



Professor Dr. Her Royal Highness Princess Chulabhorn Mahidol

Professor Dr. Her Royal Highness Princess Chulabhorn Mahidol, founding President of the Chulabhorn Research Institute, is the youngest sister of His Majesty King Maha Vajiralongkorn Phra Vajiraklaochaoyuhua (Rama X) of Thailand.

Her Royal Highness Princess Chulabhorn is a Professor of Chemistry at Mahidol University. Her special research interests are in the chemistry of natural products and in Thai medicinal plants, synthesis of natural products and new synthetic methods, drug development (small molecules and biologics), cancer research, environmental toxicology and environmental health problems of developing countries. Her Royal Highness Princess Chulabhorn also has doctoral degrees in Aquaculture and Bio-Veterinary Science from Kasetsart University, and a Diploma of the Thai Board of Veterinary Surgery, Veterinary Council of Thailand, illustrating her commitment to, and varied interests in, several fields of the life sciences.

She was the third person in the world to be awarded UNESCO's Einstein Medal for her continuous effort in promoting scientific collaboration in Asia and the Pacific and was the first Asian to be invited to join the Royal Society of Chemistry, in England, as an Honorary Fellow. Her Royal Highness Princess Chulabhorn has received international recognition for her scientific accomplishments in her appointment to various United Nations posts, namely special advisor to the United Nations Environment Programme (UNEP) and member of the Special High-Level Council for the International Decade for Natural Disaster Reduction of the United Nations. In addition, she has also been visiting professor at universities in Germany, Japan and the U.S.A., and has received numerous honorary doctoral degrees from universities in the U.S.A., U.K., Russia, Japan and elsewhere.

Her Royal Highness Princess Chulabhorn has also been invited to various advisory roles, including as Honorary President of the Heritage Trust in England, Ambassador of Goodwill of the World Health Organization, and Honorary Member of The University of Tokyo Global Advisory Board, Japan.

In 2021, 2022 and 2023, Her Royal Highness Princess Chulabhorn was named as one of the World's Top 2% Scientists in medicinal & biomolecular chemistry (organic chemistry) by Stanford University, U.S.A. This ranking, considered one of the most prestigious worldwide, is based on the bibliometric information contained in the Scopus database and includes more than 180,000 researchers from the more than 8 million scientists considered to be active worldwide, with 22 scientific fields and 174 subfields taken into account.

In addition to science, Her Royal Highness Princess Chulabhorn also has expertise in the arts. She received a Ph.D. in Visual Arts from Silapakorn University and was bestowed the title of "Sirisilapin" by the Thai Ministry of Culture for Her excellence in many fields of the arts, including visual arts, literature and music. The artwork that Her Royal Highness has created has often been used to raise money to help people in need, e.g., during the recent COVID pandemic.

Keynote Address

Rabies Eradication Project In Thailand

by

Professor Dr. HRH Princess Chulabhorn Mahidol

at

**The One Health for All, All for One Health Conference
at the European Convention Centre Luxembourg (ECCL)
Monday, 13 November 2023**

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Distinguished Participants and Colleagues, Ladies and Gentlemen:

First of all, I would like to apologize that I could not attend the meeting at Luxembourg by myself.

It give me great pleasure to give the keynote speech at this Opening Session of the “One Health for All, All for One Health” conference in Luxembourg today. I would like to thank the organizers for the invitation to share my experiences in promoting the One Health approach, including my role in championing this approach to eliminate rabies in Thailand.

The recent COVID-19 pandemic has made it very clear that human, animal, and environmental health cannot be dealt with separately but need to be addressed in a holistic approach. Inter-linkages among human, animal, and environmental health need to be better acknowledged, and integrated multi-sectoral and multi-disciplinary approach should be initiated, developed, encouraged, and strengthened. This is the better way forward to prevent and respond to environmental health threats, whether they be at the national or global levels.

In my role as President of the Chulabhorn Research Institute and a specialist expert in veterinary anesthesia at Faculty of Veterinary Medicine, Kasetsart University, I have first-hand experience with both human and animal diseases that pose challenges to environmental health and can observe the inter-connectedness of the diseases in human and animals that need to be addressed in a holistic way in any efforts for effective prevention and treatment.

For today, I would like to share my experience in our effort to control and eliminate rabies from Thailand. As we know that rabies is an important zoonotic viral disease in human and other mammals that is always fatal following the onset of clinical signs. From the past, Thailand still be an endemic area of this fatal disease for long time. In order to eliminate rabies from the country, I initiated the “Saving Animals and Human Lives from Rabies Project” as a significant public health undertaking in Thailand, for which I am the chairperson of the project steering committee appointed by the government that also includes representatives from various related agencies, such as the Department of Livestock Development, Department of Disease Control, Department of Local Administration, Department of Public Relations, the Office of the Prime Minister, and Kasetsart University.

The mission of this project, which launched in 2017, is to achieve sustainable prevention of human and animal fatalities from rabies in Thailand, in line with WHO’s goal of eliminating human rabies death by 2030. The project operates on the principles of working

collaboratively under the “One Health” approach, with a total of 8 strategic objectives as follow:

1. Surveillance, prevention, and control of rabies in animals.
2. Management of animal shelter systems.
3. Surveillance, prevention, control, and treatment of rabies in humans.
4. Driving the project activities at the local level.
5. Public relations and awareness campaigns.
6. Integration and management of rabies data.
7. Monitoring and evaluation of outcomes.
8. Development of innovations and technology transfer.

Activities under the first and second strategies, focusing on surveillance, prevention, and control of rabies in animals, as well as managing animal shelters, are crucial in addressing the root causes of the disease, which are dogs and cats, as they serve as reservoirs for rabies transmission to humans. The goal is to establish immunity against rabies in these dogs and cats, covering over 80% of the total population. Additionally,

population control and management of dogs and cats through sterilization are implemented systematically.

However, Thailand still faces the challenge of a large population of free-roaming dogs and cats in public areas, and it is not feasible to euthanize these animals, nor would be it acceptable according to the Buddhist religion. I should also mention that an additional difficulty is the free roaming of these dogs and cats, across country borders, which makes it difficult to manage, and requires extra effort, coordination, and collaboration among agencies, as well as possibly between countries. Therefore, the establishment of animal shelters is necessary to address these issues and conduct operations in accordance with animal welfare principles.

In the efforts to prevent and control the disease in animals, the Department of Livestock Development which is responsible for controlling and monitoring disease outbreaks in animals, collaborates with local communities through the Department of Local Administration, comprising 7,850 communities

nationwide under Strategy 4 (Driving the project activities at the local level). They conduct surveys of dog and cat populations and then inputting data into the Rabies One Data system as part of the data management activities outlined in Strategy 6 (Integration and management of rabies data). Joint efforts between these agencies result in rabies vaccination to community free-roaming dogs and cats. Regulations for dog and cat ownership responsibility are also issued for the communities.

To implement activities for the surveillance, prevention, control, and treatment of rabies in humans under Strategy 3, the Department of Disease Control is the main agency responsible. They focus on ensuring the availability of vaccines and medical supplies to provide services to the public in case of dog or cat bites. Additionally, efforts are made to enhance the efficiency of the country's public health system. Furthermore, to achieve the goal of zero rabies death in human, efforts are made to raise awareness in society and alert the public to the dangers of rabies under Strategy 5 (Public relation and awareness campaigns).

Under Strategy 8, which addresses innovation and technology transfer, research questions are collected from various strategies to develop more efficient methods for preventing and eliminating rabies, aligning with Thailand's context. Finally, under Strategy 7 (Monitoring and evaluation of outcome), activities are conducted to monitor and evaluate the progress of all sectors under the strategies to ensure that the overall project is effective and achieves its goals. Therefore, it is evident that the implementation of the "Saving Animals and Human Lives from Rabies Project", as outlined above, efficiently follows the One Health approach.

Results of the project's initial phase covered 4 years from 2017 to 2020, showed that the agencies involved collaborated and coordinated efforts in line with the project's vision. However, due to the large number of dogs and cats not having been vaccinated in 2015-2016, the number of fatalities and the percentage of rabies-infected animals remained high in 2017-2018. Notably, significant progress was observed in the third year of the project, with the number of human fatalities reduced to only 3 in both 2019 and 2020.

Since rabies was not yet completely eliminated from Thailand, the project was continued in a second phase, which covered 5 years from 2021 to 2025, using the same 8 strategic objectives as the first phase. The focus in this second phase includes the following:

- Comprehensive management of pet populations in Thailand.
- Establishing rabies-free zones.
- Monitoring, prevention, and problem-solving of rabies in border areas with neighboring countries.
- Creating community participation and engagement in all sectors.

The results since the start of the second phase have shown a decrease in human fatalities from rabies, with 3 - 4 cases per year in 2021 - 2023, which is at a low level consistent with the percentage of rabies-infected animals. Some areas in Thailand have been declared rabies-free based on specified criteria. However, the COVID-19 pandemic's impact on the spread of the disease from 2020 to 2022 posed challenges to rabies prevention efforts in animals, including occasional shortages of rabies vaccine. Consequently, the situation

showed a tendency to become more severe. As a result, after the COVID-19 situation began to ease, all sectors have increased their efforts to prevent rabies from resurging and eliminate it entirely from Thailand. This includes rabies vaccine security by domestic production for both animals and humans to address the issue in a sustainable manner.

Currently, the areas in Thailand where rabies-infected animals and fatalities are observed include the lower northeastern region, eastern region, southern region, and the eastern areas of Bangkok and its metropolitan area where rabies remains mainly confined to animals.

As a chairperson of the project and veterinary anesthesiologist, I and my team have participated veterinary volunteer activities including dog and cat vaccination, neutering which were conducted on mobile surgical unit and educate local people in rabies prevention. Since the COVID-19 situation began to ease, we could held veterinary volunteer activities over a period of 51 days and covering 17 provinces around the

country, where a total of 6,398 dogs and cats received rabies vaccination and 6,987 animals were spayed or castrated.

Furthermore, the Faculty of Veterinary Medicine, Kasetsart University, in collaboration with various relevant organizations, conducted integrated training programs to disseminate knowledge and technology in rabies management to communities nationwide. These training programs, held 24 times across 24 provinces, involved 4,833 participants, including village health volunteers, local public health officials, community leaders, teachers, and students.

In an attempt to tackle the problem in a holistic manner under Thailand's context, I have also established the "Nakhon Chai Burin" shelter for homeless dogs in Nakhon Ratchasima province, occupying an area of 48,000 square meters, able to accommodate approximately 3,000 dogs from the Nakhon Chai Burin group of 4 provinces that included Nakhon Ratchasima, Chaiyaphum, Buri Ram and Surin.

The facility consists of

1. Administrative building
2. Veterinary clinic
3. Dog housing with playground
4. Food storage
5. Equipment storage
6. Animal crematory
7. Wastewater treatment facility
8. Animal feed facility
9. Veterinarian's residence
10. Staff dining hall
11. Staff dormitory
12. Dog show and souvenir building

The facilities, along with the dedication of the staffs, ensure that all stray dogs receive proper care and some even undergo training to prepare them for adoption, ultimately providing them with a permanent home.

Furthermore, the shelter selects healthy dogs weighing over 17 kilograms and free of blood-borne diseases for blood donors to treat sick dogs at Kasetsart University Veterinary Hospital, so the added benefit of this shelter is that it also acts as a blood bank for animals

that need it. This shelter is used as a model for other shelters to be setup around the country.

In conclusion, the “Saving Animals and Human Lives from Rabies Project, has successfully fostered effective collaboration among various organizations aligned with One Health approach. This has led to improved rabies situations in both humans and animals in Thailand, showing significant progress since the project's inception. The project has also set an example for One Health approach to disease surveillance and prevention that may be applicable to other countries globally in the future. However, to achieve the WHO's goal of zero human deaths from rabies by 2030, continuous efforts from all sectors are necessary, especially in addressing the root causes, such as comprehensive management of pet populations and pet owner responsibility. Additionally, raising awareness about the dangers of rabies through increased community engagement is essential to ensure effective and sustainable rabies control in Thailand. Finally, I believe that we need to work together on the global level, including with WHO, to assure vaccine availability for

all countries that need it, in order to achieve our common goal.

I hope this description of the work we have undertaken in Thailand for rabies control and elimination under my supervision gives you an idea for the complexity of the disease control, and the interconnectedness between human and animal diseases, as well as the societal implication. I hope it also show you the importance I hold towards the One Health concept.

Once again, I would like to thank the organizers for giving me this opportunity to share my direct experience in promoting the One Health approach in Thailand, and I wish you all a very fruitful and successful conference.

Thank you very much.