



## Harnessing Momentum in Driving Vaccine Security and Self Reliance in Thailand through the Association of Southeast Asian Nations

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### Abstract

Vaccines are one of the most cost-effective public health interventions for the prevention and control of many communicable diseases. Therefore, vaccine security and self-reliance are important issues for national security, as shortages and stock-outs of vaccines pose the risk of disease resurgence and outbreaks, making a country prone to large-scale epidemics. Thailand has been working to ensure availability, accessibility and utilization of quality vaccines by driving the 'vaccine security agenda' both nationally and regionally for years, through the ASEAN Vaccine Security and Self-Reliance (AVSSR) Initiative. This paper describes the progress and achievements of the quest towards vaccine security and self-reliance in Thailand and in ASEAN. The Initiative provides an effective platform to increase collaboration amongst nations in the region with an aim to ensure sustainable supply of quality vaccines and discusses the on-going challenges that need to be addressed.

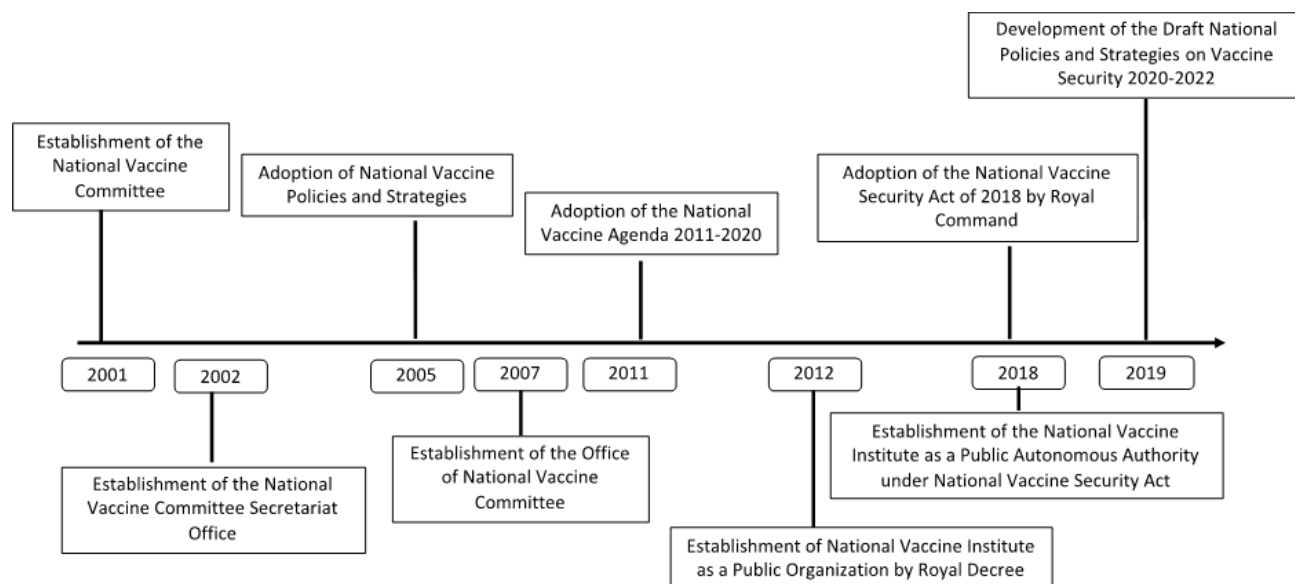
**Keywords:** vaccine, vaccine security, Thailand

### Introduction

Vaccines are universally recognized as one of the most cost-effective public health interventions for the prevention and control of infectious diseases. Interruption of the continuous use of vaccines, even short-term, creates a risk of vaccine preventable disease (VPD) resurgence and outbreaks, which may ultimately lead to large-scale epidemics.<sup>1</sup> Vaccine security is defined by the United Nations Children's Fund (UNICEF) as *'the timely, sustained, uninterrupted supply of affordable vaccines of assured quality'* to ensure adequate public health protection in a country.<sup>2,3</sup> While "vaccine self-reliance" refers to the ability of the country and/or region to optimally ensure sufficient vaccines for use in routine immunization and emergency situations, based on its own capacities and resources and without needing much help from outside.

Vaccine shortages have been attributed to numerous factors including procurement challenges due to constraints in vaccine supply, production problems and vaccine market interruption (for instance, manufacturing companies and/or products leaving the market, and insufficiency of manufacturing companies to produce products that meet the consumer demand).<sup>4</sup>

Vaccine insecurity is a critical challenge faced by many countries. Low and middle income countries (LMICs) are most likely to be affected by the incidental stock-outs and shortages of vaccines (both vaccines used in basic immunization programs and those used for outbreak control during emergency situations).<sup>1</sup> This issue is not only a concern in the field of public health but also a matter of national economy and social security.<sup>5</sup>



**Figure 1. Chronological development of National Vaccine Institute from 2001 to 2019**

In this regard, Thailand has put huge effort into ensuring the availability, accessibility and utilization of quality vaccines, through a number of policies and strategies. Thailand also serves as a focal point in driving the vaccine security agenda in the Southeast Asian region, largely through the Association of Southeast Asian Nations (ASEAN), which acts as a key platform for regional collaboration.

ASEAN is a platform for countries to share and learn on the best practices, which has the potential to lead to mutual collaborations in order to achieve the ultimate goal of Vaccine Security and Self-Reliance. This paper therefore aims to describe the progress and achievements of the quest towards vaccine security in Thailand and in ASEAN. It is hoped that the ASEAN Leader Declaration on Vaccine Security and Self-Reliance can be implemented into real actions and the lessons learned from Thailand can be used as useful inputs for other countries/regions where the vaccine security agenda is on the spotlight.

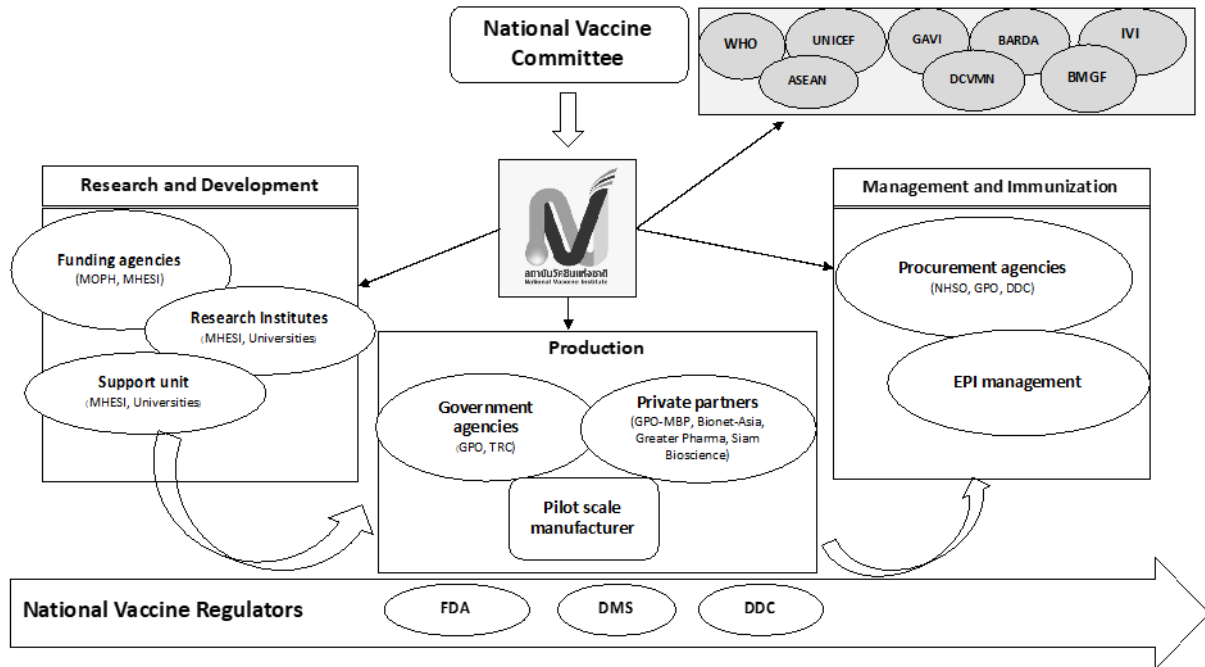
### **Historical Evolution of Vaccine Security in Thailand**

The quest towards vaccine security in Thailand began about two decades ago. One of the most important cornerstones was the establishment of the National Vaccine Committee (NVC) in 2001. In the following year, the National Vaccine Committee Secretariat Office (NVCO) was formed under the Department of Disease Control to steer the direction of vaccine security policies. (Figure 1)

However, the progress of implementation was low. This was partly due to the limited capacity and authoritative power of the NVCO. To this end, the

National Vaccine Institute (NVI) was established in 2012 as a public organization established under the Royal Decree. The organization is mandated to ensure equitable access to safe quality vaccines in Thailand for both routine use and emergency responses. In 2018, under the National Vaccine Security Act (B.E.2561), NVI was reaffirmed as a public autonomous authority, with a legal mechanism to enforce and support national policies and strategies on vaccine security in close collaboration with relevant agencies and partners both in and outside Thailand.<sup>6</sup> (Figure 2)

Despite significant progress at the policy level, numerous implementation challenges still remain, and vaccine-related problems have continued to take place from time to time. These include the mismatch of demand and supply of vaccines. On the supply side, vaccines are at times inadequate due to various reasons such as limited global production capacity of some vaccines, consolidated vaccine market, orphan vaccines (Vaccines for rare infectious diseases which may be important for critical areas, but are often not commercially manufactured due to limited pharmaceutical profitability), regulatory and trade barriers, and the standard requirements throughout the vaccine development cycle. At the same time, vaccine demand is increasing due to pandemic threats, emergence of VPDs, global elimination/eradication programs and increased population which entail increased demand for vaccines throughout the life course. Thus, the NVI alone may not be able to bring the country towards vaccine security. Concerted efforts from all stakeholders, both public and private sectors, national and international partners, are indispensable.



**Figure 2. Relationship between NVI and potential partners concerning vaccine security in Thailand**

*Note: ASEAN: Association of Southeast Asian Nations, BARDA: Biomedical Advanced Research and Development Authority, BMGF: Bill & Melinda Gates Foundation, DCVMN: Developing Countries Vaccine Manufacturers Network, DDC: Department of Disease Control, DMS: Department of Medical Science, EPI: Expanded Programme on Immunization, FDA: Food and Drug Administration, GAVI: Global Alliance for Vaccines and Immunizations, GPO: Government Pharmaceutical Organization, GPO-MBP: Government Pharmaceutical Organization-Merieux Biological Products Co.,Ltd, IVI: International Vaccine Institute, MOPH: Ministry of Public Health, MHESI: Ministry of Higher Education Science Research and Innovation, NHSO: National Health Security Office, TRC: Thai Red Cross Society, UNICEF: United Nations Children's Fund, WHO: World Health Organization*

### Initiating A Regional Initiative on Vaccine Security and Self-Reliance of Vaccines

Recognizing the importance and necessity of regional collaborations to achieve vaccine security, in 2014, NVI worked closely with key partners to bring the issue of vaccine security and vaccine self-reliance to a regional health platform. With support from the World Health Organization (WHO), NVI brought together key stakeholders in the Southeast Asian region as well as international academics and international developmental partners to attend the workshops, 'Collaboration Initiatives for Regional Vaccine Security and Self-Reliance' held in 2014 and 2015.<sup>7</sup> The workshops aimed to identify common issues and interest amongst diverse countries in the region and ensure sufficient supply of affordable quality vaccines at both national and regional levels.<sup>7</sup> Following the official establishment of the ASEAN Community in 2015, the NVI proposed vaccine security as an agenda of regional importance to the Senior Officials Meeting on Health Development (SOMHD) in 2015 and the ASEAN Health Minister Meeting (AHMM) in 2016. This led to the adoption of the ASEAN Vaccine Security and Self-Reliance (AVSSR) Initiative in the ASEAN Health Priority Issue on Strengthening Health Systems and Access to Care' where Thailand served as the lead country.

In order to inform the development of regional strategies and actions on vaccine security, the ASEAN Vaccine Baseline Survey (AVBS) was conducted by Thailand in collaboration with ASEAN Member States in 2017 as part of the ASEAN Health Work Plan to assess the current vaccine situation and capacity of ASEAN Member States.<sup>8</sup> Through self-reported questionnaires, key informant interviews and study visits, the AVBS identified each ASEAN Member State's capacity on vaccine research, vaccine development and production, mechanisms for vaccine procurement and management as well as the similarities and challenges of vaccination policies in the region. The results of the AVBS found that the region has existing policies, strategies, infrastructure and capacities in driving vaccine security, however, there were still gaps in regional collaboration, regional vaccine procurement and stockpiling, knowledge sharing, and technology transfers for vaccine research, development and production.<sup>8</sup> The region has already been successful in producing vaccines, as presented in Table 1, and has substantial potential for increased vaccine production, especially for vaccines that are aligned with the National Immunization Programs and WHO guidelines. The resources and infrastructure available in most member states provide a strong basis for increased

contribution and collaboration from all AMSs to accelerate vaccine development and production in the region.

Moreover, in light of the partnership with ASEAN Member States and the ASEAN Secretariat, the NVI developed the ASEAN Leader's Declaration (ALD) on Vaccine Security and Self-Reliance in 2018. The ALD was further endorsed in the 35th ASEAN Summit in Bangkok, in November 2019. The Declaration explicitly shows a strong political commitment from the Governments of all ASEAN Member States, a crucial foundation in driving regional vaccine security.<sup>9</sup> Following the ALD endorsement, all ASEAN Member States concurrently agreed on the 'Regional Strategic and Action Plan on AVSSR', 2021-2025. The Plan aims to provide a framework for increased collaboration, engagement, and integration among ASEAN Member States and relevant international development partners to work together

on Vaccine security and self-reliance.

## Opportunities, Remaining Challenges and the Way Forward

Despite commitments from the Governments of all ASEAN Member States, there are opportunities and challenges to implement the AVSSR Initiative as shown in Table 2.

In the context of ASEAN, the most challenging issues are the variation of its economic, political and social systems, the multi-step and time-consuming decision mechanisms and limited capacities of the secretariat. However, at the same time, "ASEAN ways" can be considered as opportunities, the non-interference in domestic affairs and non-legal binding engagement and voluntarism principle provides flexibility for each country to move on its interest and allows other countries to work on their own priorities and own pace.

**Table 1. Variability of vaccine manufacturing and standards among selected ASEAN Member States**

Country	Manufacturer	Vaccine Products		Standard
Myanmar	Yarthargvi	-Hepatitis B		GMP
	Insein	-TT		
Vietnam	VABIOTECH	-Hepatitis B,	-Cholera	WHO-GMP
		-Japanese encephalitis	-Hepatitis A	
	POLYVAC	-bOPV	-Measles	
		-Rotavirus	-Measles, Rubella	
IVAC	-BCG	-TT, Td		
	-DTwP			
DAVAC	-Typhoid	-Rabies		
	-Hepatitis B			
Indonesia	BioFarma	-BCG	-Seasonal Flu	GMP-PIC/S
		-Hepatitis B		WHO-PQ
		-Measles	-TT	
		-OPV	-DT, dT	
		-DTwP	-DTwP-HB-Hib	
Thailand	BioNet-Asia	-Acellular Pertussis (aP)		GMP-PIC/S
		-Tetanus Diphtheria Acellular Pertussis (Tdap)		
	QSMI	-Rabies		
		-BCG		
GPO-MBP	-Hepatitis B			
	-Seasonal Influenza			
	-Rabies			
GPO	-Live Recombinant Japanese encephalitis (LAJE)			
	-Avian Influenza (H5N2)			
		-Pandemic Influenza (EUA)		WHO-GMP

Note: IVA: Institute of Vaccines and Medical Biologicals, DAVAC: Dalat Pasteur Vaccines Company Limited, QSMI: Queen Saovabha Memorial Institute, GPO: Government Pharmaceutical Organization, GPO-MBP: Government Pharmaceutical Organization-Meraux Biological Products Co.,LTD., GMP: Good Manufacturing Practices, GMP-PIC/S: GMP- Pharmaceutical Inspection Co-operation Scheme, WHO-GMP: World Health Organization-Good Manufacturing Practices, WHO-PQ: World Health Organization-Prequalified

**Table 2. Opportunities and challenges in driving the AVSSR (the ASEAN Vaccine Security and Self-Reliance)**

	Opportunities	Challenges
<b>ASEAN context</b>	<ul style="list-style-type: none"> <li>▪ Large population, economy of scale and high Foreign Directed Investments</li> <li>▪ Strategic geographic location with linking platforms with big economies (China, USA, Japan, South Korea, South-South collaboration)</li> <li>▪ Joint visions on vaccine security and joint targets on national immunization programs</li> </ul>	<ul style="list-style-type: none"> <li>▪ Varying economic, political and social systems, geographical differences</li> <li>▪ Varying developmental levels</li> <li>▪ Maritime disputes on the South China Sea</li> <li>▪ Diverging national priorities</li> <li>▪ Different designs of health systems and immunization programs</li> </ul>
<b>ASEAN decision mechanisms and outputs</b>	<ul style="list-style-type: none"> <li>▪ Non-interference in domestic affair</li> <li>▪ Non-legal binding engagement and voluntarism principles given more flexibility for each country to move on its interest and its own pace</li> <li>▪ Plenty of non-binding high-level agreements</li> </ul>	<ul style="list-style-type: none"> <li>▪ Multi-step and time-consuming process</li> <li>▪ Reaching decision through consensus</li> <li>▪ Need for capacity on strengthening of the secretariat</li> <li>▪ No concrete outputs/success</li> </ul>
<b>VSSR capacities</b>	<ul style="list-style-type: none"> <li>▪ Progress on the harmonization of the regulation</li> <li>▪ Availability of vaccine production capacities in some countries</li> </ul>	<ul style="list-style-type: none"> <li>▪ Limited R&amp;D capacities (conventional technologies)</li> </ul>
<b>Collaboration areas on VSSR</b>	<p>Common areas of interest</p> <ul style="list-style-type: none"> <li>▪ Information sharing</li> <li>▪ Capacity building</li> <li>▪ Procurement and stockpiling</li> </ul>	<p>Areas of Conflict</p> <ul style="list-style-type: none"> <li>▪ Competitive nature</li> <li>▪ R&amp;D</li> <li>▪ Production</li> </ul>

Although there are diverging national priorities and varying national health and immunization systems. There are still a number of mutual areas of interest for collaboration on vaccines in ASEAN including information sharing, capacity building, procurement and stockpiling. Therefore, ASEAN Member States can collaborate in good faith in these key areas through the AVSSR Initiative. These ventures can collectively build trust and bring the relationships of ASEAN countries to the next level.

### Conclusion

Vaccine security has been a key issue which Thailand has been addressing in the last two decades. This is not only a matter of in-country public health concern, but also the issue on political spotlight in ASEAN. Thailand, through NVI, has pushed the vaccine security and self-reliance agenda forward through various strategies and mechanisms, especially the ASEAN platform. Despite the long journey towards vaccine security and self-reliance, Thailand has been successful in adopting the National Vaccine Security

Act and progressed in the efforts at a regional level through the endorsement of the ALD on AVSSR. Nevertheless, these achievements are not the end of the story as continued efforts are still needed to translate the intention into actions. The Regional Strategic and Action Plans on AVSSR will be a crucial instrument to implement the ALD. It will be jointly developed by ASEAN Member States taking into account both national priorities and issues of regional importance. Strengthening regional cooperation and building institutional capacity within the region are essential to ensure that all ASEAN Member states will not face vaccine stock-outs and shortages and achieve better access to vaccines both during times of emergency and for routine situations and at the same time minimizing over supplies and wastage of vaccine products.

### Suggested Citation

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