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Peace-informed development planning: Aligning human security, infrastructure investment, and conflict sensitivity in fragile states post-conflict societies

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Abstract

In the aftermath of violent conflict, fragile states face the dual challenge of rebuilding social cohesion and stimulating economic recovery through sustainable development. Traditional development planning models, often emphasizing infrastructure expansion and economic growth, frequently overlook the underlying causes of conflict and fail to prioritize human security. Peace-informed development planning offers a transformative framework by integrating conflict sensitivity, local resilience, and inclusive governance into investment and infrastructure strategies. This approach aligns development priorities with peacebuilding objectives, ensuring that state-building efforts do not unintentionally exacerbate existing tensions or fuel new grievances. At the broader level, peace-informed planning demands a reorientation of donor policies, international frameworks, and national development agendas to account for the dynamic realities of post-conflict societies. It leverages participatory methods and conflict analysis to identify potential triggers of instability, enabling planners to mitigate risks proactively. Infrastructure investments, when designed through a peace-informed lens, become tools for reconciliation—connecting divided communities, creating equitable access to resources, and fostering trust in public institutions. Narrowing the focus, this paper highlights case studies from countries such as South Sudan, Afghanistan, and Sierra Leone to demonstrate the operationalization of peace-informed strategies. It examines how integrating human security indicators—such as access to justice, social inclusion, and livelihood restoration—into planning cycles enhances both short-term stability and long-term resilience. The paper concludes with policy recommendations for governments, development agencies, and NGOs on mainstreaming peace-informed approaches into post-conflict reconstruction frameworks. By aligning infrastructure investment with the principles of conflict sensitivity and human-centered security, peace-informed development planning lays the foundation for enduring peace and inclusive growth in fragile contexts.

Keywords: Peace-Informed Planning; Human Security; Conflict Sensitivity; Infrastructure Investment; Post-Conflict Reconstruction; Fragile States

1. Introduction

1.1. Contextualizing Post-Conflict Fragility

Post-conflict societies are often marked by a complex interplay of weakened governance structures, fractured social cohesion, and fragile economies. The aftermath of armed conflict leaves behind deep institutional voids, widespread infrastructural damage, and often a population traumatized by violence and displacement. These states operate in an environment of chronic uncertainty, where the risk of relapse into conflict remains high due to unresolved grievances, power vacuums, and competition over scarce resources [1]. In such contexts, development interventions cannot afford

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to be politically neutral or narrowly technical. Rather, they must recognize the historical legacies and power asymmetries that shape recovery trajectories [2].

Furthermore, peace agreements, while critical to ending hostilities, are not in themselves sufficient to guarantee long-term stability. Without sustained investment in human security, inclusive governance, and equitable infrastructure, the very foundations of peace may be undermined. In many fragile states, the absence of trust in public institutions exacerbates citizen alienation, leading to disengagement or resistance toward state-led initiatives [3]. Therefore, any meaningful development strategy in these settings must be both conflict-sensitive and peace-promoting.

1.2. Gap in Traditional Development Planning

Conventional development planning, often driven by macroeconomic targets and infrastructure expansion, tends to overlook the socio-political dynamics of post-conflict environments. Such planning models prioritize GDP growth, foreign investment attraction, and modernization agendas, often without accounting for the root causes of past conflict or the lived realities of marginalized populations [4]. As a result, they can inadvertently deepen inequality, provoke local tensions, and even reignite latent conflict dynamics.

Additionally, traditional infrastructure investments tend to be guided by cost-benefit analyses that neglect the distributional consequences of resource allocation. For instance, roads or water systems may be constructed in politically favored areas while neglecting regions historically excluded from state services. This not only reinforces geographic and ethnic disparities but may also be perceived as a continuation of war by other means [5]. The absence of conflict analysis and community engagement in these processes weakens the legitimacy of state-building and can compromise the sustainability of development outcomes.

1.3. Objectives and Scope of Peace-Informed Development

Peace-informed development planning seeks to bridge the critical gap between post-conflict recovery and sustainable development by aligning infrastructure investments and service delivery with peacebuilding objectives. It moves beyond the dichotomy of humanitarian relief versus long-term development, recognizing that the two must be integrated if recovery is to be transformative [6]. At its core, peace-informed planning incorporates three interdependent pillars: conflict sensitivity, human security, and inclusive governance.

The goal is not only to avoid doing harm but to deliberately do good by reinforcing social cohesion, addressing historical injustices, and building institutional resilience [7]. This framework emphasizes local ownership of the planning process, prioritizes marginalized voices, and integrates dynamic risk assessments into project design. Rather than viewing infrastructure as merely technical interventions, peace-informed planning conceptualizes them as instruments of reconciliation and state legitimacy.

In practical terms, this involves revising development indicators to include peace and security outcomes, ensuring participatory needs assessments, and embedding conflict analysis into sectoral planning. By doing so, peace-informed approaches create a pathway for more adaptive, equitable, and durable development processes in fragile states [8].

1.4. Article Structure and Methodology

This article is organized to first establish the theoretical underpinnings of peace-informed development and its distinction from conventional planning models. Section 2 presents a conceptual framework, exploring the interplay between human security, conflict sensitivity, and infrastructure delivery. Section 3 investigates the structural drivers of conflict that intersect with development planning failures, while Section 4 analyzes how infrastructure can both mitigate and exacerbate conflict dynamics [9].

Section 5 outlines operational strategies for embedding peace-informed principles into policy and planning, followed by three country-specific case studies in Section 6—each illustrating distinct approaches and challenges. Section 7 synthesizes these insights into actionable recommendations for policymakers, donors, and civil society actors. The article employs a mixed-methods approach, combining literature review, case analysis, and planning frameworks to propose a coherent and adaptable model for peace-informed development [10].

2. Conceptual framework

2.1. Defining Peace-Informed Development

Peace-informed development is a strategic framework that aligns development initiatives with conflict sensitivity, local resilience, and peacebuilding objectives in fragile or post-conflict settings. It moves beyond the standard post-war recovery templates by recognizing that development, when poorly planned, can perpetuate exclusion, fuel grievances, and inadvertently reignite violence [5]. Instead of prioritizing only economic efficiency or infrastructure expansion, peace-informed development incorporates social justice, equity, and long-term reconciliation into planning cycles. It promotes inclusive governance, participatory planning, and equitable access to public services and opportunities across previously divided groups.

Core principles of peace-informed development include: (i) inclusivity—ensuring marginalized voices are integrated in decision-making processes; (ii) equity—addressing spatial and social disparities in access to infrastructure and services; (iii) accountability—building trust in institutions through transparent planning and implementation; and (iv) conflict sensitivity—anticipating unintended consequences and modifying plans to mitigate risks [6]. These principles are operationalized through tools such as participatory needs assessments, peace and conflict impact analyses, and feedback loops that allow for adaptive planning.

By contrast, conventional development models often emphasize technical feasibility, macroeconomic growth, and capital investment without sufficient analysis of local conflict dynamics or historical grievances [7]. These approaches tend to centralize decision-making, often under elite-controlled institutions, and reinforce top-down implementation mechanisms. As a result, infrastructure projects—though economically rational—can exacerbate existing divisions by privileging certain regions, groups, or political constituencies. Peace-informed planning, on the other hand, places equal weight on process and outcome, recognizing that how development is delivered can be as consequential as what is delivered [8]. This paradigm shift is particularly critical in states emerging from civil war, where legitimacy, trust, and social repair are often as fragile as physical infrastructure.

2.2. Human Security Paradigm in Fragile States

The human security paradigm represents a people-centered approach to peace and development that expands the traditional notion of security beyond military threats to include economic stability, social justice, environmental sustainability, and political freedom. Originally conceptualized by the United Nations Development Programme in the 1994 Human Development Report, human security encompasses seven core dimensions, though four are particularly relevant to fragile states: economic, personal, political, and environmental security [9].

Economic security refers to the assurance of sustainable livelihoods, access to employment, and equitable distribution of economic opportunities. In fragile states, post-conflict economic recovery often remains uneven, with war-affected populations disproportionately excluded from markets and services [10]. Personal security focuses on physical safety from violence, including domestic, gender-based, and state-inflicted violence. Even after peace agreements are signed, communities often remain vulnerable to criminality, retributive violence, and abuse from undisciplined security forces [11]. Political security involves protection from oppression, violations of human rights, and marginalization in political processes. It emphasizes the need for fair elections, judicial independence, and open civic space—elements often lacking in post-conflict regimes. Lastly, environmental security deals with the protection of ecosystems, access to clean water, land rights, and climate resilience—all of which influence displacement, rural livelihoods, and inter-communal tensions [12].

Together, these dimensions frame development planning not only as a tool for reconstruction but also as an opportunity to address structural violence and build resilience. The human security framework promotes an integrated vision where the root causes of conflict—poverty, exclusion, and environmental degradation—are addressed in tandem with physical reconstruction [13]. It shifts the metric of success from GDP growth or infrastructure kilometers to human well-being, dignity, and freedom from fear. In fragile contexts, applying human security as a planning lens ensures that development aligns with the aspirations and lived realities of affected populations.

Figure 1 Illustrates the four central dimensions of human security in fragile states and how they intersect with development priorities

This approach also enables planners to design interventions that promote both peace and protection, ensuring that economic and social investments contribute to reconciliation rather than deepen existing inequalities. Unlike narrow, sector-specific frameworks, human security encourages integrated, multisectoral responses that can adapt to rapidly evolving local needs [14].

2.3. Conflict Sensitivity and Development Planning

Conflict sensitivity refers to the ability of development actors to understand the context they operate in, assess the interaction between their interventions and the context, and act to avoid exacerbating conflict while enhancing peacebuilding opportunities [15]. It is grounded in the "do no harm" principle, which originated in humanitarian programming but has since been adapted to development and peacebuilding fields. This principle demands that planners and implementers carefully analyze how interventions—no matter how well intended—might reinforce local grievances, power imbalances, or perceptions of injustice.

In practice, conflict-sensitive development involves a structured process of context mapping, risk analysis, and iterative adaptation. Tools such as Conflict Assessment Frameworks, Peace and Conflict Impact Assessments (PCIA), and scenario planning help planners identify potential flashpoints or drivers of instability before project implementation begins [16]. These tools are not merely academic exercises; they provide actionable intelligence on issues like disputed land rights, ethnic marginalization, or militarized resource corridors that may not be apparent in standard technical assessments.

Moreover, conflict sensitivity promotes horizontal and vertical accountability by encouraging feedback from beneficiaries, civil society actors, and local governments throughout the project cycle. This feedback can highlight unintended consequences, including elite capture of resources, political favoritism in site selection, or the militarization of infrastructure assets [17]. By embedding conflict sensitivity into procurement, staffing, and monitoring systems, agencies can preemptively address risks that might derail development or exacerbate instability.

Unlike traditional risk management approaches that focus primarily on technical and financial risks, conflict sensitivity foregrounds the socio-political dynamics that determine how development is perceived and experienced [18]. In post-conflict societies, where legacies of violence and distrust are still raw, such perception can determine whether a project contributes to stability or fuels renewed tension.

3. Structural drivers of conflict in fragile states

3.1. Political Marginalization and Governance Failures

In fragile and post-conflict states, political marginalization is a persistent driver of instability, deeply rooted in asymmetric power structures and exclusionary governance models. Often, the ruling elite consolidates control over state institutions, resources, and decision-making processes, sidelining entire ethnic, regional, or political groups [11]. This monopolization of power not only erodes trust in public institutions but also fuels perceptions of injustice that can spark renewed violence or obstruct peace implementation.

Exclusionary politics often manifest through unequal representation in parliaments, discrimination in public sector employment, and biased resource allocation. These practices embed systemic inequities that make reconciliation and state-building difficult [12]. In many post-conflict environments, transitional governance arrangements—though intended as peacebuilding mechanisms—fail to meaningfully include opposition voices or marginalized communities, resulting in power-sharing agreements that are largely symbolic and fail to redistribute real authority.

Additionally, weak governance institutions are unable to enforce the rule of law or provide equitable service delivery. This vacuum allows informal and often unaccountable actors—such as armed groups, tribal authorities, or criminal networks—to fill the governance void, perpetuating insecurity and parallel power structures [13]. When the state is seen as predatory or non-responsive, citizens may disengage from formal institutions altogether, opting instead for informal or identity-based networks that further fragment national cohesion.

The lack of inclusive governance mechanisms undermines the legitimacy of the state and can delegitimize peace agreements and development interventions. Without genuine political inclusion and institutional reform, post-conflict recovery risks reproducing the very grievances that ignited violence in the first place [14]. Addressing political marginalization therefore requires not only constitutional reforms and electoral inclusion but also broader efforts to democratize development planning and redistribute decision-making authority across levels of government.

3.2. Socioeconomic Inequalities and Resource Scarcity

Post-conflict states often experience deeply entrenched socioeconomic inequalities that predate the conflict but are exacerbated by war and reconstruction processes. Unequal access to infrastructure, education, healthcare, and employment opportunities perpetuates cycles of poverty and resentment, especially among war-affected or historically marginalized populations [15]. These disparities are often geographically concentrated, with urban centers receiving the bulk of development investments while rural or peripheral regions remain underserved.

Infrastructure development, in particular, can become a flashpoint if perceived to benefit certain groups at the expense of others. Roads, electricity grids, and water systems—although intended to promote economic recovery—can deepen divides if they reinforce historical neglect or follow political biases in project siting [16]. For example, prioritizing capital cities for electrification while ignoring border regions may signal state disinterest in peripheral populations, breeding resentment and mistrust. This dynamic often emerges when donor or government planning is based on economic efficiency metrics alone, without accounting for equity or post-conflict sensitivities.

Furthermore, competition over scarce natural resources—including land, water, forests, and minerals—can reignite dormant tensions or create new fault lines. In the absence of effective regulation and dispute resolution mechanisms, resource competition may escalate into communal clashes, particularly in contexts where livelihoods are land-dependent and climate variability exacerbates scarcity [17]. Displacement and return dynamics also compound the problem, as returnees reclaim land or compete for housing, often in areas already strained by poverty and weak infrastructure.

Socioeconomic inequalities and resource scarcity not only undermine social cohesion but also threaten the sustainability of development gains. Addressing these issues requires redistributive policies, affirmative investments in marginalized areas, and inclusive infrastructure planning frameworks that explicitly account for justice and conflict mitigation as core objectives [18].

3.3. Historical Grievances and Identity-Based Divisions

Historical grievances and identity-based divisions are among the most potent and enduring drivers of conflict in fragile states. These divisions—typically along ethnic, religious, linguistic, or regional lines—are often rooted in colonial legacies, discriminatory state formation processes, and decades of real or perceived marginalization [19]. In many post-

conflict societies, identity is politicized and weaponized, with dominant groups controlling access to power and resources while others are systematically excluded.

Grievances manifest not only in violent conflict but also in structural inequalities embedded in laws, policies, and institutional frameworks. For example, education curricula that exclude minority histories, or public employment systems that favor one ethnic group over others, entrench resentment and foster a collective sense of injustice [20]. These embedded inequities create fertile ground for political mobilization along identity lines, often destabilizing fragile peace settlements.

Post-conflict development planning that ignores or oversimplifies these divisions risks reinforcing the same structural violence that led to war. Projects that are framed as "neutral" can become contested if one group perceives another as receiving preferential treatment. This is especially true for large-scale infrastructure investments, land redistribution programs, and urban reconstruction efforts [21]. For development to contribute to peace, it must be explicitly designed to heal, not inflame, identity-based wounds.

Mechanisms such as inclusive dialogue processes, identity-sensitive impact assessments, and equitable distribution of benefits can help mitigate these risks. Moreover, incorporating cultural and symbolic elements into infrastructure— such as using multilingual signage or community-based naming practices—can foster a sense of shared ownership and belonging [22].

Typology of Conflict Drivers and Their Development Links

Political	Socioeconomic	Identity-Based
• Power Inequalities • Weak Institutions • Exclusionary Policies	• Income Disparities • Resource Competition • Service Provision Gaps	• Historical Injustices • Ethnic Tensions • Cultural Sensitiviton
Decentralizastion Inclusive Governance Rule of Law Programs	• Equitable Growth • Natural Resource Management • Service Delivery Access	• Transitional Justice • Social Cohesion • Cultural Sensitivity

Figure 2 A typology of conflict drivers—political, socioeconomic, and identity-based—and links them to specific development practices that can either mitigate or exacerbate tensions. By understanding the interplay between development and these conflict drivers, planners can design more effective, peace-supportive interventions [23]

4. Rethinking infrastructure through a peace lens

4.1. Infrastructure as a Tool for Social Cohesion

In fragile and post-conflict societies, infrastructure plays a pivotal role not only in physical reconstruction but also in repairing fractured social relations. Roads, bridges, electricity grids, water systems, and digital networks are more than economic enablers—they are instruments of state legitimacy, civic inclusion, and social cohesion [15]. When designed

with an understanding of local conflict dynamics, infrastructure can foster reconciliation by physically and symbolically reconnecting communities previously divided by war, geography, or historical neglect.

Transportation infrastructure, particularly roads and bridges, can improve intergroup mobility and trade, enabling economic interdependence among regions and ethnic communities [16]. Such connectivity facilitates not only commerce but also access to education, healthcare, and cultural exchange. In South Sudan, for instance, the construction of road corridors linking historically marginalized regions to the capital served to reduce isolation and foster a shared sense of national identity, even amid political volatility [17]. Likewise, water and sanitation infrastructure can ease communal tensions, especially in areas where competition over scarce resources previously led to violence.

The utility sector, including electrification and telecommunications, plays a crucial role in enhancing perceived equity in state service delivery. Access to power and communication is closely associated with modernization and dignity in many communities emerging from conflict [18]. Providing services equitably across former frontlines, refugee return areas, and minority regions signals a commitment to inclusive governance and post-war reintegration.

Symbolically, infrastructure investments that involve community participation—from design to oversight—can restore trust between citizens and the state. When communities witness transparent decision-making, equitable resourcing, and shared benefits, infrastructure becomes a tool of healing rather than a source of contestation [19]. Conversely, when such investments are perceived to favor dominant groups, they may reinforce divisions.

Peace-informed infrastructure planning thus requires deliberate spatial targeting, inclusive stakeholder engagement, and sensitivity to historical grievances. In this sense, infrastructure is not merely a technical endeavor but a political and social investment in long-term peacebuilding [20].

4.2. Spatial Equity in Infrastructure Delivery

Spatial equity in infrastructure delivery refers to the fair and balanced distribution of public infrastructure and services across different geographic and social groups. In fragile states, where disparities in infrastructure access often reflect legacies of conflict, marginalization, or state neglect, spatial equity becomes a cornerstone of peace-informed development planning [21]. Uneven distribution of roads, schools, electricity, and water systems frequently maps onto political, ethnic, or regional divisions, reinforcing grievances and perceptions of injustice.

Table 1 Equity Indicators for Infrastructure Delivery in Fragile Settings

Indicator	Description	Purpose	Data Source Example
Spatial Service Coverage Ratio	Ratio of infrastructure services (e.g., water, electricity) per region or capita	To assess geographic disparities in service access	National statistics, GIS infrastructure maps
Regional Budget Allocation Share	Percentage of national infrastructure budget allocated to each subnational unit	To track financial distribution equity across regions	Ministry of Finance, development budgets
Conflict-Affectation Index	Composite score ranking regions by past conflict intensity and impact	To prioritize historically marginalized or war-affected zones	Conflict mapping reports, peacebuilding agencies
Perceived Fairness in Access	Survey-based score reflecting public opinion on fairness in service delivery	To capture social perceptions of equity and inclusion	Household surveys, citizen feedback platforms
Participation Index in Planning	Degree of local stakeholder involvement in planning and budgeting processes	To monitor decentralization and inclusiveness in governance	Local government reports, participatory audits
Infrastructure Grievance Tracker	Number and type of complaints regarding unfair infrastructure decisions or exclusion	To identify hotspots of potential unrest or exclusion	Ombudsman reports, conflict early warning systems

Achieving spatial equity requires development planners to go beyond traditional cost-efficiency logics that often prioritize high-density urban centers. Instead, equity-based approaches emphasize need, vulnerability, and historical exclusion when allocating infrastructure resources [22]. For example, targeting post-conflict borderlands or ethnic minority regions—despite their remoteness or limited immediate economic return—can signal inclusion and rebuild trust in the state. In Rwanda, targeted rural electrification programs in genocide-affected regions significantly improved perceptions of government legitimacy and reduced localized tensions [23].

Another essential component of spatial equity is proportionality in service levels. This means not just extending infrastructure physically, but ensuring comparable quality, reliability, and maintenance standards across regions. Poor-quality roads or erratic electricity supply in certain areas may be interpreted as intentional neglect or second-class citizenship, especially when juxtaposed with visibly superior services in politically favored zones [24]. Such disparities can become flashpoints for grievance mobilization, particularly among youth and returnee populations.

Table 1 presents a set of equity indicators relevant for infrastructure delivery in fragile settings. These include spatial service coverage ratios, regional budget allocation shares, conflict-affectation indices, and public perception surveys on fairness.

Promoting spatial equity also entails decentralized planning processes, where subnational governments and communities participate in defining infrastructure priorities. Decentralization not only improves targeting accuracy but also enhances transparency and accountability [25]. By embedding spatial justice in infrastructure planning, fragile states can move from reactive service delivery to proactive peace consolidation.

4.3. Infrastructure Risks in Conflict-Prone Environments

While infrastructure has the potential to promote peace, it also carries substantial risks in conflict-prone environments. Poorly conceived or politically manipulated infrastructure investments can amplify grievances, reinforce elite capture, and trigger disputes over land and identity [26]. Development planners must therefore adopt a conflict-sensitive lens that anticipates and mitigates the unintended consequences of infrastructure interventions.
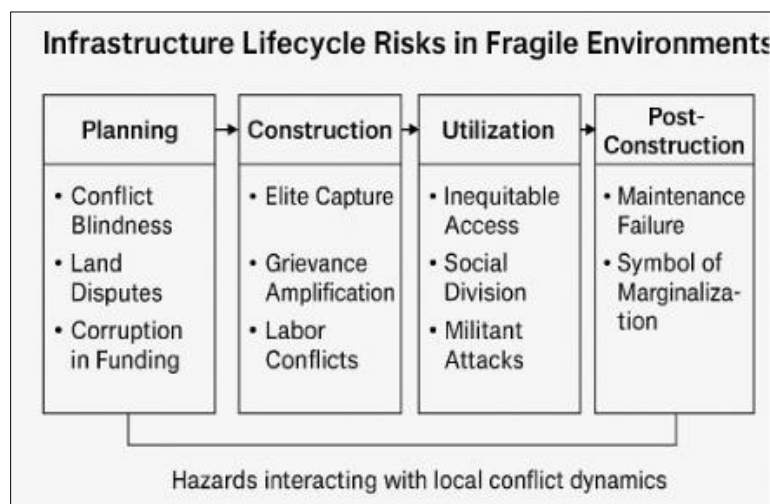

Figure 3 illustrates typical risks across the infrastructure lifecycle, from planning to post-construction, and their potential interactions with local conflict dynamics

One major risk lies in the amplification of pre-existing grievances. When communities perceive that infrastructure benefits are allocated unfairly—whether through favoritism, ethnic bias, or corruption—it can deepen mistrust and revive intergroup hostilities [27]. This is particularly acute in post-conflict settings, where perceptions of exclusion are often more important than objective disparities. For example, in Afghanistan, the clustering of aid-funded road projects in politically aligned provinces created resentment and accusations of discrimination among rival ethnic groups [28].

Another significant risk is elite capture, wherein politically connected individuals or factions divert infrastructure resources for personal or partisan gain. This can occur through manipulated procurement, opaque budgeting, or selective siting of projects to benefit specific constituencies. Elite capture undermines both equity and state legitimacy,

especially when combined with weak oversight institutions [29]. In extreme cases, infrastructure becomes an instrument of coercion, enabling militarized actors to control mobility, access, and service provision.

Infrastructure projects may also provoke land disputes, particularly in areas with overlapping claims, weak tenure systems, or recent patterns of displacement and return. Road construction, urban expansion, and energy projects often require land acquisition, which—if conducted without proper consultation and compensation—can displace vulnerable communities or escalate existing conflicts [30]. In contexts where land is linked to identity and survival, even small-scale encroachments can lead to violence.

To mitigate these risks, peace-informed development planning emphasizes stakeholder mapping, conflict impact assessments, grievance redress mechanisms, and transparent procurement systems [31]. These safeguards must be embedded throughout the project lifecycle—not as add-ons, but as core components of responsible infrastructure development in fragile settings.

5. Operationalizing peace-informed planning

5.1. Integrating Conflict Analysis into Project Design

Integrating conflict analysis into project design is a foundational step in ensuring that development initiatives contribute to peace rather than unintentionally reinforcing conflict. In fragile and post-conflict settings, this means understanding the underlying drivers of violence, mapping power relations, and assessing the potential impacts of infrastructure and service delivery on different stakeholders [19]. Effective conflict analysis helps identify not only risk factors but also peacebuilding opportunities that can be leveraged throughout the project lifecycle.

Context analysis is a key entry point in this process. It involves a comprehensive examination of the political, social, economic, and environmental dynamics that influence conflict and peace in a given location. This includes examining historical grievances, patterns of marginalization, and the distribution of power and resources. When applied systematically, context analysis can reveal structural vulnerabilities that may be exacerbated by development interventions, such as ethnic bias in resource allocation or competition over land access [20].

Stakeholder mapping complements this process by identifying actors who have interests in, or may be affected by, the project. These actors may include government agencies, local leaders, community groups, returnees, and even armed non-state actors. Mapping their relationships, influence, and potential grievances allows project planners to anticipate opposition, mobilize support, and design inclusive engagement strategies [21]. The aim is not only to manage risk but to ensure that development fosters dialogue and cooperation across fragmented groups.

Scenario planning is another essential tool. By modelling different trajectories under various conflict and development scenarios, planners can design adaptive strategies that remain effective even in volatile environments. This approach supports flexible implementation and contingency planning, making it easier to adjust project components in response to changes on the ground [22].

Embedding conflict analysis tools into early-stage project design enhances the responsiveness and resilience of development efforts. It enables proactive decision-making and prevents escalation by ensuring that potential triggers of conflict are identified, mitigated, and monitored throughout implementation [23].

5.2. Participatory Approaches and Local Inclusion

Participatory development is central to peace-informed planning. In fragile contexts, where distrust in institutions is high and social cohesion is weak, fostering meaningful local inclusion is both a normative and strategic imperative. Participation enhances transparency, accountability, and legitimacy while also ensuring that development projects reflect the priorities and aspirations of affected communities [24].

Co-design mechanisms are critical in enabling participation from the earliest planning stages. This involves communities helping shape project goals, define problem statements, and select service modalities. When local knowledge and preferences guide infrastructure choices, the result is greater alignment between project outcomes and community needs. For example, involving women in the design of water access points in rural Liberia improved both utilization and protection outcomes, particularly in previously underserved settlements [25].

Local ownership strengthens sustainability. When communities perceive development assets as theirs—rather than imposed from outside—they are more likely to protect, maintain, and mediate access to them peacefully. Strategies such as hiring local labor, forming community oversight committees, or devolving maintenance responsibilities have proven effective in countries like Sierra Leone and Nepal [26]. These approaches empower communities and foster horizontal accountability, reducing the likelihood of project-related disputes.

Community feedback mechanisms further institutionalize inclusion throughout implementation. Tools such as social audits, public scorecards, mobile grievance systems, and citizen report cards enable continuous dialogue between project teams and beneficiaries. These mechanisms improve responsiveness and can alert implementers to emerging tensions before they escalate [27]. They also provide a platform for marginalized voices, allowing corrective action and fostering a culture of consultation and dialogue.

Table 2 Community Engagement Methods and Their Impact Outcomes in Fragile Settings

Engagement Method	Description	Impact Outcome	Example Application
Community Scorecards	Participatory performance assessment tools led by community members	Improved service accountability, transparency, and responsiveness	Health and education service monitoring in Malawi
Participatory Rural Appraisal (PRA)	Techniques used to involve local people in problem identification and solutions	Context-appropriate infrastructure priorities, enhanced ownership	Water access projects in Nepal and Uganda
Local Peace Committees	Community-based conflict resolution and planning bodies	Strengthened local cohesion and inclusive governance	Post-conflict reconciliation in Sierra Leone
Social Audits	Citizen review of project implementation and budgeting	Reduced corruption and increased trust in institutions	Infrastructure projects in India and Kenya
Public Consultations and Hearings	Open forums for project feedback and decision-making	Enhanced legitimacy of development initiatives	Urban planning in Liberia and Colombia
Community-Led Budgeting	Citizens propose and vote on local infrastructure spending	Resource allocation aligned with actual community needs	Municipal participatory budgeting in Brazil
Digital Feedback Platforms	Mobile or web-based tools for real-time community input	Inclusive engagement across remote and marginalized groups	SMS-based feedback in Somalia and DRC

Table 2 summarizes key community engagement methods and their documented impact outcomes, illustrating how participatory strategies contribute not only to better service delivery but also to peacebuilding and local empowerment [28].

Participatory approaches, when meaningfully implemented, transform development from a transactional process into a relational one. They build social capital and reinforce inclusive governance structures, both of which are critical for sustaining peace in post-conflict societies [29].

5.3. Aligning Human Security Metrics with Planning Indicators

Traditional development planning tends to rely on technical indicators such as cost-efficiency, project completion rates, or kilometers of infrastructure constructed. While useful, these metrics fall short in capturing the full spectrum of peace-related outcomes essential in fragile contexts. Aligning planning frameworks with human security metrics introduces a broader, people-centered lens that measures development's contribution to safety, dignity, and resilience [30].

Human security metrics encompass a wide array of indicators across economic, personal, political, and environmental domains. These may include reductions in gender-based violence, improvements in land tenure security, increased access to dispute resolution mechanisms, or enhanced perception of fairness in service delivery. Unlike conventional

metrics, these indicators assess not only what is delivered, but how, to whom, and with what long-term societal effect [31].

Incorporating these metrics into project monitoring enables planners to track peace outcomes as key performance indicators (KPIs). For instance, a rural road project could include KPIs on intergroup travel frequency, conflict incident reporting along the corridor, or changes in intercommunal trade volume. These data points provide deeper insight into whether infrastructure investments are fostering cohesion or inadvertently aggravating divisions [32].

Aligning planning with human security also promotes adaptive management. Where indicators suggest rising tensions, projects can be re-scoped or re-targeted in response. This ensures that development remains conflict-sensitive and outcome-focused throughout implementation. Moreover, human security KPIs can help attract peacebuilding-oriented donor funding and reinforce multi-sectoral coordination [33].

Ultimately, integrating human security metrics bridges the gap between physical development and social transformation. It ensures that development not only rebuilds the physical landscape but also heals the social fabric in fragile societies emerging from conflict [34].

5.4. Institutional Capacity and Donor Alignment

Operationalizing peace-informed development requires strong institutional coordination and alignment between national governments, local authorities, and international donors. In many post-conflict settings, fragmented governance and overlapping mandates hinder coherent planning and implementation. Ministries responsible for infrastructure, local government, and peacebuilding often operate in silos, leading to duplication, inefficiencies, or contradictory interventions [35].

Strengthening institutional capacity begins with clarifying roles and enabling cross-sectoral collaboration. This can be achieved through joint planning frameworks, integrated budgeting processes, and inter-ministerial task forces focused on conflict-sensitive development. When line ministries share data, harmonize priorities, and align implementation timelines, projects are more likely to contribute to shared peace and development goals [36].

Donor alignment is equally critical. External actors frequently pursue competing agendas or impose parallel systems that undermine national ownership. Aligning donor investments with government-led peace-informed planning frameworks—such as national recovery plans or conflict-sensitive budgeting strategies—enhances coordination and sustainability. In Somalia, the New Deal Compact provided a platform for donor alignment, although its effectiveness varied depending on political dynamics and capacity constraints [37].

A shared commitment to conflict sensitivity, local inclusion, and human security allows for more effective targeting of resources and maximizes collective impact. By strengthening coordination mechanisms, institutions can overcome fragmentation and deliver development that genuinely supports long-term peace [38].

6. Comparative case studies

6.1. South Sudan: Infrastructure and Identity Politics

South Sudan, the world's youngest nation, presents a compelling case of how infrastructure intersects with identity politics and fragile governance. Since gaining independence in 2011, the country has experienced prolonged civil conflict, largely driven by power struggles, ethnic divisions, and competition over oil resources. Infrastructure development in this context has been both a tool of state-building and a source of controversy, particularly regarding who benefits and who remains excluded [23].

The 2015 Agreement on the Resolution of the Conflict in South Sudan (ARCSS) emphasized equitable service delivery and decentralized development as pathways to peace. As part of its implementation, infrastructure projects were embedded in peacebuilding strategies to foster connectivity between ethnic groups and provide a tangible "peace dividend" to war-affected populations [24]. Roads, health centers, and schools were targeted in previously neglected regions, especially in the Greater Upper Nile and Equatoria areas. However, challenges in implementation arose due to continued political instability and fragmented governance.

One major challenge is the country's contested federalism framework, which influences infrastructure allocation and deepens tensions between centralized and subnational authorities. Regional leaders often accuse the central

government of manipulating resource flows for political loyalty, leading to inequitable development and fueling secessionist sentiment in some areas [25]. Infrastructure planning is further complicated by the lack of accurate population data and contested boundaries, which make equitable distribution difficult.

Another layer of complexity lies in the competition over oil revenue, which constitutes over 90% of government income. Revenue allocation to infrastructure remains opaque, and corruption in procurement processes has undermined public trust. Many community members perceive infrastructure investments as favoring dominant Dinka regions, while minority areas such as the Nuer and Shilluk zones remain underdeveloped [26].
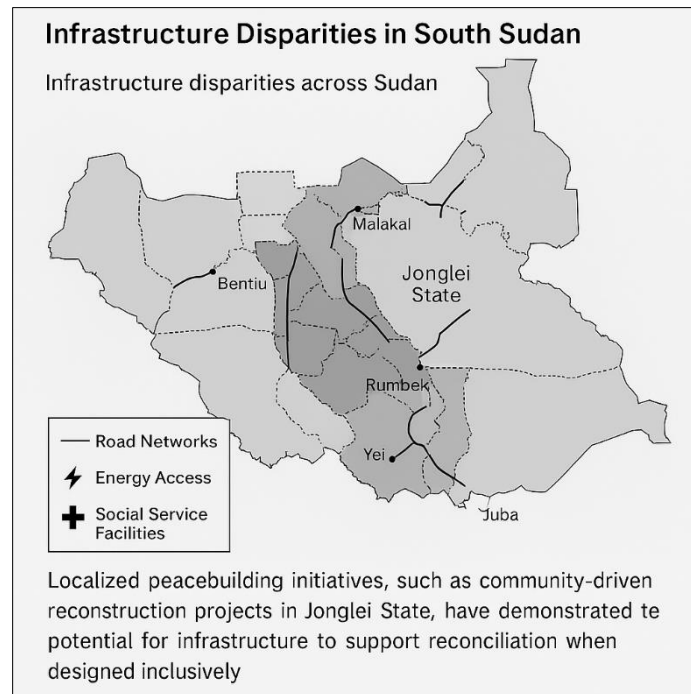

Figure 4 Maps current infrastructure disparities across South Sudan, highlighting the regional imbalance in road networks, energy access, and social service facilities

Despite these challenges, localized peacebuilding initiatives—such as community-driven reconstruction projects in Jonglei State—have demonstrated the potential for infrastructure to support reconciliation when designed inclusively [27]. However, without structural reforms in governance and transparent resource distribution, the promise of infrastructure as a peacebuilding tool in South Sudan remains partially fulfilled.

6.2. Sierra Leone: Post-Conflict Community Infrastructure

Sierra Leone offers a contrasting example where post-conflict community infrastructure has played a more constructive role in peacebuilding and local development. Following the end of its brutal civil war in 2002, the government prioritized reconstruction with a strong focus on local ownership and participatory governance. At the center of this strategy was the National Commission for Social Action (NaCSA), an institution created to channel post-conflict recovery funds into community-led infrastructure initiatives [28].

NaCSA implemented thousands of micro-infrastructure projects—including rural roads, schools, water wells, and health posts—across all districts of Sierra Leone. The hallmark of its approach was decentralization: projects were initiated and overseen by Community Oversight Committees (COCs), which were trained and empowered to plan, procure, and monitor infrastructure works in their areas. This model sought to restore trust in governance, promote reconciliation, and rebuild war-torn social fabric [29].

One of NaCSA's major successes was its ability to reach remote, war-affected communities often excluded from earlier national development programs. Areas like Kailahun and Koinadugu—previously strongholds of rebel activity—received targeted investments in social infrastructure that visibly improved service delivery and reduced regional resentment [30]. Moreover, inclusive participation requirements ensured that women, youth, and ex-combatants were involved in planning and implementation, fostering reintegration and social cohesion.

However, limitations of the model also emerged. While NaCSA's grassroots approach enhanced community ownership, it often struggled with scalability and sustainability. Projects were sometimes underfunded for maintenance, and technical standards varied significantly. Furthermore, in the absence of stronger sectoral ministries, community-driven infrastructure lacked systemic integration with national service delivery frameworks [31]. This created gaps in coordination, especially in education and health sectors, where facility construction outpaced staffing and resource provision.

Donor dependency also constrained long-term viability. Although international partners—particularly the World Bank and DFID—were instrumental in NaCSA's funding, shifting priorities over time affected continuity. Additionally, political interference occasionally skewed project siting to favor aligned constituencies, though to a lesser degree than in more centralized systems [32].

Still, evaluations conducted in the mid-2010s found that NaCSA-supported communities reported higher levels of trust in local government and stronger civic engagement than non-participating areas. Moreover, the presence of locally managed infrastructure was correlated with lower rates of petty conflict and improved dispute resolution capacity [33].

Sierra Leone's case illustrates that when infrastructure is delivered through inclusive, decentralized mechanisms with community oversight, it can foster not only physical recovery but also social healing. While not without flaws, the NaCSA model demonstrates the potential of community-driven approaches in fragile contexts when properly resourced and integrated.

6.3. Afghanistan: Foreign Investment, Local Insecurity

Afghanistan presents a sobering example of how large-scale, externally financed infrastructure projects can fail to deliver peace dividends when they are disconnected from local realities and conflict dynamics. Over two decades, billions of dollars were invested in roads, schools, hospitals, and power systems, largely funded and implemented by international actors, including USAID, the World Bank, and NATO member states [34]. Despite these efforts, many infrastructure investments struggled to contribute to long-term peace, often becoming entangled in local insecurity and elite competition.

A central issue was the top-down planning approach that characterized most infrastructure investments. Project priorities were often determined in donor capitals or centralized ministries, with minimal consultation at the provincial or community level. As a result, many projects did not align with local needs or preferences, leading to underuse or outright rejection by communities [35]. In some cases, the visibility of infrastructure—such as highways and energy grids—made them symbolic targets for insurgent groups, further destabilizing the areas they were meant to serve.

Corruption and elite capture also plagued Afghanistan's infrastructure sector. Provincial power brokers and politically connected contractors manipulated procurement systems and diverted resources, undermining project quality and public trust. For example, the Kabul–Kandahar highway, a flagship reconstruction project, deteriorated rapidly due to substandard materials and lack of maintenance despite massive investment [36].

Another disconnect lay in the misalignment between peacebuilding goals and donor implementation modalities. While donors emphasized quick wins and visibility, they often bypassed the very state institutions they claimed to support, thereby weakening long-term capacity and legitimacy. Moreover, infrastructure was frequently used as a tool of counterinsurgency—building roads to assert military presence—rather than as a neutral development good [37].

This contradiction was particularly stark in contested areas, where community perceptions of impartiality were essential for building peace. For instance, in Helmand Province, foreign-built schools and clinics were often associated with military objectives, leading to boycotts or attacks. In contrast, community-initiated projects supported by the National Solidarity Programme (NSP) saw higher levels of sustainability and protection, highlighting the importance of local ownership [38].

Table 3 compares key peace-informed planning metrics across the three case studies—South Sudan, Sierra Leone, and Afghanistan—including variables such as community participation, spatial equity, institutional legitimacy, and conflict sensitivity.

Afghanistan's experience demonstrates that infrastructure alone cannot stabilize a conflict-affected state. Without local buy-in, transparent governance, and context-specific design, even the most well-funded projects risk becoming sources

of contention. The Afghan case underlines the urgent need for peace-informed infrastructure frameworks that prioritize long-term relationships, rather than short-term outputs, in fragile environments.

Table 3 Comparative Analysis of Peace-Informed Planning Metrics Across Case Studies

Metric	South Sudan	Sierra Leone	Afghanistan
Community Participation	Low. Top-down planning dominates; limited local consultation in design or delivery.	High. Community Oversight Committees drive planning and implementation.	Mixed. Some community-driven efforts via NSP, but most projects are donor-led and externally managed.
Spatial Equity	Weak. Infrastructure disproportionately favors central regions and politically dominant groups.	Moderate to High. Focus on war-affected and marginalized districts.	Uneven. Key regions prioritized for military or political reasons; underserved provinces remain excluded.
Institutional Legitimacy	Low. Perceived elite capture, lack of transparency, and contested federal authority.	Moderate. NaCSA viewed as accountable, but national sectoral integration limited.	Low. Parallel donor systems bypassed national institutions, weakening state credibility.
Conflict Sensitivity	Limited. Ethnic tensions and resource competition often overlooked in planning.	Strong. Projects tailored to post-war reconciliation and inclusion.	Weak. Infrastructure often perceived as part of counterinsurgency, increasing insecurity in some areas.
Sustainability	Poor. Maintenance and local ownership mechanisms are weak or absent.	Moderate. High local ownership, but financial sustainability challenges exist.	Low. Infrastructure deteriorated quickly due to corruption and lack of local capacity.
Impact on Peacebuilding	Mixed. Some local successes, but national-level tensions persist.	Positive. Reduced local tensions and improved civic trust in targeted areas.	Negative. Infrastructure often linked to conflict escalation and community resistance.

7. Policy and planning recommendations

7.1. For National Governments

National governments in fragile and post-conflict settings bear the primary responsibility for ensuring that development planning contributes to sustainable peace. To that end, one key recommendation is the institutionalization of peace impact assessments (PIAs) into all large-scale infrastructure and development projects. These assessments evaluate how proposed interventions might influence social cohesion, perceptions of fairness, and potential sources of tension. Much like environmental impact assessments, PIAs involve stakeholder consultations and risk mapping to identify possible negative externalities and mitigation strategies [27]. Embedding this process within national regulatory frameworks strengthens accountability and ensures early-stage conflict sensitivity.

In addition, governments must work to strengthen decentralized planning systems. In many fragile contexts, power and resources remain concentrated at the national level, resulting in infrastructure plans that fail to reflect local needs or address historic imbalances. Empowering subnational authorities through fiscal transfers, capacity-building programs, and participatory planning tools promotes spatial equity and enhances legitimacy [28]. Decentralized institutions are also better positioned to engage with local stakeholders, collect disaggregated data, and adapt plans to dynamic conditions.

To implement these changes, national ministries—particularly those responsible for infrastructure, finance, and peacebuilding—should adopt integrated planning approaches. Inter-ministerial coordination bodies can align national priorities with subnational development goals while streamlining donor alignment. Legal mandates that require equity audits or conflict sensitivity evaluations can further embed peace-informed principles into national governance systems [29].

Finally, political leadership must be mobilized to champion inclusive infrastructure planning as a strategic priority, rather than a donor-driven agenda. Public communication campaigns, parliamentary oversight mechanisms, and civil society partnerships can reinforce the political will necessary to mainstream peace-informed development into national strategies [30].

7.2. For Donor Agencies and Multilateral Actors

Donor agencies and multilateral institutions play a critical role in shaping the incentives, norms, and operational frameworks for infrastructure development in fragile states. To support peace-informed planning, donors should incentivize conflict-sensitive procurement practices that reward inclusive engagement, transparency, and social cohesion outcomes. Procurement is a key point of leverage where decisions about local employment, geographic targeting, and subcontracting can either reduce or exacerbate tension. For example, procurement guidelines can require community consultation, labor equity quotas, and local subcontracting as evaluation criteria [31].

Furthermore, donors should transition from short-term stabilization investments toward long-term, transformational infrastructure funding. In the aftermath of conflict, immediate needs often dominate donor programming—repairing roads, reactivating utilities, or building temporary housing. While necessary, these projects must be complemented by sustained support for systems development, maintenance planning, and institutional capacity [32]. Multiyear infrastructure compacts, such as those piloted by the Global Infrastructure Facility and the African Development Bank, offer scalable models for long-term donor engagement in fragile contexts [33].

Donors must also align their efforts more closely with national development strategies and peacebuilding frameworks. This requires flexible funding modalities, joint assessments with government counterparts, and support for national systems rather than parallel structures. By engaging in pooled funding mechanisms and co-implementation agreements, donors can reduce fragmentation and foster coherent infrastructure development [34].

Finally, donor agencies should invest in monitoring systems that track peace outcomes, not just financial and technical progress. Evaluation metrics should include indicators of inclusion, grievance reduction, and trust-building—elements often overlooked in conventional results frameworks. These systems can inform adaptive programming and provide a more holistic understanding of infrastructure's peacebuilding potential [35].

7.3. For NGOs and Civil Society

Non-governmental organizations (NGOs) and civil society actors are essential to ensuring that peace-informed infrastructure development is accountable, inclusive, and responsive to grassroots needs. Their proximity to affected communities allows them to act as bridges between citizens and institutions, facilitating dialogue, monitoring implementation, and flagging unintended consequences of development projects [36].

One key role for NGOs is advocacy for inclusive infrastructure planning. This involves pushing for transparency in project selection, procurement, and delivery processes, particularly in marginalized or conflict-affected areas. Civil society can advocate for the inclusion of women, youth, and minority groups in planning forums, ensuring that a broad range of voices inform infrastructure decisions [37].

In addition, NGOs can serve as independent monitors of infrastructure projects, tracking whether implementation aligns with stated peacebuilding goals. By producing shadow reports, conducting citizen audits, and using digital tools for participatory monitoring, they can hold duty bearers accountable and ensure course correction when necessary.

Civil society also plays a critical role in building social capital. Through community organizing, civic education, and conflict resolution programming, NGOs can help ensure that the benefits of infrastructure are equitably shared and that tensions are de-escalated through inclusive dialogue mechanisms [38].

7.4. Tools and Technology Enablers

The integration of technology and data-driven tools can significantly enhance the effectiveness of peace-informed infrastructure planning. Geographic Information Systems (GIS) offer powerful capabilities for spatial equity analysis by visualizing service coverage, infrastructure disparities, and conflict overlays. Planners can use GIS to identify underserved areas, monitor implementation progress, and track real-time demographic shifts such as displacement or return migration [39].

Another critical technology enabler is the use of conflict early warning systems. These platforms combine quantitative indicators—such as price spikes, resource access, or political violence—with qualitative data gathered through community networks. When integrated with infrastructure planning platforms, early warning systems can trigger mitigation responses such as reallocation of resources, enhanced community dialogue, or the deployment of mobile services [40].
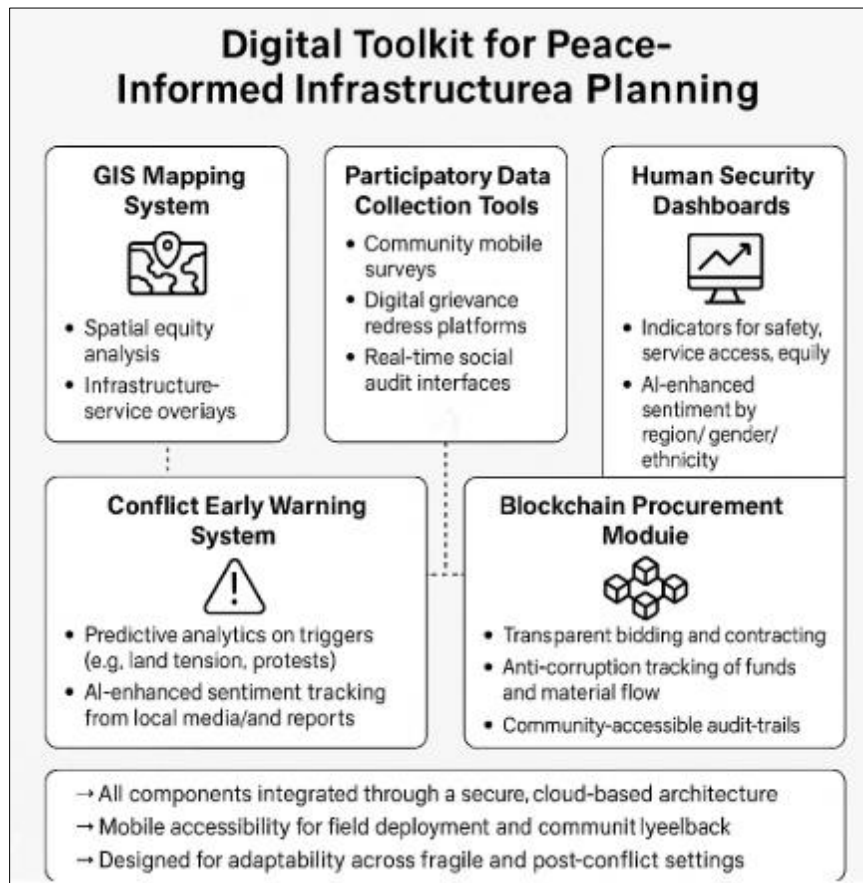

Figure 5 Digital Toolkit for Peace-Informed Infrastructure Planning, which integrates GIS mapping, participatory data collection, and real-time risk analysis

This figure illustrates a proposed Digital Toolkit for Peace-Informed Infrastructure Planning, which integrates GIS mapping, participatory data collection, and real-time risk analysis. This toolkit includes mobile applications for citizen feedback, dashboards for monitoring human security indicators, and blockchain-based tools for procurement transparency [42].

Investing in such technologies ensures that development is adaptive, transparent, and inclusive. When combined with institutional commitment and local participation, these tools become force multipliers for both peace and development in fragile contexts [41].

8. Conclusion

This article has explored the imperative of peace-informed development planning as a transformative approach for post-conflict and fragile states. By aligning infrastructure investment with human security, conflict sensitivity, and inclusive governance, peace-informed planning offers a pragmatic and principled framework to rebuild societies in ways that do not merely restore physical assets but also mend fractured social contracts. The analysis highlighted how traditional development models, when applied without contextual awareness, risk deepening historical grievances and reinforcing the very inequalities that often underpin conflict. In contrast, peace-informed strategies prioritize equity, participation, and conflict mitigation from the outset.

Key insights include the importance of embedding conflict analysis into project design, ensuring participatory mechanisms that empower local actors, and aligning planning indicators with human security outcomes. Infrastructure—while traditionally viewed through an economic or technical lens—emerges as both a risk and an opportunity. When delivered equitably and inclusively, it serves as a catalyst for reconciliation, institutional trust, and long-term stability. When mismanaged, it becomes a flashpoint for renewed tensions.

The promise of peace-informed development lies in its capacity to transform development into a peacebuilding tool. It reshapes how planners, donors, and communities conceive and implement interventions, foregrounding the lived experiences of those most affected by conflict. It shifts the development paradigm from one focused solely on outputs and growth, to one centered on resilience, justice, and healing.

To realize this promise, a global shift in planning practice is required—one that moves beyond generic templates to embrace the complexity and specificity of fragile settings. Governments must institutionalize peace-informed principles in national systems. Donors should commit to long-term, conflict-sensitive investments. Civil society must hold systems accountable and ensure grassroots perspectives guide decision-making.

Now is the time for international institutions, practitioners, and local actors to adopt and localize peace-informed planning. By doing so, we can ensure that development becomes not just a mechanism for reconstruction, but a foundation for durable peace.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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