

Infrastructure and Peacebuilding

The role of infrastructure in building and
sustaining peace | January 2020

Introduction

This thematic paper is a response to the Peacebuilding Support Office (PBSO)'s invitation for United Nations entities to submit papers on various aspects of peacebuilding and sustaining peace as informal contributions to the preparation of the 2020 Report of the Secretary-General (mandated by A/RES/72/276 and S/RES/2413 [2018]).

The United Nations Office for Project Services (UNOPS) recognizes that the 2020 Report of the Secretary-General will be the principal input into the 2020 Review of the Peacebuilding Architecture. In an effort to support the system-wide efforts to review the peacebuilding architecture, UNOPS presents this thematic paper. This document seeks to contribute to better informed decision-making by raising awareness among UN entities and the Secretariat of the important role of infrastructure in Fragile and Conflict-Affected States (FCAS).

Background

Infrastructure and the UNSG agenda

The 2018 Report of the Secretary-General (A/72/707-S/2018/43) stresses the need for Member States to work together to prevent the outbreak, escalation, continuation and recurrence of conflict.¹ As this paper seeks to demonstrate, infrastructure development is a core component of peacebuilding in fragile and conflict-affected states, holding the ability to hinder or advance peacekeeping efforts.

Infrastructure is a basic prerequisite for development and human well-being. It is more than a physical asset that enables a service; it is an agent of change that can be transformative when connected to societal progress and processes.² Infrastructure also plays an important role in peacebuilding efforts in the particular context of FCAS. As defined by the General Assembly resolution 70/262, peacebuilding is an “ongoing process that begins long before conflict takes place”.³ Therefore, infrastructure not only supports post-conflict stabilization efforts, but also plays a key role in addressing the root causes of conflict to prevent it from occurring.

Furthermore, the UNSG emphasises that sustainable development is the best guarantee of enduring peace and reiterates that the primary objective of the United Nations

¹ United Nations, Peacebuilding and Sustaining Peace: Report of the Secretary-General, [A/72/707-S/2018/43](#), United Nations, New York, 18 January 2018, p. 1.

² United Nations Office for Project Services and the Danish Institute for International Studies, '[Roads to Peace? Infrastructure in Fragile and Conflict-Affected States: Field Studies Concept Note](#)', UNOPS and DIIS, Copenhagen, February 2018, p. iii.

³ Peacebuilding and Sustaining Peace: Report of the Secretary-General, [A/72/707-S/2018/43](#), p. 1.

development system is to support Member States in achieving the 2030 Agenda and the Sustainable Development Goals (SDGs).⁴ Once again, infrastructure plays a part in fulfilling this objective. Infrastructure has links with all 17 SDGs, ultimately having the potential to influence the achievement of up to 92% of all SDG targets.⁵

In this way, infrastructure is connected to peacebuilding through its influence on conflict and sustainable development. The UN mandate in peacekeeping entails “assisting countries emerging from conflict, reducing the risk of relapsing into conflict and at laying the foundation for sustainable peace and development.” Addressing the infrastructure needs of fragile and conflict-affected states is therefore key to ensuring long lasting peace and achievement of their long term development goals.

Key definitions

Understanding the role of infrastructure in peacebuilding requires a shift away from the traditional view of infrastructure as isolated and separated physical assets. Rather, infrastructure is better understood as systems comprised of assets, institutions and knowledge which, when combined, enable the sustainable provision of public services (Figure 1).⁶ **Assets** represent the physical components of the system; **institutions** represent the governance mechanisms and frameworks that regulate infrastructure programming; and **knowledge** comprises the expertise that stakeholders bring to planning, design, implementation, use and maintenance. Institutions and knowledge together are referred to as the **capacity** of the system to plan, deliver and manage the assets and the service that they provide.

Infrastructure projects often focus on delivering isolated physical assets, hoping that alone it will improve access to public services. By doing so, such projects fail to account for the other components of an infrastructure system – knowledge and institutions – and cannot develop the required capacity for continued use of the asset for service delivery. This inevitably leads to the failure of that system and creates a gap in service provision, increasing distrust in the government’s ability to manage public services. According to OECD research, countries with a high capacity to plan, deliver and manage infrastructure produce high-quality services that greatly benefit constituents by enhancing economic growth, reducing inequalities, and facilitating social progress. On the other hand, countries

⁴ Ibid., p. 6.

⁵ Thacker, S., Adshead, D., Morgan, G., Crosskey, S., Bajpai, A., Ceppi, P., Hall, JW. & O’Regan, N., [Infrastructure: Underpinning Sustainable Development](#), United Nations Office for Project Services, Copenhagen, 2018.

⁶ [‘Roads to Peace? Infrastructure in Fragile and Conflict-Affected States: Field Studies Concept Note’](#), p. 1.

with poor capacity are unable to maximize the potential development gains from infrastructure investments.⁷

A study commissioned by the UK government's Department for International Development (DFID) indicates that beneficiaries in eastern Democratic Republic of the Congo (DRC) mistrusted water infrastructure projects, as they did not expect water to flow from the tap stands for more than a few weeks after project conclusion.⁸ This scepticism was due to the numerous tap stand projects that were implemented by NGOs and INGOs that failed due to either:

*"1. Technical reasons (e.g. building a tap stand network without considering the supply of water), or 2. Poor management of the assets (handing over the assets to local committees setup in the course of the project with the unrealistic expectation that they will be able to maintain the assets and sustain delivery of the service)."*⁹

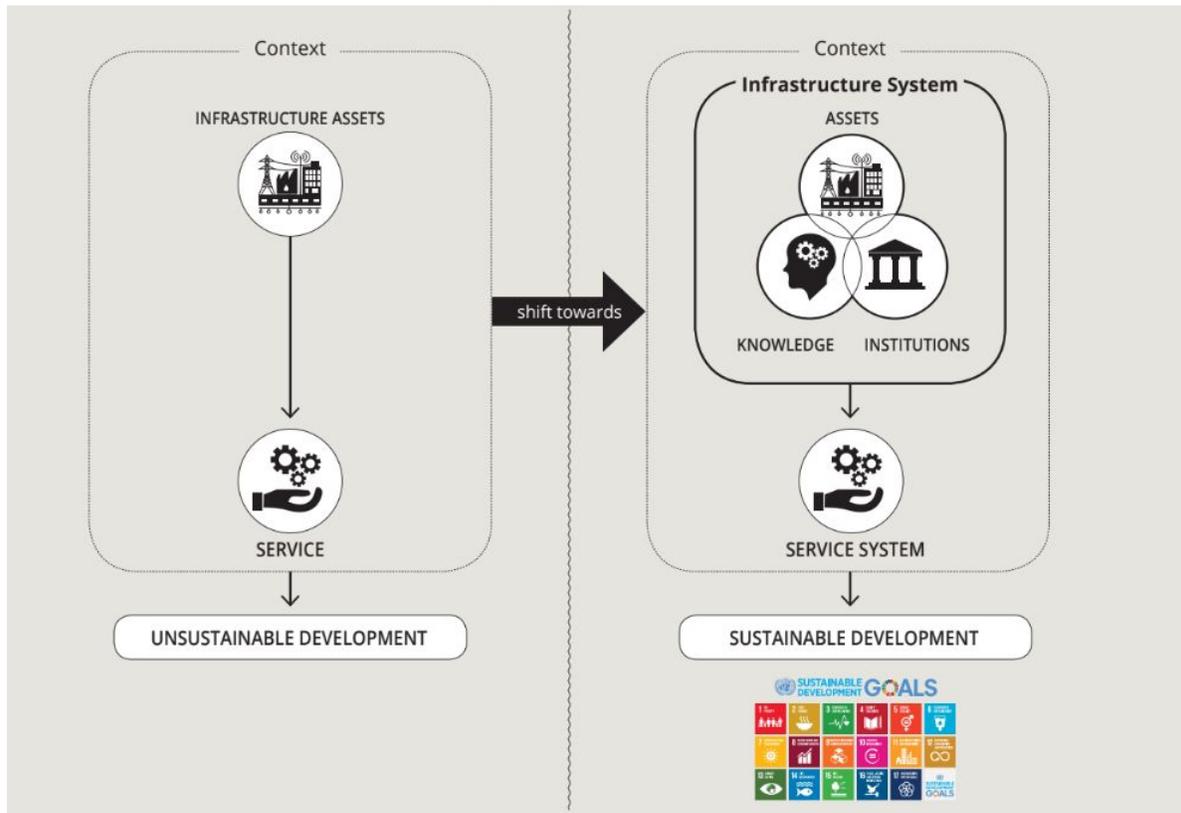
The DRC case illustrates how neglecting institutions -- the mechanisms and frameworks regulating water supply networks and financing operations that support the creation and continued management of assets -- resulted in previous projects failing to provide services. Furthermore, neglecting local communities' knowledge of maintaining and operating the assets (or their resources to do so) further contributed to their mistrust of any future interventions. This example demonstrates the need to move away from the simplistic definition of infrastructure as physical assets to a more holistic view of infrastructure as a system, allowing one to grasp the complex enabling environment and decision-making processes around infrastructure. This decision-making process determines what assets are built, where, when and ultimately how they impact sustainable development outcomes. These decisions define how infrastructure fulfils its essential functions within a society and the context in which it operates. In the case of FCAS, these decisions will ultimately determine infrastructure's role in fueling tensions (e.g., raising scepticism and perceptions of exclusion) or supporting peacebuilding efforts and promoting sustainable development.

⁷ Organisation for Economic Co-operation and Development, '[Getting Infrastructure Right: The Ten Key Governance Challenges and Policy Options](#)', OECD, 2017, p. 1.

⁸ Infrastructure and Cities for Economic Development, '[Case Studies: Delivering Inclusive Growth Through Infrastructure Programming in FCAS](#)', ICED, August 2019, p. 40.

⁹ Ibid.

Figure 1: Shift towards infrastructure systems



As the following sections will explore, investments in infrastructure seek to achieve different objectives depending on the context in which they are made. Investments made in infrastructure during times of conflict and humanitarian response, for instance, often seek to support short-term objectives and frequently prioritize the quantity of assets delivered over their quality, with the assumption that the assets will be replaced once stability has been restored. However, frequently the assets are not replaced and end up having a long lifespan which can inhibit long-term development objectives. On the other hand, infrastructure development in post-conflict or reconstruction settings often focuses on supporting longer-term development objectives and tends to prioritize quality over quantity. Regardless of these objectives, due to the long lifespan of infrastructure assets, infrastructure investments will inevitably have a positive and/or negative impact both in the short-term and far into the future. Infrastructure can be a driver of long-term economic growth, peace and resilience if it enables access to basic services and economic opportunities for all. At the same time, poorly designed and built infrastructure can lead to exclusion and group-based grievances that may escalate to conflict. The following section will explore infrastructure's role in peacebuilding across the conflict lifecycle.

Infrastructure's role in peacebuilding

Channels of influence

Several violent conflicts today relate to group-based grievances arising from inequality, exclusion, and feelings of injustice.¹⁰ When a state is unable to provide essential public services to everyone, group perceptions of inequality and injustice increase, leading to rising tensions and violence. Poor, non-inclusive infrastructure systems can exacerbate group-based grievances by reinforcing a restrictive, inequitable environment. The 2018 United Nations-World Bank report 'Pathways for Peace' highlights how water infrastructure systems, for instance, can influence tensions related to the lack of water access:

*"Often, it is not the scarcity of water that leads to tensions, but the way in which it is governed and administered. Inefficient use and management of water, outdated infrastructure, and inappropriate legal, political, and economic frameworks all exacerbate tensions arising from the scarcity of water (Pedraza and Heinrich 2016)."*¹¹

As the statement indicates, tensions do not necessarily arise from resource shortage, but from poor institutional frameworks that govern access to resources. Worsening the situation are 'outdated' assets, which collapse due to poor design (e.g., failure to account for resilience to shocks and stresses in a specific context), and/or lack of knowledge in maintaining and operating them (causing assets' premature obsolescence). The failure of that system (asset, knowledge and institutions) ultimately restricts access to public services, giving rise to tensions and group-based grievances.

Although access to public services is a global challenge, its impact in FCAS is particularly troubling. It is estimated that approximately 2.2 billion people currently lack access to safe drinking water, 4.2 billion lack access to sanitation,¹² around 940 million lack electricity, and 1 billion lack access to all-weather roads.¹³ Those lacking access to basic services are more likely to engage in violent behaviour as a result of resource competition in combination with perceptions of injustice or poor governance.¹⁴

Furthermore, the World Bank estimates that by 2030, at least half of the world's poorest will be living in fragile and conflict-affected settings,¹⁵ where unreliable infrastructure

¹⁰ United Nations and World Bank, [Pathways for Peace. Inclusive Approaches to Preventing Violent Conflict](#), United Nations and World Bank, Washington, D.C., 2018, p. 109.

¹¹ Ibid., p.153.

¹² United Nations Children's Fund and World Health Organization, 'Progress on household drinking water, sanitation and hygiene, 2000-2017: Special focus on inequalities', UNICEF and WHO, New York, 2019, <<https://data.unicef.org/resources/progress-drinking-water-sanitation-hygiene-2019>>, accessed 20 September 2019.

¹³ The World Bank, 'Transport – Overview', <www.worldbank.org/en/topic/transport/overview>, accessed 20 February 2019.

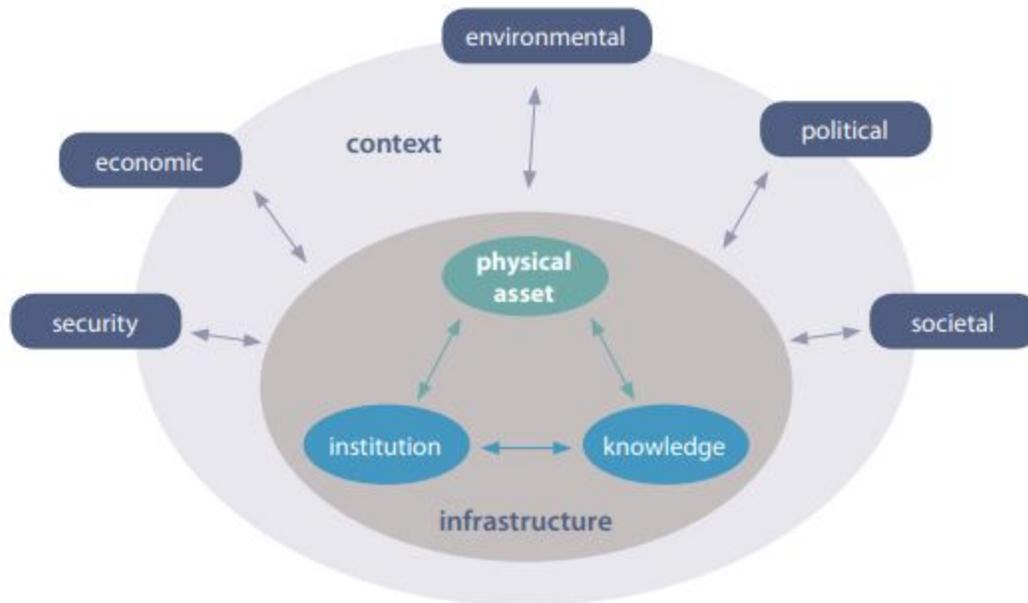
¹⁴ United Nations Environment Programme, [Toolkit and Guidance for Preventing and Managing Land and Natural Resources Conflict](#), UNEP, 2012, p. 15.

¹⁵ The World Bank, [World Bank Group Strategy for Fragility, Conflict and Violence 2020-2025](#), Concept note, 2019, p. 2.

services will leave them increasingly exposed to climate change related shocks and stresses (e.g., cyclones, droughts, floods, sea level rise). Climate change related shocks and stresses will worsen the pressure on poor and vulnerable groups living in FCAS, potentially escalating tensions as a result of the collapse of service delivery, food insecurity, migration and economic shocks (e.g., loss of household income and employment opportunities).¹⁶

Consequently, understanding how infrastructure interacts with fragility is paramount to ensuring that FCAS are able to promote long-term, inclusive, sustainable and resilient development. Fragility, however, is a complex and multidimensional phenomenon in which different aspects of state performance overlap. The OECD’s Fragility Framework is a useful tool to analyze the interaction between infrastructure and fragility, as the combination of risks and coping capacities are unique to each specific context. The framework relies on a systems-thinking approach to fragility, considering it as an interaction of economic, environmental, political, security and societal dimensions. Infrastructure systems are intertwined with each of these fragility dimensions, given that assets, knowledge and institutions are constantly interacting with a given context (Figure 2).

Figure 2: Infrastructure interaction with fragility’s dimensions



Source: Schouten, Peer and Jan Bachmann, *Roads to Peace? The Role of Infrastructure in Fragile and Conflict-Affected States*, UNOPS and the Danish Institute for International Studies, Copenhagen, January 2017, p. 4.

As a result of such interactions, infrastructure systems may act as channels of influence for conflict or peace, depending on the local context. There are various channels of influence

¹⁶ Ibid.

under each of the OECD’s dimensions of fragility (Table 1). While the examples illustrating infrastructure’s channels of influence are non-exhaustive, they seek to demonstrate a few ways in which infrastructure interacts with fragility dimensions.

Table 1: Infrastructure’s interaction with fragility dimensions¹⁷

Dimension of fragility	Description	Key Indicators	Infrastructure’s channels of influence
Economic	Vulnerability to risks stemming from weaknesses in economic foundations and human capital, including macroeconomic shocks, unequal growth and high youth unemployment.	<p>Education: mean of schooling years for adults aged 25 years and over and expected years of schooling for children.</p> <p>Men in labour force: measure of the percentage of male participation in the labour force.</p> <p>Regulatory quality: perceptions of the ability of the government to formulate and implement sound policies and regulations promoting private sector development.</p> <p>Remoteness in the trade-weighted average distance from world markets.</p> <p>Food Security: measures include the prevalence of undernourishment, average dietary supply adequacy, domestic food price index and domestic food price volatility.</p> <p>Unemployment rate: share of labour force that is without work but is available for and seeking employment.</p> <p>Youth not in education, employment or training: the proportion of young people who are not in education, employment or training within the population of all youth in the same age group.</p> <p>Women in the labour force: the percentage of female participation in the labour force.</p>	<ul style="list-style-type: none"> ● Infrastructure can enable the provision of basic services (e.g., water, sanitation, education, healthcare) to all individuals. ● Infrastructure implementation creates employment opportunities. ● Infrastructure can connect remote areas, reduce transaction costs and stimulate the economy. <p>Sector examples:</p> <ul style="list-style-type: none"> ● Transport infrastructure can increase access to markets. ● Education infrastructure can address unemployment by building local capacity and improving employability.
Environmental	Vulnerability to environmental, climatic and health risks that affect citizens’ lives and livelihoods.	<p>Socio-economic vulnerability: measures the ability of individuals and households to afford safe resilient livelihood conditions and well-being.</p> <p>Environmental health: measures the health impacts including quality of air, water and sanitation.</p> <p>Food security: measures the prevalence of undernourishment, average dietary supply adequacy, domestic food price index and domestic food price volatility.</p> <p>Natural disaster risk: measures the likelihood of exposure to earthquake, tsunami, flood, cyclone drought and other such events.</p>	<ul style="list-style-type: none"> ● Resilient infrastructure protects communities and the state against impact of shocks (e.g., earthquakes, tsunamis, floods), preventing food insecurity and economic loss among other risks to resilience. ● Low-carbon infrastructure can promote climate change mitigation and contain the negative impact of climate change on people’s health. <p>Sector examples:</p> <ul style="list-style-type: none"> ● Water and solid waste

¹⁷ Adapted from Organisation for Economic Co-operation and Development, [States of Fragility 2016: Understanding Violence](#), OECD Publishing, Paris, 2016, pp.164-170.

			<p>infrastructure can reduce the outbreak of diseases in the community.</p> <ul style="list-style-type: none"> • If not developed with sustainability in mind, buildings, energy and transport infrastructure can contribute to deforestation, increase greenhouse gas emissions and contribute to air, water and noise pollution.
Political	Vulnerability to risks inherent in political processes, events or decisions, particularly concerning political inclusiveness, transparency, corruption and society's ability to accommodate change and avoid repression.	<p>Voice and accountability: measures perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association and a free media.</p> <p>Judicial constraints on executive power: measured as the extent to which the executive respects the constitution and complies with court rulings, and independence of the judiciary.</p> <p>Perceptions of corruption: measured by perceived levels of corruption, as determined by expert assessments and opinion surveys.</p> <p>Legislative constraints on executive power: measured as the extent to which legislature and government agencies are capable of questioning, investigating and exercising oversight over the executive.</p> <p>Political terror: measured by the levels of state-sanctioned or -perpetrated violence such as assassinations of political challengers and police brutality.</p> <p>Decentralised elections: measured in terms of whether there are subnational elections, and to what extent regional authorities can operate without interference from the centre.</p> <p>Regime persistence: measured by the number of years a polity has persisted, and is used as a measure of instability.</p>	<ul style="list-style-type: none"> • Infrastructure development influences public perception of government legitimacy and accountability. • The nature of public investments in infrastructure makes it particularly prone to corruption due to the large amount of money spent on it (infrastructure is commonly subject to bribery, abuse of authority and trading of influence, among other forms of corruption). <p>Sector examples:</p> <ul style="list-style-type: none"> • Digital communications can facilitate accountability, transparency and monitoring of institutions. • Infrastructure for rule of law can promote access to justice for the civil society. • Transport infrastructure can connect communities to government services.
Security	Vulnerability of overall security to violence and crime, including both political and social violence.	<p>Conflict risk: measured by the statistical risk of violent conflict in the next 1-4 years based on 25 quantitative indicators from open sources.</p> <p>State control over territory measured as the percentage of territory over which the state has effective control.</p> <p>Level of violent criminal activity by criminal organisations (drug trafficking, arms trafficking, prostitution, etc.).</p> <p>Rule of law measured as perceptions of the extent to which agents have confidence in and abide by the rules of society, in particular the quality of contract enforcement, property rights, the police and the courts.</p>	<ul style="list-style-type: none"> • Infrastructure can be subject to power disputes, attracting violence or becoming a target for criminal activities (e.g., terrorism). • Access provided by infrastructure can expose vulnerable groups to violence and criminal activity. This could be a result of increased presence by criminal groups in easier-to-reach areas thanks to improved access (e.g., roads and bridges), or a result of the exposure faced by individuals who need to travel long

		<p>Homicide rate per 100 000 population.</p> <p>Number of formal alliances between countries.</p> <p>Battle-related deaths per capita, measured on log basis.</p> <p>Impact of terrorism: measured by the Global Terrorism Index (GTI) capturing number of deaths, attacks, incidents and property damage from terrorism.</p>	<p>distances to obtain services or resources (e.g., women and girls that are exposed to violence and harassment by travelling to fetch water from communal taps located far from their homes)</p> <p>Sector examples:</p> <ul style="list-style-type: none"> • Digital communications can facilitate swift notification of law enforcement officials about uprisings. • Transport infrastructure can increase access to basic services during conflict. • Transport infrastructure can increase access of governments and militants to vulnerable groups.
Societal	Vulnerability to risks that stem from both vertical and horizontal inequalities, including inequality among culturally defined or constructed groups and social cleavages, affecting societal cohesion.	<p>Voice and accountability: measures perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association and a free media.</p> <p>Access to justice: measures the extent to which citizens enjoy secure and effective access to justice.</p> <p>Horizontal inequality: measures whether all social groups – as distinguished by language, ethnicity, religion, race, region or caste – enjoy the same level of civil liberties.</p> <p>Core civil society index: measures the overall robustness of civil society.</p> <p>Gini coefficient: an index measure of income inequality.</p> <p>Gender inequality: measures gender inequalities in three important aspects of human development: reproductive health, empowerment and economic status.</p>	<ul style="list-style-type: none"> • Inclusive infrastructure can provide access to basic services for all and therefore discourage perceptions of inequality that lead to tensions. <p>Sector examples:</p> <ul style="list-style-type: none"> • Digital communications can facilitate access to information and free media. It can also contribute to freedom of speech by providing citizens with free communication channels. • Improved transport links can facilitate voters' access to election centres and justice institutions. They can also ensure that women and other vulnerable groups have equal access to public institutions.

Having outlined infrastructure's interaction with each of the fragility dimensions, it is important to understand how these interactions influence the escalation of tensions and ultimately, the outbreak of violent conflict.

Stages of peacebuilding

As previously explored, infrastructure is an agent of change that interacts with all dimensions of fragility, while peacebuilding is as an ongoing process that begins long before conflict takes place. As a result of its interactions, infrastructure and the services it provides can play different roles in the peacebuilding process as the fragility context

changes. This section seeks to identify the role of infrastructure across the different stages of the conflict lifecycle, in order to highlight the contexts in which infrastructure can support or hinder peacebuilding efforts. It is worth mentioning that, in reality, it is virtually impossible to clearly distinguish conflict stages (e.g., determining at which point violence escalation effectively turns into 'conflict' and to what extent the decrease in violence characterizes a 'post-conflict' stage). Nevertheless, this simplified framework allows for a clear-cut analysis of how infrastructure interacts with fragility dimensions in different scenarios.

Prior to conflict

Prior to conflict occurrence, investment in inclusive and sustainable infrastructure systems can improve resilience and prevent societies from descending into crisis and ultimately conflict. The United Nations-World Bank report 'Pathways for Peace' indicates how state decisions around infrastructure investment influence group-based grievances in the context of center-periphery relations:

*"Center-periphery tensions tend to be rooted in historical patterns of exclusion and are therefore heavily entrenched in state institutions. For a variety of reasons, states often deem the costs of integrating peripheral regions via improved infrastructure or services to be too high for the potential benefits it could bring (Keister 2014)."*¹⁸

Despite the common perception that improving infrastructure services carries an exorbitant cost (particularly for FCAS), prevention efforts can be cost-effective, lead to stability and ultimately save lives. It is estimated that prevention efforts can generate 'savings' ranging from US\$5 billion to US\$69 billion a year by preventing diversion of resources towards military expenditure, aid and peacekeeping by national governments and the international community.¹⁹ Beyond addressing the access gap in the long run, targeted infrastructure interventions can also contribute to reductions in violence, conflict and crime in the shorter term. For example, widespread electrification may improve safety in communities by deterring violence through street lighting. Similarly, efficient roads and waterways can allow law enforcement timely access to communities in order to respond to emergencies and crimes.

When it comes to strengthening the rule of law in a given country, the construction of police stations, courts and prisons to adequate standards can contribute to long-term improvements to law enforcement and access to justice. Participatory decision-making requires people, including the most vulnerable, to have access to institutions of governance at all levels. Such access may require, for example, better transport links to ensure all

¹⁸ [Pathways for Peace](#), p. 97.

¹⁹ *Ibid.*, p. 289.

citizens can exercise their right to vote. Although the investments in assets mentioned above may improve the provision of services related to security and justice, it should be stressed that, without a holistic approach to infrastructure as a system, these investments are unlikely to achieve long-term benefits. Addressing inequalities and exclusion through infrastructure investments that seek to build knowledge, while making institutions more inclusive and transparent, will ensure that development strategies can effectively prevent the fraying of social fabric, which could erupt into crisis.²⁰

At the same time, infrastructure can hinder peacebuilding efforts and aggravate group-based grievances if systems are used for predatory activities, services are poor or lacking, or if infrastructure is unable to protect communities and development. In Haiti, for instance, non-resilient infrastructure failed to protect the population from the 2010 earthquake which, beyond the high death tolls,²¹ left survivors more exposed to violence.²² A survey of affected households in Port-au-Prince (24.4 per cent of respondents had lost their homes in the disaster) indicated that in the six weeks following the earthquake, over 4,000 individuals were physically assaulted, while 18.6 per cent of surveyed households experienced severe food insecurity due to the collapse of food-related infrastructure services upon which community members had relied.²³ Prison escapes and increasing gang presence in vulnerable areas were a direct result of infrastructure failure (non-resilient prisons and lack of access to affected areas), which contributed to the increase in crime and violence rates.²⁴ Furthermore, displaced populations living in tent camps – notably women – were more exposed to violence; survey results indicated that 10,813 people were sexually assaulted in the six weeks following the shock, the vast majority of whom were female.²⁵

Moreover, in light of increasingly unpredictable and extreme climate-change induced weather patterns, infrastructure has a large potential to help defuse or protect communities from economic, environmental and societal crises that can lead to instability. Further examples, non-exhaustive, of how infrastructure interacts with fragility dimensions prior to conflict are below (Table 2).

Table 2: Infrastructure's interaction with fragility dimensions prior to conflict

²⁰ Ibid., p. xviii.

²¹ United Nations Development Programme, '[HAITI 1 year later](#)', UNDP, December 2010, p. 3.

²² Marcelin, Louis H., 'Violence, Human Insecurity, and the Challenge of Rebuilding Haiti: A Study of a Shantytown in Port-au-Prince', *Current Anthropology*, vol. 56, no. 2, April 2015, pp. 230. doi:10.1086/680465.

²³ Kolbe, Athena R., et al., 'Mortality, crime and access to basic needs before and after the Haiti earthquake: a random survey of Port-au-Prince households', *Medicine, Conflict and Survival*, vol. 26, no. 4, 8 December 2010, pp. 281-297. doi: 10.1080/13623699.2010.535279.

²⁴ Berg, Louis-Alexandre, '[Crime, Politics and Violence in Post-Earthquake Haiti](#)', Peace Brief 58, United States Institute of Peace, 28 September 2010, p.1.

²⁵ Kolbe, Athena R., et al., 'Mortality, crime and access to basic needs before and after the Haiti earthquake: a random survey of Port-au-Prince households', *Medicine, Conflict and Survival*, vol. 26, no. 4, 8 December 2010, pp. 281-297. doi: 10.1080/13623699.2010.535279.

Dimension	Infrastructure supports peacebuilding	Infrastructure hinders peacebuilding
Economic	<ul style="list-style-type: none"> Infrastructure development creates employment opportunities and increases the inflow of funds in the economy, contributing to economic resilience and development. 	<ul style="list-style-type: none"> If the inflow of funds and employment opportunities originated by infrastructure development are perceived as impartial, contestation and group-based grievances may arise and escalate to conflict.
Environmental	<ul style="list-style-type: none"> 'Low-carbon infrastructure' and renewable energy solutions can promote climate change mitigation. Environmentally friendly infrastructure solutions can help meet development demands while minimally impacting the environment. Resilient infrastructure protects communities and the state and helps them adapt to the impact of climate change and environmental shocks and stresses. 	<ul style="list-style-type: none"> Infrastructure can increase greenhouse gas emissions and contribute to air, water and noise pollution. Non-resilient infrastructure can fail to protect communities against climate change and other environmental shocks and stresses, leading to loss of life and livelihood, food insecurity, migration, and other instability factors.
Political	<ul style="list-style-type: none"> Evidence-based infrastructure projects that are embedded in national strategies and have involved key stakeholders contribute to government legitimacy and long-term stability. 	<ul style="list-style-type: none"> In areas of low state presence, infrastructure assets can be instrumentalized by competing groups and hamper state legitimacy.
Security	<ul style="list-style-type: none"> Improved communication and accessibility to national territory can strengthen state presence and security provision. 	<ul style="list-style-type: none"> Improved accessibility and strengthened state presence in the national territory can increase tensions with local communities if state security forces engage in predatory or violent behaviour.
Societal	<ul style="list-style-type: none"> Inclusive infrastructure can provide basic services and discourage perceptions of inequality that lead to tensions. 	<ul style="list-style-type: none"> Non-inclusive infrastructure can aggravate group-based grievances over perceived inequalities, and tensions can escalate to violence.

As the table indicates, infrastructure development can either support or hinder peacebuilding efforts prior to conflict occurrence. In cases where peacebuilding efforts have failed, infrastructure's role is largely shaped by the characteristics of the conflict and the environment. The following section explores the different ways in which infrastructure can support or hinder peacebuilding efforts during ongoing conflicts.

During conflict

Infrastructure is commonly associated with military access in conflict-affected areas. Being subject to power disputes, infrastructure can attract violence by all parties in a conflict and become a conduit for intensified predation. Consequently, infrastructure development during conflict is not perceived as neutral. In the Democratic Republic of the Congo, for instance, Hunde rebels held control of the main road south of Pinga in 2011 for taxation and defence purposes.²⁶ The UN Group of Experts also reported that Hunde rebels sought to block the repair of a bridge by an international implementing organization out of fear that it would lead to army deployments into their territories.²⁷ Recent research also found that political violence markedly increased in Iraq as a result of road building between 2003 and 2016.²⁸

Beyond military access, emergency infrastructure implementation in conflict-affected areas can play a positive role in the peacebuilding process by contributing to the (re)establishment of public services and improving affected communities' resilience and livelihoods. For example, restoration and reparation of energy infrastructure can enable the provision of critical services such as health, education, water and sanitation in conflict-affected areas. Improved service delivery will increase communities' resilience by fostering job creation and income generation and improving health and wellbeing. Improved energy provision, notably in rural areas, also contributes to household economic resilience by reducing dependence on fuels (e.g., kerosene), which become increasingly scarce and expensive in conflict-affected settings. Besides the tangible benefits that infrastructure implementation can bring to conflict-affected communities, (re)establishing provision of public services also builds confidence in the peace process and contributes to state legitimacy.

Nevertheless, in the context of ongoing conflict, infrastructure implementation becomes riskier and more sensitive than ever. Therefore, the success of projects largely relies on the standards and practices employed by implementing partners. Unfortunately, excessive focus on outputs and little consideration towards developing the wider capacity of infrastructure systems (institutions and knowledge) have prevented infrastructure projects from achieving their long-term development outcomes and desired impact. A few cases of infrastructure implementation under the framework of Quick Impact Projects (QIPs) illustrate how excessive focus on tangible outputs (assets) at the expense of appropriate

²⁶ United Nations Security Council, Final Report of the Group of Experts on the Democratic Republic of Congo Submitted in Accordance with Paragraph 5 of Security Council Resolution 1952 (2010), [S/2011/738](#), 2 December 2011, paragraph 220.

²⁷ Ibid.

²⁸ Gomez, Tamar, 'Highways to Hell Are Paved with Good Intentions: Road Building and Violence in Iraq', Working paper, Imperial College London, May 9 2018.

planning and preparation fails to sustain peacebuilding efforts in the longer term and often contributes to the escalation of tensions.

In Afghanistan, for instance, following 2001, infrastructure works implemented in the framework of QIPs had a military component of ‘winning the hearts and minds’ of the local population. These projects rested on the assumption that the quick delivery of visible infrastructure assets would increase confidence in the capacity of the Afghan government and signal its commitment to local communities, who were also engaged in project identification, decision-making and delivery.²⁹ Community-based programmes would then lead to future, more sustainable development initiatives that would ultimately be able to sustain peace.

As a result, such projects were under pressure to start construction early and disburse funds quickly. The rush to show impact was generally at the expense of appropriate planning and preparation, which are crucial to successful infrastructure implementation, particularly in FCAS. Conflict sensitivity, feasibility and sustainability studies were often neglected as QIPs prioritized short-term operations than long-term durability. Errors in design, inappropriate specifications, substandard construction practices and implementation challenges posed by the conflict resulted in poor quality infrastructure that carries higher operation and maintenance costs, which the Afghan government cannot bear in the context of progressive reduction in Official Development Assistance (ODA).³⁰ Lack of maintenance means that several systems are now inoperable and public services are no longer being provided, while allegations of corruption in projects’ implementation further contribute to the discontent and rising tensions in the Afghan population.

The Afghanistan case illustrates how the lack of a holistic approach to the elements of an infrastructure system may hinder the system’s performance in the long-term and have negative repercussions on peacebuilding. Further examples, non-exhaustive, on the interplay between infrastructure and peacebuilding during conflict are below (Table 3).

Table 3: Infrastructure’s interaction with fragility dimensions during conflict

Dimension	Infrastructure supports peacebuilding	Infrastructure hinders peacebuilding
Economic	<ul style="list-style-type: none"> • Emergency infrastructure implementation supports the reestablishment of critical services, fostering job creation and income generation. • Labor-intensive public work projects for infrastructure development can reduce conflict through a quick influx of cash for disadvantaged groups. 	<ul style="list-style-type: none"> • Infrastructure assets may be used by military groups as a means of extortion to finance their activities (e.g., roadblocks).

²⁹ Gordon, Stuart, *Winning Hearts and Minds? Examining the Relationship between Aid and Security in Afghanistan’s Helmand Province*, Feinstein International Center, Tufts University, April 2011, p. 34.

³⁰ *Case Studies: Delivering Inclusive Growth*, p.10.

Environmental	<ul style="list-style-type: none"> Resilient infrastructure is more likely to resist the shocks of conflict, protecting environmental and development gains. 	<ul style="list-style-type: none"> Infrastructure can facilitate access to hard-to-reach areas, increasing illegal activities such as illicit natural resource exploitation (e.g., logging, illicit slash and burn agriculture, illegal mineral extraction and poaching).
Political	<ul style="list-style-type: none"> Properly planned and implemented infrastructure projects can support the (re)establishment of service delivery, strengthening state legitimacy in conflict-affected areas. 	<ul style="list-style-type: none"> If poorly planned or implemented, infrastructure projects can lead to further instability after a short period of time if the outputs are difficult and expensive to operate, maintain and manage.
Security	<ul style="list-style-type: none"> Infrastructure can support military logistics and extend international or state presence in conflict-affected areas. 	<ul style="list-style-type: none"> Improved access may increase security risks for communities that will be more exposed to violent groups disputing territory.
Societal	<ul style="list-style-type: none"> Emergency infrastructure implementation supports the reestablishment of critical services, improving resilience and wellbeing of affected communities. 	<ul style="list-style-type: none"> If poorly planned and implemented, emergency infrastructure may increase tensions as a result of negative public perception (e.g., corruption in project implementation, government failure to provide services due to high operations and maintenance costs). Strategic infrastructure assets can be targeted by military groups, which may either control or destroy the asset and the service it provides, negatively impacting the community that relied on the service to fulfill basic needs.

Therefore, infrastructure’s interaction with peacebuilding efforts during conflict is highly dependent on the nature of the conflict, the groups involved in power disputes and the strategy behind an immediate response by the international community. While emergency infrastructure can contribute to peacebuilding by (re)establishing public services that promote resilience and recovery, projects that fail to properly plan for the complex implementation, operations and maintenance in such environments run the risk of fuelling the ongoing instability, rather than promoting peace.

When conflict levels decline, infrastructure plays an important role in post-conflict recovery, as explored in the next section.

Post conflict

In regions where infrastructure has been damaged or destroyed by a conflict, rebuilding it is a key step to restoring peace and order to the affected communities. Rebuilding provides an opportunity to reevaluate the role of infrastructure in a given context and ‘build back better’ based on the risks faced by that infrastructure system and the service needs of the

community. For instance, building back better allows for improvements in infrastructure resilience so systems can withstand future shocks and stresses (be it a result of conflict, climate change, or some other (un)foreseen event). It also provides an opportunity to analyze the service needs of a given community, understand the institutional and knowledge gaps that must be addressed, and effectively develop infrastructure that is inclusive and contributes to long-term community resilience and well being. In essence, building back better can greatly contribute to peacebuilding efforts and ensure that infrastructure investments will have long-term benefits, as the drivers of conflict are properly assessed and addressed through new infrastructure development.

To successfully address the service needs of a given community, building back better relies on knowledge of that community's particular needs. In the case of labour-intensive infrastructure projects, for instance, the participation of local representatives in the identification of needs and solutions has proven to contribute to effective planning, local ownership and cohesion. Infrastructure projects that engage local communities in early decision-making and planning, as well as in construction and maintenance of assets, have greater chances to positively contribute to peacebuilding efforts.

Furthermore, reducing conflict and fragility through employment generation in infrastructure development promotes a quick influx of cash that can improve livelihoods, boost local economies and possibly disincentivize individuals from engaging in violent behaviour in the future.³¹ It can also bring fractured communities together around a shared and concrete goal (e.g., a shared infrastructure asset that will enable better services for all). Infrastructure projects that fail to do so run the risk of being perceived as illegitimate and potentially extractive (taking local resources for the benefit of others), especially if involving highly contested resources such as water and pastoral land.

In such volatile contexts, communities' engagement and acceptance are instrumental to either protect project implementation from violent groups or decrease the risk of violent reactions.³² Community-level engagement is also emphasized in the Peacebuilding and Sustaining Peace Report of the Secretary-General (A/72/707-S/2018/43) as a critical component of peacebuilding efforts:

"Developing participatory approaches that involve civil society and local communities is instrumental in peacebuilding as well as in preventing violent extremism and addressing the conditions conducive to terrorism. [...] I recommend that all United Nations peace operations and United Nations country teams develop community-engagement strategies in consultation

³¹ Schouten, Peer and Jan Bachmann, [Roads to Peace? The Role of Infrastructure in Conflict-Affected States](#), United Nations Office for Project Services and the Danish Institute for International Studies, Copenhagen, January 2017, p. 14.

³² [Case Studies: Delivering Inclusive Growth](#), p. 11.

*with national and local stakeholders, particularly youth and women's groups, and that these be shared, monitored and reviewed with local actors.*³³

As the report indicates, community-based approaches are instrumental to the success of peacebuilding initiatives. However, it is also critical to work with national and local governmental structures to address knowledge gaps and build the capacity of national and local institutions. A holistic approach to infrastructure, which promotes the inclusion of stakeholders and builds the capacity of stakeholders at all levels in the peacebuilding process, is therefore critical to ensure sustainable outcomes. The Afghanistan case explored in the previous section is an example of how a lack of this holistic approach to infrastructure development can increase instability. Additionally, the case of post-earthquake reconstruction in Haiti illustrates how a holistic approach can enable a more inclusive peacebuilding process.

Following the 2010 earthquake in Haiti, for instance, recovery efforts focused on improving the living conditions of families staying in temporary shelters. They facilitated the return of internally displaced persons to areas that had previously collapsed and prevented the increase of transitional shelters. In that context, reconstruction provided an opportunity to build back better, given that Haiti suffers from extreme weather events and other natural hazards. Therefore, taking the opportunity to plan and build resilient infrastructure was vital to protect communities from future shocks and help mitigate any potential negative consequences towards peace and security.

In addition to providing more resilient housing, community-based approaches were also used to engage community members affected by the disaster in housing and public asset rehabilitation and reconstruction. Engaging beneficiaries in labor-intensive reconstruction works increased the inflow of funds in the local economy, contributing to economic resilience and future employability, as beneficiaries received on-the-job training. Furthermore, householders participated in training sessions on safe construction and maintenance, the use and expansion of houses, land tenure, and health and sanitation. These sessions sought to address householders' knowledge gaps and develop the necessary skills to ensure assets' long lifespan and maximized performance.

A holistic approach to infrastructure implementation in post-conflict environments also provides an opportunity to tackle structural inequalities that perpetuate exclusion and hinder peacebuilding efforts. In the Gaza Strip following the 51-day conflict in the summer of 2014, for instance, more than 160,000 houses were damaged, of which 11,000 houses were totally destroyed. In an effort to provide relief to the humanitarian crisis, UNOPS managed the sustainable reconstruction of totally destroyed houses for the most

³³ Peacebuilding and Sustaining Peace: Report of the Secretary-General, [A/72/707-S/2018/43](#), p. 17.

vulnerable households.³⁴ Community groups were involved in the design of durable solutions, and beneficiaries had the autonomy to design their homes based on their household's particular needs (cash grants, technical guidance and quality assurance for infrastructure works were provided during the design and implementation stages).

Moreover, beyond constructing physical assets, the project sought to support the achievement of SDG 5 (gender equality) in an effort to overturn structural inequalities that inhibit women's access to housing, land and property rights. By creating a grant contract that could be co-signed by both male and female heads of household and providing legal support to female heads of household so they could receive tenure (where security of tenure is rare, and security of tenure for women is even rarer), this project created opportunities for women's empowerment and a more inclusive peacebuilding process.³⁵

Despite the apparent consensus on the importance of community engagement and acceptance for the success of peacebuilding efforts,³⁶ In practice, the level and method of community engagement in infrastructure projects differs according to the context, project design and the practices of different implementing partners. While certain projects might involve community leaders in decision-making about the infrastructure to be built and methods of maintenance, others might limit local participation to beneficiaries' engagement in implementation works or operations and maintenance activities. Unfortunately, community engagement strategies are not always harmonized among implementing partners, and little is known about their long-term impact in stabilizing efforts.

Further examples of how infrastructure can support or hinder peacebuilding efforts in the aftermath of violent conflicts are below (Table 4).

Table 4: Infrastructure's interaction with fragility dimensions after conflict

Dimension	Infrastructure supports peacebuilding	Infrastructure hinders peacebuilding
Economic	<ul style="list-style-type: none"> • Labor-intensive public works projects for infrastructure development promote a quick influx of cash, benefitting the very poor on the short-term. • Improved infrastructure may enhance access to public services and economic opportunities. 	<ul style="list-style-type: none"> • Public works may draw people away from their everyday economic activities and hence strain rather than benefit the local economy. • If poorly planned, infrastructure can perpetuate inequalities in access to public services and economic opportunities, overstraining social structures already under pressure.

³⁴ United Nations Office for Project Services, 'Beyond Infrastructure', UNOPS, 2020, <<https://www.unops.org/news-and-stories/stories/beyond-infrastructure>>, accessed 17 January 2020.

³⁵ Thacker S, Adshead D, Morgan G, Crosskey S, Bajpai A, Ceppi P, Hall JW & O'Regan N, *Infrastructure: Underpinning Sustainable Development*, United Nations Office for Project Services, Copenhagen, Denmark, 2018, p.16.

³⁶ The World Bank, '[World Bank Group Strategy for Fragility, Conflict and Violence 2020-2025](#)', Concept note, 2019, p. 9.; United Nations and World Bank, *Pathways for Peace*, p. 187.

Environmental	<ul style="list-style-type: none"> • Building back better is an opportunity to improve asset resilience and sustainability, ensuring community protection against shocks and stresses while also reducing infrastructure greenhouse gas emissions. • If assets maintenance and rehabilitation include incremental improvements for mitigation and adaptation measures, assets are more likely to resist shocks and contribute to stability. 	<ul style="list-style-type: none"> • If assets maintenance and rehabilitation do not include incremental improvements for mitigation and adaptation measures, infrastructure can contribute to an increase in greenhouse gas emissions. It can also fail to protect communities against climate change and other environmental shocks and stresses, leading to future instability.
Political	<ul style="list-style-type: none"> • Infrastructure reconstruction and rehabilitation projects that are coherently linked to institutional capacity building can enhance state capacity to manage the provision of services in the long-term. • The effective operation and maintenance of infrastructure assets by the state contributes to its legitimacy, as communities recognize the state's ability to provide public services. 	<ul style="list-style-type: none"> • Infrastructure projects that are not linked to institutional capacity and do not include appropriate long-term maintenance strategies can jeopardize state legitimacy. • If the state is unable to operate and maintain infrastructure assets in the future, it is likely to lose legitimacy in the eyes of the communities affected by the lack of services. • Infrastructure projects that focus exclusively on community engagement without considering local authorities risk contributing to the erosion of state legitimacy.
Security	<ul style="list-style-type: none"> • Community-based approaches to asset rehabilitation and construction may contribute to violence reduction by offering an alternative to predatory activities and supporting disarmament, demobilization and reintegration efforts. 	<ul style="list-style-type: none"> • Public works projects for infrastructure implementation can lead to an increase in tensions once projects are finalized and cash incentives are gone. This is particularly true when implementation is not accompanied by skills development and capacity building initiatives that can enhance beneficiaries' employability in the future. This is particularly critical for former militants who may go back to armed groups if unable to find employment post-conflict.
Societal	<ul style="list-style-type: none"> • Infrastructure can improve access to hard-to-reach areas for humanitarian aid. • Repair of damaged assets can bring fractured communities together around shared, concrete goals. This can positively impact community resilience and cohesion. 	<ul style="list-style-type: none"> • Infrastructure reconstruction and rehabilitation projects that do not engage affected populations in design, implementation and capacity building risk upholding the lack of access and inequitable conditions that led to conflict. • If poorly planned and implemented, public works projects may raise concerns over favouritism regarding the selection of beneficiaries and implementing locations.

As the table indicates, infrastructure investments in post-conflict settings can influence several factors related to the conflict, both positively and negatively. While there is growing

awareness of best practices to support peacebuilding efforts during conflict recovery, implementing partners continue to work in a fragmented manner, with limited collaboration. The following section will summarize some of the challenges outlined in this document and the next steps to address them.

Conclusion & next steps

Peacebuilding can only be effective if efforts are sustained and targeted as part of a continuous process to promote inclusive societies and institutions.³⁷ When implemented with economic reforms and redistributive policies, infrastructure investments have the potential to foster structural changes that reduce the risk of violence and promote sustainable development. Yet, despite the significant investments dedicated to infrastructure projects in FCAS, projects often fail to assess their impact in peacebuilding, missing the opportunity to develop best practices and new approaches.

This gap in knowledge is often attributed to the fact that project implementation in FCAS is particularly challenging, which compromises data gathering and monitoring of outcomes and benefits realization in the long-term. These challenges emerge from a number of features that set FCAS apart from other implementation environments: political and military constraints, missing baseline data, problematic theories of change (which often neglect the non-asset components of infrastructure systems), time frame and budget pressures, lack of access, lack of harmonized practices among implementing partners, and personnel turnover, among others.³⁸ To address the need for increased knowledge of infrastructure's role in FCAS, UNOPS and DIIS launched the Roads to Peace partnership to produce research and shape the debate around infrastructure in this challenging context, based on the OECD's multidimensional approach to fragility.³⁹

The Roads to Peace research focuses on understanding the role of infrastructure in FCAS. Initial investigation identified a set of six common challenges ('Between quick impact and long-term transformation'; 'Between local and central state capacities'; 'Between specific beneficiaries and equal access'; 'Between international standards and 'fit for purpose"; and 'Between economic growth and sustainable development') pervading contemporary infrastructure planning in fragile and conflict-affected states, which must be taken into account when engaging with the topic of infrastructure for peacebuilding.⁴⁰ This thematic paper builds on the knowledge produced by the Roads to Peace research to raise awareness among UN entities and the secretariat on the important role of infrastructure in

³⁷ [Pathways for Peace](#), p. 289.

³⁸ Schouten and Bachmann, [Roads to Peace?](#), p. 13.

³⁹ Further information on this collaboration is available on the [Roads to Peace website](#).

⁴⁰ Schouten and Bachmann, [Roads to Peace?](#), p. 30.

peacebuilding, ultimately contributing to informed decision-making in the 2020 Review of the Peacebuilding Architecture.

Considering that infrastructure systems interact with all dimensions of fragility (playing a significant role in peacebuilding across all conflict stages), failing to obtain a deeper understanding of its role in peacebuilding may hamper FCAS pursuit of sustainable development, due to the 'lock-in' effect caused by the long lifespan of infrastructure. This is further demonstrated by the fact that most FCAS are unable to commit to the major financial investments required to rebuild assets or repair malfunctioning systems to a high standard. This results in entire generations living with dysfunctional service provision that exacerbates existing tensions which could lead to a future conflict. To prevent that from happening and breaking the cycle of limited access to infrastructure services, implementing partners must ensure that infrastructure and peacebuilding approaches are systematized and standardized.

Infrastructure and peacebuilding approaches can only be systematized if the UN system, donors, national actors and implementing partners cooperate on the basis of knowledge gathering and evidence-based decisions around infrastructure. To that end, research findings and recommendations from the Roads to Peace research will support the development of knowledge pieces, as well as a policy brief to be shared with key stakeholders working in this field.

Recommendations

Holistic approach to infrastructure

It is necessary to move away from the traditional view of infrastructure (as isolated physical assets) towards a holistic view of infrastructure as a system (comprised of assets, institutions and knowledge). Infrastructure systems interact with all dimensions of fragility and therefore play an important role in supporting or hindering peacebuilding efforts. For that same reason, infrastructure implementation provides an opportunity to address some of the root causes of conflict.

Further research & knowledge sharing

Effective infrastructure investments call for an evidence-based approach to infrastructure and greater understanding of how it interacts with peacebuilding efforts. While the Roads to Peace initiative makes valuable contributions to this field, further research is needed, which relies on systematic data gathering and knowledge sharing among UN agencies and other implementing partners.

Increased coordination

Infrastructure's role in peacebuilding and sustainable development calls for enhanced coordination between implementing partners. As stated by the UNSG: *"Central to those efforts [to build and sustain peace] is a more coherent United Nations that will think, plan and programme in a joined-up way, drawing upon its full range of tools to support Member States. This begins with a common understanding of the major risks and opportunities relevant to each Member State. A common analysis of those risks and opportunities in turn allows for risk-informed development strategies and targeted efforts to build resilience and sustain peace."*

⁴¹ In the context of FCAS, this coordination is critical to ensure that evidence-based infrastructure investments support peacebuilding efforts and the long-term achievement of the SDGs. To achieve this, coordination mechanisms and a set of standards and procedures should be created to ensure that quality, and not just quantity, becomes the focus of any infrastructure-related peacebuilding intervention.

⁴¹ Peacebuilding and Sustaining Peace: Report of the Secretary-General, [A/72/707-S/2018/43](#), p. 6.