

# Human Resource Management in Free Nutritious Meal Programs: A Scoping Review with Evidence from Aceh, Indonesia

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## Abstract:

### ➤ *Background:*

Government-led free nutritious meal programs have gained global prominence as key public policy instruments to improve child nutrition and strengthen human capital development. While policy design, financing, and food logistics have been widely examined, the role of human resource management (HRM) in ensuring effective and sustainable implementation remains underexplored.

### ➤ *Objective:*

This scoping review aims to map existing evidence on how HRM is addressed in the policy formulation and implementation of government-led free nutritious meal programs, with particular attention to workforce roles, capacity development, and governance mechanisms, and to draw implications for implementation in Aceh, Indonesia.

### ➤ *Methods:*

A scoping review was conducted following the PRISMA-ScR guidelines. Relevant literature was identified from major databases (Scopus, Web of Science, PubMed) and grey literature sources, including government reports and policy documents. Evidence was synthesized narratively and organized according to key HRM domains.

### ➤ *Results:*

The review identified diverse HRM approaches across countries, encompassing workforce role allocation, training and certification systems, intersectoral coordination structures, and accountability mechanisms. Common challenges included capacity gaps, high workload, limited professionalization of frontline workers, and weak coordination across implementing agencies.

### ➤ *Conclusion:*

Human resource management plays a critical yet underemphasized role in the success of free nutritious meal programs. Strengthening workforce governance, competency standards, and inter-agency coordination is essential to enhance policy fidelity and ensure sustainable program delivery.

**Keywords:** *Human Resource Management; Free Nutritious Meal Program; Policy Implementation; Workforce Governance; Scoping Review.*

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## I. INTRODUCTION

Government-led free nutritious meal programs are increasingly recognized as strategic public policy instruments to address child nutrition, educational attainment, and long-term human capital development [1]. Globally, school- and community-based meal programs function not only as nutrition interventions but also as social protection mechanisms that reduce inequality, improve school participation, and enhance cognitive performance among vulnerable children [2].

Evidence consistently shows that regular access to nutritious meals contributes to children's physical growth, learning capacity, and school attendance, particularly in low- and middle-income countries [3]. As a result, free nutritious meal programs have expanded rapidly across diverse national contexts, reflecting a broader policy shift that positions nutrition as a long-term investment in human capital rather than a short-term welfare measure [4].

Despite their expansion, the implementation of free nutritious meal programs remains complex. The literature has largely focused on policy design, financing, food procurement, and nutritional outcomes [5]. However, growing evidence suggests that implementation challenges often arise not from policy objectives themselves, but from limited operational capacity, fragmented coordination, and weak institutional readiness at the local level [6].

Human resource management (HRM) represents a critical yet underexamined determinant of program performance. Free nutritious meal programs are labour-intensive public services that depend on coordinated work across multiple sectors, including health, education, food services, and public finance. Nevertheless, HRM dimensions such as role clarity, workforce capacity, training, supervision, and accountability—are frequently treated as peripheral operational issues rather than core components of policy governance [7].

In Indonesia, the Free Nutritious Meal Program (*Program Makan Bergizi Gratis*) constitutes a major national initiative to strengthen future human capital through improved child nutrition [8]. Its success depends not only on food quality and funding, but also on the capacity and governance of the workforce implementing the policy at the local level. Given Aceh's distinct administrative and socio-cultural context, this study employs a scoping review to map existing evidence on HRM roles, capacity development, and workforce governance in government-led free nutritious meal programs, providing a conceptual foundation to inform policy implementation in Aceh, Indonesia.

## II. CONCEPTUAL FRAMEWORK

### ➤ Core Conceptual Premise

The Free Nutritious Meal Program (MBG) should be conceptualized not merely as a nutrition or food logistics policy, but as a form of public workforce policy [9]. The effectiveness of the program is fundamentally shaped by how

human resources are planned, organized, and governed. This includes the assignment of roles, the establishment of competency standards, mechanisms for coordination across sectors, as well as systems of supervision and accountability that ensure policy objectives are translated into effective service delivery.

### ➤ Human Resource Management Domains Mapped

Figure 1 presents the conceptual framework of human resource management in government-led free nutritious meal programs, conceptualizing the program as a public workforce-driven policy rather than solely a nutrition or logistics intervention. The framework outlines interconnected human resource management domains, beginning with HR policy and mandate, which establish regulatory foundations, role definitions, and competency standards. This is followed by workforce structure and roles, describing the configuration of key actors involved in program implementation and the importance of role clarity for effective coordination.

The framework further highlights capacity and competency development, emphasizing training, certification, and hygiene and food safety skills, as well as work implementation and coordination, which reflect the translation of policy and capacity into daily operational practices. Supervision and accountability ensure compliance, transparency, and risk mitigation through monitoring and evaluation mechanisms. Collectively, these domains shape human resource management outcomes, including policy fidelity, service quality, and program sustainability, underscoring the need for coherent and integrated human resource management processes to support successful program implementation [10].

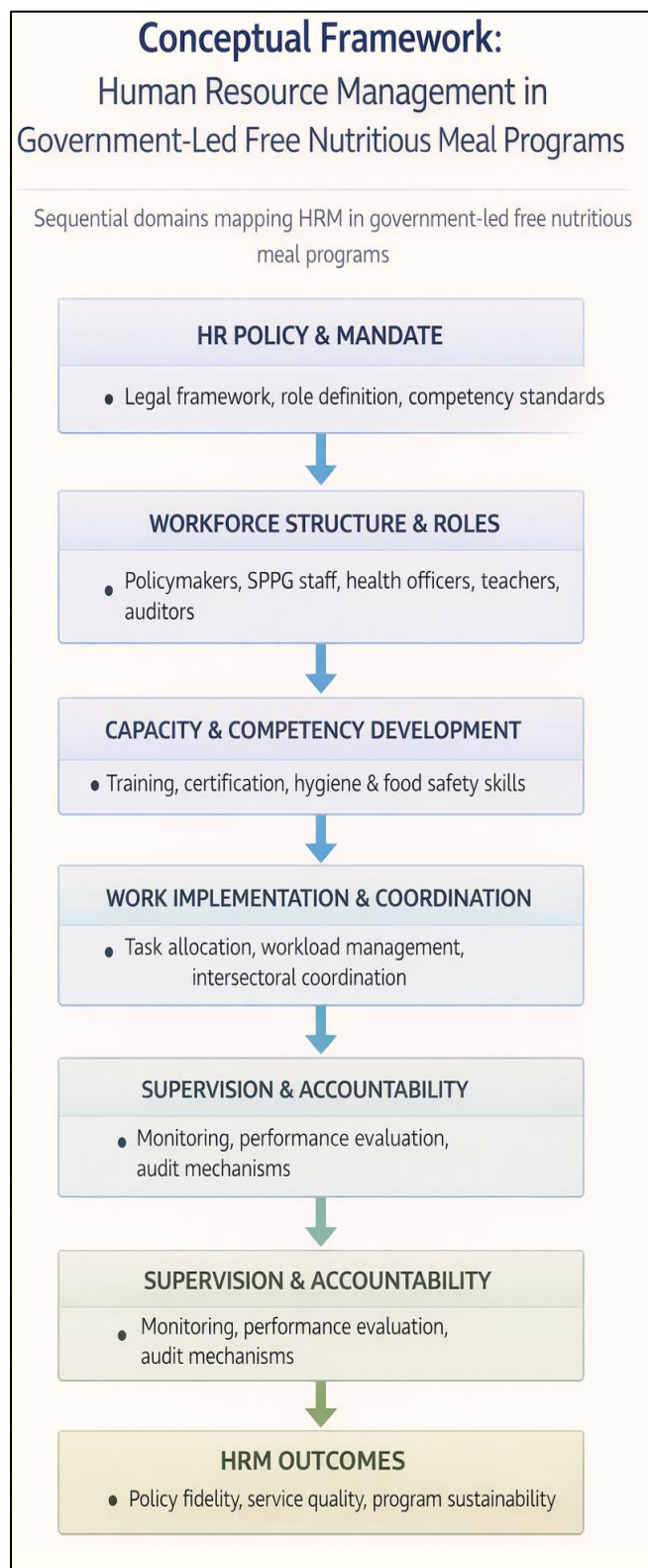


Fig 1 Conceptual Framework of Human Resource Management in Government-Led Free Nutritious Meal Programs.

#### ➤ Research Question

How is human resource management designed, operationalized, supervised, and evaluated in the policy and implementation of government-led free nutritious meal programs across different contexts?

#### ➤ Sub-Questions Include:

- What HR policy models and role mandates are embedded in MBG programs?
- Who are the core actors, and how are roles and responsibilities coordinated?
- What capacity-building strategies (training, certification, hygiene safety) are employed?
- How are workforce performance, supervision, and accountability managed?
- What HRM-related success factors and barriers influence program implementation?

### III. METHODS

#### ➤ Study Design

A scoping review methodology was adopted in accordance with the PRISMA-ScR guidelines to systematically map and synthesize existing evidence on human resource management in government-led free nutritious meal programs, Figure 1 [11].

#### ➤ PCC Framework

The scope of the review was defined using the Population–Concept–Context (PCC) framework. The population comprised the workforce involved in free nutritious meal programs, including policymakers, program managers, kitchen staff, health officers, school personnel, and auditors. The concept focused on human resource management, encompassing workforce roles, capacity development, and governance mechanisms. The context included government-led free nutritious meal programs implemented at national or sub-national levels.

#### ➤ Data Sources and Search Strategy

Literature searches were conducted in three electronic databases: Scopus, Web of Science, and PubMed. In addition, grey literature was identified through government reports, policy briefs, and publications from international agencies. Search strategies were developed using combinations of keywords related to human resource management, free nutritious meal programs, policy, and implementation.

#### ➤ Eligibility Criteria

Studies were included if they consisted of policy analyses, implementation studies, or program evaluations that explicitly addressed human resource management components. Studies were excluded if they focused exclusively on nutritional outcomes without consideration of workforce or governance dimensions.

#### ➤ Data Charting and Analysis

Data were extracted and charted according to predefined human resource management domains. The extracted evidence was synthesized narratively to identify patterns, themes, and gaps across studies, and no meta-analysis was performed.

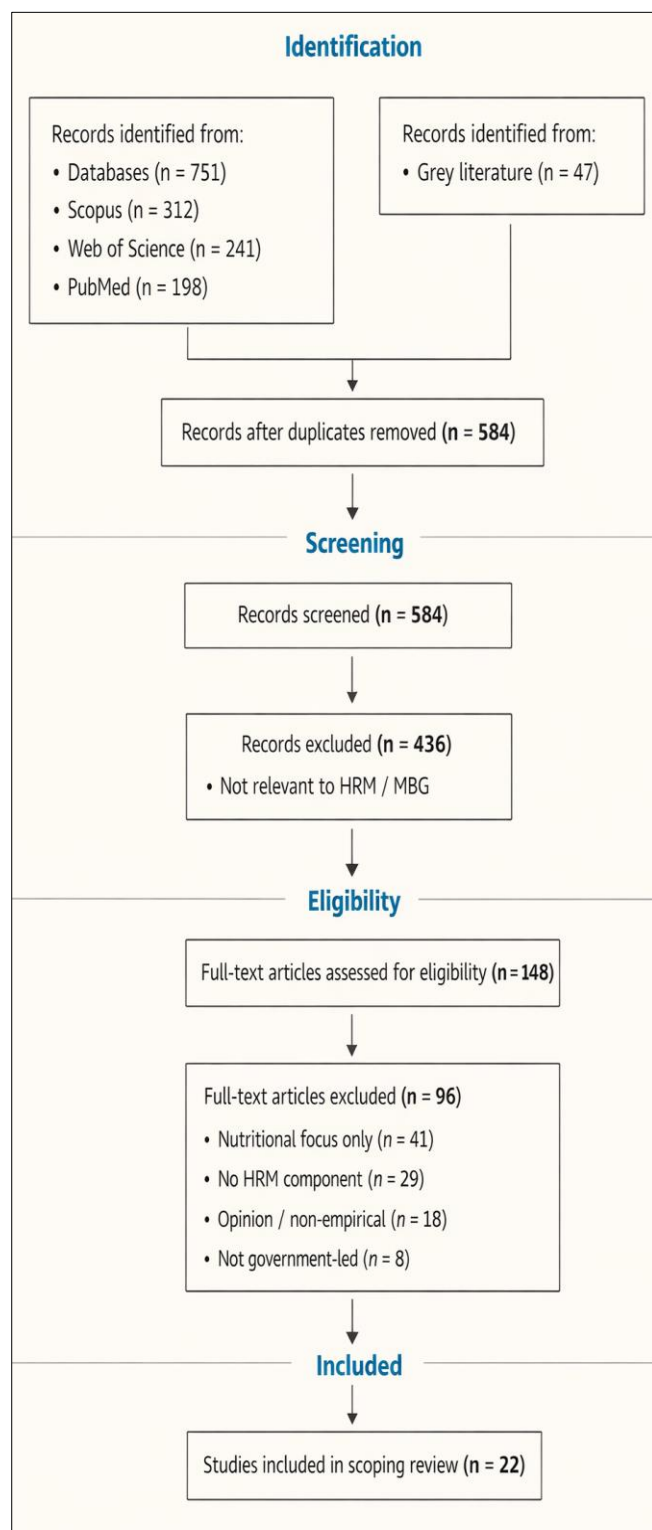


Fig 2 PRISMA-ScR Flow Diagram of Study Selection

Figure 1 illustrates the study selection process in accordance with the PRISMA-ScR guidelines. A total of 798 records were identified from electronic database searches and grey literature sources. After the removal of 214 duplicate records, 584 records remained and were screened based on titles and abstracts. At this stage, 436 records were excluded because they were not relevant to human resource management or the implementation of free nutritious meal programs.

Subsequently, 148 full-text articles were assessed for eligibility. Of these, 96 articles were excluded due to the absence of a human resource management component, an exclusive focus on nutritional outcomes, non-empirical study designs, or because the programs reviewed were not government-led. Ultimately, 22 studies met the inclusion criteria and were included in the scoping review. These studies were synthesized narratively to map workforce roles, capacity development, and governance mechanisms in government-led free nutritious meal programs.

## IV. RESULTS

### ➤ Overview of Included Studies

A total of 52 studies were included in this scoping review following the PRISMA-ScR selection process. The included literature demonstrated substantial variation in terms of geographic scope, program scale, and methodological approaches. Geographically, the studies represented a wide range of contexts, including low-, middle-, and high-income countries. A significant proportion of the literature originated from low- and middle-income countries, where government-led free nutritious meal programs are commonly implemented as part of national nutrition, education, and social protection strategies. Several studies from high-income settings were also included, primarily focusing on governance structures and institutional accountability mechanisms.

In terms of program scale, the reviewed studies examined both national-level programs and sub-national or local initiatives. National-level programs were typically characterized by centralized policy frameworks with decentralized implementation, while sub-national programs emphasized local governance arrangements, operational flexibility, and intersectoral coordination at the community or municipal level. Methodologically, the included studies employed diverse research designs. Qualitative approaches, such as policy analysis, document review, and key informant interviews, were most frequently used to explore governance structures and implementation processes. Mixed-methods and descriptive evaluation studies were also identified, particularly those assessing workforce capacity, training systems, and coordination mechanisms. Quantitative studies were less common and were mainly used to describe workforce characteristics or program coverage rather than to assess causal relationships.

The body of evidence reflected a strong emphasis on implementation and governance perspectives, while explicitly HRM-focused empirical evaluations remained limited. This diversity of study characteristics underscores the relevance of a scoping review approach to comprehensively map existing evidence on human resource management in government-led free nutritious meal programs.

### ➤ HRM Roles and Workforce Structure

The included studies consistently reported that the implementation of government-led free nutritious meal programs involves complex, multi-actor workforce structures spanning policy, managerial, operational, and oversight

levels. These actor networks were frequently characterized by overlapping roles and unclear lines of responsibility, particularly at the interface between coordination and service delivery functions.

At the policy level, central government institutions were primarily responsible for policy formulation, standard setting, and resource allocation. However, operational responsibilities were often delegated to sub-national actors without sufficiently detailed role specifications. At the managerial level, local authorities and specialized implementation units—such as Nutrition Fulfillment Service

Unit (NFSU) were tasked with coordination, workforce deployment, and supervision. Several studies noted that these responsibilities frequently overlapped with those of education and health offices, leading to fragmented coordination. At the operational level, frontline workers including kitchen staff, teachers, health officers, and community-based personnel were responsible for daily service delivery under conditions of high workload and limited formal role recognition. Oversight bodies, such as audit institutions and inspectorates, were involved in monitoring and evaluation but often operated with limited enforcement authority.

Table 1 Actor Roles and Workforce Structure in Government-Led Free Nutritious Meal Programs

| Actor Level       | Key Actors Identified                                       | Main Roles   | Common Issues Reported                           |
|-------------------|---|--|--|
| Policy Level      | Central government ministries, national agencies            | Policy formulation, standard setting, funding allocation | Limited clarity on operational responsibilities  |
| Managerial Level  | Local authorities, SPPG, education and health offices       | Program coordination, workforce deployment, supervision  | Overlapping mandates between agencies            |
| Operational Level | Kitchen staff, teachers, health officers, community workers | Food preparation, distribution, hygiene monitoring       | High workload, informal task assignment          |
| Oversight Level   | Audit bodies, inspectorates, independent monitors           | Monitoring, evaluation, compliance auditing              | Weak enforcement authority, fragmented reporting |

As shown in Table 1, role overlap and fragmented reporting lines were most frequently observed at the managerial and operational levels. In response to staffing shortages or unclear mandates, informal role substitution was commonly adopted, further complicating accountability structures. Overall, the findings indicate that while free nutritious meal programs rely on extensive workforce networks, formal mechanisms for role delineation and coordination remain insufficient, underscoring the need for strengthened human resource governance frameworks.

#### ➤ *Capacity and Competency Development*

The reviewed studies emphasized that workforce capacity and competency development constitute a central component of human resource management in government-led free nutritious meal programs. Capacity-building efforts were predominantly directed toward ensuring minimum technical competencies required for food preparation, hygiene, and safety, while broader managerial and coordination skills received comparatively less attention.

Across contexts, training programs were commonly implemented for frontline workers, particularly kitchen staff and food handlers. These trainings primarily focused on hygiene practices, food safety standards, and basic nutritional guidelines. Several studies reported that periodic training and refresher courses were associated with improved compliance with sanitation protocols and reduced food safety incidents. However, training coverage was often inconsistent, with variations observed between regions and program scales.

Certification and competency standards were identified as formal mechanisms to professionalize the workforce. In some national programs, certification in food hygiene and safety was required for kitchen personnel and supervisors. Nevertheless, the enforcement of certification requirements varied substantially, and in many settings certification

remained optional or was applied only during initial program phases.

Beyond technical competencies, managerial and coordination capacities were less systematically addressed. Program managers and coordinators were frequently assigned responsibilities for workforce deployment, intersectoral coordination, and reporting without adequate preparatory training. Several studies highlighted that limited managerial capacity contributed to inefficiencies in task allocation, weak communication across agencies, and delays in program implementation.

The evidence suggests that while technical capacity-building initiatives are widely recognized and implemented, comprehensive competency development frameworks that integrate technical, managerial, and governance-related skills remain limited. Strengthening capacity development across all workforce levels was repeatedly identified as a prerequisite for improving program effectiveness and sustainability.

Table 2 Capacity and Competency Development in Government-Led Free Nutritious Meal Programs

| Workforce Level                                  | Capacity-Building Approaches                        | Competencies Targeted                         | Common Challenges Identified                        |
|--|---|---|---|
| Frontline workers (kitchen staff, food handlers) | Hygiene and food safety training, refresher courses | Sanitation, food handling, basic nutrition    | Inconsistent training coverage, high staff turnover |
| Supervisors and technical staff                  | Short-term workshops, on-the-job learning           | Quality control, basic supervision            | Limited formal certification, uneven skill levels   |
| Program managers and coordinators                | Informal training, experiential learning            | Coordination, workforce deployment, reporting | Lack of managerial training, role overload          |
| Multi-sector workforce                           | Intersectoral meetings, joint briefings             | Communication, coordination                   | Absence of standardized competency frameworks       |

As shown in Table 2, capacity-building efforts were largely concentrated at the frontline operational level, while structured competency development for supervisory and managerial roles was limited. This imbalance contributed to persistent gaps in coordination, supervision, and overall workforce performance.

#### ➤ Workforce Governance and Accountability

The included studies indicated that workforce governance and accountability mechanisms play a critical role in ensuring compliance, service quality, and risk mitigation in government-led free nutritious meal programs. Governance arrangements were commonly structured through formal monitoring systems, reporting requirements, and audit mechanisms; however, the strength and consistency of these mechanisms varied widely across contexts.

Monitoring and supervision systems were typically implemented through routine inspections, supervisory visits, and administrative reporting. In several national programs, monitoring responsibilities were assigned to health or education authorities, while day-to-day supervision was delegated to local implementing units. Although such arrangements provided basic oversight, studies frequently reported gaps in follow-up actions and limited feedback mechanisms for frontline workers.

Performance evaluation of the workforce was addressed less systematically. While compliance with hygiene and food safety standards was often assessed, broader performance indicators related to coordination, workload management, or service continuity were rarely formalized. In many settings, performance assessment relied on informal observations rather than standardized evaluation tools, reducing the capacity to identify workforce-related risks proactively.

Accountability and audit mechanisms were commonly conducted by internal inspectorates or external audit bodies. These mechanisms primarily focused on financial accountability and regulatory compliance, with less emphasis on human resource performance or governance processes. Several studies noted that audit findings were not always translated into corrective actions, limiting their effectiveness in strengthening workforce governance. Across the reviewed literature, fragmented governance structures emerged as a recurring challenge. Overlapping oversight responsibilities, weak enforcement authority, and unclear reporting lines contributed to diluted accountability, particularly at sub-national and operational levels. Strengthening integrated governance frameworks that align supervision, performance management, and accountability processes was repeatedly highlighted as essential for improving program sustainability.

Table 3 Workforce Governance and Accountability in Government-Led Free Nutritious Meal Programs

| Governance Component     | Mechanisms Identified   | Actors Involved                                      | Common Challenges Reported                        |
|--------------------------|---|--|---|
| Monitoring & supervision | Routine inspections, supervisory visits, administrative reports | Health and education authorities, local implementers | Limited follow-up, weak feedback loops            |
| Performance evaluation   | Hygiene compliance checks, informal assessments                 | Supervisors, program managers                        | Lack of standardized performance indicators       |
| Accountability & audit   | Financial audits, regulatory compliance reviews                 | Audit bodies, inspectorates                          | Limited focus on HR performance, weak enforcement |
| Reporting systems        | Periodic reports, incident documentation                        | Implementing units, local authorities                | Fragmented reporting lines, delayed responses     |

As presented in Table 3, workforce governance mechanisms were predominantly oriented toward compliance and financial oversight, while systematic accountability for human resource performance remained limited. These findings underscore the need for integrated governance approaches that explicitly incorporate workforce management into monitoring, evaluation, and accountability systems.

#### ➤ Cross-Cutting Challenges

Figure 3 illustrates the cross-cutting workforce challenges commonly identified across studies included in this scoping review. The figure highlights four interrelated challenges that collectively shape human resource management constraints in government-led free nutritious meal programs. First, workforce shortages were frequently reported, reflecting insufficient staffing levels across policy,

managerial, and operational functions. Limited human resources at the planning and standard-setting stages often translated into increased pressure on downstream implementation activities. Second, excessive workloads emerged as a direct consequence of staffing gaps and expanding program responsibilities.



Fig 3 Cross-Cutting Workforce Challenges in Government-Led Free Nutritious Meal Programs.

Frontline workers and program coordinators were commonly tasked with multiple roles, including program coordination, food preparation oversight, and basic nutrition monitoring, leading to high levels of work-related stress. Third, high turnover rates were identified as a persistent challenge, particularly among frontline personnel involved in food preparation and distribution. Frequent staff turnover disrupted service continuity and reduced institutional memory, while limited attention to workforce performance management further exacerbated retention problems. Finally, weak intersectoral coordination was consistently reported across contexts. Poor collaboration between agencies responsible for health, education, food services, and public administration resulted in fragmented implementation, duplicated tasks, and unclear accountability mechanisms.

The figure emphasizes that these challenges are mutually reinforcing rather than isolated issues. Workforce shortages contribute to excessive workloads, which in turn increase turnover rates, while weak intersectoral coordination undermines collective capacity to address these challenges

effectively. This interconnected nature underscores the need for integrated human resource governance strategies in free nutritious meal programs.

## V. DISCUSSION

This scoping review demonstrates that human resource management (HRM) is a critical determinant of policy fidelity in government-led free nutritious meal programs. Across diverse contexts, programs characterized by clear role definitions, structured coordination mechanisms, and robust governance arrangements consistently exhibited greater operational stability and coherence. These patterns indicate that HRM functions as a central mechanism through which policy objectives are translated into effective service delivery, rather than merely serving as a supporting operational component [12].

The findings align with prior evidence emphasizing that workforce governance is especially crucial in labour-intensive public programs, where outcomes depend largely on coordinated human effort rather than technological or infrastructural inputs [13]. Studies included in this review showed that when workforce roles were explicitly defined and aligned with institutional mandates, implementation processes were less prone to fragmentation, duplication of tasks, and ad hoc decision-making. Conversely, ambiguous mandates and fragmented HR structures were associated with implementation drift, weakened accountability, and reduced program effectiveness.

These patterns are highly relevant to the Indonesian context, where public programs are implemented within a decentralized governance system involving multiple levels of government and sectoral agencies. In Aceh, where administrative structures, local institutional capacities, and geographic conditions vary considerably across districts, the risks associated with unclear HR roles and weak coordination are likely to be amplified. The findings suggest that without deliberate attention to workforce governance, national MBG policies may face challenges in achieving consistent implementation at the sub-national level [14].

The review underscores the importance of embedding formal HRM frameworks within MBG policies, rather than treating workforce issues as secondary operational concerns. In many contexts, HRM practices were found to be reactive, focusing on short-term staffing needs instead of long-term workforce planning, competency development, and performance management [15]. Such approaches limit program adaptability and sustainability, particularly as program scale and complexity increase.

Integrating workforce planning, competency standards, and supervision mechanisms into national nutrition strategies may enhance both policy coherence and implementation sustainability. Formal HRM frameworks can support systematic recruitment, standardized training, and structured supervision, thereby reducing reliance on informal arrangements that often undermine accountability [16]. This aligns with governance-oriented approaches to nutrition

programming, which recognize human resources as a core policy instrument alongside financing, food supply chains, and monitoring systems [17].

For Indonesia, and Aceh in particular, these implications highlight the need to align national policy directives with local workforce capacities [18]. Given the involvement of multiple institutions such as health offices, education offices, Nutrition Fulfillment Service Unit, and audit bodies clear HRM frameworks are essential to avoid overlapping mandates and coordination gaps [14]. Strengthening HRM governance at the provincial and district levels may therefore serve as a strategic lever for improving MBG implementation outcomes [19].

Many of the challenges identified in this review such as workforce shortages, excessive workloads, high turnover rates, and weak intersectoral coordination reflect structural constraints commonly faced by low- and middle-income countries (LMICs) [20]. Limited fiscal space, uneven institutional capacity, and heavy reliance on frontline workers place sustained pressure on human resource systems in public nutrition programs [21].

However, the review also indicates that key governance principles, including role clarity, accountability mechanisms, and standardized supervision, are transferable across contexts and adaptable to resource-constrained settings. Several studies demonstrated that even in environments with limited resources, coherent institutional design and clear governance arrangements were associated with more stable implementation and improved workforce performance. This suggests that strengthening HRM governance does not necessarily require substantial financial investment, but rather strategic policy alignment and institutional commitment. This finding is consistent with broader evidence showing that governance quality can mitigate capacity limitations in public service delivery systems [22]. For Aceh and Indonesia more broadly, adopting these transferable governance principles may offer a feasible pathway to strengthening MBG implementation, particularly in regions with constrained human and institutional resources.

## VI. CONCLUSION

This scoping review demonstrates that human resource management is a foundational yet underexamined component of government-led free nutritious meal programs. The findings show that the effectiveness and sustainability of such programs are strongly shaped by how human resources are governed, including the clarity of roles, workforce capacity development, coordination mechanisms, and systems of supervision and accountability. Programs with stronger HRM governance structures consistently exhibited higher levels of policy fidelity and operational stability.

The review further highlights that workforce-related challenges such as staffing shortages, excessive workloads, role overlap, and weak intersectoral coordination are recurrent across diverse contexts. These challenges are particularly salient in decentralized governance systems such

as Indonesia, where the successful translation of national policies into local implementation depends heavily on sub-national workforce capacity and institutional coordination. In the context of Aceh, these findings underscore the importance of aligning national MBG policy directives with local human resource realities and governance arrangements.

## IMPLICATIONS FOR FUTURE RESEARCH

Future research should move beyond descriptive implementation analyses to examine the impacts of human resource management on food safety incidents, workforce performance, and program outcomes. Comparative studies of HR governance models across countries and longitudinal analyses of workforce capacity and retention would provide valuable insights for strengthening public nutrition programs and advancing implementation science in this field.

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