



Assessing Vaccine Demand and Financing Options for Non-Thai Children Along the Thai-Myanmar Border

Piya Hanvoravongchai

Nyein Chan Oo

Natthawut langtanarat

Wasin Laohavinij

Apinya Boonsu

Mana Chunsuttiwat

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Background

- Thailand–Myanmar border forms Southeast Asia’s largest country-to-country migration corridor, facilitating mass displacement and humanitarian flows
- Sharp Decline in Immunization Coverage in Myanmar Following the 2021 Coup
- Myanmar ranks 10th among countries with the highest number of zero-dose children in 2023 (Total zero-dose children: 492,000)
- On Thai side of the border, overall full vaccination coverage from HDC Official Vaccination records is 18-45% in one study of Immunization Coverage for Non-Thai Migrant Populations in Thailand: 2024 Study

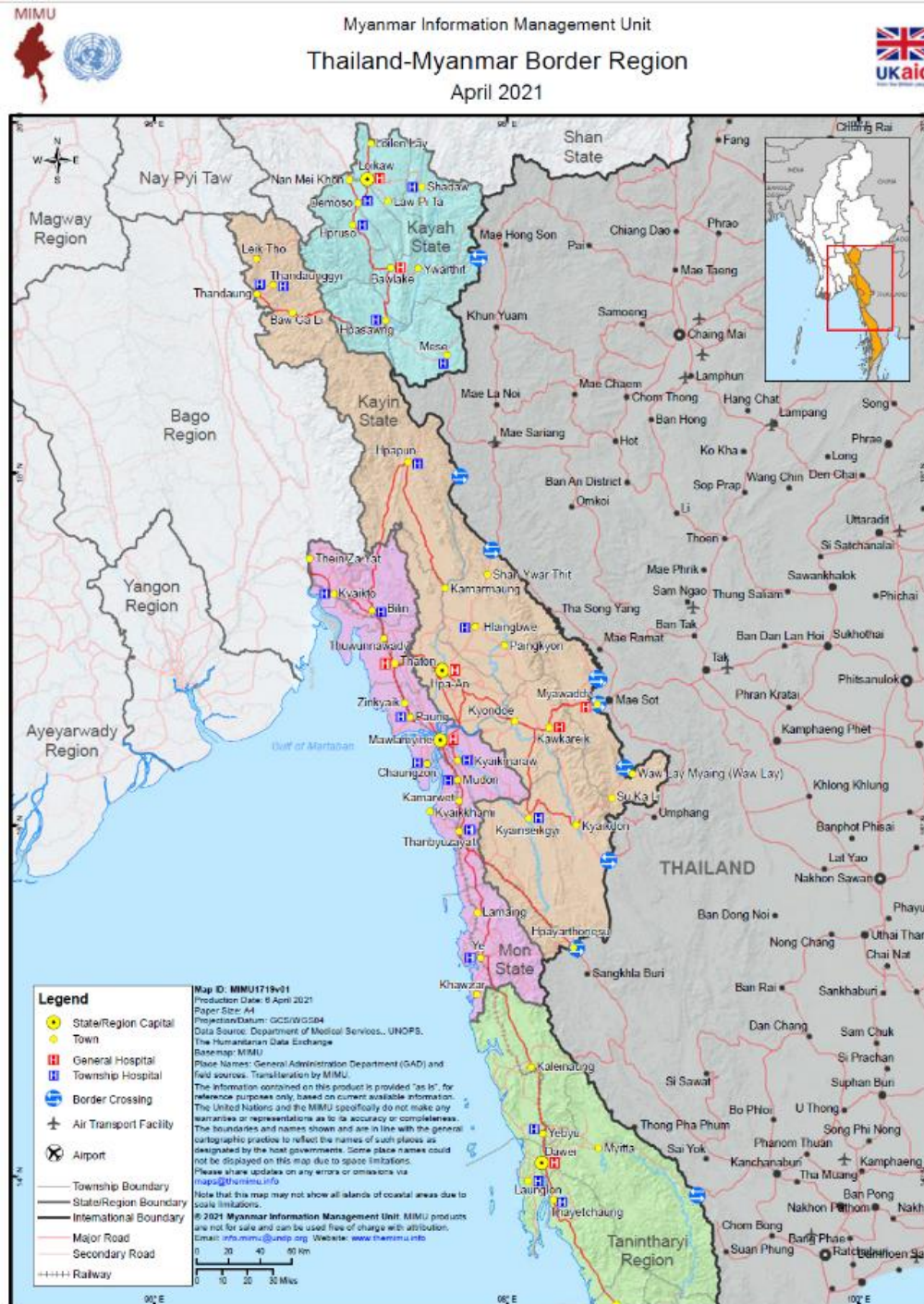
Rank	Country	DTP1 (%)	DTP3 (%)	MCV1 (%)	Number Zero-Dose Children
1	India	88	85	89	2,711,000
2	Nigeria	70	56	59	2,247,000
3	Indonesia	74	67	72	1,150,000
4	Ethiopia	70	65	54	1,134,000
5	Philippines	57	57	57	1,048,000
6	Democratic Republic of the Congo	81	65	55	734,000
7	Brazil	74	68	73	710,000
8	Pakistan	90	83	81	611,000
9	Angola	57	45	36	553,000
10	Myanmar	45	37	44	492,000
11	United Republic of Tanzania	82	81	76	402,000
12	Mozambique	67	61	84	372,000
13	Afghanistan	74	66	63	361,000
14	Somalia	52	42	46	338,000
15	Mexico	83	78	99	317,000
16	Madagascar	65	55	39	304,000
17	Cameroon	76	69		219,000

Immunization Coverage Performance for the 20 Highest Burden Zero-Dose Countries , Source: Dadari et al., 2023. Available at: <https://doi.org/10.3390/vaccines11040809>

MYANMAR SIDE

- Inter Census Report, 2019 in Myanmar, the **southeastern part of Myanmar**, has a total population of approximately **8.5 million** people.

Thai-Myanmar Border:
2,416 kilometers



THAI SIDE

- IOM survey (July 2024) estimated:
 - 4.1 million Myanmar migrants** in Thailand.
 - 1.8 million (43.9%) in irregular situations.
- Estimated **263,000 non-Thais** in 44 districts along the Thai-Myanmar border (IOM, Aug 2023):
 - Mae Sot (74,000)
 - Mueang Ranong (57,000)
 - Kra Buri (20,000)
- 28.6%** of overall pop
- 90,759** in refugee camp (TBC, Dec 2023)



Date: 26 July, 2024

Official Statement on Recent Media Reports of Fever Outbreaks in IDP Camp

The Karen Department of Health and Welfare is aware of the recent media reports titled “ပလောတိုဝို စစ်ရှောင်စခန်း၌ ကူးစက်မြန် ဖျားနာဖြစ်ပွားမှုများနေ”, “Highly Contagious Fever Outbreak in IDP Camp in KNU-Controlled Area" and "Alarms Raised as Mysterious Fever Outbreak Hits Displaced Persons Camp in Myanmar." We understand that the public and stakeholders may be concerned as a consequence of these reports.

KDHW promptly conducted an outbreak investigation as soon as we were informed about the alleged outbreak. The investigation, led by our medical officer and his team from the LKK site 1 IDP camp, took place on July 19, 2024, with guidance from the KDHW central technical team. The Palaw Tapot IDP camp, home to about 500 households and 2,000 residents, hosts one clinic. This clinic provides healthcare services not only to the camp residents but also to people from nearby villages, including migrant workers. The clinic sees an average of 2,000 outpatients per month and offers services such as basic trauma care and emergency medical and surgical care.

Recent Outbreaks in 2024

Cholera claims three lives, infects 450 near Thai-Myanmar border

 Puntid Tantivangphaisal · Tuesday, December 24, 2024 Last Updated: Tuesday, December 24, 2024 📖 2 minutes read

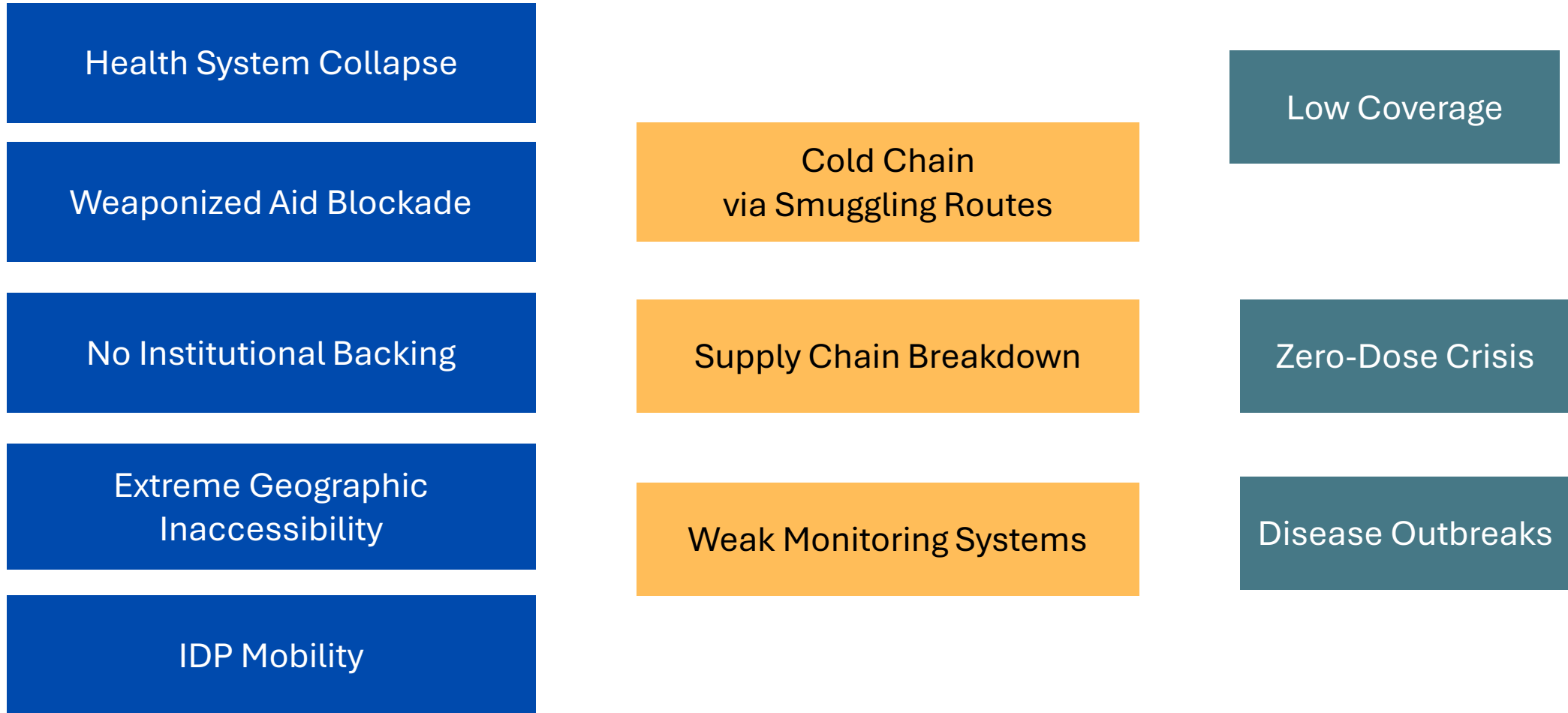
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Photo courtesy of KhaoSod

Cholera has claimed three lives and left around 450 people infected in the **Myanmar region** bordering **Mae Sot district** in **Tak province**. Officials have issued warnings for increased vigilance regarding hygiene and food preparation to prevent further outbreaks.

Myanmar Side: Vaccination Challenges Amidst Ongoing Conflicts



(Source: Poe et al., IJ Equity Health, 2024)

Thailand Side: Challenges in Delivering Immunization to Myanmar Migrant Children

Undocumented Status, low HICS

Policy Gaps, Coverage Inequity

High Mobility

Sociocultural Barriers

Unstable Supply

Budget Uncertainty

Low Coverage

Disease Outbreaks

Objectives

- To assess the basic vaccine demand in vulnerable populations, non-Thai and foreign children, covering the 5 border provinces with the highest numbers of refugees and migrant workers: Chiang Rai, Mae Hong Son, Tak, Kanchanaburi, and Chiang Mai, as well as adjacent populations on the Myanmar side who regularly move across the Thai border areas.
- To collect and analyse fiscal options and mechanisms for vaccine procurement for this population.
- To study international experience in managing vaccine access systems for migrant child populations, including lessons learned from neighbouring countries in vaccine support to conflict-torn countries such as Syria, Yemen, and Palestine.
- To synthesize experiences and lessons learned in Thailand, including the role of organizations in supporting the welfare of migrant children in Thailand, including experiences from driving policies in the education sector for children without civil registration or Thai nationality, and increasing access to vaccines for migrant children in Thailand in the past.
- To survey the opinions and suggestions of key stakeholders, both public and private, both domestically and internationally. In terms of funding for access to vaccines for vulnerable populations.

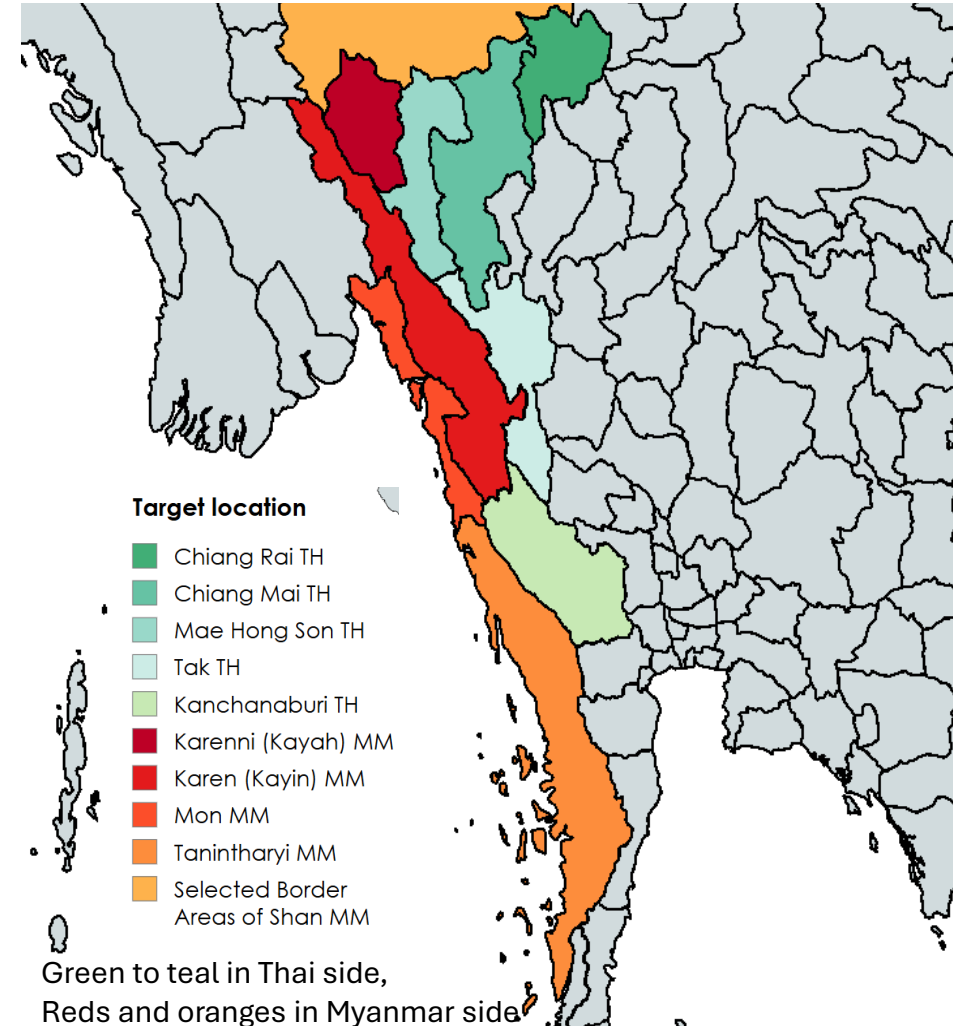
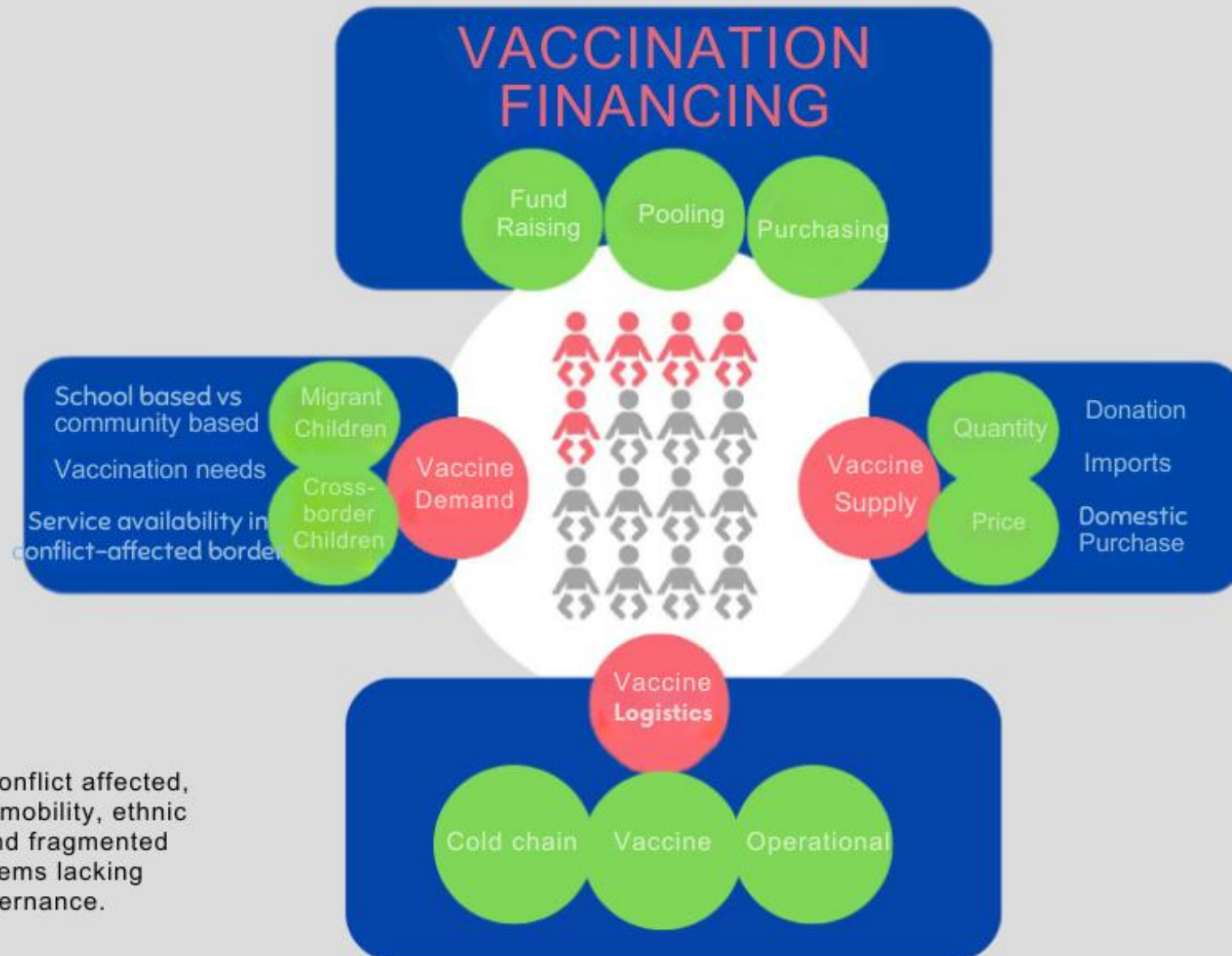


Figure: Selected areas based on highest number of stateless children

Conceptual Framework



Demand Estimation

Population Estimation on the Thai Side

- It is challenging to include individuals who are unregistered in any official records.
- Available data sources include official records of children from the Ministry of Public Health (MOPH), Ministry of Education (MOE), and Ministry of Interior (MOI).
- To estimate the size of the Myanmar migrant population living in irregular situations in Thailand, we applied the **Proportion-Inverse Proportion (PIP) approach**, based on the best available population survey data.
- Validation will be conducted using inter-ministerial child records, national survey data on registration status, and qualitative interviews.

Population Estimation on the Myanmar Side

- Household-based population surveys are used for areas controlled by resistance groups.
- The 2024 Population Census provides data for areas under the control of the State Administration Council.

Once the target population is estimated, vaccine demand—or the number of doses needed—can be calculated using a standard formula.

Most immunisation programmes use a target population (cohort) approach, as recommended by WHO and UNICEF.

$$D_{a,t} = P_{a,t} \times C_{a,t} \times s_a \times (1 + w_a) + B$$

Formula Components

Symbol	Meaning
$P_{a,t}$	Population in age/eligibility group a at time t
$C_{a,t}$	Target coverage (%) for that antigen/dose
s_a	Doses in the schedule for group a (e.g., 3 for DTP)
w_a	Expected wastage rate (multi-dose vials, cold-chain breaks)
B	Buffer or safety stock (often 25–50% of monthly need)

Data Elements and Sources

Data element	Role in the maths	Typical sources	Notes on quality
Births/age-band populations	$P_{a,t}$	Civil registration, UN World Pop	Adjust for in-/out-migration
Coverage targets & schedules	$C_{a,t}, s_a$	National EPI plan	Include catch-up campaigns
Wastage factors	w_a	Facility stock cards, MDVP reports	Varies by vial size & service mode
Buffer policy	B	National logistics norms	Often $0.5 \times$ monthly needs
Migration/seasonality	modifies $P_{a,t}$	Border-crossing logs, school calendar	Stochastic term in advanced models
Historical doses issued	model validation	DHIS2, paper tally sheets	Needed even for cohort models

Results: Ongoing Data Collection - Preliminary Case from One Province/State as Example

Indicator	Thailand (Tak)	Myanmar (Kayin) - GAVI / Private
Total Under-4 Children	28319	136470
Estimated Full Immunization Rate	18-45% ¹ (Approximately 32%)	30% ²
Projected 1-Year Birth Cohort	7079	34117
Non-Immunized Children (target children based on current population)	19256	95529
Full Immunization Target (Under-1 + Projected)	11893	57999
Catch-Up Target (1-4)	14442	71646
Cost per Fully Immunized Child	THB 1995.94 (~\$56) ³	\$73 (GAVI) / \$150 (Private)
Cost per Catch-Up Child	THB 1397.16 (~\$39.20)	\$51.10 (GAVI) / \$105 (Private)
Estimated Budget (Full + Catch-up)	THB 43915499 (~\$1.25 M)	\$7.89 M (GAVI) / \$16.22 M (Private)

1.Thanasitthichai S, Uansri S, Mingmaung P, Panapong N, Suphanchaimat R. *Feasibility of providing basic vaccination services for migrant children in Thailand*. Ministry of Public Health, Thailand; 2024.

2. Source: Burma News International. (2024, April 5). *Vaccination coverage for children under five in Karenni State drops to 30% post-coup*.

<https://www.bnionline.net/en/news/vaccination-coverage-children-under-five-karenni-state-drops-30-post-coup>

3. Only NHSO 2024 Vaccine Cost

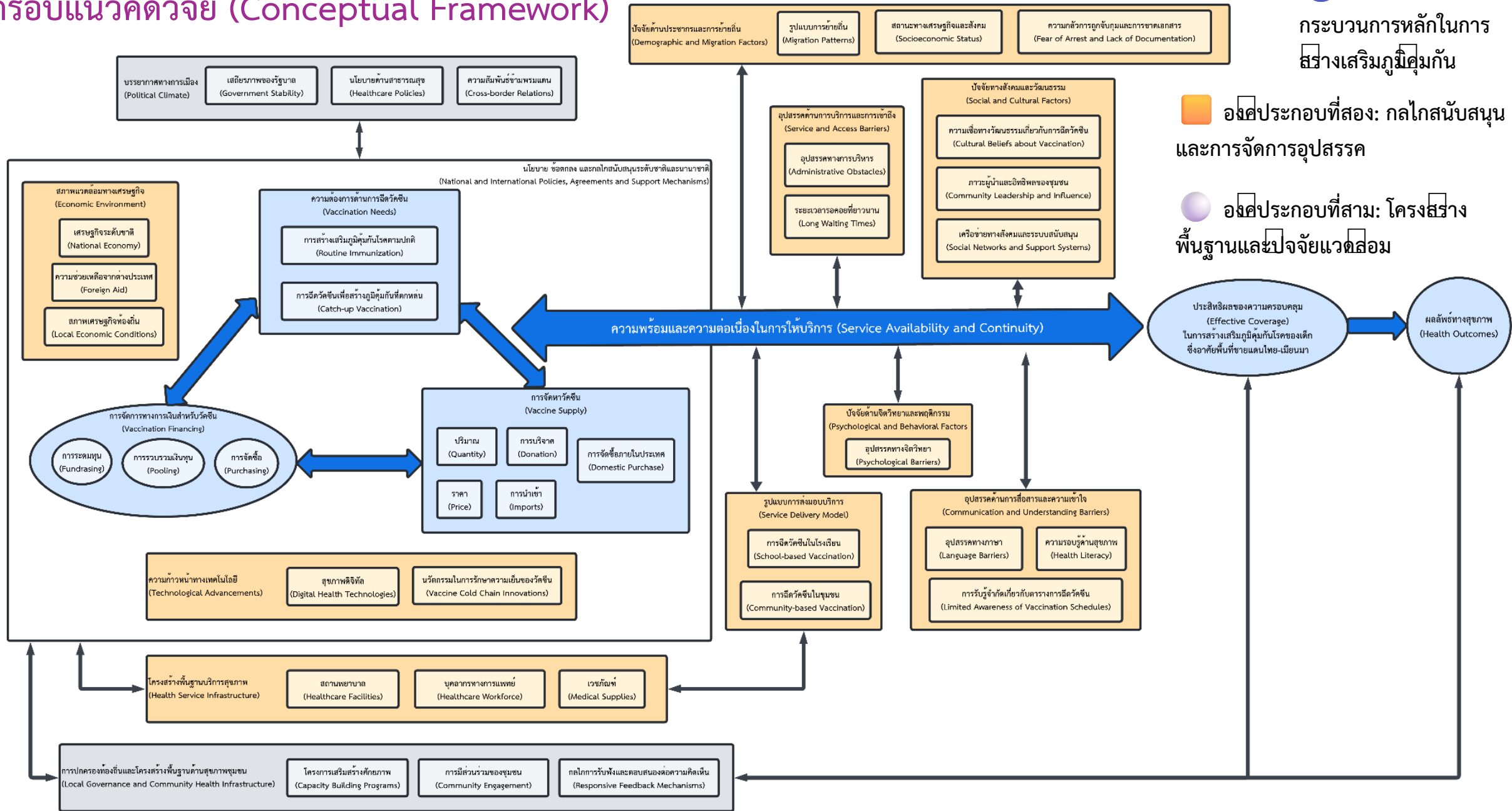
Discussion Points

Urgent Financing Gaps and Access Barriers in Cross-Border Childhood Vaccination

- Preliminary budgeting analysis only in one example province/state on each side of the border shows:
 - Tak (Thailand): ~43.9 M THB (\$1.25 M USD) needed for under-4s
 - Kayin (Myanmar): Gavi pricing: ~\$7.89 M USD, Private procurement: up to \$16.22 M USD
- Private procurement adds ~\$77per child in Myanmar, challenging sustainability.
- Non-Thai children in Thailand remain largely excluded from national vaccine funding despite known public health risks
- Current delivery relies on fragmented financing channels and small-scale vaccination (no dedicated vaccine quota for unregistered children in Thai side, no central vaccine supply chain in ethnic resistant areas).
- Operational challenges include limited outreach, unreliable cold chains, and shortages of trained health workers in non-governmental and cross-border settings.
- Cross-border mobility, statelessness, and lack of legal documentation complicate standard budgeting and procurement pathways.
- Ethnic health systems are delivering services but remain largely excluded from formal immunization governance frameworks.

Thank You

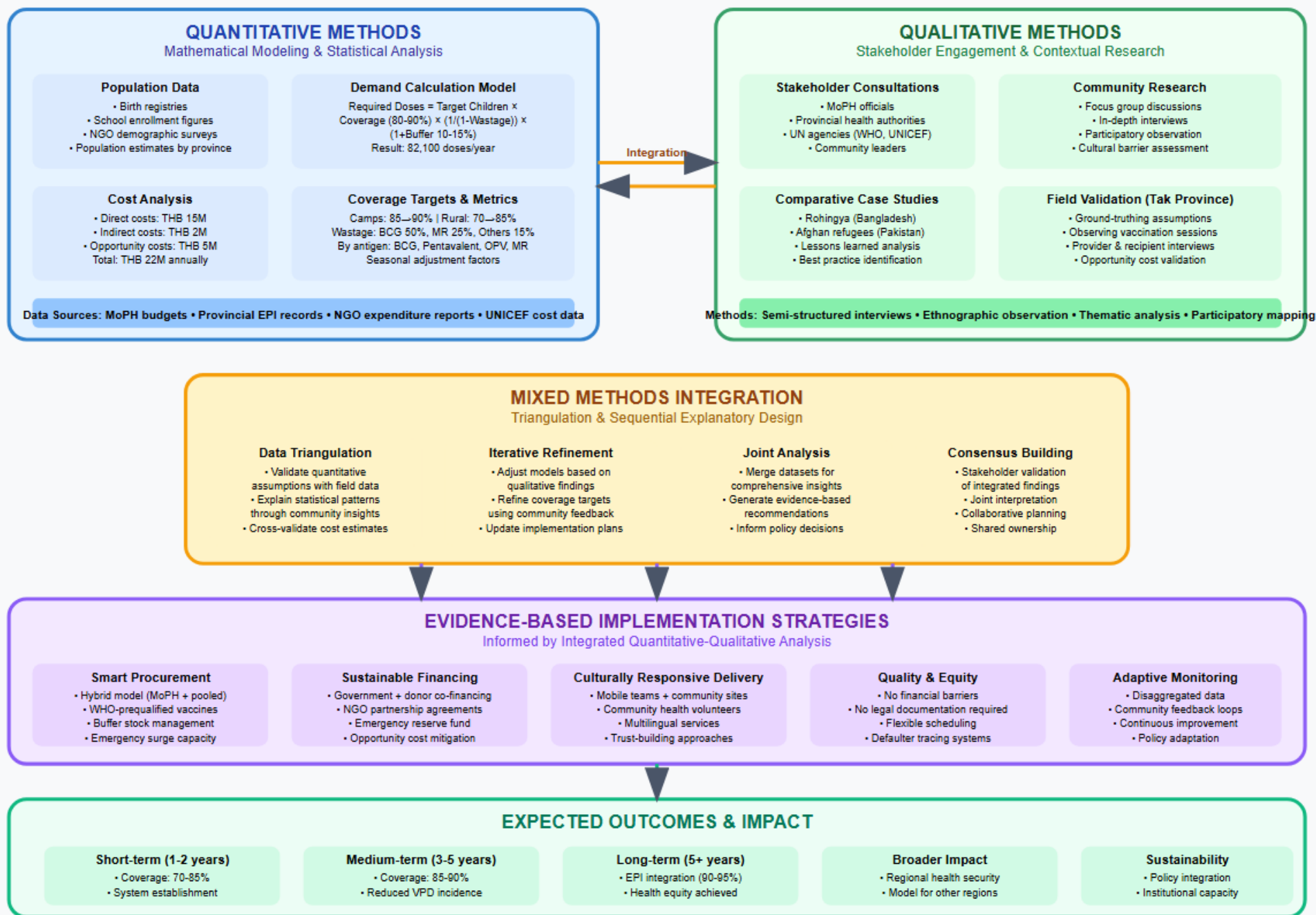
กรอบแนวคิดวิจัย (Conceptual Framework)



Methods

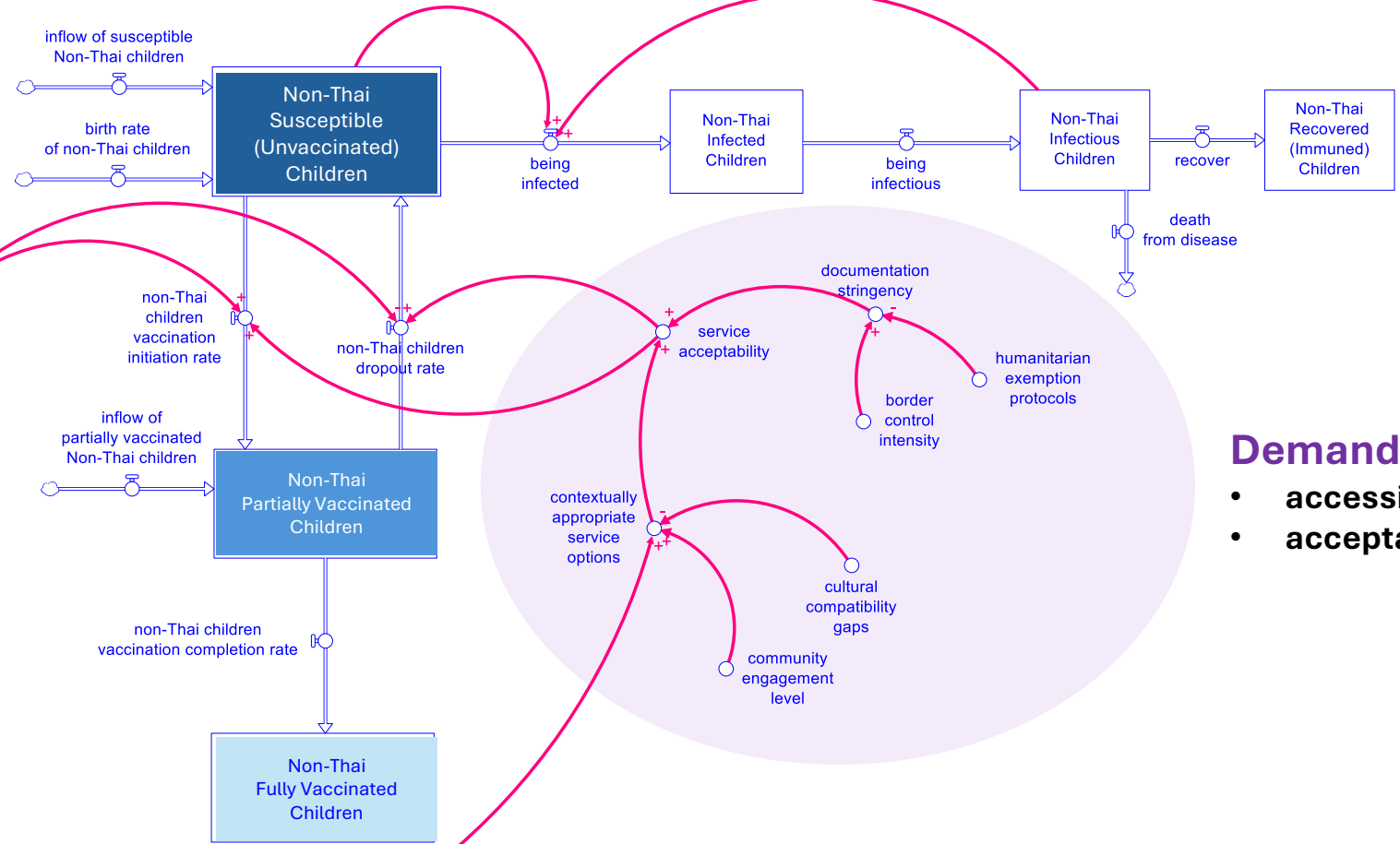
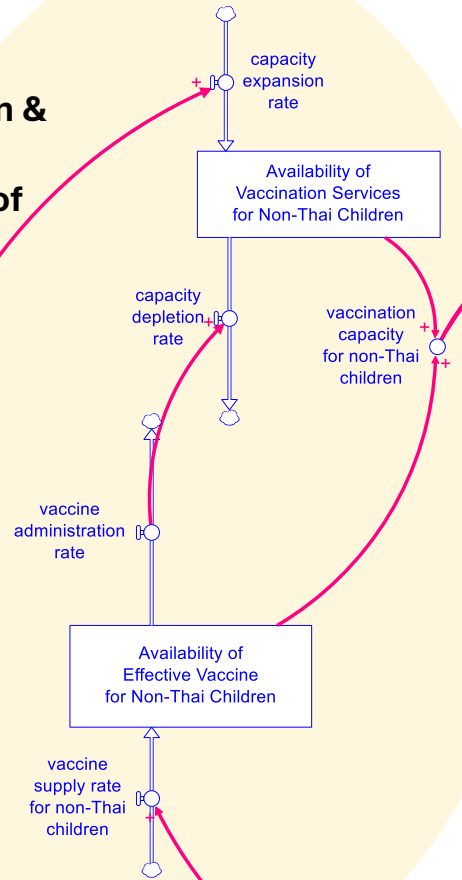
Mixed Methods Framework: Vaccine Demand Estimation & Budgeting

Stateless & Migrant Children (0-12 years) - Thai-Myanmar Border



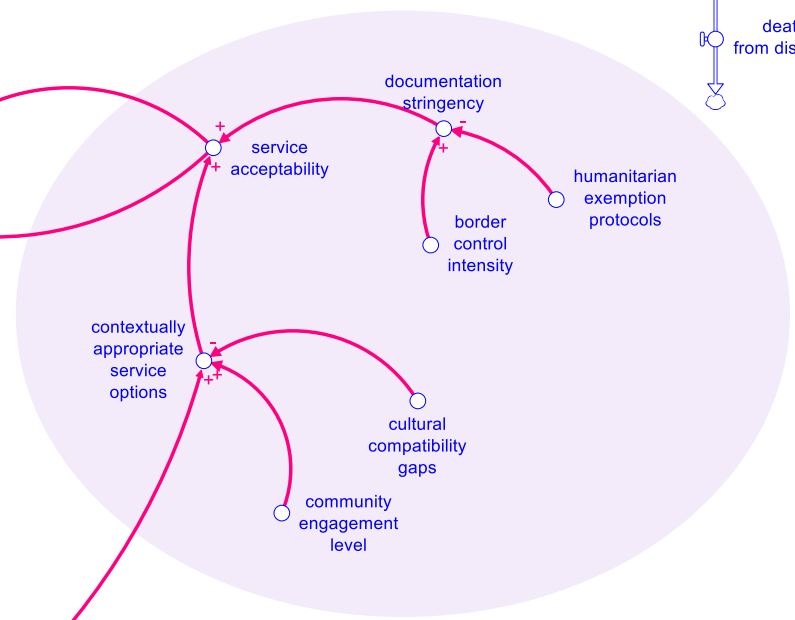
Supply

- funding
- resource distribution & allocation
- resiliency of services



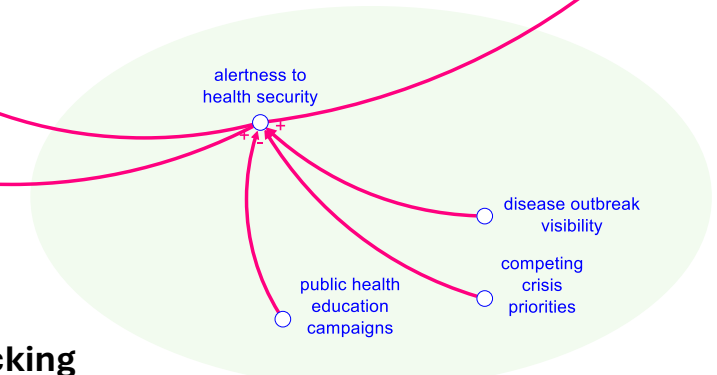
Demand

- accessibility
- acceptability



Governance

- worldview
- political will
- institutional backing



Simplified Conceptual Framework For Strategic Planning (Applied from SIR Model)