiced on surveillance, prevention and control of rabies, 03 laboratories for rabies testing have been built up in three center/institute (National Institute of Hygiene and Epidemiology, National Centre for Veterinary Diagnosis region V and VI), and have enhanced rabies diagnostic capacity for Ho Chi Minh City Sub-department of Animal Health and 02 rabies diagnostic laboratories for human at National Institute of Hygiene and Epidemiology and HCM Pasteur Institute.

The rabies vaccination campaigns against rabies for dog population has been conducted annually in which the main campaign have been deployed during Mar-April and an additional campaign for dog not vaccinated against rabies conducted in September-October. The vaccination campaign has been conducted in district/town clusters or completed family by family in the commune. As the result, the vaccination coverage of dog population in nationwide has increased significantly, increased towns/districts/provinces with vaccination coverage achieved above 70% of dog population and decreased towns/districts/provinces with vaccination coverage achieved less than 50% of dog population.

The Ministry of Agriculture and Rural Development in cooperation with FAO organization has conducted a trial on dog management at Thai Nguyen province in 2016, on the basic of that, the trial will be assessed, evaluated and expanded in large scale.

The cooperation between animal health sector and human health sector on rabies investigation, surveillance, data and information sharing from central to local levels has been regulated and consolidated in joint circular 16/2013/TTLT-BYT-BNNPTNT.

More than 1000 training workshops for local animal and human health workers on rabies investigation and outbreak handling have been conducted by Ministry of Health and Ministry of Agriculture and Rural Development.

The network that provide rabies vaccination service for humans has been expanded to district level in Viet Nam and basically met the demands and provided vaccine access for people who live in remote areas as well as for those being exposed to suspected animals. Up to now, there are 656 vaccination sites in 713 districts; some districts do not organize vaccination service as they are very close to the vaccination site of the provincial

preventive medicine center. Rabies vaccine for human use has been replaced by much safer and highly more effective cellular vaccine since September 2007. Basically, the supply of high-quality rabies vaccines and biological products for post-exposure prophylaxis against rabies for humans are sufficient for epidemic prevention. Cellular vaccine against rabies is in service vaccine therefore patients have to pay for it. From 2011, some provinces have paid rabies fee for poor people, as the result, the number of deaths due to rabies has decreased gradually, especially compared to 1991-1995 period, in 2011 with 110 deaths, in 2014 with 67 deaths, in 2015 with 78 deaths and until 11/2016, only 63 deaths reported. Many towns/districts/provinces have no longer observed rabies case in human in several years.

With an scientific approaches, similar to ONE HEALTH model, to fight rabies disease, rabies prevention activities and results achieved in Vietnam have been highly appreciated by many international organizations, as the result, ASEAN has considered Viet Nam to be a pioneer in “ASEAN strategy in rabies elimination in 2020”. In addition, Rabies prevention activities have received positive supports from FAO, WHO, OIE, USAID, CDC-USA organizations.

2.3.2 Lessons learned

- The pay attention from Party, State, Government and authorities at all levels is the critical factors to ensure the success of livestock diseases prevention and control with rabies disease in particularly. The community engagement and responsibility of dog owners in managing their dog (register, cage, chain...etc), vaccinating their dog against rabies are the key approaches to control rabies disease, preventing the transmission of rabies to human, encouraging people who exposed to suspected dog to go to health care unit for consulting and receiving post exposure prophylaxis

- The engagement of local committees and authorities plays an important role in is mobilizing the power of political systems for rabies prevention and control activities. Animal health workers are the core resource, advising appropriate technical methods, other human resources, according to function and responsibility, play the roles in cooperation with animal health sector to deploy and apply various methods to fight rabies disease.

- It is necessary to build legal documents, scientific guidance that serve as the basic to implement rabies prevention and control activities

- Avoid the recurrence or spread of rabies disease, it is necessary to manage dog population, investigate the actual number of dog/cat individuals in the managed areas and vaccinate all dog/cat individuals thoroughly; the local authorities need to make the list of household raising dog/cat and the number of dog/cat in each household. Reporting and punishing dog owners

who let their roam freely according to related legal document issued; dog owners are required to commit not to let their dog roam freely, dog must be muzzled or chained and managed by dog owners when playing in public areas

- Implement vaccination campaign thoroughly, especially in the high risk areas, and ensure that each dog individual has been vaccinated at least 01 time/year, and achieve at least 70% of dog population to be vaccinated against rabies, vaccinate all dog/cat in the area where rabies epidemic has been confirmed thoroughly.

- Improve surveillance capacity and ability to detect rabies epidemic as soon as possible, propaganda the danger of rabies disease to community and communicate community about methods to prevent and control rabies.

2.3.3. Difficulties and shortcomings

Though having achieved many great achievements as mentioned above, Viet Nam is currently still facing many difficulties and challenges in achieving the target of rabies control and elimination by 2020:

Vietnam has a big dog population of about 7,7 million individuals as recent statistics up to 6/2016 and almost dog have raised and kept in free roaming manner in rural areas that results in more people bitten and cause difficulties to vaccinate all dog individuals. This is also the reason for more rabies deaths occurring in mountainous, rural and remote areas.

Though various legal documents have been promulgated, the local authorities in many localities have not paid sufficient attention to instructing strict implementation of these documents. There is a lack of monitoring and inspection of the implementation of legal normative documents (such as Decree No 05/NĐ-CP, Circular No 48/TT-BNN&PTNT on rabies prevention and control).

The inter-sectoral cooperation between animal and human health sectors mentioned in the joint circular 16/2013/TTLT-BYT-BNNPTNT in some localities have not been effective, in some localities there is no animal health workers, leading to the poor inter-sectoral cooperation and the use of other resource mobilized for rabies prevention and control.

The investment of resources for rabies prevention and control is limited as there are other investments prioritized than rabies. Though the Ministry of Health and the Ministry of Agriculture and Rural Development have worked out their separate rabies prevention and control programs, the allocation from central and local budget is still limited too. Due to lack of investment in human resources, funding, infrastructure, equipment that have led to the less effectiveness of many rabies prevention and control activities.

The management of dog population is not stringent; the number of household raising dog and the number of dog to be statistic in rural area is

inaccurate, many communes have not made the list of household raising dog, dog roaming freely without muzzling their mouth or attacking human in the public areas is still very common.

The implementation of vaccination for dog population has not been conducted thorough and the plan drawn for annual rabies vaccination campaign for dog is based on the number of dog vaccinated in the previous year rather than the actual number of dog currently raise in each household. The rate of dog vaccinated against rabies is low (42,9% in 2015), many localities only 10% of dog population was vaccinated against rabies, whereas, in order to control rabies epidemic, the vaccination coverage for dog population must be above 70% dog population. Many animal health workers, who directly vaccinate for dog, have not been received post exposure prophylaxis.

The communication to increase awareness and the danger of rabies disease to communities have not been conducted regularly, leading to subjective attitude to rabies disease among people in communities, not understanding the state regulations on raising dog, violation and the level of penalties for violation regarding to rabies prevention in animals. The basic knowledge on the danger of rabies and measures to prevent in both authorities and people in many communities is also modest, leading to the lack of responsibility in managing dog population in their localities, and lack of cooperation in vaccinating domestic dog against rabies. In many cases who exposed to suspected rabid dog have not been to health care units for consultation and receiving PEP, but relied on traditional medicine to treat rabies and died of rabies later on.

Rabies outbreaks have not been handled properly, vaccination campaign is organized in emergency for dog in rabies outbreak only; dog have not been caged, chained properly during rabies epidemic outbreaks occurring, handling/killing roaming dogs during rabies epidemic occurring have not been deployed thoroughly.

The system for management, reporting and surveillance of rabies on dogs throughout the country is still limited. The regular taking of samples from animals for active surveillance of rabies has not been implemented, only a small amount of samples collected from rabies outbreaks on animals have been taken instead. In addition, the data on the number of people vaccinated against rabies has not correctly and not reflected the exactly number of people bitten by suspected dogs because there are people who are bitten by dogs but fail to vaccinate against rabies.

- Laboratory diagnostic capacity is modest: currently, only 5 laboratories are recognised to meet standards for rabies laboratory diagnosis. The number of clinical samples collected for rabies laboratory

diagnostics is small. In addition, rabies on humans is mostly diagnosed based on clinical symptoms and exposure history and only 5-10% of the death patients are confirmed by laboratory testing annually.

- Rabies vaccines for humans and animals used have to be imported from overseas and not yet to be manufactured domestically, as the result, the vaccine price is still high and to be dependent on the supply of vaccines from overseas, leading to the lack of vaccines sometimes.

PART III: THE NECESSITY OF AND FOUNDATION FOR A RABIES CONTROL AND ELIMINATION PROGRAM IN VIET NAM

3.1. The necessity of the program:

3.1.1 Rabies causes great human losses:

From 2005 to 11/2016, there were 1.055 people died of rabies, around 100 people per year on average, accounting for the high proportion of deaths causing by 24 communicable diseases in Vietnam. Rabies mortality rate in humans is 100% (without being treated with PPI). During the 2011-2015 periods, 46 provinces have reported rabies-causing deaths in human. Rabies epidemic tends to spread if there have not synchronous and timely measures.

3.1.2. Rabies causes economic burden:

- According to the evaluation conducted by ONE HEALTH partner-Ministry of Agriculture and Rural development on the burden of rabies disease (4 millions people bitten by suspected dog/cat and had to receive PEP against rabies from 2005 to 2014) indicated that economic losses causing by rabies disease was up to 14.608 billions (equivalent to 664 millions USD), that amount attributed to the following fees such as PEP, hospital service, spiritual losses, the number of working days lost (not including the emergency expense or surgery fee for large wound)

- Vietnam has a big dog population with an estimate of about 7.7 millions individuals and dog has been raised in roaming manner freely. WHO considers Vietnam is the country with rabies epidemic occurring annually and at the high risks of transmission of rabies from animals to human, that has brought about scare and negative effects for the tourist from overseas. As the result, it brought about significant losses for Vietnam's tourism service.

- The fee to give immunization for a dog is only 22.000 vnd/dog (for the whole dog population of Vietnam costs about 1.06 million USD), whereas, if to be bitten by suspected dog/cat, a patient has to pay for PEP at 3.413.000 vnd (about 153USD), it is higher 150 times compared to giving vaccination for a dog. So, giving vaccination for dog population is the best approach with low cost, long-term effect and stability, in combination with managing dog

population to minimize the number of people bitten by suspected dog is the ideal solution prevent the transmission of rabies from animal to human.

3.1.3 Rabies affects social security and other aspects of life

Annually, there are thousand people died of rabies (children accounts for a significant amount of this) with the number of typical symptoms such as fear of water (hydrophobia) light and wind, convulsions, paralysis while patient is conscious and feel the death coming, patients suffers severe pain/hurt that brought about obsession to their family

Annually, several thousand people have bitten by suspected dogs/cats (most of them are children) that hare brought about long-term psychological effects and physical injury, especially for people with wounds at face, neck and head.

The costs for PEP treatment and other additional expenses for people bitten by suspected dog/cats are burdens for their family and social, especially for poor people who will lost opportunities for other activities such as entertainment, study (children) and affect their ability in working, studying, living (adult).

The habit to let dog travel in roaming manner in the street, dog don't wear muzzle that bring about scare for people travelling in the streets; dog defecating in the streets, public areas that have polluted public environment.

3.2. FOUNDATION FOR THE BUILDING OF THE PROGRAM

3.2.1. Legal foundation:

- Law on protecting people's health promulgated on November 17, 1993.
 - + Forbidden to let dog travel freely in the cities, towns; dogs have to vaccinate against rabies according to regulations from animal health department (clause 2, Article 11)
- Law on prevention and control of infectious diseases promulgated on 21 November 2007.
 - + Rabies categorized into group B including dangerous infectious diseases, to be able to transmit to human and cause death (point b, clause 1, article 3)
- Animal Health Law No 79/2015/QH13 promulgated on 19/6/2015.
 - + In each period, the State promulgated the specific policies to invest and support budget for surveillance, control and elimination of dangerous infectious diseases transmitted from animals to human (point c, clause 1, article 5);

- + Clause 1, article 18 regulated “control and elimination of some dangerous infectious diseases in animals, for diseases that are able to transmit to human must to build a specific plan of action for each period”
- + Point a, clause 4, article 18 regulated the Minister of Agriculture and Rural development has responsibility to develop program, plan of action to control and eliminate some dangerous infectious diseases in animals and diseases that are able to transmit between human and animals, petitioned to Primer Minister for approval.
- + Clause 3, article 8 regulated the Minster of public Health has responsibility to coordinate with Ministry of Agriculture and Rural development in prevention and control infectious diseases that are able to transmit between human and animals.
- + Clause 6, article 8 regulated the Minister of Finance has responsibility to direct localities to allocate annual budget and ensure enough budget used for infectious diseases prevention and control in animals.
- + Clause 6, article 18 regulated the Minister of Finance has responsibility to ensure enough budget to implement the programs, plans regulated in point a, clause 4, article 18;
- + Clause 7, article 18 regulated the chairman of people’s committee at all levels have responsibility to implement programs, plans to control and eliminate some dangerous infectious diseases in animals and diseases that are able to transmit between animals and human.

3.2.2. Scientific and factual foundations:

Rabies is a dangerous infectious disease in animals and must to be declared the epidemic if occurred. Rabies is able to transmit from animals to human and cause fatality, but the rabies disease is able to be preventive and eliminated for the following reasons

- WHO, OIE, FAO confirmed that rabies is able to control and prevent by vaccination (vaccinating dog against rabies will result in stopping the transmission of rabies from animals to human, vaccinating or receiving PEP against rabies after post exposure to suspected dog may prevent human from fatality)
- Since found, rabies remains stable and we successfully produce safe and effective rabies vaccines with effectiveness and long-term protection for both human and animals. At the moment, rabies vaccine has been imported from overseas, but Vietnam should diversify the source of supply of vaccine by developing domestic cell-culture rabies vaccine
- Rabies vaccine for dog and cat is cell-culture vaccine, so it is safe, effective and long-term protection with reasonable price (22.000vnd/dose/dog equivalent to 1.06 USD/dose/dog). Especially, this vaccine is easy to store,

transport and give 12 months protection, so that to take the high efficiency of vaccine, we must conduct vaccination campaign regularly with high rate of animals vaccinated.

- Rabies vaccine for human derived from cell-culture is safe and high effective; the cost to administer rabies vaccine by intradermal regimen is 350.000vnd, cheaper 3 times than intramuscular regimen.
- Domestic dog without vaccination against rabies is the main source of rabies in Vietnam, that resulted in not enough herd immunity among dog population, thus helping rabies viruses to circulate, transmitting viruses to humans and other animals. According to the recommendation from WHO and OIE, rabies can be eliminated in domestic dog population if the rate of vaccination for dog population reaches over 70% in 03 consecutive years. Rabies in domestic dogs will be eliminated, leading to elimination of rabies in other animals and in humans
- According to the World Organization for Animal Health (OIE), rabies can be controlled and eliminated when rabies prevention and control on domestic animals and humans meet the following demands:

Rabies control:

- Rabies is reported.
- Rabies surveillance system operates efficiently.
- Rabies prevention and control measures are regularly implemented.
- No cases of rabies in humans and domestic animals are detected in 70% of the localities for two consecutive years.

Rabies elimination:

- Rabies is reported.
 - Rabies surveillance system operates efficiently.
 - Rabies prevention and control measures are regularly implemented.
 - No cases of rabies in humans and domestic animals are detected in 100% of the localities for two consecutive years.
 - No predators with rabies penetrated in the quarantine areas within six months
- The route of transmission of rabies to human and other animals is from saliva of rabid dog through scratch, bite...so caging, chaining, minimizing to let dog roam and vaccinating dog will reduce the risk to contract rabies disease
 - People at risk of contracting rabies disease include local animal health workers, slaughterers, dog seller...If they are vaccinated before post exposure will reduce the risk to contract rabies disease (For example: bitten by rabid dog, expose to rabies virus during laboratory testing)

- People who are not vaccinated against rabies, if bitten by rabid dog, it is necessary to send patient immediately to health care units, they will be consulted, received PEP and rabies anti-sera if necessary
- Rabies investigation, surveillance and epidemic handling systems of Ministry of Public Health (MoH) and Animal health sector have been established from central to local levels, there are tight cooperation, exchange and share of rabies information and data regularly between two sectors according to Circular No 16/2013/TTLT-BYT-BNNPTNT, as the result, all rabies epidemics have been handled and stopped successfully.

3.2.3 Assistance from international organisations:

ASEAN and other international organizations (WHO, OIE, FAO) have targeted to eliminate rabies in Asian countries by 2020. International organizations have highly appreciated Viet Nam for its rabies prevention and control results during the recent years; has requested Viet Nam to be the champion country in rabies prevention and control in the region; committed to support Viet Nam in the implementation of the Program for Control and Elimination of Rabies.

From 2013 to 2015, OIE has supported Vietnam about 700 thousands rabies vaccine doses used for domestic dog in provinces at high risk

From 2012 to early 2016, FAO has supported Ministry of Agriculture and Rural Development in implementation of a trial project on rabies prevention and control in Phú Thọ and Thái Nguyên provinces; conducted communication activities about rabies and tested a trail model to manage dog.

The Center for Disease Control –USA (USCDA) has been supporting a rabies prevention trail at Phu Tho province and toward to supporting all activities of national rabies control and elimination program on Vietnam next time.

Besides, there is the number of internationals organizations such as World Animal Protection association (WAP), Animal Asian Foundation (AAF), Wildlife Conservation Society (WCS), Global Association for Rabies Control (GARC) have been supporting Vietnam in prevention and control of rabies disease.

3.2.4 Support and instruction of authorities of different levels

After the Instructive No 92/TTg dated 07/2/1996 of the Prime Minister on strengthening rabies prevention and control, the Minister of Health issued Decision No 902 BYT/QĐ on the establishment of a National Steering Committee on rabies prevention and control on humans headed by a Deputy Minister. On 24/3/2005, Minister of Health issued Decision No

780/QĐ-BYT on the establishment of the Executive Board of the project to control and eliminate rabies. The National Institute for Hygiene and Epidemiology acts as the body directly in charge of instructing, monitoring and managing the activities of the project.

Ministry of Agriculture and Rural Development established a Steering Committee on Control and Elimination of Rabies. On 07/11/2011, Minister of Agriculture and Rural Development issued Decision No 2731/QĐ-BNN-TY approving “National Program for Control and Elimination of Rabies in 2011 – 2015 period.” The Minister of Agriculture and Rural Development directed to build 03 laboratories for rabies diagnostics for Animal Health sector and implemented a number of rabies prevention communications.

Almost provinces and cities have established provincial steering committees on diseases control and prevention in animals or control and elimination of rabies, headed by a Deputy Chairman of the provincial People’s Committee. In several years, rabies prevention and control activities have been implemented regularly and continuously, as the result, the rabies prevention and control program has achieved a significant positive results, reducing 75% of death in human compared to the 1991-1995 period.

In recent years, MoH and MARD in cooperation with some international organizations have coordinated to host “The World Rabies Day” in Vietnam in response to the event all around the World.

PART VI: OBJECTIVES AND SOLUTIONS

4.1. OBJECTIVES

4.1.1. General objective:

- Basically controlling rabies on domestic dogs by 2021, progressing towards eliminating rabies in domestic animals.

4.1.2. Specific objectives

- 1) Over 95% of communes, wards, towns, make the list of household raising dog
- 2) Over 85% dog population in communes, wards, towns have been vaccinated against rabies
- 3) Over 70% of provinces nationwide observed no rabies case in human in two consecutive years
- 4) Reducing by 60% of the number of provinces at high risk of rabies

5) Reducing by 60% of deaths due to rabies by 2021 compared to the number of deaths on average in 2011-2015 periods.

4.2. GROUPING OF PROVINCES ACCORDING TO RABIES RISKS

For rabies disease, human is the last host in the lifecycle of rabies virus, so the indicators to evaluate the success rabies prevention and control program is the reduction in the number of human deaths due to rabies

To minimize the number of human deaths due to rabies, here are some key solutions: (1) managing dog populations (to minimize dog bites human and facilitate vaccination activities for dog population); (2) vaccinating for dog population (to minimize the risk of transmission of rabies virus from dog to human); (3) providing PEP for people who post-exposed to suspected rabid animals (to minimize deaths due to rabies). Moreover, there are some more necessary solutions (mechanism, policies, rabies communication, rabies surveillance, technical training...) need to be done to support the three main solutions above.

Grouping provinces based on the risk of rabies will assist and facilitate policy-makers to assess and evaluate the rabies prevention and control activities much more realistically, as the result, each province will be re-assessed annually for risk area conversion

4.2.1 Provinces at high risk

14 provinces with ≥ 10 death cases in human/year include Phu Tho, Vinh Phuc, Hoa Binh, Dien Bien, Yen Bai, Lao Cai, Son La, Thai Nguyen, Tuyen Quang, Ha Giang, Cao Bang, Nghe An, Quang Nam and Quang Ngai.

Provinces at high risk, based on real rabies situation in the locality, continue to identify the areas at high risk, prioritise human and financial resources implementing key measures to rapidly reduce the level of rabies risk for these areas. The total number of rabies death cases in 05 years of provinces at high risk were 350 cases or 05 cases/year/province on average.

4.2.2. Provinces at medium rabies risk

14 provinces at medium rabies risk with 2-9 death cases in human/year include Ha Noi, Lai Chau, Bac Giang, Bac Kan, Thanh Hoa, Ha Tinh, Gai Lai, Lam Dong, Ninh Thuan, Ba Ria-Vung Tau, Binh Phuoc, Kien Giang, Tra Vinh and Dong Thap

Provinces at medium risk, based on real rabies situation in the locality, continue to identify the areas at risk, prioritise human and financial resources implementing key measures to rapidly reduce the level of rabies risk for these areas or control rabies disease. The total number of rabies death cases in 05 years of provinces at high risk were 78 cases or 02 cases/year/province on average.

4.2.3. Provinces at low rabies risk

35 province at low rabies risk with less than 03 rabies case in human/year include Quang Ninh, Lang Son, Nam Dinh, Ha Nam, Ninh Binh, Hai Phong, Thai Binh, Bac Ninh, Hai Duong, Hung yen, Quang Ninh, Quang Tri, Thua Thien Hue, Da Nang, Binh Dinh, Phu yen, Khanh Hoa, Dac Nong, Kon Tum, Dac Lak, Binh Thuan, TP Ho Chi Minh, Binh Duong, Dong Nai, An Giang, Tien Giang, Ben Tre, Tay Ninh, Long An, Soc Trang, Can Tho, Vinh Long, Bac Lieu, Hau Giang and Ca Mau.

Provinces at low rabies risk, based on real rabies situation in the locality, continue to identify the areas at risk, prioritise human and financial resources implementing key measures to stably control rabies disease and toward to eliminating rabies in the locality. The total number of rabies death cases in 05 years of provinces at high risk were 27 cases or 01 cases/year/province on average

4.3. MAJOR SOLUTIONS

On the basis of grouping rabies risk areas, each locality must deploy the following major solutions: Managing dog population, vaccinating dog population and giving PEP for people bitten by suspected rabid animals and supported solutions (the remaining solutions are deployed according to role/duties of each localities). These solutions enable to prioritise resources and facilitate the deployment of activities to achieve the goals/targets planned. Here are specific solutions.

4.3.1. Domestic dog management:

- The people's committees at communal level is responsible for direct management of dog raising in the localities to support and assess the results of rabies vaccination work in communes (Opening domestic dog management books, updated information about the number of domestic dogs from commune level upwards before reach round of vaccinations and provide it to animal health agencies);

- The heads of the hamlets are responsible for direct management of dog raising in the localities to support and assess the results of rabies

vaccination work in the hamlets (the heads of the hamlets are responsible for updating the number of domestic dogs in the hamlet before each round of vaccinations annually, opening a domestic dog management book, and report the information to the people's committee at commune level);

- Dog owners in urban areas, densely populated areas are responsible for registering their dogs to local authorities through declaring their raising of dogs to the heads of their hamlets.

- Dog owners are committed to cage (or chain) dogs within their households' precincts. If dogs are set to roam freely in public places, dog owners will be punished in accordance with regulations in Decree No 167/2013/NĐ-CP of the Government.

- Implementing, on a trial basis, collaring with tags (collars with plastic or metal tags) for those dogs already vaccinated against rabies. It is encouraged to apply, on a trial basis, in cities and towns.

4.3.2. Rabies vaccinations for dogs:

- The people's committee of provinces and districts launch the peak month of vaccinations against rabies for dogs and cats in March and April every year; giving additional vaccinations for those dogs and cats that are not vaccinated in the previous round of vaccination against rabies or those newborn dogs and cats to ensure that each dog/cat is vaccinated once a year and ensuring that the vaccination coverage reaches the target planned.

- The people's committees of communes organise concentrated vaccinations in each hamlet, village or residential area, allocating the commune's animal health workers to carry out the vaccination with the support of the heads of the hamlets. For those communes that do not have animal health workers, the vaccination work will be the responsibilities of the district's animal health workers.

- Animal health workers vaccinate the dogs against rabies and issue Vaccination Certificate in accordance with regulations.

- Requesting the people's committees of all levels to consider providing rabies vaccines for dogs in communes during 2017 - 2021 period from local budget to control rabies; after 2021, vaccination for dogs will be socialised (dog owners will pay vaccination fee).

- Dog owners have to vaccinate their dogs against rabies. If they don't, they will be punished according to Decree No 119/2013/NĐ-CP and will be forced to have their dogs vaccinated.

4.3.3 Giving post-exposure prophylaxis for people bitten by suspected rabid animal

- Increase the rate and efficacy of post-exposure prophylaxis treatment.
- Develop national plan for supply, use of rabies vaccine for people bitten by suspected rabid animals, people at high risk.
- Consolidate, expand and increase the number of health care units providing post-exposure prophylaxis service for rabies (vaccine and antisera), ensure accessible opportunity with low cost for poor people at the high risk areas. In principle, each district must have at least 01 health care unit equipped enough facilities and health workers have been trained properly on immunization according to regulations for establishment of immunization health care units.
- Ensure the sufficient supply of necessary equipment, rabies vaccine and antiserum with high quality and less side effect provided for all health care units where provide rabies PEP
- Encourage intradermal administration of rabies vaccine rather than intramuscular route (the efficacy of both administration routes is the same, but intradermal administration of rabies vaccine is much cheaper)
- Encourage localities to provide rabies vaccine free for poor people living in areas at high risk, ethnic minorities, people living in remote areas or in areas with low income, provide pre-exposure prophylaxis free for people at high risk such as animal health workers who collect rabies samples, directly do laboratory testing of rabies samples or directly give rabies immunization for dog.

4.3.4 Complete legal documents and policies of State

- Develop a Decree replacing Decree No.199/2013/ND-CP on sanctions against administrative violations in the field of animal health, thereby recommending an increase in penalties for violation in wild animals disease control and prevention
- Propose the Government to consider and supplement more rabies vaccine for animals in Program 30a to support poor districts in the national target program to reduce poverty for the period of 2017-2021.
- Set up a rabies vaccine fund managed by Ministry of Agriculture and Rural development (MARD) for urgently encircling rabies epidemic outbreaks in dog population if happened (at least 500.000 doses of vaccine)
- Develop policies to support immunization against rabies (include pre-exposure and post-exposure prophylaxis) for animal health workers, health workers and people who evolve in rabies prevention activities,
- Revise and supplement health insurance policy for people bitten by suspected rabid animals, and civil liability insurance for dog owners

- Supplement policies to support rabies vaccine and antiserum for poor people living in high risk areas such as ethnic minorities, people living in remote areas or in areas with economic and geographical difficulties.
- Strengthen the inspection of the implementation of legal documents in the field of rabies prevention and dealing with violations according to regulations

4.3.5 Communications

4.3.5.1. The content of communication message

- Propaganda and disseminate the legal documents and policies of the State in the field of rabies prevention; regulations on dog breeding, responsibilities of dog owners and management of dogs.
- Conduct intersectoral communication on dog vaccination campaign during the peak vaccination month, dog owners must have to vaccinate their dog against rabies, publicly dog breeders who do not comply with vaccination campaign for their dogs broadcasted on radio station of the commune.
- Propaganda the restriction of raising dogs, each family is encouraged to raise only one dog to reduce the total number of dogs in Vietnam, the dog owners must register their dogs with local authorities and comply with regulations on managing, chaining and caging their dogs, putting dog in public must wear muzzle for the dog.
- Raising public awareness about the dangers of rabies disease and measures to prevent rabies in human; providing the guidance to handle the wounds after bitten by suspected rabid animals and go to health care units to receive PEP immediately.
- Conduct rabies communication and training at schools
- Launch and organize “the World Rabies Day” on 28th september annually in Vietnam
- Strengthen community mobilization together to involve in surveillance and prevention of rabies disease in human and animals
- Propaganda to construct a safe area of rabies

4.3.5.2. Form of communication

a) Central level:

- Ministry of Agriculture and Rural Development, Ministry of public Health in collaboration with Vietnam Television, Radio Voice of Vietnam and press agencies to implement communication program on rabies

- Ministry of Agriculture and Rural Development, Ministry of public Health in collaboration with Ministry of Education and Training unified the form of rabies communication and training at schools

b) Local level:

- Ministry of Agriculture and Rural Development, Ministry of public Health provide communication materials for localities to broadcast in local television and radio stations; provide leaflets, rabies prevention books to localities for printing and distribution.

- Localities organize local communication activities (broadcast on local television and radio stations, printing and distributing leaflets, rabies prevention books and school communication about rabies). To take initiative in building communication messages suitable to the culture and characteristics of population in the localities and broadcast on the loudspeaker systems of commune or wards; direct communication in the community and communication through social network.

- Strengthen the cooperation with relevant and international organizations in rabies communication activities

4.3.6. Enhance capacity of surveillance system

- Clinical surveillance is mainly work with the support and participation of the community and village leaders, commune veterinarians, village health workers

- Perform initiative surveillance of rabies in dog population, wildlife in order to evaluate the prevalence of rabies virus

- Provide technical trainings or workshops for veterinarians, health workers in order to improve the skills of epidemiological investigation and collection of epidemiological information on rabies in human and animals

- Take samples for dogs showing signs of rabies or patients with clinical diagnosis suspected of rabies.

- Regularly monitor, survey and evaluate the implementation of program in order to adjust the plan in a timely manner, establish indicators to evaluate the effectiveness of the intervention program.

- Create a map of the distribution of dogs, epidemiological map of rabies disease in human and animals in order to identify areas at high risk for rabies with the aim to prioritize resources for rabies prevention.

- Create framework for monitoring and evaluating the rate of vaccination against rabies in human in order to ensure the targets met.

4.3.7 Rabies outbreak handling and investigation

- Investigate and handle rabies outbreaks in human and animals according to guideline in One Health approach, there must have cooperation between animal and human health sectors and ensure compliance with the provisions of laws

- Commune People's committee set up a team to catch dogs with signs of rabies and dogs roaming freely in the epidemic areas of rabies

- Base don the actual situation of rabies and the proposal of localities, the Ministry of Agriculture and Rural Development consider and provide support for rabies vaccine extracted from National Rabies Vaccine Fund; localities organize rabies vaccination campaign urgently for dogs and cats

4.3.8. Enhance the laboratory diagnostic capacity

Enhance the laboratory diagnostic capacity of rabies disease for 04 key animal health laboratories (Veterinary Diagnostic Center, Regional Animal Health Agency regions V, VI and Veterinary Sub-Department of Ho Chi Minh City) and 02 key human health laboratories (National Institute of Hygiene and Epidemiology, Ho Chi Minh Pasteur Institute).

4.3.9. Dog transport controlling

- Closely controlling and strictly addressing illegal transport of dogs across the borders in accordance with the provision of animal law on prevention and control of rabies in animals.

- Strengthening the domestic dog transport quarantine, focusing on controlling the transport of dogs in large quantity.

4.3.10. Enhance profesional capacity in rabies prevention and control

- Standardize the training program and training materials on rabies prevention for animal and human health sectors

- Training consultant skills, ability in making decision on administration of rabies vaccine for human health workers at health care units where provide rabies PEP, properly following regulations on preservation and transpotation of vaccine, and post vaccination monitoring, ensuring safety in immunization work

- Provide tecnical training to increase capacity to collect, preserve and transport specimens collected from suspected rabid animals, and ensure safety for human health workers who directly collect clinical samples and quality of samples for laboratory diagnostics

- Training skills on surveillance, investigation and diagnostics of rabies in human and animals, epidemiological analysis, identification of regions and group of people at risk of rabies transmission, giving vaccination against

rabies for dogs and people at high risk, primarily handling the wounds causing by suspected rabid animals, giving PEP for people bitten by suspected rabid animals and handling the rabies outbreaks properly

- Training skills on managing dog population and catching free-roaming dogs

- Training skills on community communication about rabies prevention and control

- Providing training on rabies for animal health workers at Sub-Department of Veterinary, Animal Husbandry and Animal Health, and for human health workers at Preventive Medicine Centers to be local trainers afterward.

4.3.11 Building rabies-safe areas

- Encouraging cities, towns, districts where are tourist sites to build rabies free areas to protect residents and tourists from rabies, and attract more tourists to travel and visit.

- The establishment of rabies epidemic-free zones shall comply with the Ministry of Agriculture and Rural development's Circular No. 14/2016/TTBNNPTNT

- Implementing vaccinations and collaring (collar with plastic or metal tags) for dog vaccinated against rabies in rabies epidemic-free zones and other areas where conditions permit.

- Assessing and providing accreditation for localities (commune, ward, district, province and city) where no longer observe rabies epidemics

4.3.12 Rabies studies

Carrying out necessary studies to collect scientific evidences to assist policy-makers to build strategic plan for effective prevention and control of rabies that include:

- Research and produce domestic cell-culture rabies vaccine for human and animals use in order to reduce vaccine cost and take initiative in domestic supply

- Study the cost-effectiveness of national rabies prevention and control program

- Assess the factual status in the number of people bitten by suspected rabid animals and the number of people received PEP

- Study and propose the suitable caring and treatment regimens for rabies victims in order to relieve physical suffer from rabies infection

- Study and propose a community-based rabies prevention models

- Study to determine the supporting and obstructing factors interfering the implementation of responsibilities of dog owners
- Deploy and evaluate the effectiveness of vaccination campaigns for dogs
- Study the ecology of domestic dogs in detail, knowledge, attitudes and practices of management of dog owners.
- Propose appropriate payment policies in order to mobilize the financial contributions for rabies prevention activities including the fee of dog registering, vaccination for dogs, civil liability insurance of dog owners...
- Carry out the dog demographic survey in order to reveal the actual number of dogs, the annual fluctuation and the feasibility and access to increase vaccination coverage for dog population

PATH V. EXPECTED OUTCOMES:

By the end of 2017, control and narrow the rabies epidemic areas in dog and human throughout the country through concentrating resources for provinces at high risk (provinces with the high number of deaths due to rabies)

By the end of 2021, basically control rabies epidemic in dog and gradually reduce the number of people died of rabies by 15%-20% annually; by the end of 2021, reduce by 60% of rabies death in human compared to the 2011-2015 period

The expected outcome for each key solution are as following:

5.1. Regard to dog management

a) Regard to the making of a list of households raising dogs in the hamlet, village or equivalent administrative unit (hereafter referred to as hamlet)

- For wards and townships: By 2017, at least 70% of the hamlets establish the domestic dog management book; by 2018, 100% of the hamlets establish the domestic dog management book; the list of households raising dogs must be updated annually;

- For communes in lowland, midland and mountainous areas: by 2017, at least 60% of the hamlets establish the domestic dog management book; by 2018, at least 75% of the hamlets establish the domestic dog management book, by 2019, at least 90% of the hamlets establish the domestic dog management book; by 2020, 100% of the hamlets establish the domestic dog

management book; the list of households raising dogs in the domestic dog management book must be updated annually;

- For communes in remote areas, island areas or areas in special difficulty conditions: by 2017, at least 50% of the hamlets establish the domestic dog management book; by 2018, at least 65% of the hamlets establish the domestic dog management book, by 2019, at least 80% of the hamlets establish the domestic dog management book; by 2020, over 90% of the hamlets establish the domestic dog management book; the list of households raising dogs in the domestic dog management book must be updated annually;

b) Regard to the making of a list of households raising dogs in the communes, wards or towns (hereafter referred to as commune)

- For wards, towns: By the end of 2017, at least 80% of the communes establish the domestic dog management book; by the end of 2018, 100% communes establish the domestic dog management book, the list of households raising dogs in the domestic dog management book must be updated annually;

- For communes in lowland, midland and mountainous areas: By the end of 2017, at least 60% communes establish the domestic dog management book; by the end of 2018, at least 70% communes establish the domestic dog management book; by the end of 2019, at least 80% communes establish the domestic dog management book; by the end of 2020, at least 90% communes establish the domestic dog management book; by the end of 2021, at least 100% communes establish the domestic dog management book, the list of households raising dogs in the domestic dog management book must be updated annually;

- For communes in remote areas, island areas or areas in special difficulty conditions: by the end 2017, at least 50% of the communes establish the domestic dog management book; by the end of 2018, at least 60% of the communes establish the domestic dog management book, by the end of 2019, at least 70% of the communes establish the domestic dog management book; by the end of 2020, at least 80% of the communes establish the domestic dog management book; by the end of 2021, over 90% of the communes establish the domestic dog management book; the list of households raising dogs in the domestic dog management book must be updated annually;

5.2. Regard to rabies vaccination for dogs:

Rabies vaccination coverage of the total dog population has been increased year-on-year, specifically:

- For wards and townships: by the end of 2017, the rabies vaccine coverage is at least 60% of the total dog population; by the end of 2018, the

rabies vaccine coverage is at least 70%; by the end of 2019, the rabies vaccine coverage is at least 80%; by the end of 2020, the rabies vaccine coverage is at least 90%, the targeted figure by the end of 2021 is set at over 95%

- For communes in lowland, midland and mountainous areas: by the end of 2017, the rabies vaccine coverage is at least 50% of the total dog population; by the end of 2018, the rabies vaccine coverage is at least 60%; by the end of 2019, the rabies vaccine coverage is at least 70%; by the end of 2020, the rabies vaccine coverage is at least 80%, the targeted figure by the end of 2021 is set at over 85%

- For communes in remote, island areas or areas in special difficulty conditions: by the end of 2017, the rabies vaccine coverage is at least 45% of the total dog population; by the end of 2018, the rabies vaccine coverage is at least 55%; by the end of 2019, the rabies vaccine coverage is at least 65%; by the end of 2020, the rabies vaccine coverage is at least 75%, the targeted figure by the end of 2021 is set at over 80%

5.3. Regard to post-exposure prophylaxis for human

- By the end of 2018, 80% people bitten by suspected rabid animals have handled the wounds properly. The targeted figure by the end of 2021 is set at over 90%

- By the end of 2018, 80% of people bitten by suspected rabid animals come to health care units for rabies consultation with professional advices and receive PEP if necessary. The targeted figure by the end of 2021 is set at over 90%

- By the end of 2018, 95% districts are able to provide rabies PEP and vaccination service. The targeted figure by the end of 2021 is set at over 100%

- By the end of 2018, 90% vaccination service sites at provincial level are able to supply enough rabies antiserum for PEP. The targeted figure by the end of 2021 is set at over 100% vaccination sites

- Reduce gradually by 15-20% of rabies cases in human year by years. By the end of 2021, reduce by 60% of rabies deaths in human compared to the average figure of 2011-2015 periods.

5.4. Regard to enhancement of sanctioning

- Each commune establish a team arresting free-roaming dogs, unhealthy dogs, dogs with sign of rabies infection and handle the rabies epidemic according to Circular No. 07/2016/TT-BNNPTNT dated 31th May 2016 of Ministry of Agriculture and Rural Development on prevention and control of infectious diseases for terrestrial animals

- Each commune regulates the legal responsibility in arresting free-roaming dogs, unhealthy dogs, dogs with sign of rabies infection at public

areas, announce openly the places keeping arrested dogs for dog owners know and get their dogs back; decides the compulsory treatment of arrested dogs in the event that after 48 hours from the date of notification without the recipients accordance with Circular No. 07/2016/TT-BNNPTNT dated 31th May 2016 of Ministry of Agriculture and Rural Development on prevention and control of infectious diseases for terrestrial animals

5.5. Regard to communication to improving the awareness and changing the behavior of the community

- By the end of 2018, 70% of provinces, cities implement communication campaigns on rabies prevention and control. By the end of 2021, 100% of provinces, cities implement communication campaigns on rabies prevention and control.

- By the end of 2017, 30% of provinces, cities carry out school communication campaigns on rabies prevention and control. By the end of 2021, 85% of provinces, cities carry out school communication campaigns on rabies prevention and control.

- By the end of 2018, 70% of animal owners have been equipped sufficient knowledge about measures to manage the dogs and prevent animal and human from rabies. By the end of 2021, 90% of dog owners have been equipped sufficient knowledge about measures to prevent animal and human from rabies.

- By the end of 2018, 70% of people bitten by suspected rabid animals are able to handle immediately the wounds themselves properly. The targeted figure by the end of 2021 is set at over 90%

5.6. Regard to increasing the capacity of rabies surveillance system

- By the end of 2018, it is targeted that 70% of provinces strengthen the local disease surveillance system as well as the vaccination for dogs and humans. By the end of 2021, 100% of provinces strengthen the local disease surveillance system.

- By the end of 2018, 95% of districts strengthen the local disease surveillance system as well as the vaccination for humans. By the end of 2021, 98% of districts strengthen the local disease surveillance system and vaccination for human.

5.7. Regard to rabies outbreaks handling

- By the end of 2017, 50% of rabies outbreaks on animals are detected, investigated and handled timely. By 2021, 80% of rabies outbreaks on animals are detected, investigated and handled timely.

- By the end of 2017, 95% of rabies cases in human has been investigated and handled according to regulations. By 2020, 99% of rabies cases in human has been investigated and handled according to regulations

5.8. Regard to the improvement of diagnostic capacity

- Maintain the operation of rabies diagnostic laboratories for human and animals, ensure to be ready in serving rabies outbreaks prevention and control

- By the end of 2017, 50% of rabies cases in human has been confirmed by laboratory testing. By the end of 2021, 90% of rabies suspected-cases in human have been laboratory-tested

5.9. Regard to training to increase professional capacity for human health worker and veterinarians

- By the end of 2017, 70% of human health workers and veterinarians in provinces who participate in rabies prevention and control programs are provided with training courses on rabies prevention and control. By the end of 2021, 100% of human health workers and veterinarians in provinces who participate in rabies prevention and control programs are provided with training courses on rabies prevention and control.

5.10. Regard to the control of rabies in animals

- By the end of 2017, at least 68% of provinces (43 provinces) report no cases of rabies on dogs;

- By the end of 2018, at least 76% of provinces (48 provinces) report no cases of rabies on dogs;

- By the end of 2019, at least 85% of provinces (54 provinces) report no cases of rabies on dogs;

- By the end of 2020, at least 90% of provinces (57 provinces) report no cases of rabies on dogs.

- By the end of 2021, over 95% of provinces (60 provinces) report no cases of rabies on dogs.

5.11 Regard to rabies studies

- 100% of the results of rabies studies under the programs and projects have been reported to competent authorities to support policy formulations and strategy to prevent rabies in Vietnam

PART VI: IMPLEMENTATION

6.1 The responsibilities of Ministry of Agriculture and Rural Development

The Ministry of Agriculture and Rural Development (MARD) is responsible for planning the budget for rabies prevention program intergrated into the MARD's general budget, submitted to Ministry of Finance for consideration and allocation of budget. Annually, The Ministry of Agriculture and Rural Development in coordination with The Ministry of Public Health and relevant other Ministries, localities has reponsibility to

implement the rabies prevention program; direct the sub-units managed within the scope of functions and tasks to implement the prescribed contents of rabies prevention program, ensure the implementation of the program as schedule with high effectiveness

6.1.1 The responsibilities of The Department of Animal Health

- Lead, in coordination with Department of Preventive Medicine-Ministry of Health, formulate and deploy coordinated action plans to facilitate the implementation of rabies prevention program

- Lead and deploy the activities of rabies prevention program in the field of veterinary

- Direct all coordination activities between animal health sector and the human health sector in implementing the rabies prevention program activities

- Lead and establish inspection team to inspect the implementation of the rabies prevention program in the locality

- Lead and construct the models of domestic dog management and vaccination against rabies, from which expand the model in nationwide scale

- In cooperation with Department of Preventive Medicine-MoH, National Institute of Hygiene and Epidemiology develop communication materials, monitor and handle rabies outbreaks, conduct research in relevant field, organize training and workshops, organize meeting to evaluate the rabies prevention activities; review and draw the lessons, experiences for the implementation of rabies prevention activities more effective

6.1.2 The responsibility of relevant sectors of Ministry of Agriculture and Rural Development

To actively cooperate with Department of Animal Health in expanding and implementing the contents of the rabies prevention program

6.2 The responsibilities of Ministry of Health

The Ministry of Health (MoH) is responsible for planning the budget for rabies prevention program, integrated into MoH's general budget, then submitted to Ministry of Finance for consideration and allocation of budget. Annually, The Ministry of Health allocate the budget for rabies prevention program in human and coordinate with Ministry of Agriculture and Rural Development and relevant other Ministries, localities to implement the rabies prevention program; direct the sub-units managed within the scope of functions and tasks to implement the prescribed contents of rabies prevention program, ensure the implementation of the program as schedule with high effectiveness

6.2.1 The responsibilities of Department of Preventive Medicine

-In cooperation with National Institute of Hygiene and Epidemiology (office of rabies prevention and elimination program in human) deploy activities of rabies prevention program in the field of human health

- Direct the cooperation activities between human health sector and animal health sector in implementing the rabies prevention program

- In cooperation with National Institute of Hygiene and Epidemiology and Department of Animal Health to build and develop coordinated action plans to facilitate the implementation of rabies prevention program

- In cooperation to establish inspection teams to inspect the works of directing and organizing the implementation of rabies prevention activities in human

- In cooperation with international organizations to deploy projects in the field of rabies researches in order to support the rabies prevention program

- In cooperation with National Institute of Hygiene and Epidemiology and Department of Animal Health summarize and draw the lessons and experiences, evaluate the works of the rabies prevention program

- Periodically organize briefings with Department of Animal Health and relevant units to evaluate the works of the rabies prevention program

6.2.2 The responsibilities of National Institute of Hygiene and Epidemiology

- Manage, operate, deploy the implementation of rabies prevention activities nationwide

- Give technical advices, propose, build strategic plans and policies in the field of rabies prevention in human

- Develop action plan and budget plans for rabies prevention program in human including objectives, expected outcomes and solutions

- Direct, guide, monitor and supervise sub-units, localities in implementation of rabies prevention activities in human in order to detect and promptly address issues arising during process of implementing rabies prevention activities nationwide

- Develop and issue professional and technical documents, guide, organize to deploy, inspect and supervise the implementation of rabies vaccination and immunoglobulin administration for people exposed to suspected rabid animals nationwide

- Organize, manage, direct localities and relevant sectors/units to deploy the activities of the rabies prevention program according to plan approved, ensure the progress of the plan met as target with high effectiveness

- Monitor, supervise, detect and promptly address issues arising during the process of implementing rabies prevention program
- Manage, use and pay activities expenditures of the rabies prevention program according to budget plan approved, ensure all expenditures paid with right purposes, efficiency and in accordance with current regulations
- Coordinate with various Departments under the Ministry of Health and relevant Ministries, Sectors in managing deploying the rabies prevention activities in human in Vietnam
- Establish and sustain the cooperation with international organizations, government and non-government organizations, and other legally aid resources in order to mobilize various resources for rabies prevention activities
- Conduct scientific researches on rabies and relevant fields
- Organize the implementation of assessment, aggregate data and report the results of project implementation to the Leader of MoH and concerned sectors according to current regulation
- Periodically organize briefing meeting with Department of Animal Health and relevant sectors to evaluate the works of rabies prevention program

6.3. The responsibilities of Ministry of Planning and Investment and Ministry of Finance

6.3.1 The Ministry of Planning and Investment and Ministry of Finance have responsibility to coordinate with The Ministry of Agriculture and Rural Development and Ministry of Health to allocate and balance the budget for implementation of rabies prevention and control program

6.3.2 The Ministry of Finance has responsibility to instruct their agencies under the ministry's management to develop estimates of budget and allocate budget for the implementation of rabies prevention and control program

6.4. The responsibilities of Ministry of Education and Training

In coordination with The Ministry of Agriculture and Rural Development, Ministry of Health implement school communication on rabies prevention and control

6.5. The responsibilities of Ministry of Information and Communication

In coordination with The Ministry of Agriculture and Rural Development, Ministry of Health direct mass media and news agencies to prioritize the communication on rabies prevention activities

6.6. The responsibilities of The People's Committees at various levels

On the basic of rabies prevention and control program regulations, develop and approve the rabies prevention plan of the locality and organize the implementation of rabies prevention and control activities, ensure the progress of the program met as the plan. The rabies prevention and control program must meet the following requirements:

- Prioritize the implementation of various measures to prevent rabies and meet the principle of risk reduction gradually, whereby the high risk provinces will turn from high risk level to medium risk level, from medium risk level to low risk level, from low risk level to sustained level of rabies status controlled

- On the basic of grouping rabies risk area in section II, Part III (based on the death index due to rabies in human), based on other specific index including: the number of dogs in dog population nationwide, the rate of dog vaccinated against rabies, the number of people bitten by suspected animals have to receive PEP to determine the groups of solutions prioritized to meet the targets/goals of the rabies prevention and control program planned.

- Direct and deploy the rabies prevention measures in the locality managed according to the provisions of veterinary law and other relevant laws, pay special attention to the following solutions

- + Manage domestic dog

- + Give immunization against rabies for dogs

- + Establish rabies-free areas

- + Address and handle rabies epidemics

- + Protect human from rabies, aid rabies vaccine for PEP with low cost for poor people, ethnic minority groups of people, people living in remote areas and children under 6 year old of age living in rabies epidemic areas

- + Conduct mass communication about rabies at localities

- + Mobilize various resources from locality to implement the activities of rabies prevention and control program

- + Direct Departments, Unions, mass organizations to aid veterinary and human health sectors in preventing and controlling rabies disease

- + Strengthen the inspection, supervision, and punishment of livestock owners who violate the law on rabies prevention and control and let the dog bite human.

- + Within the scope of responsibilities and power, seek the legally financial aid according to the regulations of the current law to aid the rabies vaccination campaign and deploy the suitable measures to prevent and

control rabies in the locality, especially in the mountainous, remote and rural areas

6.7. The responsibilities of Organizations, Individuals raising animals (owners)

Public organizations and individuals raising animals must comply with the regulations and guidance on rabies prevention and control by animal health agencies in the management, surveillance and handling of rabies outbreaks in animals such as:

- Dog owners have to register their dogs
- Chain/cage within their owners' properties to prevent them from biting people. Upon taking the dogs out, they must be muzzled and chained to prevent from biting people; veterinary hygiene and environmental sanitation must be ensured as well.
- Vaccinate all dogs and cats against rabies in accordance with regulations of veterinary agencies. Animal owners must pay the dog management fees and vaccination costs in accordance with legal veterinary regulations.
- Monitor their pets, if any abnormalities in animals are detected, pet owners must cage the animals and report to the commune veterinary staff or commune people's committee or the most closed veterinary agency. Do not transport or sell rabies or suspected rabies dogs to prevent the widespread of rabies and cause rabies in humans.
- When the animal is tested to be rabid, pet owners must immediately destroy it. The entire cage, kennels, equipments, transportation vehicles, environment, food, wastes or other objects contact with the infected animals must be thoroughly cleaned and disinfected. Suspected rabies animals must be kept for 10 days for surveillance. All healthy dogs and cats in the area and adjacent villages must be compulsorily vaccinated according to the current regulations
- Pet owners of rabies or suspected rabies dogs/cats that bite/scratch other people are responsible for paying compensation according to legal regulations.

PART VII: FUNDING ESTIMATES

General State budget estimates: 335.509.320.000 VND = 15 MILLIONS OF US DOLLAS

Including:

7.1. Central budget

Central budget ensures sufficient budget for communications, training, workshops, national rabies vaccine reserve fund, prevention and control of rabies on animals, strengthened laboratory testing and rabies epidemiological surveillance on humans and animals, as well as equipment and materials for the project central office.

Budget for the Rabies prevention and control program is allocated annually through the budget allocated to both ministries. Every year, the Department of Animal Health - Ministry of Agriculture and Rural Development and the Department of Preventive Medicine, the Central Institute for Hygiene and Epidemiology Ministry of Health as the contact points to build plans and funding estimates for the activities and submit to their respective ministry's leaders for approval.

Central budget: 38.764.320.000 VND

+ Ministry of Agriculture and Rural Development: 10,206,930,000 VND

+ Ministry of Health: 14,056,930,000 VND

7.2. Local budget

Local budget ensures funding for information and communication work, technical training, management of dog populations and disease surveillance.

Depending on the risks of the areas, the provincial Department of Agriculture and Rural Development and the provincial Department of Health work out their rabies prevention and control plans and submitted to the provincial People's Committee for approval.

- Local budget: 296.745.000.000 VND

BUDGET SUMMARY TABLE
NATIONAL PROGRAM FOR CONTROL AND ELIMINATION OF RABIES
2017-2021

Order	Budget lines	Central budget		Budget of the People's Committees of 63 provinces for 5 years	Total
		Ministry of Agriculture and Rural Development	Ministry of Health		
1	Strengthening rabies prevention and control in accordance with One Health approach	490,000		10,489,500	10,979,500
2	Communications	1,984,000	7,330,050	19,761,000	29,075,050
3	Technical training	391,440	956,360	28,638,400	29,986,200
4	Management of dog population			113,280,000	113,280,000
5	Rabies vaccines for humans and animals	5,000,000		6,400,000	11,400,000
6	Rabies epidemiological surveillance	2,831,490	4,714,520	12,247,200	19,793,210
7	Building laboratory diagnostic capacity		856,000		856,000
8	Rabies diagnosis and treatment on humans		200,000		200,000
9	Scientific studies				0
10	Policies and Legislation			2,620,800	2,620,800
	Total	10,206,930	14,056,930	182,947,400	218,190,760

ANNUAL BUDGET SUMMARY TABLE

Order	Budget lines	2016	2017	2018	2019	2020	Total
1	Strengthening rabies prevention and control in accordance with One Health approach	2,195,900	2,195,900	2,195,900	2,195,900	2,195,900	10,979,500
2	Communications	0	9,526,350	9,526,350	9,526,350	496,000	29,075,050
3	Technical training	0	14,993,100	0	14,993,100	0	29,986,200
4	Management of dog population	0	28,320,000	28,320,000	28,320,000	28,320,000	113,280,000
5	Rabies vaccines for humans and animals	2,280,000	2,280,000	2,280,000	2,280,000	2,280,000	11,400,000
6	Rabies epidemiological surveillance	1,381,130	6,137,360	6,137,360	6,137,360	0	19,793,210
7	Building laboratory diagnostic capacity		214,000	214,000	214,000	214,000	856,000

8	Rabies diagnosis and treatment on humans		200,000				200,000
9	Scientific studies						0
10	Policies and Legislation	0	655,200	655,200	655,200	655,200	2,620,800
	Total	5,857,030	64,521,910	49,328,810	64,321,910	34,161,100	218,190,760

DETAIL BUDGET

ANNEX 1

Strengthening rabies prevention and control in accordance with One Health approach

The Government presides, assigns Ministry of Agriculture and Rural Development, Ministry of Health to implement the detailed contents

Unit price: 1,000 VND

Order	Budget lines	Unit	Quantity	Unit cost	Amount
1.1	Joint meeting to implement and manage rabies prevention and control program in accordance with ONE HEALTH approach - central level	person	200		98,000
	Participants: Governmental Office, related sectors and ministries, Leaders from the Ministry of Agriculture and Rural Development, Ministry of Health, units under these two ministries, People's Committees of 63 provinces/cities				
	Duration: 2 days in Hà Nội	Day	1		
	Rental of venue	Day	1	15,000	15,000
	Rental of projector, amplifier	Day	1	2,000	2,000
	Backdrop, banner	Day	1	2,000	2,000
	Flower	Bunch	5	100	500
	Refreshment (200 people x 30.000đ/Day)	Person	200	30	6,000
	Reporting	Page	100	50	5,000
	Costs for printing, photocopying materials; stationery for the meetings	Set	320	150	48,000
	Lump sum for trainers	Person	12	500	6,000
	Car rental	Car	2,500	5	12,500
	Lump sum for organizers and supporting staff	Person	10	100	1,000
	Total 5.1.1				98,000
1.2	Joint meeting to implement and manage rabies prevention and control program in accordance with ONE HEALTH approach - provincial level	Person	100		
	Participants: the People's Committee of provinces/cities, Provincial Departments of: Health; Agriculture and Rural Development; Public Security; Finance, People's Committees of districts...				
	Duration: 1 Day in each locality	Day	1		
	Venue: the People's Committee of provinces/cities	Day			
	Rental of projector, amplifier	Day	1	1,000	1,000
	Backdrop, banner	Day	1	1,000	1,000
	Flower	Bunch	5	100	500
	Refreshment(100 people x 30.000đ/Day)	Person	100	30	3,000
	Reporting	Page	100	50	5,000

	Costs for printing, photocopying materials; stationery for the meetings	Set	100	150	15,000
	Lump sum for trainers	Person	6	500	3,000
	Car rental	Trip	1,500	3	4,500
	Lump sum for organizers and supporting staff	Person	3	100	300
	Total for one province				33,300
	Total 1.2= 63 provinces		63	33,300	2,097,900
	Total for one year of all levels				2,195,900
	Total for 5 years (Implement/Summarize/build plan for the next year from second year)		2,195,900	5	10,979,500
	Break down for each year				
	In 2016 disburse				2,195,900
	In 2017 disburse				2,195,900
	In 2018 disburse				2,195,900
	In 2019 disburse				2,195,900
	In 2020 disburse				2,195,900
	Including State budget (central, provincial)				
	Central budget				490,000
	<i>Allocation to Ministry of Agriculture and Rural Development</i>				<i>490,000</i>
	<i>Allocation to Ministry of Health</i>				
	Provincial budget of 63 provinces allocation				10,489,500

ANNEX 2: Communications

The Government presides, assigns Ministry of Agriculture and Rural Development, Ministry of Health to implement the detailed contents

Unit price: 1,000 VND

Order	Budget lines	UNIT	Quantity	Unit price	Amount
I	Ministry of Agriculture and Rural Development				
1	Communications via central television				300,000
	Building a program with a duration of 30 seconds/one program	Message	1	20,000	20,000
	Broadcasting on weekday on VTV1: before News program at 19h, 1 time/Day, 8 times/peak month	Time	8	35,000	280,000
2	Propaganda for rabies prevention and control on Radio Voice of Viet Nam				96,000
	Broadcasting quantity : 8 columns x 1 broadcasting time	Time	8	9,000	72,000
	1 broadcasting repeat	Time	8	3,000	24,000
3	Fee for writing articles providing guidance, Q & A, providing information on measures for rabies prevention and control to be published on newspapers				100,000
	Costs for writing articles + publishing on newspapers	Package	1	100,000	100,000
	Total for one year				496,000
	2016				0
	2017				496,000
	2018				496,000
	2019				496,000
	2020				496,000
	Total spending by Ministry of Agriculture and Rural Development				1,984,000
II	Ministry of Health				
1	Costs for printing training materials on rabies prevention and control for health and animal health staff	Person			310,000
	Content building and designing		1	10,000	10,000
	Printing costs (12,000 communes/districts/provinces x 5 books/commune)	5	12,000	5	300,000
2	School communications and training for trainers - in coordination with Ministry of Education and Training				1,263,150
	Designing, building school communication materials and consulting with Ministry of Education and Training (to be implemented in 2016)	Set	1	30,000	30,000
	Training for trainers	Time			
	Duration	Day	2		

	Total number of participating teachers/class	Person	60		
	Costs for printing, photocopying materials, stationery	Person	60	30	1,800
	Payment for trainers (3 people)	Session	500	4	2,000
	Participants (70,000 VND/day x 2 days)	Day	120	70	8,400
	Compiling lectures	Page	30	75	2,250
	Refreshment (50 people x 2 days)	Person	120	30	3,600
	Others				2,000
	Total for one class				20,050
	Total for 63 classes in 63 provinces				1,263,150
3	Organizing events to propagandize World Rabies Day (28 September) annually				98,200
	Printing banners to hang on the streets	unit	50	500	25,000
	Printing World Rabies Day logo and message on products	unit	500	50	25,000
	Decoration of stage, rental of table and chairs	unit	15,000	1	15,000
	Rental of vehicle with loudspeakers going to disseminate rabies prevention and control message in all districts in the province within one week.	unit	4	2,000	8,000
	Costs for printing banners, flags to decorate the propaganda vehicle two units/vehicle	unit	4	400	1,600
	Petrol allowance for those participating in the propaganda	Person	100	100	10,000
	Costs for prating flags with World Rabies Day logo	unit	100	20	2,000
	Organizer members (6 persons x 3 days)	Person	18	200	3,600
	Others				8,000
4	Direct broadcasting on the communes' loudspeaker system				2,000
	Building message for broadcasting	Message	1	2,000	2,000
5	Communication through major online newspapers				385,000
	Fees for writing articles	Article	20	1,000	20,000
	Payments for archiving the articles online	Day	365	1,000	365,000
6	Communication via Facebook, Twitter				385,000
	Fees for writing articles	Article	20	1,000	20,000
	Payments for sharing and archiving the articles online	Day	365	1,000	365,000
	Total for 1 year				2,443,350
	2016				0
	2017				2,443,350
	2018				2,443,350
	2019				2,443,350
	2020				0
	Total spending by Ministry of Health				7,330,050

III	Local budget				
1	Printing leaflets providing guidance for rabies prevention and control				600,000
	Printing (12,000 communes x 50 leaflets/commune)	leaflet	600,000	1	600,000
2	Printing posters on rabies prevention and control				240,000
	Printing (12,000 communes x 4 posters/commune)	poster	48,000	5	240,000
3	Building contents, designing and printing Q&A Book on Rabies prevention and control for communities and the role of dog owners				232,500
	Printing and distributing to 31 high-risk provinces (500 books/province)	Book	15,500	15	232,500
4	Direct communications at school + contests to compete knowledge				3,000
	Hoarding/posters (estimated two units/school) one big one and one small one, depending on each school	school	1	1,000	1,000
	Supporting staff (1 principle + 1 supporting staff =2 person/school x 01 school)		2	300	600
	Travel assistance for communication staff (3 Session/school x 01 school = 3 Day)	Day	3	150	450
	Rental of loudspeakers and amplifier		1	500	500
	Refreshment		1	450	450
	Total school communication budget for 31 provinces, 25 schools/province is:	31	25	3,000	2,325,000
5	Communications via vehicles in remote areas that are difficult to get access through electronic services				572,500
	Building suitable broadcasting messages with local languages	Message	15	2,000	30,000
	Costs for mobile drivers including car rental and petrol (500,000 VND/day x 7 Days x 5 people/province x 31 high-risk provinces)		1,085	500	542,500
6	Organizing events to propagandize World Rabies Day (28 September) annually				217,000
	Assistance to 31 provinces/cities	province	31	7,000	217,000
7	Direct broadcasting on the communes' loudspeaker system				2,400,000
	Costs for broadcasting on the loudspeaker system of 12,000 communes/district within one week during the communes' vaccination round		12,000	200	2,400,000
	Total for 1 year				6,587,000
	In 2016				0
	In 2017				6,587,000
	In 2018				6,587,000
	In 2019				6,587,000

In 2020					0
Total local budget for 5 years					19,761,000

Total budget divided into separate years

In 2016					0
In 2017					9,526,350
In 2018					9,526,350
In 2019					9,526,350
In 2020					496,000
Total budget for 5 years					28,579,050
Including State budget (central, provincial)					
Central budget					
<i>Allocation to Ministry of Agriculture and Rural Development</i>					1,984,000
<i>Allocation to Ministry of Health</i>					7,330,050
allocation from local budget of 63 provinces					19,761,000
Total					29,075,050

ANNEX 3
TECHNICAL ACTIVITIES

3. Technical training

(Participants: Preventive medical doctors, attending doctors from provincial Centre for Preventive Medicine, Provincial General Hospitals, provincial sub-department of animal health, District's Centre for Preventive Medicine, District General Hospital, District's animal health station and staff from related sectors, commune's health and animal health workers)

Unit price: 1,000 VND

Order	Budget lines	Unit	Quantity	Unit price	Amount
I	Ministry of Agriculture and Rural Development				
1	Training for national trainers				79,110
	Duration	Day	3		
	Number of participants	Person	30		
	Location: Đà Nẵng				
1	Venue rental	Day	3	12,500	37,500
2	Rental of projectors, screen, laptop	Day	3	2,000	6,000
3	Backdrop	Unit	1	1,500	1,500
4	Flipchart	Unit	6	150	150
5	Costs for printing, photocopying materials, stationery	Person	30	30	900
6	Payment for trainers (3 People)	session	6	500	3,000
7	Refreshments (30 Person*3 Days)	Person	90	50	4,500
8	Allowance to supporting person	Person	1	300	300
9	Allowance for trainees (VND 70,000/day)	Person	30	70	2,100
10	Return air tickets for trainers	Person	3	6,470	19,410
11	Costs for sleeping room rental (3 People/2 nights) (2 People/room)	Room	4	600	2,400
12	Expense subsidy (3 people x 3 Days/Person)	Day	9	150	1,350
13	Taxi rental to and from airport	Person	3	1,300	
	Total				79,110
2	Training of testing staff (2 institutes, 3 RAHOs)				116,610
	Duration	Day	3		
	Number of participants	Person	30		
	Location: Hà Nội				
1	Chemical materials	Person	30	1,000	30,000
2	Costs for printing, photocopying materials, stationery	Person	30	100	3,000

3	Payment for trainers (3 People)	Session	6	500	3,000
4	Meeting venue	Hall	3	12,000	36,000
5	Refreshments (30 People*3 Days)	Person	90	50	4,500
7	Allowance to supporting person	Person	1	300	300
8	Return air tickets for trainers (HN-HCM-HN)	Ticket	3	6,570	19,710
10	Costs for sleeping room rental (3 People/2 nights) (2 People/room)	Room	4	600	2,400
11	Expense subsidy	Person	12	150	1,800
12	Taxi rental to and from airport	Person	12	800	9,600
13	Allowance for trainees (VND 70,000/day)	Person	30	210	6,300
	Total spending within 5 years by Ministry of Agriculture and Rural Development				391,440
	In 2016 disburse				0
	In 2017 disburse				210,650
	In 2018 disburse				0
	In 2019 disburse				210,650
	In 2020 disburse				
II	Ministry of Health				
3	Training for trainers at provincial level				478,180
A	Northern region (2 classes including one class for epidemiological doctors of both health and animal health sectors, one class attending doctors from hospitals)				165,400
	Duration	Day	3		
	Number of participants (Animal Health, 2 Person, Preventive Medicine, 2 People, staff from institute/RAHOs No 1, 2, 3)	Person	120		
	Location: Hà Nội				
1	Venue rental	Day	3	10,000	30,000
2	Decoration of meeting venue, rentals of projector, amplifier, flowers	Day	2	1,000	2,000
3	Compiling lecture	Page	50	50	2,500
4	Costs for printing, photocopying materials, stationery	Person	120	30	3,600
5	Payment for trainers (3 People)	Session	6	500	3,000
6	Car rental for field trip	Vehicle	4	2,000	8,000
7	Refreshments	Person	120	60.0	7,200
8	Materials	Set	1	1,000	1,000
9	Allowance to supporting person	Person	4	50	200

10	Allowance for trainees (VND 70,000/day)	Person	120	210	25,200
	Total for one class				82,700
	Total for two classes		2	82,700	165,400
B	Central and Central Highlands region (2 classes including one class for epidemiological doctors of both health and animal health sectors, one class attending doctors from hospitals)				136,260
	Duration	Day	3		
	Number of participants (Animal Health, 2 people, Preventive Medicine, 2 people, staff from institute/RAHOs No 4,5)	Person	60		
	Location: Nha Trang				
1	Venue rental	Day	3	5,000	15,000
2	Decoration of meeting venue, rentals of projector, amplifier, flowers	Day	2	800	1,600
3	Costs for printing, photocopying materials, stationery	Person	60	30	1,800
4	Payment for trainers (3 People)	Session	6	500	3,000
5	Car rental for field trip	Vehicle	2	2,000	4,000
6	Refreshments	Person	60	7	420
7	Materials	Set	1	1,000	1,000
8	Allowance to supporting person	Person	3	50	150
9	Return air tickets for trainers	Person	3	6,470	19,410
10	Sleeping room rental	Room	6	500	3,000
11	Expense subsidy (3 people x 5 Days/Person)	Day	15	150	2,250
12	Car rental to and from airport	Person	3	1,300	3,900
13	Allowance for trainees (VND 70,000/day)	Person	60	210	12,600
	Total for one class				68,130
	Total for two classes		2	68,130	136,260
C	Southern region (2 classes including one class for epidemiological doctors of both health and animal health sectors, one class attending doctors from hospitals)				176,520
	Duration	Day	3		
	Number of participants	Person	100		
	Location: Ho Chi Minh City				
1	Venue rental	Day	3	8,000	24,000

2	Decoration of meeting venue, rentals of projector, amplifier, flowers	Day	2	1,000	2,000
3	Costs for printing, photocopying materials, stationery	Person	100	30	3,000
4	Payment for trainers (3 People)	Session	6	500	3,000
5	Car rental for field trip	Trip	3	2,000	6,000
6	Refreshments	Person	100	7	700
7	Materials	set	1	1,000	1,000
8	Allowance to supporting people	Person	4	50	200
9	Return air tickets for trainers (HN-HCM-HN)	Ticket	3	6,570	19,710
10	Sleeping room rental	Room	6	500	3,000
11	Expense subsidy (3 people x 5 Days/Person)	Person	15	150	2,250
12	Taxi rental to and from airport	Person	3	800	2,400
13	Allowance for trainees (VND 70,000/day)	Person	100	210	21,000
	Total for one class				88,260
	Total for two classes		2	88,260	176,520
	Of this, Ministry of Health disburse				956,360
	In 2016 disburse				0
	In 2017 disburse				478,180
	In 2018 disburse				0
	In 2019 disburse				478,180
	In 2020 disburse				
III	Local budget				
4	Technical training for district level (63 classes/year x 2 years)		126	38,400	4,838,400
A	Estimates for 01 class for district staff				38,400
	Duration	Day	2		
	Number of participants	Person	100		
	Location: in provinces				
1	Venue rental	Day	2	4,000	8,000
2	Decoration of meeting venue, rentals of projector, amplifier, flowers	Day	2	1,000	2,000
3	Compiling lectures	Page	50	50	2,500
4	Costs for printing, photocopying materials, stationery	Person	100	20	2,000
5	Payment for trainers (3 People)	Session	4	500	2,000
7	Refreshments	Person	100	7	700
8	Allowance to supporting people	Person	4	50	200
9	Allowance for trainees (VND 70,000/day)	Person	100	210	21,000
	Total for 1 year				2,419,200

	Total for 2 years (disbursed in 2017, 2019)		2	2,419,200	4,838,400
B	Technical training for commune level (700 classes/year x2 years)		1400	17,000	23,800,000
a	Estimates for 01 class for commune staff				17,000
	Duration	Day	2		
	Number of participants	Person	100		
	Location: in provinces				
1	Venue rental	Day	1	2,000	2,000
2	Decoration of meeting venue, rentals of projector, amplifier, flowers	Day	1	800	800
3	Compiling lectures	Page	50	50	2,500
4	Costs for printing, photocopying materials, stationery	Person	100	30	3,000
5	Payment for trainers (3 People)	Session	2	400	800
7	Refreshments	Person	100	7	700
8	Allowance to supporting people	Person	4	50	200
9	Allowance for trainees (VND 70,000/day)	Person	100	70	7,000
	Total for 1 year				11,900,000
	Total for 2 years (disbursed in 2017, 2019)		2	11,900,000	23,800,000
	Of this, local budget allocation per year				28,638,400
	In 2016 disburse				0
	In 2017 disburse				14,319,200
	In 2018 disburse				0
	In 2019 disburse				14,319,200
	In 2020 disburse				

	Total budget by year				30,016,060
	In 2016 disburse				0
	In 2017 disburse				15,008,030
	In 2018 disburse				0
	In 2019 disburse				15,008,030
	In 2020 disburse				
	Budget allocation (central, provincial)				
	Central budget				
	<i>Allocation to Ministry of Agriculture and Rural Development</i>				421,300
	<i>Allocation to Ministry of Health</i>				956,360
	Allocation by local budget of 63 provinces				28,638,400
	Total				30,016,060

Annex 4: Management of dog populations (local budget)

NATIONAL PROGRAM FOR CONTROL AND ELIMINATION OF RABIES 2016-2020 PERIOD

Unit: 1,000 VND

Order	Budget lines	Unit	Quantity	Unit price	Amount
I	Dog population statistical work of the (calculating total number of the dog population to estimate total vaccine doses as well as prediction of the disease situation)				25,800,000
	Assistance to the heads of hamlet in calculating, monitoring, reporting dog population in their hamlets	hamlet	120,000	200	24,000,000
	Assistance to communes' animal health workers to summarize data, monitoring, investigating and addressing outbreaks (12.000 communes x 150.000 VND/time)	commune	12,000	150	1,800,000
II	Setting up teams to catch roaming dogs and unvaccinated dogs in provinces (1 team/1 province. Members: 2 policemen, 1 militiaman 1 communication staff, 1 animal health staff)				2,520,000
	Labour for people who catch roaming dogs 5 people x 500,000 VND/Day x 1 Day/month) x 63 provinces	Person	60	500	1,890,000
	Labour for eliminating unclaimed, roaming dogs x 63 provinces	team		10,000	630,000
	Total 1 province within 1 year				28,320,000
	Total 1 province within 5 years				113,280,000

	Allocation by year				
	In 2016 disburse				0
	In 2017 disburse				28,320,000
	In 2018 disburse				28,320,000
	In 2019 disburse				28,320,000
	In 2020 disburse				28,320,000
	Budget allocation (central, provincial)				
	Central budget				0
	<i>Allocation to Ministry of Agriculture and Rural Development</i>				0
	<i>Allocation to Ministry of Health</i>				0
	Allocation by local budget of 63 provinces				113,280,000
	Total				113,280,000

ANNEX 5 KINH PHÍ TIÊM PHÒNG VẮC XIN ĐẠI CHO NGƯỜI VÀ CHÓ

NATIONAL PROGRAM FOR CONTROL AND ELIMINATION OF RABIES 2016-2020 PERIOD

Unit price: 1,000 VND

Order	Budget lines	Unit price	Quantity	Unit price	Amount
1	Vaccine reserve for rabies prevention and control on animals (2016-2020)	dose	500,000	10	5,000,000
2	Subcutaneous rabies vaccines for high-risk people (animal health workers who do vaccine injections for dogs, testing officers, animal health workers) and booster doses annually. Expenses covered by the trade union of the agencies/units	dose			
d	Supporting rabies vaccines for poor people/ethnic minority people, kid under six years old that are exposed to rabies: 2,500 doses/province/year x 16 provinces (covered by provincial budget)	dose	40,000	160	6,400,000
	Total disbursed in 2016-2020				11,400,000
	Budget allocation (central, provincial)				
	Central budget				
	<i>Allocation to Ministry of Agriculture and Rural Development</i>				5,000,000
	<i>Allocation to Ministry of Health</i>				
	Allocation by local budget of 63 provinces				6,400,000
	Total				11,400,000

Annex 6: Rabies Epidemiological Surveillance

NATIONAL PROGRAM FOR CONTROL AND ELIMINATION OF RABIES 2016-2020 PERIOD

Order	Budget lines	Unit price	Number of people x number of months	Unit price	Amount
I	Ministry of Agriculture and Rural Development				
1	Animal surveillance (regular and unscheduled)				666,000
	Labour for data collecting, reporting of district staff (month)	12 months	700	50	420,000
	Labour for data collecting, reporting of 63 provincial/city staff and 07 RAHOs (month)	12 months	70	200	168,000
	Official contracts for permanent staff at the Office	12 months	2	3,000	72,000
	Project's financial and accounting staff	12 months	1	500	6,000
2	Expenses for visits to monitor, instruct, inspect and speed up activities in localities				
	Monitoring provinces - 7 RAHOs				277,830
	Duration: 4 Days/time	Day	4		
	Number of people	Person	3		
	Number of times	Time	63		
	Working expenses (3 people x 4 Days/time x 63 times)	Day	756	150	113,400
	Sleeping room rentals (3 people x 3 nights x 63 times)	Person	567	250	141,750
	Labour for monitoring infectious diseases in Group B List	Day	756	30	22,680
	Total for 1 year				943,830
	In 2016				
	In 2017				943,830
	In 2018				943,830
	In 2019				943,830
	In 2020				
	Total spending by the Ministry of Agriculture and Rural Development				2,831,490
II	Ministry of Health				
1	Epidemiological surveillance on humans				1,381,130
	Developing guidance, SOPs on surveillance, report, analysis				15,000
	Designing software system to collect, analyze... data				30,000

	Developing tools for monitoring and assessment				15,000
	Developing SOP on inspection and monitoring lower levels				15,000
	Staff at district level	12 months	700	50	420,000
	63 staff of provincial/city level and 04 regions	12 months	70	100	84,000
	Official contracts for permanent staff at the Office	12 months	2	3,000	72,000
	Project's epidemiological staff	12 months	1	500	6,000
	Project's statistical staff	12 months	1	500	6,000
	Region's epidemiological staff	12 months	1	300	3,600
	Region's statistical staff	12 months	1	300	3,600
2	Equipment for working facilities at the Office of the National Institute of Hygiene and Epidemiology (disbursed in 2016)				195,000
	Desktop computer	Set	5	10,000	50,000
	laptop	Unit	3	15,000	45,000
	Printer	Unit	3	5,000	15,000
	Scanner	Unit	1	5,000	5,000
	Photocopier	Unit	1	50,000	50,000
	Digital camera	Unit	1	5,000	5,000
	Fax machine	Unit	1	5,000	5,000
	Table and chairs/working equipment	Set	1	20,000	20,000
3	Expenses for monitoring visits				
	Northern region (to be implemented by the National Institute of Hygiene and Epidemiology)				266,000
	Duration: 5 Days/time	Day	5		
	Number of participants	Person	4		
	Number of visits	Visit	35		
	Expenses (4 people x 5 Day/visit x 35 visits)	Day	700	150	105,000
	Sleeping room rental (4 people x 4 nights x 35 visits)	Person	560	250	140,000
	Labour for monitoring infectious diseases in Group B List		700	30	21,000
	Central region (to be implemented by Pasteur Nha Trang Institute)				48,510
	Duration : 4 Days/visit	Day	4		
	Number of participants	Person	3		
	Number of visits	Visit	8		
	Expenses (3 people x 4 Days/visit x 11 visits)	Day	132	150	19,800
	Sleeping room rental (3 people x 3 nights x 11 visits)	Person	99	250	24,750
	Labour for monitoring infectious diseases in Group B List		132	30	3,960
	Southern region (to be implemented by Ho Chi Minh City Pasteur Institute)				88,200
	Duration : 4 Days/visit	Day	4		
	Number of participants	Person	3		
	Number of visits	Visit	20		
	Expenses (3 people x 4 Days/visit x 20 visits)	Day	240	150	36,000

	Sleeping room rental (3 people x 3 nights x 20 visits)	Person	180	250	45,000
	Labour for monitoring infectious diseases in Group B List		240	30	7,200
	Total				
	Central Highlands region (to be implemented by the Central Highlands Institute of Hygiene and Epidemiology)				17,640
	Duration : 4 Days/visit	Day	4		
	Number of participants	Person	3		
	Number of visits	visit	4		
	Expenses (3 people x 4 Days/visit x 4 visits)	Day	48	150	7,200
	Sleeping room rental (3 people x 3 nights x 4 visits)	Person	36	250	9,000
	Labour for monitoring infectious diseases in Group B List		48	30	1,440
4	Visits by the Project Executive Board to inspect, assess the implementation in different regions every year				95,580
	Duration: 5 Days/visit	Day	5		
	Number of participants	Person	3		
	Number of visit: 3 visits in three regions	Visit	3		
	Expenses (3 people x 5 Days/ visit x 3 visits)	Day	45	150	6,750
	Sleeping room rental (3 people x 4 nights x 3 visits)	Person	36	500	18,000
	Monitoring labour	Person	45	40	1,800
	Air tickets (3 people x 3 visits)	Person	9	6,470	58,230
	Lump sum for taxi to and from airport		9	1,200	10,800
	In 2016				1,381,130
	In 2017				1,111,130
	In 2018				1,111,130
	In 2019				1,111,130
	In 2020				
	Total budget disbursed by Ministry of Health within 5 years				4,714,520
III	Local budget				
	Estimates budget for disease surveillance, prevention and control by provincial level over district's activities (covered by local budget)				4,082,400
	Duration: 3 Days/visit	Day	3		
	Number of participants	Person	4		
	Number of visits	Visit	30		
	Expenses (4 people x 3 Day/visit x 30 visits)	Day	360	150	54,000
	Labour for monitoring infectious diseases in Group B List		360	30	10,800
	Petrol				36,000
	Total for one province				100,800
	Total for 63 provinces				4,082,400
	Total for 1 year				4,082,400
	In 2016				0
	In 2017				4,082,400
	In 2018				4,082,400
	In 2019				4,082,400

In 2020				0
Total budget disbursed by localities				12,247,200
Total budget allocation by year				
In 2016 disburse				1,381,130
In 2017 disburse				6,137,360
In 2018 disburse				6,137,360
In 2019 disburse				6,137,360
In 2020 disburse				0
Budget allocation (central, provincial)				
Central budget				
<i>Allocation to Ministry of Agriculture and Rural Development</i>				<i>2,831,490</i>
<i>Allocation to Ministry of Health</i>				<i>4,714,520</i>
Allocation by local budget of 63 provinces				12,247,200
Total				19,793,210

Annex 7
Strengthening laboratory diagnostic capacity on animals and humans

Unit price: 1,000 VND

Order	Budget lines	UNIT	Quantity	Unit price	Amount
1	Strengthening laboratory diagnostic capacity on animals, using assistance from international organizations and budget allocation for disease prevention and control				0
2	Strengthening laboratory diagnostic capacity on humans				214,000
	Medium, chemicals and materials used annually				214,000
	Medium for cell culture	bottle	30	400	12,000
	FITC conjugate	set	10	1,000	10,000
	Kit for diagnosis and assessment of the hiệu giá kháng thể???	set	5	16,000	80,000
	Chemicals and tools including pipette, tip, gloves, chemicals...	year	1	100,000	100,000
	Verorab vaccines	dose	60	200	12,000
	Total for one year				214,000
	Divided into separate years				
	In 2016 disburse				
	In 2017 disburse				214,000
	In 2018 disburse				214,000
	In 2019 disburse				214,000
	In 2020 disburse				214,000
	Budget allocation (central, provincial)				
	Central budget				856,000
	<i>Allocation to Ministry of Agriculture and Rural Development</i>				0
	<i>Allocation to Ministry of Health</i>				856,000
	Allocation by local budget of 63 provinces				0

ANNEX 8

**Diagnosis and treatment for rabies suspected patients
(Building and finalizing protocol for taking care of and treating rabies patients, increasing the capacity to diagnose and detect clinically to provide treatment and relieve pains for rabies patients by health staff in hospitals)**

Order	Budget lines	Unit price	Quantity	Unit price	Amount
a	Building and finalizing protocol for taking care of and treating rabies patients	protocol		200,000	200,000
b	Providing treatment and relieve pains for rabies patients (paid for by patients' families)				0
	<i>In 2016 - 60 patients estimated</i>	<i>patient</i>	<i>60</i>		
	<i>In 2017 - 50 patients estimated</i>	<i>patient</i>	<i>50</i>		
	<i>In 2018 - 40 patients estimated</i>	<i>patient</i>	<i>40</i>		
	<i>In 2019 - 20 patients estimated</i>	<i>patient</i>	<i>30</i>		
	<i>In 2020 - no patient</i>	<i>patient</i>	<i>-</i>		
	Total				200,000
	Divided into separate years				
	In 2016 disburse				0
	In 2017 disburse				200,000
	In 2018 disburse				0
	In 2019 disburse				0
	In 2020 disburse				
	Budget allocation (central, provincial)				
	Central budget				200,000
	<i>Allocation to Ministry of Agriculture and Rural Development</i>				
	<i>Allocation to Ministry of Health</i>				<i>200,000</i>
	Allocation by local budget of 63 provinces				

**Annex 9: Scientific studies
(Mobilizing funding from other sources)**

Unit price: 1,000 VND

Order	Names of researches	Unit price	Norm	Number of years for implementation	Amount
	Study to identify elements that support and prevent the implementation of responsibilities by dog owners	Study			
	Study community-based rabies prevention and control communities	Study			
	Detail study on dog biology, knowledge, attitude and practice of local people, using standard investigation tools to identify typical characteristics of the dog populations as well as dog raising practices of the local people.	Study			
	Study the payment mechanism for management of dog populations in order to mobilize financial contributions including costs for registering a dog, costs for vaccinations against diseases, dog insurance ...	Study			
	Study size of the dog populations, the changes of the dog populations and capacity to access to vaccinations for dogs.	Study			
	Study on the health economy of the national program on rabies prevention and control.	Study			
	Study to assess the effectiveness of the rabies prevention and control program in humans and dogs.	Study			
	Study rabies molecular epidemiology in Viet Nam	Study			
	Study protocol to provide treatment to patients who show rabies symptoms	Study			
	Total 5.3.8 (disbursed in 2017-2018)				0
	Allocation by years				
	In 2016 disburse				
	In 2017 disburse				0
	In 2018 disburse				0
	In 2019 disburse				
	In 2020 disburse				
	Budget allocation (central, provincial)				
	Central budget				0
	<i>Allocation to Ministry of Agriculture and Rural Development</i>				0
	<i>Allocation to Ministry of Health</i>				0
	Allocation by local budget of 63 provinces				

ANNEX 10: POLICIES AND LEGISLATION

Unit price: VND 1,000

Order	Budget lines	UNIT	Quantity	Unit price	Amount
a	Building, adjusting and promulgating legal normative documents				0
	Building and issuing guidance on outbreak surveillance and investigation	Procedures			
	Building and issuing procedures for rabies prevention and control when there is no rabies outbreaks on animals	Procedures			
	Building and issuing procedures for quick responses when there is a rabies outbreak on animals	Procedures			
	Building and issuing procedures for management of dog populations	Procedures			
b	Strengthening the inspection on the implementation of legal normative documents on rabies prevention and control on animals and humans				655,200
	Implement regularly at least twice a year during rounds of vaccinations for dogs				
	Expenses for staff on inspection visits (5 people x 2 rounds x 3 Days)		30	150	4,500
	Sleeping room rental		20	250	5,000
	Surveillance labour		30	30	900
	Strict punishment in accordance with Decree No: 119/2013/NĐ-CP dated 9/10/2013; Circular No 48/2009/TT-BNN&PTNT; proceeds all go to the State budget				
	Total for one province				10,400
	Total of 63 provinces				655,200
	Total for 1 year				655,200
	Total for 2017-2020 period				2,620,800
	Allocation by years				
	In 2016 disburse				
	In 2017 disburse				655,200
	In 2018 disburse				655,200
	In 2019 disburse				655,200
	In 2020 disburse				655,200
	Budget allocation (central, provincial)				
	Central budget				0
	<i>Allocation to Ministry of Agriculture and Rural Development</i>				0
	<i>Allocation to Ministry of Health</i>				
	Allocation by local budget of 63 provinces				2,620,800

