

At risk of reversal? Sustainability gaps in Big Catch Up (BCU) institutionalization: insights from multi-country assessments

Oluchi Nnenna Bassey

World Health Organization Headquarters

Hadiatou Diallo

hadyabibi2@gmail.com

World Health Organization Regional Office for Africa, IST West Africa

Aschalew Teka Bekele

World Health Organization Regional Office for Africa, Brazzaville, Republic of Congo

Angela Omondi

World Health Organization Regional Office for Africa, IST East and South Africa

Ado Mpia Bwaka

World Health Organization Regional Office for Africa, IST West Africa

Yolande Vuo Masembe

World Health Organization Regional Office for Africa, IST Central Africa

Sarah Waithera Wanyoike

World Health Organization Regional Office for Africa, IST East and South Africa

Eman Elmahdy

World Health Organization Regional Office for Africa, Eastern Mediterranean Region

Mohammed Osama Mere

World Health Organization Regional Office for Africa, Eastern Mediterranean Region

Research Article

Keywords: Big Catch Up, routine immunization, zero-dose, under-immunized, Catch-up institutionalization, reversal risk, integration, health systems, IA2030

Posted Date: September 30th, 2026

DOI: <https://doi.org/10.21203/rs.3.rs-11077439/v1>

License:   This work is licensed under a Creative Commons Attribution 4.0 International License. [Read Full License](#)

Additional Declarations: No competing interests reported.

Abstract

Background

The Big Catch-Up (BCU) initiative was launched across 36 countries to mitigate COVID-19–related declines in routine immunization and to reach zero-dose and under-immunized children. The initiative mobilized substantial resources, political commitment, and technical support within a defined timeframe. However, emerging evidence indicates that progress remains uneven and vulnerable to reversal. As countries move from this time-bound intervention toward sustained routine catch-up delivery, institutionalizing BCU strategies and achievements within national health systems has become critical. To support this transition, BCU Alliance partners developed the Catch-Up Institutionalization Assessment Tool (CU-IAT), designed to help countries assess progress and readiness for embedding catch-up vaccination into routine systems

Methods

This paper employed established frameworks such as WHO Health Systems Building Blocks to conduct a structured qualitative thematic analysis of CU-IAT submissions from 16 BCU countries. The analysis examined institutionalization progress across eight health system domains and applied cross-country descriptive methods to identify common patterns, gaps, and sustainability risks.

Results

Findings show operational institutionalization of catch-up vaccination is well advanced. Thirteen countries updated policies, 14 integrated catch-up into routine service delivery through strengthened microplanning and outreach, and 15 institutionalized health worker capacity and reporting systems. However, long-term system enablers remain limited: only two countries reported sustained financing, six integrated vaccine forecasting and supply planning, and eight institutionalized long-term technical assistance. Persistent gaps, reliance on partner support, and uneven workforce and data system capacity created varying levels of sustainability readiness, raising concerns about possible reversal of BCU gains as external support phases out. To address these risks, the paper proposes a Sustainability Transition Framework (STF) to classify readiness, identify residual risks, and prioritize transition actions. Strengthening financing, supply planning, technical capacities, and government ownership is essential to consolidate gains and sustain resilient, equitable immunization aligned with IA2030 goals.

Conclusion

The Big Catch-Up demonstrated that catch-up vaccination can be embedded within routine immunization systems, but sustaining gains requires institutionalizing not only practices but also financing, governance, and health system functions. Stronger government ownership, domestic resource mobilization, and continued partner support are essential to ensure long-term resilience and equity, consolidating progress and aligning with IA2030 goals.

Background

The COVID-19 pandemic exacerbated disruptions to already strained routine immunization systems worldwide [1]. Between 2020 and 2022, an estimated 67 million children missed one or more vaccine doses, recording the largest sustained decline in global immunization coverage in over three decades [2]. In response, WHO, UNICEF, Gavi, the Vaccine Alliance, and the IA 2030 implementing partners jointly launched the Big Catch Up (BCU) in April 2023 as a globally coordinated, country-led initiative to intensify immunization service delivery to reach zero-dose (ZD) and under-immunized (UI) children, restore immunization coverage to at least pre-pandemic levels and strengthen immunization systems [1] [3] [4].

The BCU mobilized significant resources, vaccine supply, political commitment, and technical support for 36¹ target countries [5]. National governments developed BCU implementation plans, health workers were trained and deployed, community mobilization campaigns were activated, and supply chains were reinforced. In many countries, the BCU produced measurable coverage gains within its initial implementation phase, reaching millions of zero-dose and under-immunized children and increasing coverage for key antigens such as DTP3 and MCV1 [5]. Beyond these immediate outcomes, the initiative strengthened immunization systems through enhanced workforce capacity, improved data systems, updated policies and guidance, strengthened microplanning and community engagement, and greater integration of catch-up approaches into routine immunization services. Together, these achievements demonstrate the potential of coordinated immunization intensification not only to restore coverage following service disruptions, but also to strengthen routine immunization systems for sustained recovery [6] [7] [8, 4].

To support this process, the BCU Alliance developed the Catch-Up Institutionalization Assessment Tool (CU-IAT), adapted from the WHO Leave No One Behind guidance, to help countries assess their readiness to embed catch-up approaches within routine immunization programmes and identify priorities for sustained implementation [9]. Drawing on CU-IAT assessments from 16 BCU countries, this paper explores whether BCU gains achieved are at risk of reversal by assessing progress in institutionalization and identifying the sustainability gaps that constrain long-term integration into routine immunization systems.

Objectives

This study has three inter-related objective which aims:

1. To assess the extent of BCU institutionalization across the 16 countries by synthesizing evidence from country submissions of the Catch-Up Institutionalization Assessment Tool (CU-IAT).
2. To identify cross-country sustainability gaps and areas at risk of reversal by analyzing findings across the CU-IAT's eight operational domains.

3. To propose a Sustainability Transition Framework (STF) and provide evidence-based recommendations to help countries and partners sustain BCU gains and reduce the risk of reversal.

Research Questions

The paper is organized around three primary research questions:

1. Drawing on the 16 country assessments, to what extent have BCU gains been institutionalized within routine immunization systems?
2. What critical sustainability gaps emerge across countries, and how might these increase the risk of reversal of BCU gains?
3. What programme design, implementation, monitoring, and transition strategies are needed to strengthen institutionalization and sustain BCU gains over the long term?

Methodology

Study design and setting

This study employed a qualitative thematic analysis of 16 CU-IAT country assessments submitted between Q3 2025 and Q2 2026. The assessments represented all available submissions at the time of analysis from the 36 BCU countries and therefore constituted a convenience sample rather than a purposive or representative sample. While all participating BCU countries were encouraged to undertake the assessment as part of programme close-out and institutionalization planning, only 16 submissions were available at the time of analysis. The submitting countries were Burkina Faso, Cameroon, Central African Republic, Côte d'Ivoire, Comoros, Democratic Republic of the Congo, Ethiopia, The Gambia, Guinea, Kenya, Mauritania, Mozambique, Nigeria, Somalia, Tanzania, and Togo. Findings are therefore intended to identify emerging patterns across participating countries rather than generate generalizable conclusions for all BCU countries.

Data sources

Completed assessments from 16 countries constitute the principal data source for this study. The CU-IAT was designed as a structured self-assessment to support countries in evaluating the extent to which catch-up vaccination approaches had been institutionalized within routine immunization systems [9]. Assessments were completed by national immunization teams, typically led by EPI managers and BCU focal persons, with inputs from relevant technical partners and stakeholders, and submitted through WHO Regional Offices to the global BCU Alliance coordination team. Each assessment captured qualitative information across eight domains: (1) catch-up vaccination policy, schedules, and standard operating procedures; (2) vaccines and supplies; (3) health workforce capacity; (4) recording, reporting, and information systems; (5) communication and community engagement; (6) catch-up vaccination strategies; (7) financing and resource mobilization; and (8) technical assistance. The tool also captured identified *gaps*, *priority actions*, and *technical assistance needs* in other dedicated sub-sections, to support country transition planning and future investments.

Analytical approach

Assessment findings were synthesized on Excel through a structured thematic analysis across the eight CU-IAT domains. Analysis focused on: (1) the extent of institutionalization achieved; (2) key sustainability gaps and their severity; (3) programme, operational, and health system factors contributing to observed gaps; and (4) documented good practices, lessons learned, and proposed mitigation actions. Cross-country interpretation considered variations in implementation contexts, including stable, post-conflict, and fragile settings.

Use of artificial intelligence

Artificial Intelligence (ChatGPT, OpenAI) was used to support content organization and language refinement. All analytical decisions, data interpretation, and final manuscript content output were reviewed and determined by authors and co-authors.

Results

Several consistent themes emerged from a review of the 16 country institutionalization assessment forms. Findings suggest that **countries have made substantial progress in embedding catch-up vaccination into routine immunization (RI) systems, but institutionalization remains strongest in operational domains and weakest in sustainability domains, particularly financing and vaccine supply planning (table 1).**

Table 1: Summary catch-up institutionalization status across eight assessment domains in 16 BCU countries

CU-IAT Domain	Comoros	Ethiopia	Mozambique	Kenya	Tanzania	Somalia	Burkina Faso	Central Africa Republic	Cote d'Ivoire	Cameroon	DRC	Gambia
Catch-up vaccination policy, schedule and SOPs	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✗
Vaccines and supplies for catch-up	✗	✗	✓	✓	✓	✗	✗	✓	✗	✗	✗	✗
Health worker knowledge and practice	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Recording and reporting practices, information systems and tools	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Communication and community engagement	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Strategies for catch-up vaccination	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Financing and resource mobilization	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗	✗
Technical Assistance	✓	✓	✗	✗	✓	✓	✗	✗	✓	✗	✓	✗

Findings by system components

1. Strong policy progress for catch-up vaccination: One of the clearest achievements is that many countries have developed, revised or updated their national catch-up policies, operational guidance and vaccination schedules to extend catch-up vaccination up to 59 months of age, going beyond the traditional routine age limits. These countries also showed intent for the catch-up policies to remain in place beyond 2025, the end of active BCU period (i.e Burkina Faso, **Cameroon, Côte d'Ivoire, Ethiopia** and Tanzania have institutionalized catch-up policies to be applicable beyond 2025, while DRC, Guinea, Gambia and **Mozambique** have developed similar policies pending Ministry of Health approval and validation). This demonstrates a growing recognition across countries of catch-up vaccination as a routine immunization function rather than just a time-limited campaign-like activity. Additionally, Mozambique and Gambia needs approval and dissemination for the updated RI schedule, and **Cameroon, Ethiopia, Kenya, and Somalia** indicate that their policy documents although approved and in use, still had some implementation gaps and required efficient dissemination to last-mile vaccination facilities including distribution of both printed and digital versions of revised schedule as well as incorporation of updated policy documents into pre-service/academic training—to be addressed.

2. Catch-up vaccination has largely been integrated into routine service delivery: Nearly all countries reported that catch-up vaccination is now delivered through existing RI platforms including fixed, outreach, mobile and Periodic Intensification of Routine Immunization (PIRI) strategies. Many countries have also strengthened defaulter tracking and institutionalized screening for missed doses during routine health contacts. **Cameroon** and **Côte d'Ivoire** have embedded catch-up across all routine vaccination strategies, while **Mozambique** and **Ethiopia** continue to strengthen implementation through Missed Opportunities for Vaccination (MOV) approaches. However, service implementation remains uneven, particularly because missed opportunities for vaccination (MOV) continue to be reported despite policies promoting vaccination at every health contact and also in delivering service to children aged 24–59 months, mobile populations and through school-based platforms.

3. Health worker capacity for catch-up vaccination has improved but requires continuous refresher trainings: All countries reported that the BCU enabled conduct of trainings, supportive supervision and job aids to be improved and has strengthened health worker knowledge on eligibility assessment and the delivery of multiple injections on catch-up schedules. However, maintaining staff competency over a period, remains challenging due to acute turnover, incomplete integration into pre-service curricula and the need for ongoing refresher trainings and supportive supervision. For example, Burkina Faso and Ethiopia highlighted persistent gaps among newly recruited staff, while Mozambique reported the need for additional on-the-job training and integration of BCU SOPs into routine practice. Côte d'Ivoire similarly identified variable understanding of SOPs among newly deployed health workers.

4. Recording and reporting systems have been adapted and strengthened to capture routine doses in older age groups: 15/16 countries reported adapting immunization registers, tally sheets, reporting tools, and/or DHIS2 platforms to better capture delayed doses and support routine catch-up vaccination across broader age groups. However, important implementation gaps remain, particularly in achieving full digital integration, ensuring adequate availability of updated recording tools at facility levels, and expanding dissemination and health worker training beyond BCU-supported districts. For instance, while

Cameroon and Côte d'Ivoire have largely integrated catch-up reporting into routine information systems, Mozambique and Ethiopia continue to strengthen digital integration, tool availability, and workforce capacity to support consistent reporting.

5. Catch-up vaccination messages have become a routine component in community engagement activities: From the assessment, most countries (14/16) have incorporated catch-up messages into country national immunization communication plans and routinely promoted messages such as "*it is never too late to vaccinate*" in social mobilization messages. Community mobilization for catch-up vaccination through health workers, community volunteers, local leaders and mass media was widely reported. Overall, countries have broadly integrated catch-up messages into their regular health communication strategies. For example, Côte d'Ivoire expanded communication materials to include children up to 59 months, while Ethiopia integrated catch-up messaging across community dialogues, media platforms and inter-personal communication. Nonetheless, countries reported continued shortages of communication materials, inconsistent funding for sustained community mobilization, and limited outreaches to hard-to-reach populations after mobilization.

6. Catch-up vaccine forecasting and supply quantification remain inadequately integrated and accounted for in routine planning: This was one of the most consistent sustainability gaps identified across the country assessments. Although routine vaccine supply systems generally function well, many countries reported that catch-up doses are not yet systematically incorporated into routine vaccine forecasting, including UNICEF demand planning and Gavi multi-year forecasting processes. Cameroon, Côte d'Ivoire, and Ethiopia all noted that routine vaccine forecasts do not consistently account for catch-up vaccination needs, despite broader progress toward institutionalization. Cameroon also highlighted ongoing efforts to strengthen vaccine availability through bilateral collaboration with Brazil to secure measles-rubella, pentavalent, and yellow fever vaccines. However, the absence of systematic catch-up dose quantification within routine forecasting remains a significant barrier to sustaining catch-up vaccination as external support declines.

7. Financing is the weakest pillar of institutionalization: Yet again, almost every country identified inadequate domestic financing as the greatest threat to sustaining catch-up vaccination after BCU. Countries highlighted that because the BCU cost burden was dependent on Gavi and partner support for operational costs, vaccine procurement and technical assistance, concerns over declining global health financing support and the transition to greater domestic financing and prioritization responsibilities would limit countries' abilities to support catch-up vaccination without viewing it as an '*extra operational burden*'. Mozambique reported insufficient financial resources due to declining government allocations and reduced partner funding, while Cameroon and Côte d'Ivoire highlighted continued reliance on Gavi support to sustain routine catch-up activities during the post-BCU transition.

8. Continued technical assistance will remain important for catch-up vaccination beyond the active BCU phase: Although countries reported increased national ownership of catch-up vaccination, several including Mozambique, Ethiopia, and Côte d'Ivoire, anticipated the need for continued technical assistance beyond 2025 to support supervision, implementation, monitoring, and health worker capacity building or refresher training during the transition to fully institutionalized routine catch-up vaccination. This reflects concerns that existing workforce capacity remains overstretched and may be insufficient to sustain implementation without ongoing technical support.

Beyond the eight institutionalization domains, countries consistently identified several cross-cutting lessons from BCU implementation. Across the 16 assessments, there were broad lessons learned recognition that successful catch-up vaccination depended on integrating activities within routine immunization systems through strengthened microplanning, context-specific service delivery, active community engagement, real-time data use, strong coordination, and government leadership. At the same time, countries acknowledged that sustaining these gains would require stronger domestic financing, integration of catch-up vaccine forecasting into routine planning, continued technical assistance, and greater institutional ownership. These lessons reflect a clear country predisposition towards consolidating catch-up vaccination within routine immunization, while highlighting the key system enablers needed to sustain progress beyond BCU.

Overall, the country assessments indicate that the BCU has been largely successful in institutionalizing the operational components of catch-up vaccination, including policies and standard operating procedures, service delivery strategies, health worker capacity, recording and reporting systems, and community engagement. However, progress has been less consistent in institutionalizing the underlying system enablers of sustainable financing, domestic resource mobilization, vaccine forecasting and supply planning, and long-term technical assistance. These gaps represent the principal risks to sustaining BCU gains and increase the likelihood of reversal as dedicated programme funding and external support come to an end. Sustaining routine catch-up vaccination will therefore require continued investment in these foundational health system functions alongside country-led ownership and integration.

Discussion

The findings suggest that the BCU achieved substantial progress beyond just coverage recovery by institutionalizing many of the operational components required for routine catch-up vaccination. Across the assessed countries, policies, service delivery approaches, health worker capacity, recording and reporting systems, and community engagement mechanisms were strengthened and, in many cases, integrated into routine immunization programmes. These findings demonstrate that time-bound recovery initiatives can catalyse lasting operational improvements when implementation is deliberately embedded within existing structures [4].

However, institutionalization was less consistent for underlying system enablers required to sustain these gains on a long-term scale. While operational practices were largely integrated into routine programmes, progress in domestic financing, resource mobilization, vaccine forecasting and supply planning, and long-term technical assistance remained limited. These functions depend on broader multi-level planning, budgeting, procurement, as well as local and non-local governance processes that extend beyond the direct control of national immunization programmes [10]. Continued reliance on external financing and technical support, coupled with the inadequate integration of catch-up vaccination into routine forecasting and commodity planning, raises concerns about sustaining gains once dedicated BCU resources are fully phased out [10]. These findings suggest that institutionalization is not simply a technical exercise but also a financing and governance challenge.

These findings suggest then that it seems rather than just assuming as a single outcome, institutionalization appears to exist along a form of sustainability continuum [11]. Countries that have embedded operational practices without fully institutionalizing their enabling systems remain vulnerable to a gradual loss of already achieved gains as external support declines [7] [8]. The principal risk is therefore not an immediate collapse of immunization services, but a progressive weakening of routine catch-up delivery that could allow zero-dose and under-immunized populations to re-emerge while also make routine immunization systems prone to service disruptions in the event of external interferences as pandemics or other disasters [12].

Comparison with existing literature

Our findings are broadly consistent with evidence that immunization recovery initiatives can rapidly restore coverage while strengthening routine immunization systems when recovery activities are deliberately integrated into existing programme structures rather than implemented as parallel campaigns. Similar to findings from Periodic Intensification of Routine Immunization (PIRI) and other integrated catch-up approaches, countries reported strengthened policies, service delivery, workforce capacity, data systems, and community engagement; reinforcing the value of embedding recovery interventions within routine immunization platforms to achieve both immediate coverage gains and longer-term system strengthening [13] [14]. However, our findings reinforce previous evidence that gains achieved through time-bound, externally supported immunization initiatives do not automatically translate into sustained health system improvements unless they are deliberately institutionalized within routine systems before external support is withdrawn [11] [15] [16].

The pattern of institutionalization observed across countries also aligns with Goodman et al's description of institutionalization as the process by which programme innovations become embedded within an organization's routine policies, structures, resources, and practices rather than remaining temporary initiatives [17]. Viewed through this lens, the BCU has been largely successful in institutionalizing operational practices (i.e policies, service delivery approaches, workforce development, recording and reporting systems, and community engagement) although uneven, but also less successful in embedding the governance and financial mechanisms needed to sustain them. This uneven institutionalization is also reflected in broader immunization systems evidence [11] [15] [16] [17]. Although workforce training was widely implemented, countries continued to share on long term competency gaps, especially staff attrition and turnover outpacing ongoing capacity development. Similar findings also reporting missed opportunities for vaccination maintained that workforce competency requires continuous institutional investment rather than one-off training events [18]. This observation is consistent with the IA2030's emphasis that resilient health systems, sustained workforce capacity, and country ownership as prerequisites for equitable immunization coverage [19] [20]. Likewise, while most countries adapted recording tools and information systems for catch-up vaccination, incomplete digital integration and the limited incorporation of catch-up vaccination into routine vaccine forecasting and commodity planning mirror longstanding supply chain challenges, especially where forecasting frequently fails to reflect actual service demand, delayed vaccination concerns, and population mobility [21] [22].

Perhaps the strongest convergence of our findings relates to sustainability financing. Consistent with previous evidence from Gavi-supported countries, operational and policy gains frequently outpace progress in domestic financing and long-term resource mobilization [23]. This finding also aligns with the reasoning that lasting programme impact depends on embedding program initiatives within organizational systems rather than maintaining it as externally supported activities [15] [16]. Our findings extend this evidence by demonstrating that financing, vaccine forecasting, commodity planning, and technical assistance constitute interconnected enabling functions that are considerably more difficult to institutionalize than operational programme activities. While operational improvements can often be introduced relatively quickly, sustaining them requires their integration into routine planning, budgeting, procurement, governance, and domestic financing systems. This reinforces broader evidence that programme sustainability depends not only on embedding new practices within routine service delivery, but also on institutionalizing the organizational and system capacities that support them [15] [16] [17].

From this perspective, the principal risk facing the BCU is not the loss of programme experience or technical knowledge, but the gradual erosion of gains where these enabling functions remain dependent on external support. This interpretation is consistent with evidence that the long-term return on immunization investments depends not only on vaccine delivery but also on sustaining the health system capacities that underpin routine immunization [24]. The transition from a time-bound recovery initiative to a country-owned routine catch-up programme therefore represents the most sustainable pathway. Achieving this transition will depend less on further refinement of BCU delivery strategies to more on sustained investment in domestic financing, vaccine forecasting, governance, and technical capacity to secure long-term programme continuity.

Contribution to literature

While our findings broadly corroborate existing routine immunization literature, this study extends the evidence by providing a multi-country synthesis of status of catch-up vaccination institutionalization across diverse country contexts. The findings demonstrate that although countries have made substantial progress in institutionalizing operational aspects of catch-up vaccination, sustainable financing, domestic resource mobilization, vaccine forecasting, and supply planning remain the principal constraints to long-term sustainability. By synthesizing evidence across eight health system domains, the study offers a cross-country perspective on the institutionalization of catch-up vaccination that is largely absent from the current literature.

Study limitations

While this study represents an assessment of catch-up vaccination institutionalization using a standardized multi-country assessment tool, however, the several limitations below are acknowledged. First, the analysis is based on a convenience sample of 16 country self-assessments and therefore reflects only the submissions available at the time of analysis rather than a representative sample of all 36 BCU countries. Consequently, the findings should be interpreted as indicative of emerging cross-country patterns rather than statistically generalizable conclusions. Second, because the CU-IAT is a structured self-assessment, findings may be influenced by respondent interpretation and reporting bias, although assessments were completed through multi-stakeholder national processes and validated through WHO Regional Offices before submission. Finally, the participating countries represented a wide range of contexts, including stable, post-conflict, and fragile settings. While this broadens the relevance of the findings, differences in health system capacity and implementation contexts limit direct comparisons between countries.

Study recommendation

The findings show that institutionalization is not just linear one-off output but a gradual process, with countries making varying levels of progress across different immunization system domains. While many countries successfully embedded the operational components of catch-up vaccination including policies, service delivery strategies, workforce capacity, data systems, and community engagement; the enabling functions required to sustain these gains remain less consistently and evenly institutionalized. Persistent gaps in domestic financing, vaccine forecasting and supply planning, digital data systems, and long-term technical assistance suggest that operational integration alone is insufficient to sustain catch-up vaccination beyond the BCU. Without deliberate transition planning, these gaps increase the risk that programme gains may gradually erode after external support ends.

To support a full transition, this paper proposes a **Catch-Up Sustainability Transition Framework (CU-STF)** (Fig. 1), a follow-up tool to the Catch-Up Institutionalization Assessment Tool (CU-IAT). The proposed CU-STF aims to translate institutionalization assessment findings into practical sustainability planning. Rather than replacing the institutionalization assessment tool, the CU-STF serves as its operational companion by interpreting assessment findings, identifying residual sustainability risks, and prioritizing key transition actions required to embed catch-up vaccination within routine immunization systems.

As illustrated in the Figure below, the framework follows a four-step process: **(1)** existing CU-IAT assessment findings, **(2)** sustainability readiness classification across the eight institutionalization domains, **(3)** development of a sustainability risk register for domains with residual gaps, and **(4)** preparation of a phased Transition Action Plan to guide implementation, resource mobilization, and monitoring beyond BCU close-out.

Conceptually, the STF recognizes institutionalization as a progression from **operational sustainability** (a phase where catch-up vaccination is integrated into routine programme delivery) to **system sustainability** (the phase where financing, vaccine forecasting, governance, technical capacity, and routine planning are sufficiently embedded to sustain delivery without dedicated external support). Although being recommended in the context of the BCU initiative, this proposed CU-STF framework provides a practical approach that could support translating institutionalization findings into evidence-based transition planning for future immunization recovery and health system strengthening initiatives.

Conclusion

The Big Catch-Up (BCU) has demonstrated that catch-up vaccination can be successfully embedded within routine immunization systems. Across the 16 CU-IAT country assessments, substantial progress was observed in institutionalizing policies, service delivery, workforce capacity, information systems, and community engagement. However, institutionalization remained less advanced and inconsistent for the enabling functions needed to sustain these gains, particularly domestic financing, vaccine supply planning, especially at subnational level. This imbalance suggests that while operational institutionalization is well underway, long-term system sustainability remains the greatest risk to maintaining BCU gains.

The findings show that sustaining catch-up vaccination does not require a fundamentally new approach, but deeper integration of proven strategies into routine immunization systems. Strong microplanning, context-specific service delivery, active community engagement, data use, and government leadership should now be complemented by routine vaccine forecasting and planning, sustainable financing and resource mobilization, and continued technical assistance. To support this transition, the paper proposed the Catch-Up Sustainability Transition Framework (CU-STF) as a practical tool for translating institutionalization assessment findings into sustainability planning by assessing readiness, identifying residual risks, and prioritizing transition actions.

As Gavi 6.0 is being rolled out, it is a timely opportunity to transition catch-up vaccination from a time-limited recovery initiative to a fully institutionalized component of routine immunization through stronger government ownership, increased domestic financing, and continued partner support. Ultimately, whether the gains achieved through the BCU are sustained or reversed will depend on countries' ability to institutionalize not only catch-up vaccination practices, but also the financing, governance, and health system functions required to sustain them.

Abbreviations

BCU
Big Catch-Up
CU-IAT
Catch-Up Institutionalization Assessment Tool
DHIS2
District Health Information Software 2
DRC
Democratic Republic of The Congo
EPI
Expanded Programme on Immunization
IA2030
Immunization Agenda 2030
MCV1
Measles-Containing Vaccine, first dose
MOV
Missed Opportunities for Vaccination

PIRI
Periodic Intensification of Routine Immunization
SOPs
Standard Operating Procedures
STF
Sustainability Transition Framework
UI
Under-Immunized children
ZD
Zero-Dose children

Declarations

Author contributions statement

Conceptualization of synthesis: ONB, HD

Conceptualization of methods: ONB, HD, ATB

Data synthesis and analysis: ONB, HD, AO

Writing manuscript: ONB, HD

Review: ATB, AO, AMB, YVM, SWW, EE, MOM

Funding

This assessment received no specific funding.

Competing interests

The authors declare that they have no competing interests

Ethics approval and consent to participate

This study involved a synthesis and analysis of the CU-IAT assessments forms submitted to BCU Alliance Task Team. No individual identifiers are included, nor patients and/or the public were involved in the design, or conduct, or reporting or dissemination plans of this research.

Consent for publication

Not applicable.

Availability of data and materials

The Catchup institutionalization assessment forms from the 16 countries are not publicly available. They are archived in the BCU Alliance SharePoint repository.

Acknowledgements

We are grateful to the Ministries of Health, particularly the EPI management team in each of the sixteen countries for leadership and technical oversight of the CU-IAT assessments. We acknowledge the Country's BCU focal persons (MoH, WHO, UNICEF countries offices and all partners) and regional levels for close support and for their dedication for these assessments.

References

1. World Health Organization. The Big Catch-Up: An Essential Immunization Recovery Plan for 2023 and Beyond. New York: WHO, UNICEF and Gavi, The Vaccine Alliance, May 2023. [Online]. Available: <https://www.immunizationagenda2030.org/images/documents/9789240075511-eng.pdf>
2. UNICEF. The State of the World's Children 2023: For Every Child, Vaccination. New York: United Nations Children's Fund. 2023. [Online]. Available: <https://www.unicef.org/reports/state-worlds-children-2023>
3. Organization GWH. Leave No One Behind: Guidance for Planning and Implementing Catch-up Vaccination., 2021. [Online]. Available: <https://iris.who.int/server/api/core/bitstreams/cc473940-9ff5-4953-9c0a-df6559eb9596/content>
4. World Health Organization and the United Nations Children's Fund (UNICEF). The Big Catch-Up: An Essential Immunization Recovery Plan for 2023 and Beyond., 2023. [Online]. Available: <https://www.who.int/publications/i/item/9789240075511>
5. t. UG, World Health Organization VA. Largest catch-up initiative delivers over 100 million childhood vaccinations. Geneva/New York: WHO, UNICEF, Gavi., 2026. [Online]. Available: <https://www.who.int/news/item/24-04-2026-largest-catch-up-initiative-delivers-over-100-million-childhood-vaccinations>

6. World Health Organization. Immunization campaigns. Geneva: WHO., [Online]. Available: <https://www.who.int/teams/immunization-vaccines-and-biologicals/essential-programme-on-immunization/implementation/immunization-campaigns>
7. S. R., Routine immunization: an essential but wobbly platform., *Global Health: Science and Practice.*, Vols. 10.9745/GHSP-D-13-00122., no. 2013;1(3), pp. 295–301, 2013.
8. Africa Centres for Disease Control and Prevention. Continental Immunization Strategy 2026–2030: Strengthening immunization to advance resilient primary health care and health systems., 2026. [Online]. Available: Addis Ababa: Africa CDC.
9. IA2030 Partnership. Catch-Up Institutionalization Assessment Tool., 2025. [Online]. Available: <https://www.technet-21.org/en/resources/tool/catch-up-institutionalization-assessment-tool>
10. World Health Organization (WHO) Geneva. Planning and Financing, [Online]. Available: <https://www.who.int/teams/immunization-vaccines-and-biologicals/vaccine-access/planning-and-financing>
11. a. HH. Institutionalization for good governance to reach sustainable health development: a framework analysis. *Global Health Vols.* 2024;20:5. 10.1186/s12992-023-01009-5.
12. I. V. A. C. (IVAC.), Strengthening Health Resilience in Zero-Dose Communities. Johns Hopkins Bloomberg School Public Health, 2023.
13. Summan NADSLR. A, Improving vaccination coverage and timeliness through periodic intensification of routine immunization: evidence from Mission Indradhanush., *Annals of the New York Academy of Sciences.*, Vols. 2021;1502(1):110–120., no. 10.1111/nyas.14657, pp. 110–120, 2021.
14. G. World Health Organization (WHO). Guiding principles for recovering, building resiliency, and strengthening of immunization in 2022 and beyond., ISBN 978-92-4-005277-2. [Online].
15. E. J. N. M. L. P. P. A. M. C. e. a. Gruen RL, Sustainability science: an integrated approach for health-programme planning. *The Lancet Vols* 372(9649):1579–89., no. 10.1016/S0140-6736(08)61659-1., pp. 1579–1589, 2008.
16. Pluye PLDJ. Making public health programs last: Conceptualizing sustainability. *Eval Program Plan.* 2004;27(2):121–33. 10.1016/j.evalprogplan.2004.01.001.
17. Goodman MKSAHR. Development of level of institutionalization scales for health promotion programs. *Health Educ Q.* 1993;20(2):161–78. 10.1177/109019819302000208.
18. Organization WH. Identifying Interventions to Reduce MOV: Health Worker Issues. WHO Missed Opportunities for Vaccination (MOV) training package. Immun Acad, 2020.
19. G. World Health Organization (WHO). Immunization Agenda 2030: A Global Strategy to Leave No One Behind., 2020. [Online]. Available: <https://www.who.int/docs/default-source/immunization/strategy/ia2030/ia2030-document-en.pdf>.
20. G. World Health Organization (WHO). Implementing the Immunization Agenda 2030: A Framework for Action through Coordinated Planning, Monitoring & Evaluation, Ownership & Accountability, and Communication & Advocacy., 2021. [Online]. Available: <https://data.who.int/docs/librariesprovider22/policy-recommendations/ia2030-frameworkforactionv04.pdf>.
21. U. a. p. IA2030 Partnership, Geneva. WHO, Monitoring and reporting of essential immunization catch-up in the context of the Big Catch-Up., 2024. [Online]. Available: <https://www.technet-21.org/en/resources/guidance/monitoring-and-reporting-of-essential-immunization-catch-up-in-the-context-of-the-big-catch-up>
22. B. J. JSI Research & Training Institute, Show Me the Data: Rethinking Forecasting for Better Resupply Decisions., 2025. [Online]. Available: <https://www.jsi.org/show-me-the-data-rethinking-forecasting-better-resupply-decisions/>.
23. The Center for Policy Impact in Global Health. Durham (NC), Health Aid in Transition: A Review of Gavi, the Vaccine Alliance., 2019. [Online]. Available: <https://centerforpolicyimpact.org/wp-content/uploads/sites/18/2019/09/Gavi-AID-Transition-Profile.pdf>
24. Ozawa CSPAGSBLWD. Return on investment from childhood immunization in low- and middle-income countries, 2011-20. *Health Aff.* 2016;35(2):199–207. 10.1377/hlthaff.2015.1086.
25. Ryman KKL. Too little but not too late: Results of a literature review to improve routine immunization program in developing countries. *BMC Health Serv Res.* 2008;8(1):134.
26. World Health Organization. Catch-up vaccination., [Online]. Available: <https://www.who.int/teams/immunization-vaccines-and-biologicals/essential-programme-on-immunization/implementation/catch-up-vaccination>

Footnotes

1. Afghanistan, Benin, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Cote d'Ivoire, Comoros, Democratic Republic of Congo, Democratic Republic of Korea, Ethiopia, Gambia, Guinea, Guinea Bissau, Kenya, Kyrgyzstan, Madagascar, Mali, Mauritania, Mozambique, Myanmar, Nepal, Niger, Nigeria, Pakistan, Solomon Islands, Somalia, South Sudan, Sudan, Syria, Tajikistan, Tanzania, Togo, Yemen, and Zambia

Figures

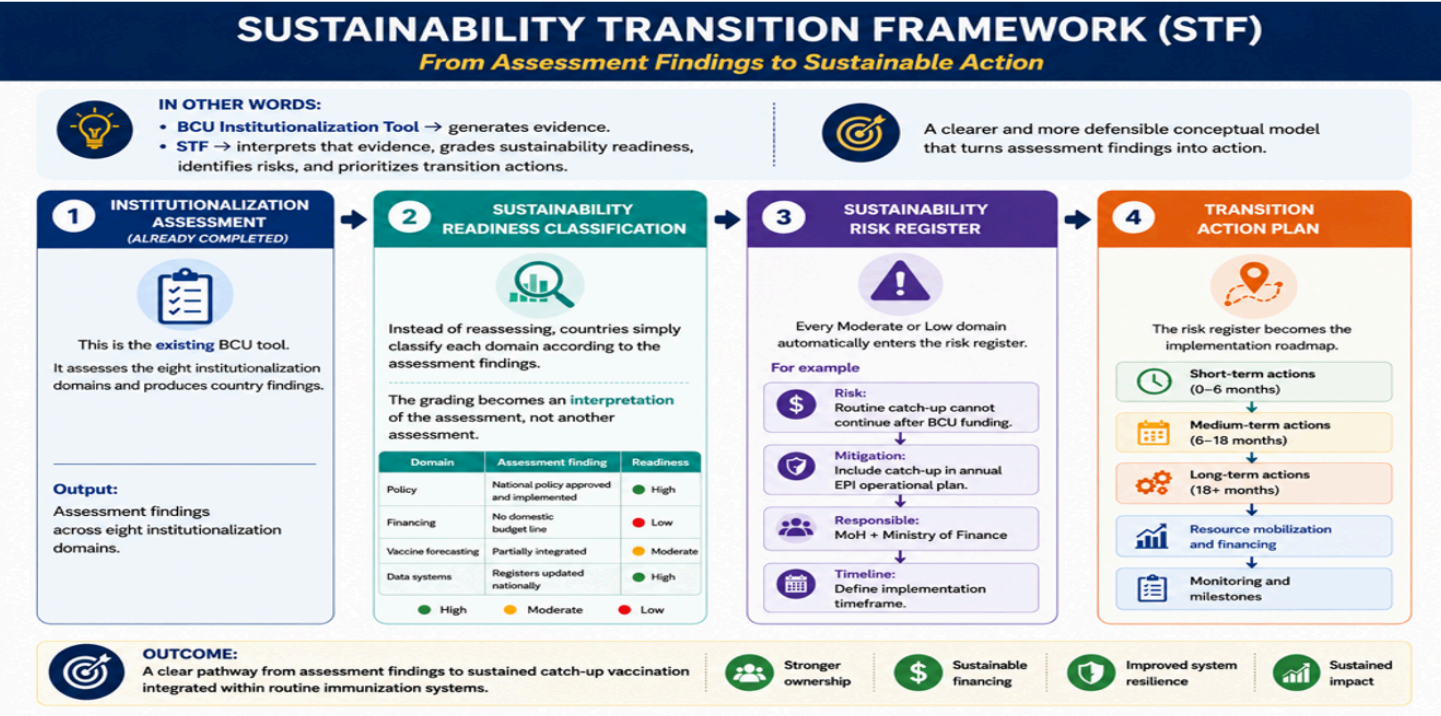


Figure 1

Proposed catch-up sustainability transition model for translating CU_IAT findings into actionable roadmap.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [Table1.pdf](#)