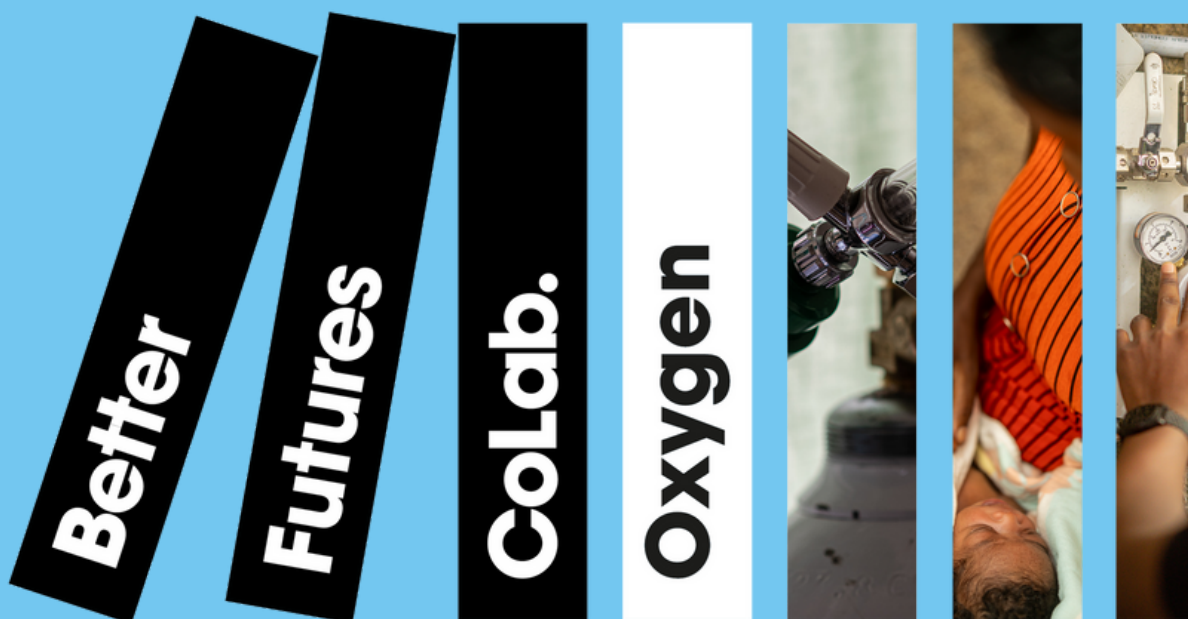


SEPTEMBER 2025

Target Services Profile

A briefing paper



About this report

This report was prepared by Jason Houdek, Miranda Dixon and Alex Losneanu.

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About the Oxygen CoLab

In 2020, the UK International Development launched the Oxygen CoLab to tackle systemic barriers to medical oxygen access. Our goal is to reduce the number of preventable deaths due to a lack of sustainable access to medical oxygen.

We are doing this by supporting the growth of a dedicated layer of health-focused local oxygen SMEs who can fill this gap: the Missing Middle.

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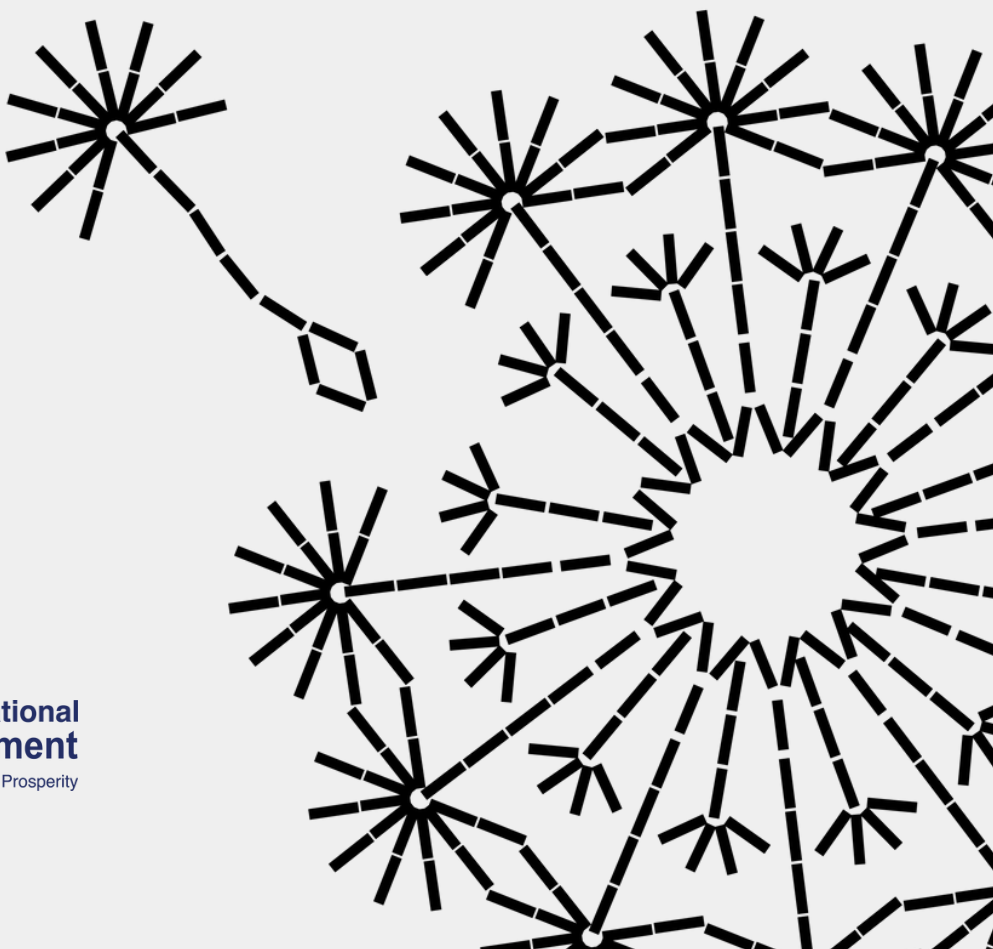


Table of contents

<u>I. Executive summary</u>	<u>4</u>
<u>II. The oxygen access paradox: diagnosing the service delivery failure</u>	<u>5</u>
<u>III. The solution: Shifting from procuring products to procuring performance with target services profiles</u>	<u>7</u>
<u>IV. How TSPs Work: The Core Components of a Performance-Based Approach</u>	<u>10</u>
<u>V. Putting TSPs into Practice: A Framework for Implementation</u>	<u>14</u>
<u>VI. A Call to Action: A Collaborative Path for Governments, Partners, and Funders</u>	<u>15</u>
<u>Citations</u>	<u>18</u>

Tip: Use links to go to a different page inside your presentation.

How: Highlight the text, click on the link symbol on the toolbar, and select the page you want to link in your document.

I. Executive summary

Despite significant global investment in oxygen production equipment, a deadly access gap persists in low- and middle-income countries. This paradox is not a result of insufficient production capacity, but rather a **systemic failure in service and delivery**. Correcting this requires a strategic shift from procuring products to procuring performance. This paper introduces the Target Services Profile (TSP), a framework for **defining and procuring oxygen as a comprehensive service**, aligning public health goals with market incentives to build a sustainable oxygen ecosystem.

A Target Services Profile (TSP) is a strategic procurement tool that defines the comprehensive package of services required for reliable, facility-level oxygen delivery. It evolves from the proven Target Product Profile (TPP) model familiar to global health practitioners. By shifting focus from **commodities to outcomes**, TSPs create a clear market signal that de-risks private investment. The use of TSPs for oxygen delivery has the potential to deliver greater value for money and improve health outcomes by enabling more effective respiratory care, while also cultivating resilient, competitive local markets.

The need for a systems-level approach to oxygen access is consistently demonstrated by the persistence of equipment graveyards and the Lancet Commission's findings of significant access gaps despite major investments in hardware. The Oxygen CoLab's work in developing and scaling service-based oxygen delivery models is a direct response to this challenge. In the course of supporting its partners, we have observed firsthand how i) fragmented procurement systems, ii) a persistent focus on oxygen as a commodity, and iii) a misalignment of performance incentives undermine the effectiveness of these investments. This experience makes it clear that public-sector procurers need a new tool.

The Target Services Profile (TSP), developed from these on-the-ground learnings, serves three core functions:

1. it provides a **shared definition** of a high quality service to guide procurement,
2. translates this into a **clear demand signal** to shape the private market,
3. offers a **practical framework** for country-led implementation.

This paper makes the case for adopting TSPs to strengthen national oxygen ecosystems and offers a practical framework for action. It calls on **national governments** to lead collaborative TSP development, for **implementing partners** to integrate the framework into their technical assistance, and for **donors** to align funding with this strategic approach. By embracing this performance-based model, stakeholders can translate past investments into lasting impact and ensure every patient has access to life-saving oxygen. This approach has already had success in incentivizing investments in oxygen, from WHO's leadership in building the first Global Oxygen Roadmap template, to the Oxygen CoLab's collaboration with UNICEF to create the first Target Product Profile for fit-for-purpose oxygen concentrators for use in low-resource settings.

II. The oxygen access paradox: diagnosing the service delivery failure

Over the past decade, a concerted global effort, spurred by the COVID-19 pandemic, has significantly increased medical oxygen production capacity in low- and middle-income countries (LMICs) through massive investment in equipment, including on-site PSA plants and the installation of bulk liquid oxygen (LOX) systems. Despite this achievement, reliable access at the patient's bedside remains persistently low.¹ This paradox—where equipment exists but the therapy does not reach the patient—reveals that the primary bottleneck is no longer a lack of production capacity, but a systemic failure in the service and delivery ecosystem. This failure is rooted in a set of interconnected problems that must be understood before a viable solution can be designed.

The most fundamental problem is that public procurement systems continue to treat medical oxygen as a simple commodity to be purchased, rather than a complex clinical service to be delivered. This product-only mindset focuses on the upfront capital cost of equipment but systematically fails to plan for or finance the essential lifecycle of services required to keep that equipment operational. The tangible result of this dysfunction is the “equipment graveyard,” a landscape where an estimated 40-70% of medical equipment in LMICs is non-functional at any given time due to a lack of maintenance, spare parts, and skilled technicians.²

This procurement failure is compounded by fragmented governance and financing. In many health systems, responsibility for the various components of oxygen delivery is scattered across different departments with uncoordinated budgets and mandates. A central medical store may be responsible for purchasing oxygen gas, a biomedical engineering department for maintaining equipment, and individual hospitals for

procuring consumables. This diffusion of responsibility means that no single entity is accountable for the end-to-end performance of the oxygen system, creating an “orphan” service for which no one has ultimate ownership.

The consequence of this fragmented, commodity-focused approach is a failed market. The lack of a clear, aggregated demand signal for comprehensive services, coupled with unpredictable payment from public facilities, creates a high-risk, low-reward environment for the private sector.³ This has perpetuated the critical market failure known as the “Missing Middle”—the absence of a diverse ecosystem of specialized local and regional enterprises capable of providing the essential wrap-around services of logistics, maintenance, and training. Without this critical layer of the market, the gap between oxygen production and patient access remains dangerously wide.

The diagnosis is clear: an approach focused on equipment, fragmented in its execution, and unsupported by market incentives is destined to fail. Any effective solution must therefore be built on a new set of principles. It must be comprehensive and performance-based, shifting the focus from procuring products to procuring outcomes. It must be systemic and coordinated, aligning financing and accountability to ensure end-to-end reliability. And it must be market-oriented, creating clear, credible signals that can attract private investment and cultivate a resilient ecosystem of service providers.

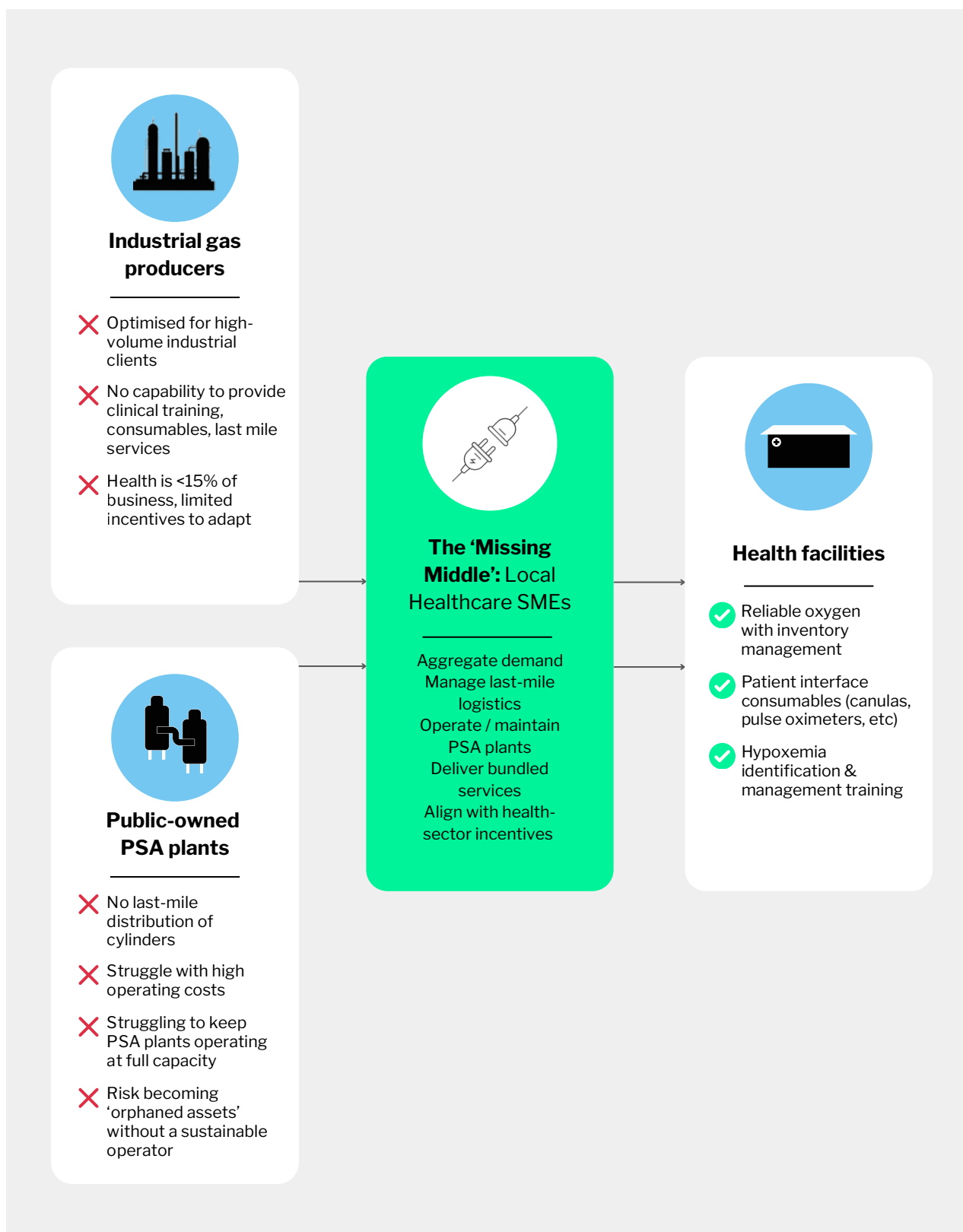


Fig 1. Diagram visualising the gap between large oxygen producers and access needs of lower level health facilities, and how Private Healthcare SME's could fill that gap ie. 'The Missing Middle'

III. The solution:

Shifting from procuring products to procuring performance with target services profiles

To solve the oxygen service and delivery crisis, health systems need a tool that ensures public procurers buy the right package of goods and services needed for facilities to deliver oxygen effectively, while also clearly communicating those needs to guide private investment. The Target Services Profile (TSP) is a strategic framework designed to do precisely that. It marks a fundamental shift away from procuring oxygen as a simple commodity and toward procuring a comprehensive, reliable service. By defining the full package of services, technical standards, and performance benchmarks required for effective oxygen therapy, a TSP enables governments and their partners to move to more sophisticated procurement models like Outcomes-Based Contracting (OBC). This approach aligns the incentives of private providers with public health goals, ensuring that payments are linked to the delivery of tangible, life-saving outcomes—such as guaranteed equipment uptime and uninterrupted oxygen supply—rather than just the delivery of hardware.

The TSP concept is a logical evolution of a proven and widely accepted tool in global health: the Target Product Profile (TPP). For decades, leading global health organizations like the World Health Organization, Gavi, Unicef, and FIND have used TPPs to guide the development of new vaccines, diagnostics, and medical devices.⁴ A TPP provides a clear, consensus-based description of the desired characteristics of a product, from clinical efficacy to affordability and ease of use in low-resource settings. This gives product developers a clear target and gives funders and procurers a clear standard to purchase against. The Oxygen CoLab has directly contributed to this field, partnering with UNICEF to develop the first TPP for oxygen concentrators specifically designed for low-resource settings.

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How TSPs shift the focus

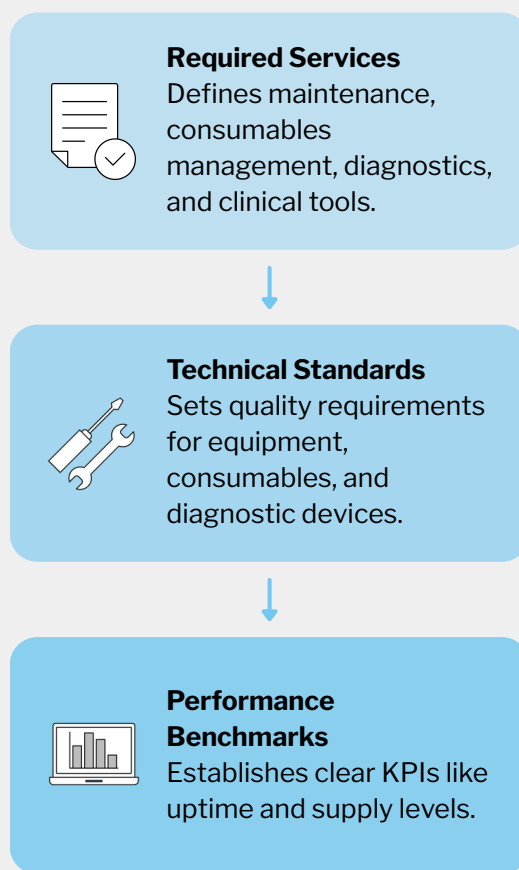


Fig 2. Diagram articulating key benefits of the TSP

The TSP applies this same powerful logic to a more complex challenge, moving from defining a single product to defining an entire service ecosystem. This grounding in the TPP methodology provides a familiar and credible foundation for the TSP, making it an intuitive next step for policymakers, procurers, and partners.

Case in point: the pneumococcal vaccine Advance Market Commitment ⁶

The power of combining a clear product profile with a credible financial commitment is well-documented.

- **The challenge:** Accelerating access to a life-saving but expensive pneumococcal conjugate vaccine (PCV) for children in the world's poorest countries.
- **The signal:** A clear Target Product Profile (TPP) was combined with a \$1.5 billion Advance Market Commitment (AMC) from Gavi and its partners, guaranteeing vaccine purchases if manufacturers developed a product that met the profile's specifications.
- **The result:** The clear demand signal incentivized manufacturers to invest heavily in production capacity. This led to a dramatic acceleration in the vaccine's rollout in low-income countries, preventing an estimated 700,000 childhood deaths.
- **The lesson:** This case proves a core principle: when a clear definition of "what is needed" is combined with a credible commitment to "how it will be paid for," the private sector can respond with investment and innovation tailored to public health needs.

Crucially, the TPP framework has already begun to evolve beyond single products to address the need for comprehensive solutions. The UNICEF/NEST360 TPP portfolio for newborn care is a landmark example. It does not define a single device, but rather a complete bundle of 16 essential technologies—including oxygen concentrators and pulse oximeters—that are required to deliver a specific standard of clinical care. ⁷ This initiative provides a direct and powerful precedent for the TSP, demonstrating that the profile methodology can be successfully applied to define a comprehensive package of interconnected components. The TSP is the next logical step in this evolution: it moves from defining the bundle of products required for a service to defining the service itself, including the products, maintenance, training, and performance guarantees needed to ensure the entire system functions as intended to save lives.

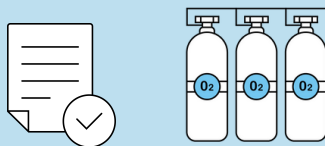
TPP vs. TSP

Target Product Profile

A strategic document outlining the ideal characteristics of a health product, focusing squarely on its technical specifications and performance.

Core components focus

The TPP is overwhelmingly focused on the physical product's technical attributes.



Audience

Product Developers
& Manufacturers

Development process

Iterative process with developers to define key product specifications.

Intended market signal

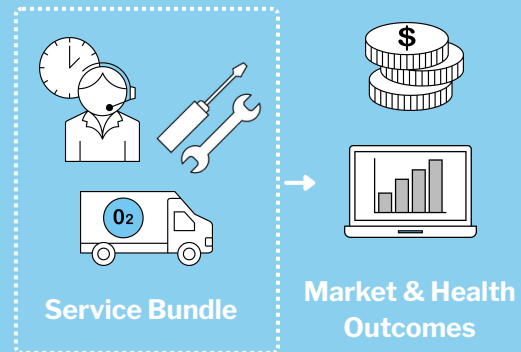
"If you build it to these specifications, we will buy it."

Target Services Profile

Expands on the TPP to define the ideal characteristics of a complete service package needed to deliver a health outcome, focusing on the holistic system.

Core ecosystem focus

A TSP covers a broad ecosystem of activities essential for service delivery.



Audience

Service Providers
& Market Ecosystems

Development process

Co-creation with implementers and providers to define service delivery needs.

Intended market signal

"If you can deliver this level of service, we will buy it."

Fig 3. Diagram showing the core differences between the TPP and TSP

IV. How TSPs Work:

The Core Components of a Performance-Based Approach

A Target Services Profile is a strategic tool with three core functions: it creates a shared definition of a high-quality oxygen service; it translates this definition into a clear demand signal to shape the private market; and it provides a practical framework for country-led implementation. Service-based approaches shift from one-off equipment purchases to ongoing delivery of outcomes. Performance-based approaches build directly on this by making explicit how those outcomes are defined, measured, and rewarded. Together, these components create a performance-based approach that aligns the incentives of purchasers and providers around the goal of reliable patient care.

1. Defining "good": the comprehensive service package

The foundational function of a TSP is to establish a common understanding of the comprehensive service package required for effective oxygen therapy. Crucially, what constitutes "good" will vary across country contexts, a key distinction from many Target Product Profiles which often set global standards. A TSP must be defined through an inclusive, collaborative process driven by local stakeholders. It defines clear standards tailored to the country's specific reality across three key domains:

- Service & technical (the "what," e.g., guaranteed supply, preventative maintenance);
- Performance & quality (the "how well," e.g., equipment uptime guarantees);
- Cost & affordability (the "at what price," e.g., transparent pricing structures).

This process must account for the national health system's operations, the specific needs of different health facilities, and the maturity of the local market to ensure the resulting service package is both impactful and feasible. This bundled approach is proven in global health: Gavi's support for a comprehensive "immunization service"—bundling vaccines with cold-chain equipment, logistics, and training—ensures investments translate into effective vaccinations. The TSP applies this same logic to oxygen, ensuring procurement supports a fully functional clinical service.

Case in point: contrasting approaches to service-based equipment procurement

A service contract is a powerful tool, but its success depends on planning for the entire ecosystem in which it operates. Two large-scale equipment modernization programs in Africa offer critical, contrasting lessons.

Lessons from Kenya's managed equipment services (MES)

Kenya's ambitious MES program was a pioneering effort to use a large-scale Public-Private Partnership (PPP) to rapidly modernize 98 hospitals, successfully expanding access to specialized services like dialysis and intensive care across the country.⁸ The initiative also provides critical insights into the challenges of implementation. While the contracts included provisions for maintenance and training, the program faced difficulties when advanced equipment was delivered to facilities that had not yet been upgraded with the necessary infrastructure, stable power, or specialized personnel to operate it effectively. This mismatch led to challenges in operationalizing some equipment.⁹ The key lesson is that a service contract is a powerful tool, but not a standalone solution. Its success hinges on a comprehensive design that holistically plans for the infrastructure, personnel, and lifecycle support required, ensuring the entire health system is ready to absorb and benefit from the service.

Zambia's hospital modernization PPP: a success story in ecosystem planning¹⁰

Zambia undertook a similar challenge, upgrading 71 hospitals with diagnostic and surgical equipment through a PPP. The project succeeded because its service components were strategically designed to build the surrounding ecosystem, not just maintain the assets. The contract bundled the equipment with a five-year service agreement that included not only ongoing maintenance and spare parts, but also a robust 'train-the-trainer' program explicitly designed to build sustainable local biomedical capacity from the start. This comprehensive approach, which invested in strengthening the human resource and support systems around the technology, ensured the equipment achieved 97% uptime and left behind a stronger local ecosystem.

2. Communicating Demand and Coordinating Procurement

Once "good" is defined, the TSP communicates this demand to the market. For private providers, the primary barrier to investment is often the lack of a clear, reliable demand signal. A TSP addresses this by articulating what the health system values and intends to procure long-term, reducing uncertainty and de-risking private investment. The most powerful strategy for making this signal credible is to aggregate demand through pooled procurement.

Global experience has repeatedly shown that this approach is most effective when managed by a trusted intermediary that can guarantee a reliable payment mechanism, transforming fragmented demand into an attractive, unified market for suppliers.¹¹ This aggregated demand can be structured through multi-year Framework Agreements (FWAs), which create a stable pipeline of work for pre-qualified providers and can be designed as "open frameworks" to allow new SMEs to join over time, ensuring market dynamism.¹²

Case in point: the power of aggregated demand across different scales

Aggregating demand through pooled procurement is a proven strategy for transforming fragmented, low-volume buyers into a unified, attractive market. Global examples at the regional, sub-regional, and sub-national levels demonstrate how this approach can secure lower prices, increase supplier participation, and ensure a more reliable supply of essential health commodities.

- **Regional scale (the PAHO Revolving Fund):** For over 40 years, the PAHO Revolving Fund has pooled the vaccine demand of 41 countries in the Americas. By creating a single, large-volume buyer and guaranteeing prompt payment from a central fund, it has achieved price reductions of up to 75% for essential vaccines and has been a cornerstone of disease elimination efforts in the region.¹³
- **Sub-regional scale (the OECS/PPS):** In the Eastern Caribbean, nine small island nations created the OECS Pharmaceutical Procurement Service, a "buyers' cartel" that aggregates their demand for medicines. This sub-regional cooperation has yielded sustained savings of over 20% and ensures reliable access to essential medicines that would be difficult for each small nation to secure alone.¹⁴
- **Sub-national scale (Tamil Nadu, India):** The state of Tamil Nadu created an autonomous agency (TNMSC) to pool the demand of its ~2,000 public health facilities. By offering a large, unified market and guaranteeing prompt payment, it achieved 100% supplier participation in its tenders, dramatically improving drug availability compared to other states with more fragmented systems.¹⁵
- **The common thread:** A key lesson from these successful models is the critical role of a trusted intermediary that can guarantee prompt and reliable payment. This financial security is often the most powerful signal to suppliers, de-risking their participation and ensuring a competitive and responsive market.

3. Ensuring Country Ownership and Feasibility

A TSP must be a country-led and context-specific tool, not a rigid prescription. Different health systems, facility contexts, and levels of market maturity make certain service packages and investment pathways more or less feasible. Its development therefore requires a collaborative process involving all stakeholders—government, clinicians, and the private sector—to ensure the final profile is technically sound, politically owned, and programmatically feasible. Implementation is designed to be pragmatic and manageable, linked to a phased Strategic Procurement Roadmap. This roadmap is a critical market-shaping instrument. It can be designed either to consolidate services with a single large provider or, more powerfully, to intentionally cultivate a diverse and resilient ecosystem of local suppliers. This incremental approach allows purchasers to increase service level expectations over time, creating an achievable pathway for suppliers to build capacity and rewarding them for making demonstrable progress.

This phased approach to building local markets has been successful in other sectors. Peru's Rural Roads Program cultivated a market of over 500 local micro-enterprises by starting with pilot contracts and embedding capacity building at each stage, demonstrating how incremental procurement can build a resilient local service ecosystem. This principle of adaptation is key; as Senegal's success in its rural water PPPs shows, success often depends on thoughtfully tailoring a proven model to the unique legal and market realities of the local context. ¹⁶

Case in Point: the Risk of Monopolies vs. the Power of Cultivating Ecosystems

The long-term goal of service-based procurement is to build a resilient and competitive local market. The design of the procurement itself is the most powerful tool for achieving—or undermining—this goal.

The Risk of a Monolithic Contract: USAID's GHSC-PSM Project ¹⁷

To manage its global health supply chain, USAID awarded a massive \$9.5 billion service contract to a single private integrator. This "too big to fail" design created a fragile system. When the sole contractor experienced severe performance failures, with on-time, in-full delivery rates dropping to just 7% in one quarter, USAID had limited leverage and no immediate alternatives, leading to stockouts of life-saving medicines. The lesson is that consolidating all services with a single provider creates a single point of failure—which can undermine accountability and resilience.

The Power of Cultivating an Ecosystem: Peru's Rural Roads Program ¹⁸

To maintain its rural roads, Peru's government opted against a single large contractor. Instead, it used a phased approach, breaking the work into small, manageable contracts sized for local micro-enterprises and embedding capacity-building at each stage. This strategy systematically cultivated a diverse and resilient local market from the ground up. The program successfully created a competitive ecosystem of over 500 local micro-enterprises, ensuring reliable road maintenance while creating thousands of local jobs. This demonstrates that an incremental procurement approach that intentionally builds the market is more sustainable than relying on a single, large provider.

V. Putting TSPs into Practice:

A Framework for Implementation

While a well-designed TSP provides an essential blueprint, it is not a standalone solution. Global experience with service-based contracting reveals that its potential can only be realized through a pragmatic implementation process built on three pillars: a collaborative, country-led approach; an enabling regulatory environment; and a structure for performance-based accountability.

1. Fostering a Collaborative, Country-Led Process

The foundational principle of a successful TSP is that it must be a country-owned tool, not a top-down mandate. Its development and implementation require a collaborative process that builds consensus and aligns all key stakeholders. This is not a one-time consultation, but an ongoing dialogue between government purchasers, clinical end-users, and private suppliers. This ensures the final service package is technically sound, politically owned, and reflective of the market's capacity. Using the TSP as a planning tool before procurement allows for a joint readiness assessment, identifying and addressing gaps in facility infrastructure, human resources, and management, thereby preventing the kind of mismatches seen in past equipment-focused programs.

2. Building an Enabling Regulatory Environment

A service-based market cannot thrive without a regulatory framework that balances accountability with the flexibility needed to attract private investment. A rigid, one-size-fits-all approach can stifle innovation, whereas a well-designed framework can catalyze it. This involves:

- **Structured Flexibility:** Adopting an approach, like the one used for rural energy mini-grids in Tanzania, that uses tiered licensing and flexible tariffs to lower entry barriers for private providers while protecting consumers and ensuring quality. ¹⁹ For oxygen, this could mean regulations that are technology-agnostic but strict on medical-grade purity and safety standards.
- **Proactive De-risking:** Implementing clear risk allocation and "stabilization clauses" within the regulatory framework to protect providers from arbitrary policy changes. This gives private partners the confidence to make the significant, long-term capital investments required for oxygen infrastructure.

3. Structuring for Performance-Based Accountability

At its heart, the TSP model is operationalized by shifting from paying for inputs to paying for verified results. This structure for performance-based accountability is built on the following components:

- **Performance-Based Contracts:** The TSP is translated into a detailed Service Level Agreement (SLA) that legally binds the provider to specific, measurable outcomes. This is a long-term partnership agreement, not a simple purchase order, and it fundamentally shifts the risk of non-performance from the hospital to the service provider.
- **Clear, Verifiable KPIs:** The contract is built around Key Performance Indicators (KPIs) that act as proxies for a high-quality service. These are not just about delivering equipment, but about guaranteeing performance. Effective KPIs are often verifiable proxies for desired outcomes, focusing on service reliability and quality, such as:
 - **Equipment Uptime:** The system must be functional and producing medical-grade oxygen for >95% of the month. This metric ensures the provider is incentivized to perform preventative maintenance and manage spare parts effectively.
 - **Service Response Time:** Any critical failure must be addressed by a qualified technician within a guaranteed timeframe (e.g., 12-24 hours), ensuring clinical services are not disrupted for long periods.
 - **Quality Accreditation:** As seen in the Utkrisht DIB in India, payment can be linked to clinics achieving a rigorous quality accreditation—a clear proxy for better care that encompasses multiple aspects of service readiness.
- **Robust Verification and Payment Linkage:** Payment is directly and transparently tied to meeting KPIs, with results confirmed through a multi-layered verification process. As demonstrated in the successful Bangladesh IDCOL solar program, this involves a mix of provider reporting (e.g., from remote monitoring sensors), independent physical audits, and user feedback from facility staff to ensure data integrity before releasing payment. ²⁰
- **Proactive Contract Management:** Global experience shows that these are not "fire and forget" contracts. Success requires active management from the public partner to review performance data, address challenges collaboratively, and manage systemic risks. The most critical of these is the risk of payment delays, which were shown to undermine an otherwise successful framework contracting program in Ghana. ²¹ A secure and reliable payment mechanism is therefore a non-negotiable prerequisite for success, as consistent provider performance depends on consistent and timely payment.

VI. A Call to Action:

A Collaborative Path for Governments, Partners, and Funders

The evidence is clear: the persistent gap between oxygen production and patient access is a solvable problem. The systemic failures of commodity-based procurement, fragmented financing, and underdeveloped service markets can be overcome through a strategic shift in approach. The Target Services Profile provides a proven, evidence-based framework to guide this transition. By empowering countries to define, procure, and monitor oxygen as a comprehensive, performance-based service, TSPs can translate past investments in hardware into sustainable, life-saving impact, building the resilient health systems that are urgently needed. Realizing this potential requires a concerted and collaborative effort from all stakeholders.

This paper serves as a call to action for the key actors who can drive this transformation.

National governments have an opportunity to demonstrate pioneering leadership. Ministries of Health and Finance that champion a country-led, consultative process to develop a national TSP are not just solving a critical health challenge—they are setting a new global standard for effective public health procurement. This foundational step creates the clarity and consensus needed to explore more sophisticated models like pooled purchasing and performance-based payments, all within an enabling regulatory environment that encourages private sector partnership.

Implementing partners, including global non-state actors and local civil society organizations, have the opportunity to serve as critical enablers of this transition. Partners should integrate the TSP framework into their technical assistance and program design. By doing so, they can provide invaluable support to governments in navigating the complexities of service-based procurement and, crucially, help to identify, train, and mentor a new generation of capable local service providers who can form the backbone of a resilient oxygen ecosystem.

Donors and philanthropic funders have the opportunity to provide the catalytic, early-stage capital that is essential for building a new market. Donors are called upon to support programs that de-risk market entry for private service providers, particularly local SMEs, enabling them to build the capacity and secure the initial assets needed to respond to TSP tenders. This grant-based and flexible funding is critical for seeding the ecosystem and proving the viability of the service-based model.

Development finance institutions (DFIs) and volume guarantors have a role in providing the larger-scale financing and risk-sharing instruments needed for growth. DFIs can provide the debt and equity that allows proven service providers to expand their operations. Mechanisms like volume guarantees can further mitigate risk, creating a stable and bankable market that attracts the significant private investment required to achieve national scale and long-term sustainability.

A Collaborative Path Forward

Building a sustainable oxygen ecosystem requires coordinated action from four key stakeholder groups, each playing a vital role in creating a resilient market for essential medical services.

National governments

Lead the way by creating the enabling environment for change.

- Champion and own a national Target Services Profile (TSP).
- Establish a clear, flexible regulatory environment.
- Transition to performance-based procurement models.

Implementing partners

Serve as the critical enablers of implementation and capacity building.

- Provide technical assistance on TSP integration.
- Build the market by training local service providers.
- Bridge gaps between policy and on-the-ground action.

Donors & philanthropic funders

Provide the catalytic capital to seed a new market.

- De-risk market entry for local private providers.
- Catalyze early growth with flexible, grant-based funding.
- Support pilot programs to prove the TSP model.

DFIs & volume guarantors

Provide the scale-up financing for long-term sustainability.

- Offer large-scale debt and equity for expansion.
- Mitigate risk with instruments like volume guarantees.
- Crowd-in significant private investment for national scale.

The Oxygen CoLab is committed to supporting partners through a clear, evidence-based pilot framework that moves from building market readiness to ensuring long-term, sustainable performance. This journey begins in **Phase 0: Market Readiness**, where technical assistance grants can build a pipeline of capable local SMEs. It is followed by **Phase 1: Service Establishment**, which uses blended finance and

output-based subsidies to de-risk the initial capital investment for these providers. Finally, the model transitions to **Phase 2: Long-Term Performance**, where public purchasers finance the ongoing service through multi-year, performance-based contracts. This phased approach, catalyzed by TSPs, transforms the ambitious goal of oxygen access into a series of concrete, manageable steps.

Citations

1. Graham, H. R., Ayede, A. I., Aniebo, I. C., Bakeera-Kitaka, S., Bar-Zeev, N., Bianchi, S. M., ... & The Lancet Global Health Commission on Medical Oxygen Security. (2025). Reducing global inequities in medical oxygen access: The Lancet Global Health Commission on medical oxygen security. *The Lancet Global Health*, 13(3), e528–e584. Reducing global inequities in medical oxygen access: the Lancet Global Health Commission on medical oxygen security. Graham, Hamish R et al. *The Lancet Global Health*, Volume 13, Issue 3, e528 - e584
2. Diaconu, K., et al. (2017). Methods for medical device and equipment procurement and prioritization within low- and middle-income countries: Findings of a systematic literature review. *Globalization and Health*, 13, 59.
3. PATH. (2021, October). Business models in respiratory care: Understanding how oxygen systems operate — Supply intelligence. PATH; Clinton Health Access Initiative. Retrieved from https://media.path.org/documents/O2_Business_models_brief_PATH_FINAL.pdf
PATH. (2023, October). Market intelligence for sustaining oxygen generation plant investments [PSA Market Analytics Brief Series]. PATH. Retrieved from https://media.path.org/documents/PSA_market_analytics_brief_series_final.pdf
PATH. (2019, July). Oxygen as a utility: An innovative model for increasing access to oxygen in low- and middle-income countries. Seattle: PATH. Retrieved from https://media.path.org/documents/Oxygen_as_a_Utility_Report.pdf
Access to Medicine Foundation. (2023, April). Medical oxygen programme: What are gas companies doing to scale up access to liquid medical oxygen? Access to Medicine Foundation. Retrieved from https://accessmedicinefoundation.org/medialibrary/access-to-medical-oxygen-report_atmf_2023.pdf
4. Charnaud SC, Moorthy V, Reeder J, Ross AL. WHO target product profiles to shape global research and development. *Bull World Health Organ*. 2023 May; 101(5):326-330. doi: 10.2471/BLT.22.289521. Epub. 2023 Mar 2. PMID: 37131943; PMCID: PMC10140686.
Murtagh M, Blondeel K, Peeling RW, Kiarie J, Toskin I. The relevance of target product profiles for manufacturers, experiences from the World Health Organization initiative for point-of-care testing for sexually transmitted infections. *Arch Public Health*. 2021 Oct 27;79(1):187. doi: 10.1186/s13690-021-00708-y. PMID: 34706763; PMCID: PMC8549211.
5. Unicef.org. (2022b). Target Product Profile: Oxygen Concentrator. [online] Available at: <https://www.unicef.org/supply/documents/target-product-profile-oxygen-concentrator> [Accessed 4 Sep. 2025].
6. Tricarico, S., McNeil, H.C., Cleary, D.W., Head, M.G., Lim, V., Yap, I.K.S., Wie, C.C., Tan, C.S., Norazmi, M.N., Aziah, I., Cheah, E.S.G., Faust, S.N., Jefferies, J.M.C., Roderick, P.J., Moore, M., Yuen, H.M., Newell, M.-L., McGrath, N., Doncaster, C.P. and Kraaijeveld, A.R. (2017). Pneumococcal conjugate vaccine implementation in middle-income countries. *Pneumonia*, 9(1). doi: <https://doi.org/10.1186/s41479-017-0030-5>.
Kremer, M.R., Levin, J.D. and Snyder, C.M. (2020). Advance Market Commitments: Insights from Theory and Experience. *SSRN Electronic Journal*. doi:<https://doi.org/10.2139/ssrn.3543298>.
Cernuschi, T., Furrer, E., Schwalbe, N., Jones, A., Berndt, E. and McAdams, S. (2011). Advance market commitment for pneumococcal vaccines: putting theory into practice. *Bulletin of the World Health Organization*, 89(12), pp.913–918. doi:<https://doi.org/10.2471/blt.11.087700>.
7. Kirby, R.P., Molyneux, E.M., Dube, Q. et al. Target product profiles for neonatal care devices: systematic development and outcomes with NEST360 and UNICEF. *BMC Pediatr* 23 (Suppl 2), 564 (2023). <https://doi.org/10.1186/s12887-023-04342-1>
8. Njagi, E., Iloka, K., Wawira, S., Thiga, L. and Muraguri, N.M. (2025). Preparing to Download ... [online] Nih.gov. Available at:<https://pmc.ncbi.nlm.nih.gov/articles/PMC12066563/pdf/frhs-05-1361261.pdf>.
9. Korir, M. (2018). Managed Equipment Services: the Kenyan Story. [online] *The Pathologist*. Available at: <https://thepathologist.com/issues/2018/articles/mar/managed-equipment-services-the-kenyan-story>.
PARLIAMENT OF KENYA THE SENATE The Managed Equipment Service (MES) Project BRIEF AND SUGGESTED QUESTIONS. (2015). Available at: https://parliament.go.ke/sites/default/files/2018-11/MES%20Brief_Nov%202018%20%285%29_%20With%20Suggested%20Questions%20.pdf [Accessed 4 Sep. 2025].

Nasibo Kabale (2019). Millions Go down the Drain as MES Machines Unused. [online] Daily Nation. Available at: <https://nation.africa/kenya/news/millions-go-down-the-drain-as-mes-machines-unused-227834> [Accessed 4 Sep. 2025].

Fick, M. (2020). Lenders Cheered as Kenya Binged on Medical equipment. Did Patients Get help? Reuters. [online] 14 Feb. Available at: <https://www.reuters.com/article/world/lenders-cheered-as-kenya-binged-on-medical-equipment-did-patients-get-help-idUSKBN208199/>.

10.

Dutch Ministry of Foreign Affairs, IOB Evaluation, Work in Progress. Evaluation of the ORET Programme: Investing in Public Infrastructure in Developing Countries. July 2015.

Graham, H. R., Ayede, A. I., Aniebo, I. C., Bakeera-Kitaka, S., Bar-Zeev, N., Bianchi, S. M., ... & The Lancet Global Health Commission on Medical Oxygen Security. (2025). Reducing global inequities in medical oxygen access: The Lancet Global Health Commission on medical oxygen security. *The Lancet Global Health*, 13(3), e528–e584. Reducing global inequities in medical oxygen access: the Lancet Global Health Commission on medical oxygen security. Graham, Hamish R et al. *The Lancet Global Health*, Volume 13, Issue 3, e528 - e584

11.

Managing Procurement. (2012). Available at: <https://msh.org/wp-content/uploads/2013/04/mds3-ch18-procurement-mar2012.pdf>.

12.

Lal, S. (n.d.). Guidebook for Setting-up and Operating Framework Agreements Public Disclosure Authorized [online] Available at: <https://documents1.worldbank.org/curated/en/958921624026529503/pdf/Guidebook-for-Setting-up-and-Operating-Framework-Agreements.pdf>.

13.

DeRoeck, D., Bawazir, S.A., Carrasco, P., Kaddar, M., Brooks, A., Fitzsimmons, J. and Andrus, J. (2006). Regional Group Purchasing of vaccines: Review of the Pan American Health Organization EPI Revolving Fund and the Gulf Cooperation Council Group Purchasing Program. *The International Journal of Health Planning and Management*, 21(1), pp.23–43. doi:<https://doi.org/10.1002/hpm.822>.

14.

HUFF-ROUSSELLE, M. and BURNETT, F. (1996), COST CONTAINMENT THROUGH PHARMACEUTICAL PROCUREMENT: A CARIBBEAN CASE STUDY. *Int. J. Health Plann. Mgmt.*, 11: 135-157. Available at: [https://doi.org/10.1002/\(SICI\)10991751\(199604\)11:2<135::AID-HPM422>3.0.CO;2-1](https://doi.org/10.1002/(SICI)10991751(199604)11:2<135::AID-HPM422>3.0.CO;2-1)

POOLED PROCUREMENT OF INSULINS AND ASSOCIATED SUPPLIES Analysis of Mechanisms and Their Applicability for Small State Countries or Countries with Limited Needs. (2022). Available at: https://haiweb.org/storage/2022/02/Pooled_Procurement_of_Insulin.pdf

Harper, L. and Sanchez, D. (2017). Electronic Government Procurement in Latin America and the Caribbean. *Advances in Electronic Government, Digital Divide, and Regional Development*, [online] pp.203–228. Available at: <https://doi.org/10.4018/978-1-5225-2203-4.ch009>.

Parmaksiz K, van de Bovenkamp H, Bal R. Does structural form matter? A comparative analysis of pooled procurement mechanisms for health commodities. *Global Health*. 2023 Nov 23;19(1):90. doi: 10.1186/s12992-023-00974-1. PMID: 37996877; PMCID: PMC10668364.

15.

Chokshi M, Farooqui HH, Selvaraj S, Kumar P. A cross-sectional survey of the models in Bihar and Tamil Nadu, India for pooled procurement of medicines. *WHO South-East Asia J Public Health* 2015; 4(1): 78–85.

Singh, P.V., Tatambhotla, A., Kalvakuntla, R., & Chokshi, M. (2013). Understanding public drug procurement in India: a comparative qualitative study of five Indian states. *BMJ Open*, 3(2): e001987.

Prinja, S., Bahuguna, P., Tripathy, J.P., et al. (2015). Availability of medicines in public sector health facilities of two North Indian States. *BMC Pharmacology & Toxicology*, 16:43.

Parmaksiz, K., et al. (2022). A systematic review of pooled procurement of medicines and vaccines: mechanisms and evidence. *Global Health* (PMCID)

16.

Diallo, O., Sy, J. and Fadel, M. (2015). Delivering Water Supply and Sanitation (WSS) Services in Fragile States Levers of Change in Senegal's Rural Water Sector. [online] Available at: <https://ppp.worldbank.org/sites/default/files/2022-02/WSP-Levers-of-Change-Senegal-Rural-Water-Systems.pdf> [Accessed 4 Sep. 2025].

The World Bank FOR OFFICIAL USE ONLY Report No: PAD2763 INTERNATIONAL DEVELOPMENT ASSOCIATION PROJECT APPRAISAL DOCUMENT ON a PROPOSED SCALE-UP FACILITY CREDIT IN THE AMOUNT OF EURO 107.5 MILLION (US\$130 MILLION EQUIVALENT) TO THE REPUBLIC OF SENEGAL FOR THE RURAL WATER SUPPLY AND SANITATION PROJECT. (2018). Available at: <https://documents1.worldbank.org/curated/en/268081529897452035/pdf/Project-Appraisal-Documents-PAD-Senegal-Rural-Water-Supply-and-Sanitation-Project-P164262-002-06052018.pdf>.

Diallo, O. (2015). Senegal Shifts Its thinking: Context Is Everything. [online] World Bank Blogs. Available at: <https://blogs.worldbank.org/en/ppps/senegal-shifts-its-thinking-context-everything>.

17.

Office of Inspector General, U.S. Agency for International Development. (2020, July 10). USAID's Global Health Supply Chain Would Benefit From More Rigorous Risk Management and Actions to Enhance Local Ownership (Audit Report No. 4-936-20-002-P). USAID OIG. Retrieved from https://oig.usaid.gov/sites/default/files/2020-07/4-936-20-002-P_0.pdf

Subcommittee on Africa, Global Health, Global Human Rights, and International Organizations, Committee on Foreign Affairs, House of Representatives. (2018, May 17). Global Health Supply Chain Management: Lessons Learned and Ways Forward (Hearing, 115th Cong., 2nd sess., Serial No. 115-138). U.S. Government Publishing Office. Retrieved from <https://www.govinfo.gov/content/pkg/CHRG-115hhrg30103/pdf/CHRG-115hhrg30103.pdf>

Igoe, M., Stockton, B., & Khan, M. (2023, November 9). "Too big to fail": How USAID's \$9.5 billion supply chain vision unraveled. Devex. Retrieved from <https://www.devex.com/news/too-big-to-fail-how-usaid-s-9-5b-supply-chain-vision-unraveled-105141>

18.

Chong, A., & Valdivia, M. (2015). Comprehensive outcomes of a large and decentralized rural roads program in Peru. Andrew Young School of Policy Studies, Georgia State University. Retrieved from <https://aysps.gsu.edu/files/2015/04/15-09-ChongValdivia-OutcomesofDecentralizedRuralRoads.pdf> ResearchGate+4Andrew Young School of Policy Studies+4Andrew Young School of Policy Studies+4

World Bank. (n.d.). Bringing access to the rural poor [Brief]. Retrieved from <https://documents1.worldbank.org/curated/en/473581468145191440/pdf/916830BRI0Box30ram0401101000Public0.pdf> World Bank

weADAPT. (n.d.). Transportation: Rural Roads Program (Peru). In Case Studies of Sectoral Projects Using Gender Best Practices. Retrieved from <https://gendsourcebook.weadapt.org/8-case-studies-of-sectoral-projects-using-gender-best-practices/g-transportation-rural-roads-program-peru/> ResearchGate+10Gender and Climate Adaptation+10Gender and Climate Adaptation+10

World Bank. (2014). Implementation Completion and Results Report for the Decentralized Rural Transport Project (P095570). Independent Completion Report. Retrieved from <https://documents.worldbank.org/en/publication/document/s-reports/documentdetail/365471468296416918/main-report>

19.

Sustainable Energy for All (SEforAll). (2020, June). Modern Green Power: A global overview of mini-grid markets, investment, and policy [Report]. SEforAll. Retrieved from <https://www.seforall.org/system/files/2020-06/MGP-2020-SEforALL.pdf>

Energy and Water Utilities Regulatory Authority (EWURA), Tanzania. (2020). The Electricity Development of Small Power Projects Rules, GN No. 491 [Regulatory instrument]. Retrieved from <https://www.ewura.go.tz/uploads/documents/en-1745567647-The-Electricity-Development-of-Small-Power-Projects-Rules-2020-GN-491.pdf>

World Bank. (n.d.). Tanzania mini-grids case study [Case study]. Retrieved from <https://minigrids.org/wp-content/uploads/2020/06/Tanzania-Case-Study.pdf>

World Bank. (n.d.). Accelerating Mini-Grid Deployment in Sub-Saharan Africa: Lessons from Tanzania [Working Paper]. Retrieved from <https://www.seforall.org/system/files/2020-06/MGP-2020-SEforALL.pdf>

20.

Kumar, G., & Sadeque, Z. (2012). Output-Based Aid in Bangladesh: Solar Home Systems for Rural Households (No. 42). World Bank. Retrieved from [World Bank PDF]

GEF Independent Evaluation Office. (2020, September 15). Terminal evaluation – Project ID 5318 [Evaluation report]. Retrieved from [GEF IEO PDF]

Cabraal, A., Ward, W. A., Bogach, V. S., & Jain, A. (2021). Living in the Light: The Bangladesh Solar Home Systems Story. World Bank. Retrieved from [World Bank PDF]

World Bank. (n.d.). Bangladesh Electrification (P119549) – Implementation Completion and Results Report. Retrieved from [World Bank PDF]

Khandker, S. R., Samad, H. A., Sadeque, Z. K. M., Asaduzzaman, M., Yunus, M., & Haque, A. K. E. (2014). Surge in Solar-Powered Homes: Experience in Off-Grid Rural Bangladesh (Directions in Development: Energy and Mining). World Bank. Retrieved from [World Bank PDF]

21.

GHSC-PSM. (2024, November). Assessment of framework contract implementation and financial sustainability in Ghana's public health commodity supply chain. USAID Global Health Supply Chain Program – Procurement and Supply Management (GHSC-PSM).

