



Regulatory management of social infrastructure maintenance and the sectoral gap indicator in Peru

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Abstract: Maintenance sustains the benefits of social infrastructure investments, but its regulatory framework is rarely examined as a benefit-sustainability system. **Objective:** To describe the regulatory framework for the maintenance of the Tambos platforms of the PAIS National Program and to analyze its link with the sectoral indicator of the gap in platforms in inadequate condition. **Methodology:** Applied, descriptive study, with a census-based normative content analysis of nine instruments and processing of three institutional databases as of 30 April 2026, using five categories derived from ISO 55000. **Results:** Only Law No. 31015 links maintenance to gap closure. Three misalignments were identified: in scope, since the plan covers one of the indicator's four factors; budgetary, since a fiscal measure eliminated 34.11% of the annual plan and all corrective and emergency maintenance, affecting 32 platforms; and temporal, since there are settled investments whose asset no longer exists. Annual capacity (15.4 of 515 platforms) implies a 33.5-year intervention cycle. **Conclusion/Contribution:** The system regulates the execution of maintenance but does not govern the sustainability of the benefit; a governance model is proposed, with a sustainment plan, an indicator owner, a protected budget reserve, and a consolidating instrument. **Keywords:** Regulatory management, maintenance, social infrastructure, sectoral indicator.

Gestión normativa del mantenimiento de infraestructura social y el indicador sectorial de brecha en Perú

Resumen: El mantenimiento sostiene el beneficio de las inversiones en infraestructura social, pero su marco normativo rara vez se examina como sistema de sostenibilidad. **Objetivo:** Describir el marco normativo del mantenimiento de las plataformas Tambos del Programa Nacional PAIS y analizar su vinculación con el indicador sectorial de brecha de plataformas en condición inadecuada. **Metodología:** Estudio aplicado y descriptivo, con análisis de contenido normativo censal de nueve instrumentos y procesamiento de tres bases institucionales con corte al 30/04/2026, sobre cinco categorías derivadas de ISO 55000. **Resultados:** Solo la Ley N.° 31015 vincula el mantenimiento con el cierre de brechas. Hay tres desalineaciones: de alcance, pues el plan cubre un factor de los cuatro del indicador; presupuestal, pues una medida fiscal suprimió el 34,11 % del plan anual y todo el mantenimiento correctivo y de emergencia, afectando a 32 plataformas; y temporal, pues existen inversiones liquidadas cuyo activo ya no existe. La capacidad anual (15,4 de 515 plataformas) implica un ciclo de 33,5 años. **Conclusión/Aporte:** El sistema regula la ejecución, pero no gobierna la sostenibilidad del beneficio; se propone un modelo de gobernanza con plan de sostenimiento, titular del indicador, reserva presupuestal protegida e instrumento consolidador. **Palabras clave:** Gestión normativa, mantenimiento, infraestructura social, indicador sectorial.

Gestão normativa da manutenção de infraestrutura social e o indicador setorial de lacuna no Peru

Resumo: A manutenção sustenta o benefício dos investimentos em infraestrutura social, mas seu marco normativo raramente é examinado como sistema de sustentabilidade. **Objetivo:** Descrever o marco normativo da manutenção das plataformas Tambos do Programa Nacional PAIS e analisar sua vinculação com o indicador setorial de lacuna de plataformas em condição inadequada. **Metodologia:** Estudo aplicado e descritivo, com análise de conteúdo normativo censitária de nove instrumentos e processamento de três bases institucionais com corte em 30/04/2026, sobre cinco categorias derivadas da ISO 55000. **Resultados:** Somente a Lei n.º 31015 vincula a manutenção ao fechamento de lacunas. Há três desalinhamentos: de escopo, pois o plano cobre um dos quatro fatores do indicador; orçamentário, pois uma medida fiscal suprimiu 34,11 % do plano anual e toda a manutenção corretiva e de emergência, afetando 32 plataformas; e temporal, pois existem investimentos liquidados cujo ativo já não existe. A capacidade anual (15,4 de 515 plataformas) implica um ciclo de 33,5 anos. **Conclusão/Contribuição:** O sistema regula a execução, mas não governa a sustentabilidade do benefício; propõe-se um modelo de governança com plano de sustentação, titular do indicador, reserva orçamentária protegida e instrumento consolidador.

Palavras-chave: Gestão normativa, manutenção, infraestrutura social, indicador setorial.





1. Introduction

Project management has shifted its focus from product creation to value creation. Ul Musawir et al. (2017) define benefit as a value stream that occurs when stakeholders use project outputs to achieve intended outcomes. In public infrastructure, the distinction is crucial: the product is a delivered structure, while the benefit is the sustained provision of the service that the structure enables.

The Project Management Institute (2016a) formalized this extension through the benefits identification, implementation, and sustainability cycle, and noted that the post-closure phase is the least practiced (Project Management Institute, 2016b). Serra and Kunc (2015) showed that benefits realization occurs mostly after closure. In infrastructure, the instrument that sustains the benefit is not the technical file or the acceptance certificate, but rather the maintenance regime that operates throughout the asset's useful life.

From an asset management perspective, the fundamentals of ISO 55000—value, alignment, leadership, and assurance—require that asset management objectives be derived from organizational objectives and that performance be measured throughout the asset lifecycle (International Organization for Standardization [ISO], 2024a). The ISO 55011 guide recognizes that the quality of public asset management depends on the design of the regulatory and budgetary environment (ISO, 2024c). Sasidharan (2025) emphasizes that resource constraints and the aging asset stock necessitate strategic lifecycle approaches.

Recent evidence confirms the problem. Pampana et al. (2024) document the persistent tension between planned and unplanned maintenance in twelve North American universities; Plebankiewicz et al. (2022) warn that the systematic underestimation of costs leads to schedules that are decoupled from actual needs; Ogunbayo et al. (2022) attribute the abandonment of public buildings in developing countries to the absence of a conservation culture; and Moreno Parra (2023) demonstrates that, under annual budget constraints, conservation absorbs the adjustments made for the benefit of new construction.

The National Program for Action Platforms for Social Inclusion operates fixed platforms (Tambos) to bring government services closer to rural populations living in poverty and extreme poverty. Law No. 31015 links the maintenance of basic social infrastructure to closing gaps, and the sector has a performance indicator: the percentage of platforms operating in inadequate conditions, evaluated based on four production factors (infrastructure, furniture, equipment, and vehicles). However, academic research on these platforms has not examined the regulatory framework for maintenance or its relationship to this indicator. If the maintenance regime is not aligned with this indicator, deterioration reverses the gap closure achieved without the system registering it as a loss of benefit.

The above is aligned with the Objective: This paper describes the current regulatory framework for the maintenance of Tambos platform infrastructure and analyzes its relationship to the sectoral gap indicator. The contribution is both conceptual and methodological: examining a regulatory framework for maintenance as a system for ensuring the sustainability of benefits, rather than as a verification of procedural compliance.

2. Methodology

This applied research, descriptive in scope, included analysis of census-based regulatory content and supplementary processing of administrative records. The corpus comprised nine instruments in effect as of 2026: the Supreme Decree establishing the Program; the Operations Manual; the procedure for planning and executing the maintenance of fixed platforms; the manual for preparing the General Maintenance Plan; the sectoral directive on movable heritage assets; Law No. 31015; the multi-year programming formats that define the indicator; Emergency Decree No. 001-2026; and the 2026 General Maintenance Plan with its Amendment No. 01. The design is





census-based because the corpus includes all instruments that regulate the matter at the national level.

Three institutional databases were used as complementary sources: the inventory of platform projects, the consolidated database of situational status sheets, and the monthly maintenance monitoring database, as of April 30, 2026.

The analysis was structured into five categories: value, alignment, leadership and assurance (ISO, 2024a), and post-closure sustainability (Project Management Institute, 2016a). For each instrument, the following were recorded: regulatory hierarchy, regulated object, responsible unit, time horizon, expenditure classification, and explicit link to the outcome measure. An alignment matrix was developed, and discrepancies were empirically verified against the records for the fiscal year.

Only publicly available or legally required documentation was used, excluding data on individuals. To control for bias arising from the author's professional experience in public investment projects, the analysis was based on international external criteria, and the conclusions are supported solely by verifiable documentary evidence.

3. Results

The framework governing maintenance comprises instruments at four hierarchical levels and three sectors of normative origin, with legal, regulatory, organizational, and procedural norms covering planning, programming, and execution. However, of the nine instruments, only Law No. 31015 establishes an explicit link with closing gaps, and none of the operational instruments make reference to the indicator. The discontinuity does not occur between norm and practice, but within the normative system itself: the link to the outcome is stated at the legal level and lost at the operational level, which corresponds to the weakness that Ul Musawir et al. (2017) identify in governance systems.

The indicator is an outcome measure, but its enabler is managed with output measures: the General Plan reports programmed and executed interventions, not changes in the condition of the fleet. It is possible, then, for the Program to fully comply with its plan and for the indicator to worsen. With S/ 2,920,000.00 for comprehensive maintenance and a unit cost of S/ 190,000.00, the annual capacity reaches 15.4 platforms (2.98% of a fleet of 515), that is, an implicit cycle of 33.5 years. Besiktepe et al. (2020) and Kheradranjbar et al. (2022) show that the quality of the criteria determines the validity of the prioritization; here the problem is not the criterion but the magnitude of the resource.

3.1. Scope Misalignment. The General Plan excludes general equipment, IT equipment, and vehicles because the movable property directive assigns them to another unit. The indicator evaluates four factors; the instrument covers only one. The operational status of a platform is managed by three plans, from different units and regulations, without any coordination mechanism. In the fifty-five monitoring records, there is not a single intervention regarding vessels, which are essential for accessing numerous Amazonian platforms and are listed as missing from the inventory.

3.2. Budgetary Misalignment. Maintenance is financed under Expenditure Category 2.3, so fiscal discipline measures affect it like any other current expenditure. Emergency Decree No. 001-2026 limited certification to 90% of the Initial Institutional Budget, resulting in the rejection of a budget item for S/ 1,511,567.00 out of a plan of S/ 4,431,567.00 (34.11%). The eliminated amount exactly matches the sum of the corrective and emergency modalities: the adjustment was not proportional, but rather eliminated the two that address failures that had already occurred. The work carried out through implementing units under Law No. 31015, the only instrument that links maintenance and closing gaps, was preserved; this protection was a collateral effect of the administrative mechanism and not a governance decision. Twenty interventions with terms of





reference were suspended, and twelve platforms with validated needs were left unattended (32 in total). The mechanism replicates that documented by Moreno Parra (2023) and contravenes the alignment principle of ISO 55000 (ISO, 2024a).

3.3. Temporal Misalignment. The investment is administratively closed upon delivery and settlement of the product, without any mechanism transferring the responsibility for sustaining the outcome to the operational side. The inventory records platforms in a service provision state without infrastructure, with a sub-state of liquidation and closure and a technical observation of river damage: completed investments, with executed amounts exceeding S/ 1,400,000, whose physical assets no longer exist but which continue to be accounted for as service providers. There are also platforms in operation since 2018 without any recorded intervention. As of April 30, 2026, 32.7% of the planned interventions remained in the received form stage without terms of reference, and only 1.8% had been completed. This is the phenomenon that the Project Management Institute (2016b) calls the absence of a benefits sustainability plan. Table 1 summarizes the observed misalignment.

Table 1. Alignment of the regulatory framework with the fundamentals of asset management and the benefits sustainability cycle

Category	Documentary evidence	Alignment	Identified discontinuity
Worth	Law No. 31015 links maintenance with closing gaps; the operational instruments do not refer to this.	Partial	The purpose is stated at the legal level and does not guide annual planning.
Alignment	The instrument covers one of the four production factors assessed by the indicator; zero interventions on vessels	Absent	Asymmetry of scope between instrument and outcome measure
Leadership	The units are assigned the execution of maintenance; none are assigned the indicator	Absent	Lack of institutional owner of the result
Assurance	Scheduled and completed interventions are reported; no change in the park's condition is reported.	Partial	Product measurement instead of outcome measurement
Sustenance	Platforms liquidated and closed without operational infrastructure; 34.11% of the plan eliminated and 100% of the corrective action eliminated	Absent	Product closure without transfer of the commitment to results or protection of expenses

Note. Value, alignment, leadership and assurance categories according to the fundamentals of the ISO 55000 family; sustainability category according to the benefits management cycle (Project Management Institute, 2016a).

Based on these discontinuities, a governance model for sustained benefits is proposed, articulated in four components: incorporating a benefits sustainability plan as a mandatory deliverable prior to the closure and liquidation of the investment; designating an institutional owner of the indicator, distinct from the person responsible for the execution of the work; establishing a budget reserve for critical failures classified as a generic category not subject to certification limitations; and unifying the maintenance objective through a consolidating instrument that encompasses the four production factors that the indicator evaluates. Figure 1 represents the model, placing the sustainability plan at the transition point between the closure of the investment and the operational phase.



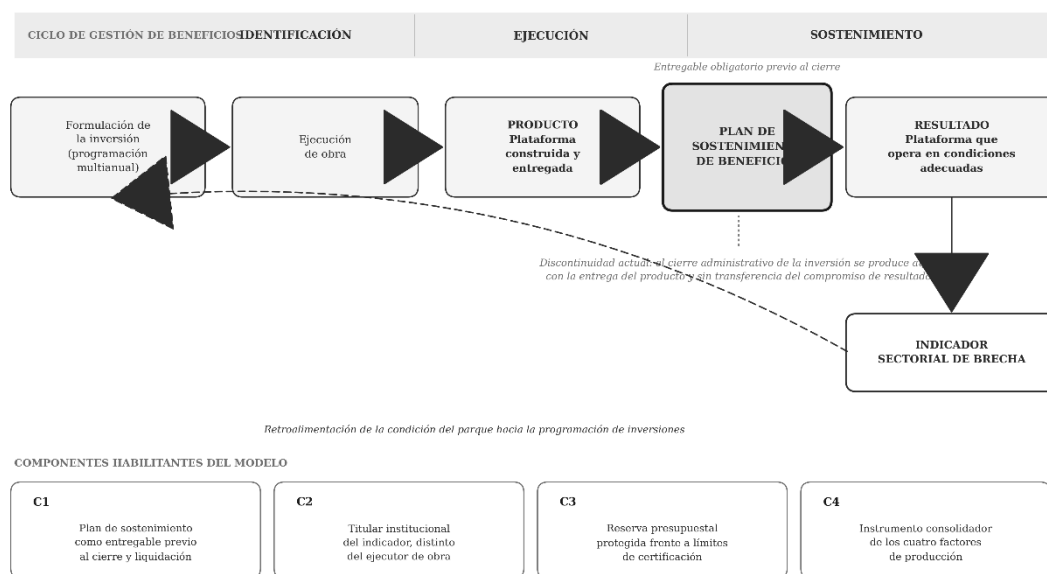


Figure 1. Sustained benefits governance model for distributed social infrastructure

Note: The thick line indicates the insertion point of the proposed deliverable; the dashed line indicates the discontinuity of the current system; the curved line represents the feedback loop from the outcome measure to the investment schedule.

4. Discussion

The findings align with the literature in that the critical gap lies in the post-closure phase (Serra & Kunc, 2015; Project Management Institute, 2016b) and that conservation is the first casualty of budget cuts (Moreno Parra, 2023; Plebankiewicz et al., 2022). The study's contribution lies in demonstrating that, in this case, the existence of an outcome indicator is insufficient if no operational instrument references it and no unit possesses it. This shifts the focus from technical improvement of procedures, in line with Besiktepe et al. (2020) and Kheradranjbar et al. (2022), to the design of the regulatory and budgetary environment recommended by ISO 55011 (ISO, 2024c). Limitations include the fact that the analysis is documentary, with a cutoff date of April 30, 2026, and does not estimate the park's replacement value. The current regulatory framework comprises nine instruments across four levels that formally cover the entire planning, programming, and execution cycle; its weakness lies not in its density, but rather in the fact that the link to the outcome is only stated at the legal level. The gap indicator is an outcome measure that places the sector in a methodologically advanced position, but no operational instrument refers to it, no unit has it assigned to them, and the system records interventions instead of changes in the condition of the vehicle fleet.

Three misalignments were identified: scope (one of four factors), budget (suppression of 34.11% of the plan and 100% of the corrective and emergency modalities, with 32 platforms) and temporal (closure with the delivery of the product and without transfer of the result).

5. Conclusions and contributions

The system regulates the execution of maintenance, but does not govern the sustainability of the benefit; its strengthening requires governance instruments that assign ownership, protect spending, and unify the object of maintenance with that of measurement.

The main contribution is the sustainable benefits governance model, applicable as a deliverable prior to investment closure through modifications to the methodological instruments of multi-year programming. It is suggested that the replacement value of the infrastructure be estimated and that it be examined whether the misalignment is replicated in other social facilities.



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