



Securing a Sustainable Supply of UNIMMAP MMS for National Antenatal Care Services in Indonesia

SEPTEMBER 2026

PUBLICATION BRIEF

SUMMARY

While multiple micronutrient supplements (United Nations International Multiple Micronutrient Antenatal Preparation Multiple Micronutrient Supplement, or UNIMMAP MMS) are proven to be more effective than iron and folic acid supplements (IFAS) in improving maternal health and pregnancy outcomes, translating this evidence into national-scale programs requires solving a complex supply chain problem: **How can governments reliably and affordably supply UNIMMAP MMS to millions of pregnant women?**

The study, "[Applying Implementation Science to Secure a Sustainable Supply of UNIMMAP MMS for National Antenatal Care Services in Indonesia](#)," published in *Nutrients*, found that successful introduction requires integration of UNIMMAP MMS into an entire supply ecosystem, including supply policies, regulatory framework, support systems, and supplier capability. **This study demonstrated that UNIMMAP MMS, when based on an internationally accepted product specification, could be affordable (about USD 2.50 per pregnancy), highly cost-effective, and feasible through coordinated government action and manufacturing partnerships.** It also provided an approach to assess local manufacturing versus importation and showed how standardized product specifications enable interchangeable products that serve both national needs and international markets — further supporting affordability.

THE STUDY

A multi-stakeholder initiative, in partnership with the Indonesian Ministry of Health (MOH), applied an implementation science framework between 2019 and 2024 to systematically identify and test sustainable strategies for securing MMS supplies. The MOH assumed ownership of the initiative and provided guidance on all policy, procurement, and program decisions, with the Indonesian MMS Technical Advisory Group (MMS-TAG) (itself supported by technical implementing partners) serving to generate policy recommendations for the MOH that were necessary to catalyze enabling actions.

The study consisted of three phases:

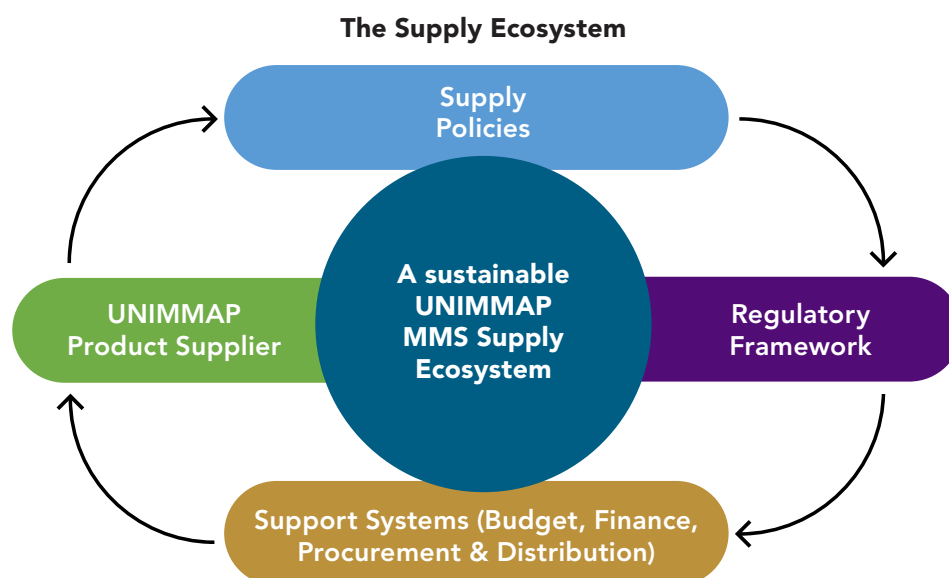
1. **Phase 1** examined Indonesia's supply context — including policies, regulations, support systems, and manufacturer capabilities. The goal was to determine what actions were needed to secure UNIMMAP MMS supplies for immediate introduction and scale-up and sustain the program long-term within antenatal care (ANC) services.
2. **Phase 2** tested two supply options, manufacturing UNIMMAP MMS within Indonesia or importing it from producers abroad, evaluating each for cost, feasibility, and long-term reliability.
3. **Phase 3** produced a multi-year plan to scale up production and distribution nationwide.



KEY FINDINGS

Overall

Before UNIMMAP MMS could be procured at scale, systemic barriers or challenges had to be identified and addressed across the entire supply ecosystem to integrate UNIMMAP MMS into supply-related policies, regulations, support systems, and manufacturer/supplier capability. This study documents how these gaps were systematically identified and resolved through awareness-raising, consensus-building, identification of enabling actions, and development of policy recommendations for the MOH. In so doing, this study provides a practical roadmap for other governments facing their own supply challenges.



Policy and Regulatory Framework

In Indonesia, UNIMMAP MMS introduction faced significant policy and regulatory barriers. It was not listed on Indonesia's Essential Medicines List (EML) or its national formulary, and there were no policies supporting its use. The regulatory framework did not provide guidance to manufacturers that were legally required to develop and market UNIMMAP MMS. While Indonesia had established processes for introducing or changing health policy and regulations, resolving these key regulatory gaps required considerable time and effort.

To build a regulatory framework for MMS, the MOH adopted an internationally accepted technical specification for UNIMMAP MMS. This would ensure a standardized, high-quality, low-cost product regardless of the manufacturer. It also anticipated a role for the private sector to deploy an identical UNIMMAP MMS product through commercial channels, such as retail pharmacies. This dual approach served multiple purposes: it created a meaningful incentive for industry to invest in product development, offered the MOH competitive pricing, and expanded access to MMS beyond national health services. In Indonesia's case, private-sector deployment was projected to eventually reach an estimated 12% of eligible pregnant women. The MOH recognized private sector engagement would lead to a significant contribution to national coverage that would not be possible to reach by the public sector alone.

Support Systems and Institutional Integration

This study identified that a sustainable UNIMMAP MMS supply requires its integration into all institutional support systems — budget, finance, procurement, and distribution networks. Integrating UNIMMAP MMS into the budget and finance system was the most challenging task. The MOH bridged different decision-making approaches by conducting a budget impact analysis, confirming that the UNIMMAP MMS transition would not increase existing MOH expenditures. This analysis proved crucial for developing a phased, costed, multi-year scale-up plan transitioning full procurement responsibility to the Indonesian government within 3–5 years, with donor bridge financing supporting initial phases.

Manufacturer/Supplier Capability

Indonesia faced a key decision about how to source UNIMMAP MMS: through local production or importation. After examining the manufacturer/supplier context, policymakers decided to test whether local manufacturing of UNIMMAP MMS could be achieved. At the same time, they also examined importation as a back-up option if local production could not be achieved or took longer than expected.

A Sustainable Supplier Strategy

Investigators found the following eight key capabilities useful for assessing the potential of manufacturers:

1. **Experience blending at least ten active ingredients** — foundational technical expertise for UNIMMAP MMS complexity
2. **Ability to comply with international quality standards and World Health Organization (WHO) pharmaceutical Good Manufacturing Practices (GMP)**
3. **Ability to produce UNIMMAP MMS product with a 30-month shelf-life** under International Council for Harmonisation (ICH) zone IVb climatic conditions (hot and very humid zone)
4. **Halal certification capability** — expands market reach in Muslim-majority countries
5. **Production capacity of at least 180 million UNIMMAP MMS tablets annually in 180-count bottles** (sufficient for 1 million+ pregnancies), with demonstrated scalability
6. **Self-financing capacity for product development and equipment upgrades** — ensures sustainability and reduces government burden
7. **International experience selling pharmaceutical products** — demonstrates regulatory compliance and supply chain management
8. **Commitment to participate in government procurement** — demonstrates commitment to public health goals

After assessing 38 Indonesian manufacturers, investigators identified eight with potential to produce high-quality UNIMMAP MMS to internationally recognized standards. A request for proposal (RFP) process, organized by a donor organization and based on the requisite abilities identified above, resulted in the selection of a qualified local manufacturer, with a procurement agreement established in January 2023. By October 2024, six manufacturers had begun market authorization applications with Indonesia's regulatory authority.

Ensuring that the highly qualified local manufacturer developed a standards-compliant UNIMMAP MMS product required significant time, expert assistance external to the manufacturer, and investment — areas where donor assistance was essential because of unresolved regulatory barriers precluding direct government procurement. Successfully formulating the product took six months. An additional 18 months were required to demonstrate acceptable stability under ICH Zone IVb climatic conditions, followed by several more months to secure regulatory approval.

While exploring local manufacturing capability, importation of UNIMMAP MMS was also examined. Although foreign manufacturers offered a lower purchase price for UNIMMAP MMS, the cost of complying with legal business requirements for foreign manufacturers impaired their ability to import UNIMMAP MMS at the most competitive pricing. Nonetheless, if local manufacturing took too long to establish, imported UNIMMAP MMS could be acquired at an affordable (but higher) price as a temporary solution.

Affordability and Cost-Effectiveness of UNIMMAP MMS

The cost of consumer-packaged MMS procured in Indonesia was projected to be approximately USD 2.50 per pregnancy (for an 180-count bottle) — comparable to Indonesia's existing spending on iron and folic acid supplements. This affordability made the transition to MMS for preventive purposes feasible within the existing MOH budget. Notably, when the cost-benefit analysis was conducted using the 2020 UNICEF supply catalog price of USD 3.27 per pregnancy — higher than Indonesia's projected local procurement cost — the intervention still demonstrated a return of \$483 for every \$1 invested. As of August 2026, the fair market price of UNIMMAP MMS has decreased to USD 2.50 per 180-count bottle (+/-15%), making the intervention increasingly accessible globally and strengthening the financial case for scale-up in additional countries.

WHY THIS MATTERS

Securing a sustainable national supply of MMS is much more than negotiating product procurement — it requires integrating MMS into the entire supply ecosystem, including supply policies, regulatory frameworks, and supply support systems (budget, finance, procurement, and distribution). This study demonstrates that institutional integration of UNIMMAP MMS into the supply ecosystem must be synchronized with the development and testing of MMS service delivery strategies, as some delivery approaches may affect product manufacturing decisions (such as packaging). Without a coordinated approach to integrating MMS into the supply ecosystem in conjunction with designing and testing delivery strategies, even the most well-designed supply strategies are unlikely to be sustainable, and scaling of MMS throughout national ANC services cannot commence. Countries transitioning to MMS will find this evidence-based framework extremely valuable for making informed decisions and avoiding costly missteps in implementation.

IMPLICATIONS FOR MATERNAL NUTRITION POLICY AND PROGRAMMING

This study offers a number of lessons for other countries seeking scale-up of MMS for pregnant women.

1. **Government Ownership:** The MOH leadership in policy, procurement, and program decisions — supported by an MMS-TAG or Taskforce and a key technical implementing partner to coordinate among partners, was central to the initiative's success.
2. **Enabling Environment First:** Identifying and addressing policy, regulatory, support systems barriers, and manufacturing/supplier capabilities should precede any procurement action.
3. **Standardized Product Specifications:** Long-term success depends upon government commitment to a standardized product — one where all manufacturers produce an identical, interchangeable product for the marketplace whether domestic or international. The internationally accepted and harmonized UNIMMAP Product Specification is the basis for ensuring consistent quality and interchangeability of UNIMMAP MMS product across the supply chain. Independent product verification programs, such as the United States Pharmacopeia's UNIMMAP MMS Verification Program, can strengthen local manufacturing, support resource-limited regulatory authorities, and facilitate manufacturers' access to the export market.
4. **Local Manufacturing:** Clear metrics for objectively assessing the feasibility of local manufacturing are available. However, local manufacturing will not be feasible for all countries. If feasible, the process typically requires 3–5 years for new manufacturers to achieve a commercially viable product. Significant investment (financing and technical expertise) is required to realize a high-quality, low-cost, interchangeable product. Countries best positioned to establish local UNIMMAP MMS production have at least one million pregnancies annually and a capable domestic pharmaceutical manufacturing sector able of scaling production to serve five million pregnancies annually situated in both domestic and international markets.
5. **Product Pricing:** Starting in 2027, the fair market pricing for national programs in Indonesia is consistent with internationally accepted pricing — USD 2.60 (+/- 15%) depending on the volume, terms, and conditions of sale. For imported UNIMMAP MMS, non-production business costs and import duties will increase the final price unless addressed by national governments. Indonesia's experience also suggests that the production cost of imported UNIMMAP MMS product is marginally less than locally manufactured product (at the time of this writing) and international shipping costs are generally not a significant cost factor (less than 3% of the cost of production or about USD.026 per bottle).
6. **Multi-Year Financing:** Sustained commitment of national revenues is essential for long-term UNIMMAP MMS supply. Donor financing can support initial phases but cannot substitute for government budget commitment.

LEARN MORE

Read the publication:

[Applying Implementation Science to Secure a Sustainable Supply of UNIMMAP MMS for National Antenatal Care Services in Indonesia](#) Holik HA, Santika O, Suwantika A, et al. *Nutrients*. 2026;18(13):2162. <https://doi.org/10.3390/nu18132162>

ABOUT HMHB

The Healthy Mothers Healthy Babies Consortium (HMHB), hosted by the **Micronutrient Forum**, is the central platform for evidence, knowledge, collaboration, and advocacy in maternal nutrition. HMHB accelerates progress by fostering collective action on critical priority interventions such as multiple micronutrient supplementation (MMS) and balanced energy and protein (BEP) dietary supplementation, proven strategies to improve maternal and newborn health outcomes, particularly in low- and middleincome countries (LMICs). Comprising over 450 individuals and organizations, HMHB also hosts Technical Advisory Groups (TAGs) on **MMS** and **BEP**, bringing together experts in nutrition, maternal health, and public health to interpret evidence, identify knowledge gaps, and provide guidance to governments, NGOs, and partners.

Visit our [website](#) for the latest knowledge, evidence, guidance, and tools on maternal nutrition. Explore the [World Map of Activities](#), [Knowledge Hub](#), [Advocacy Resource Center](#), [Women's Voices](#) short films, and [Knowledge Byte](#) videos. Join us in powering women's nutrition for promising futures. [Become a member](#).



hmhb.micronutrientforum.org



HMHB@micronutrientforum.org



Micronutrient Forum



MNForum