



NATURAL RESOURCE GOVERNANCE AND FRAGILITY IN THE SAHEL

April 2022

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Abstract

This report uses information gathered from 20 consultations with donors, UN agencies, regional organisations and expert institutions in combination with other available data, to assess the status of natural resource governance (NRG) in Mauritania, Mali, Burkina Faso, Niger and Chad, identify links between weaknesses in NRG and fragility, and discuss policy implications.

Foreword

The OECD Crises and Fragility Team prepared this analysis in order to identify entry points for improved and fragility-sensitive support to natural resource governance (NRG) in the Sahel. The report builds on 20 consultations with donors, UN agencies, regional organisations and expert institutions, among which 5 members of the Development Assistance Committee (DAC) and 3 DAC observers, to provide data, insights and policy orientations. It aims to promote a shared understanding of linkages between NRG and fragility, and help governments and development actors address the root causes of fragility in the Sahel.

The report is an output of the Programme of Work and Budget 2021–2022 of the International Network on Conflict and Fragility (INCAF). It supports its mandate to increase knowledge on major policy issues, including through research on climate change and security risks in the context of fragility.

It supports efforts towards the achievement of Sustainable Development Goal (SDG) 16—to promote just, peaceful and inclusive societies—, in particular targets 16.6 ‘Develop effective, accountable and transparent institutions at all levels’ and 16.7 ‘Ensure responsive, inclusive, participatory and representative decision-making at all levels’. It also contributes to environment-related targets that span across multiple SDGs.

The report comes at a time of increasing fragility in the Sahel, and increasing recognition of the importance of NRG in regional fragility dynamics. It contributes to INCAF’s work on environmental fragility.

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Abbreviations and acronyms

AMEDD	Association Malienne d'Éveil au Développement Durable
ALG	Autorité de développement intégré des états du Liptako-Gourma
ASM	Artisanal and Small-scale Mining
CFA	West African Communauté Financière Africaine franc
CGIAR	Consultative Group on International Agricultural Research
COFO	Commission Foncière
CFV	Commission Foncière Villageoise
COFOB	Commision Foncière de Base
CRS	OECD Creditor Reporting System
CSO	Civil Society Organisation
DAC	Development Assistance Committee
DCD	OECD Development Co-operation Directorate
EBA	World Bank Enabling the Business of Agriculture
ECOWAS	Economic Community of West African States
ECOWAP	ECOWAS Regional Agricultural Policy
EITI	Extractive Industries Transparency Initiative
ESA	European Space Agency
EU	European Union
FNOM	Fédération nationale des orpailleurs du Mali
FREXUS	Improving Security and Climate Resilience in Fragile Contexts through the Water-Energy-Food Security Nexus

GIRE	Gestion Intégrée des Ressources en Eau
GPP	OECD DCD Global Partnerships and Policies Division
HDP	Humanitarian, Development and Peace
ICT	Information and Communications Technologies
INCAF	International Network on Conflict and Fragility
ITAD	Information Technology and Agricultural Development
MAST	USAID Mobile Applications to Secure Tenure
MINUSMA	United Nations Multidimensional Integrated Stabilization Mission in Mali
ND-GAIN	Notre Dame Global Adaptation Initiative
NGO	Non-Government Organisation
NRG	Natural resource governance
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
PIP	G5 Sahel Priority Investment Programme
PRAPS	World Bank Regional Sahel Pastoralism Support Project
PROLAC	World Bank Lake Chad Region Recovery and Development Project
RGI	Resource Governance Index
RISE	Resilience in the Sahel Enhanced
UN	United Nations
UNISS	United Nations Integrated Strategy for the Sahel
US	United States
USD	United States Dollar
WAEMU	West African Economic and Monetary Union
WAWRP	West Africa Water Resources Policy

Executive summary

Natural resource governance in the Sahel: a significant challenge

Natural resource governance (NRG) refers to the formal and informal arrangements by which decisions over natural resources are being made, how powers, responsibilities and rights over natural resources are exerted, and how populations can access and benefit from natural resources.¹ This report analyses the status of NRG in the Sahel and its relationship with fragility to formulate policy orientations. The 'Sahel' here covers member countries of the G5 Sahel: Mauritania, Mali, Burkina Faso, Niger and Chad. Both renewables (land, water and biomass) and extractives (gold in particular) are considered.

The food sector, fully reliant on land, water and biomass resources, represents 27% of the Sahel GDP and employs 80% of the labour force. In Mali, Burkina Faso and Niger, gold production from artisanal and small-scale mining (ASM) represents about 50% of total gold output and provides income to 10% of the labour force.² Hence the importance of natural resources, and therefore of NRG, for Sahel societies.

Although Sahel countries have taken significant steps towards establishing NRG mechanisms, those are often not implemented on the ground. Main challenges include institutional and legal complexities, low capacities of local governments, political volatility, and limited endorsement by populations. For example, the share of farmers holding an official land ownership document ranges between 0.1% and 6% across countries, and 31% of the Sahel population reports tenure insecurity. NRG is thus often ad hoc and informal, either in the hands of the customary or, in the most fragile territories, armed groups.

Natural resource governance plays a key role in fragility dynamics

The paper identifies the main ways in which weak NRG relates to the 5 dimensions of the OECD fragility framework.³

- **Economic fragility:** Ineffective governance of land and water hampers the development of the food sector, the bedrock of Sahel economies. Similarly, the lack of concrete policy action and encouragement for the ASM sector fuels illicit economies.
- **Environmental fragility:** Deficient NRG increases environmental risks. Forty-one percent of the Sahel population lives in areas with high or extremely high water risk (including flood and drought risk).⁴ A case study in Bouroum, Burkina Faso found 20% of settlement areas next to ASM gold sites were exposed to cyanide-polluted soils.⁵
- **Political fragility:** Unclear natural resource regulations fuel corruption and impede government effectiveness. All Sahel countries rank in the bottom 40% worldwide in at least two of three key

perceptions-based indicators of political fragility: corruption, clientelism and (lack of) government effectiveness.

- **Security fragility:** In 2021, 84% of fatalities from violent events in the Sahel were in regions where more than 75% of the population works in agriculture, and at least 30% has no access to an improved water source.⁶ As jihadist groups extend their territorial grip, more mining sites are within their reach as potential revenue sources. In Burkina Faso, the number of potential ASM gold sites witnessing jihadi attacks less than 3km away went from 36 in 2018 to 189 in 2021.⁷
- **Societal fragility:** Weak or absent NRG perpetuates marginalization in land and water access. On ASM sites, low public oversight increases the vulnerability of children and women. Estimates of the number of children working on ASM sites in Mali, Burkina Faso and Niger exceed 100,000, implying high risks of child abuse and losses of human capital for Sahel societies.⁸

Policy orientations for improved and fragility-sensitive support to NRG

NRG improvements require political commitment from national authorities and compliance with good governance standards (accountability, transparency, inclusiveness). Donors can support such efforts with financing, knowledge sharing and partnerships. **Official development assistance (ODA) flows for natural resources are rising, yet with imbalances across countries and natural resources.** In parallel, financing for peace and security is also increasing. In Mali, the share of security-related activities in total ODA went from 1% in 2012 to 6% in 2019. Four main actions can improve policy support to NRG in the Sahel, taking ODA and fragility contexts into account:

- **Scale up good NRG practices across Sahel territories.** ODA on natural resources in the Sahel went from 76 to 423 million USD across 2002-2019. In addition to balancing better across countries and resources, consultations point to a number of principles and good practices, including (i) focusing on inclusiveness and the justice system; (ii) working with local governments and the customary and (iii) using different tools depending on the local fragility situation.
- **Integrate NRG in humanitarian, development and peace (HDP) efforts.** Increasing instability and challenges to peace and security should not obscure natural resource-related conflict drivers. Fragility analysis can help understand how local natural resource contexts relate to the 5 fragility dimensions. A better evidence base on NRG can also help sensitise staff to the role of natural resources in local livelihoods. Lastly, HDP actors should seek to comply with ‘do no harm’ principles by assessing how their activities affect the natural resources and ecosystems on which livelihoods rely.
- **Invest in the next generation of NRG mechanisms.** The Sahel’s fast demographic and urban transitions require a new generation of simplified, more data-intensive NRG tools. Investments in data, knowledge sharing and science-policy dialogue across regional, national and local institutions can prepare the next generation of NRG mechanisms. ICTs and satellite imagery in particular can help collect new data and facilitate the mapping and management of land and water resources.
- **Increase support for the development and regulation of ASM.** ASM, and specifically gold, plays an increasing role in regional fragility dynamics, and must be on the radar of donors. Adequate incentives for increased formalisation and regulation can deliver significant development payoffs. The OECD Due Diligence Guidance for Responsible Supply Chains of Minerals, the Extractive Industries Transparency Initiative (EITI) and the Voluntary Principles on Security and Human Rights can support dialogue, peer learning and collaboration.

1 Natural resource governance in the Sahel

Natural resources are at the heart of Sahel livelihoods, yet face growing pressures

Socioeconomic significance

According to the OECD Glossary of Statistical Terms, natural resources are “natural assets (raw materials) occurring in nature that can be used for economic production or consumption” (OECD, 2008^[1]). The Glossary divides natural resources into four categories: “mineral and energy resources, soil resources, water resources and biological resources”. This report chooses to focus on land, water, biomass⁹ (renewables) and, within extractives, gold, and artisanal and small-scale mining (ASM) of gold in particular.

The importance of land, water and biomass

The importance of land, water and biomass resources follows from the centrality of the agri-food sector in Sahel livelihoods. Land, water and biomass are essential to produce food. The agri-food sector, comprising agriculture together with the food processing, marketing and catering subsectors, represents 27% of the Sahel GDP and employs 80% of the labour force (OECD/SWAC, 2022^[2]). The livestock subsector is large in Sahel food economies. On average for Mali, Burkina Faso, Niger and Chad, livestock gross production value represents 25% of total agricultural gross production value, with variations across countries: in Chad, for example, the share is 39% (FAOSTAT, 2022^[3]).¹⁰ Pastoralism remains the dominant production method and requires large swathes of land for grazing. Food production, demand and prices are the most important determinants of income, purchasing power and welfare of Sahelians. Access to food is a core development challenge: For June-August 2022, projections foresee that 32 million people in Sahel countries (36% of the population) will be in phase 2 (under pressure), 3 (food crisis) or 4 (food emergency) situations as per the Integrated Food Security Phase Classification (IPC) (RPCA, 2022^[4]).

Water is a particularly scarce resource in the Sahel. Sixty percent of the territory of Sahel countries are arid bare areas (including desert and rocks), and 11% is semi-arid shrubland or land with sparse vegetation (ESA, 2021^[5]). Access to water is a key determinant of land prices. Irrigated perimeters cover about 2% of total cropland (Samasse et al., 2020^[6]).¹¹ There is a single rain season per year, typically spanning from late June to September, with a peak in August. Access to well-functioning wells and safe drinking water, and coverage of water infrastructure are insufficient: 45% of the population does not have access to an improved water source (EU INFORM RISK, 2022^[7]).

Biomass is another essential and scarce natural resource. Forest cover is virtually non-existent in the Sahel. Most of the territory consists of savannah or desert. Livestock feeds on biomass, and with low levels of fertilizer use, biomass availability is a key determinant of soil quality and fertility. Seventy-five percent of the population has no access to electricity, implying extensive use of biomass for cooking, including wood,

plant and animal waste, and charcoal (World Bank, 2022^[8]). These realities show the importance of renewable natural resources for Sahel societies.

Extractives are central to Sahel economies

Extractives, and gold in particular, play an essential role in Sahel economies. The share of extractives rents in GDP (the sum of oil, gas, mineral, and coal rents) amounts to 14.9% in Mauritania, 8.2% in Mali, 9.6% in Burkina Faso, 1.7% in Niger, and 20.1% in Chad for 2018 (World Bank, 2022^[8]). Shares of extractives rents in GDP for Mauritania (mostly iron ore) and Chad (mostly oil) are in the top 33% (first tier) of African countries. Burkina Faso and Mali (mostly gold) are in the middle tier, and Niger (mostly gold and oil) is in the bottom tier. Levels and composition of natural resource rents are variable over time, depending on global market prices, in-country investments and findings of new deposits. Interestingly, Mali possesses a substantial lithium deposit, a metal with rapidly rising global demand (Africa Intelligence, 2022^[9]).

There have been reports of a 'gold rush' in the Sahel (Munshi, 2021^[10]). The share of gold in total exports is at 14% in Mauritania, 92.4% in Mali, 78% in Burkina Faso, 54% in Niger and 21% in Chad (OEC, 2021^[11]).¹² Industrial gold mining is expanding, but most significantly, there is a strong growth of ASM. Estimates from the DELVE platform indicate that the total amount of ASM workers for the 5 Sahel countries is 2.2 million, representing 7% of the total regional labour force.¹³ Estimates by the OECD (2018^[12]) suggest about 10% of the labour force in Mali, Burkina Faso and Niger directly or indirectly derives income from ASM. Estimated gold production from ASM in Mali, Burkina Faso and Niger equates industrial gold production. Hence, ASM supplies about 50% of total gold output (ibid.). The rapid and unregulated expansion of ASM raises multiple concerns. Key risks include tax evasion, money laundering, environmental pollution, corruption and erosion of trust in public institutions, rent extraction by armed groups and security forces, working conditions, worker health, child labour and violence against women. As discussed in chapter 2, these risks impact multiple dimensions of fragility in Sahel countries.

Pressures: Demographics, land use and climate change

Demographic growth is a source of pressure on natural resources in the Sahel context. The Sahel population doubled over the past 20 years. The current estimated joint population of Mauritania, Mali, Burkina Faso, Niger and Chad is 91 million. According to UN projections, it will more than double in the next thirty years, reaching 196 million in 2050 (see Figure 15 in Annex). Demographic growth fuels urbanisation. The urban population of the Sahel increased by 162% during 2000-2020, with an average annual growth rate of 5% (implying a doubling every 14 years), against 3% for the total population (implying a doubling every 23 years). By 2050, the urban population will be multiplied by 3.4, against 2.3 for the total population. The share of urban population in total population, now at 30%, will move to 45% by 2050. For 2020-2050, projected yearly growth rates of urban population in Sahel countries are among the highest in Africa: Niger, for example, has the highest projected urban population growth rate in the continent.¹⁴ Demographics represent a major challenge for the regional agri-food sector (Box 1).

Box 1. Demographics, food demand and agricultural yields in the Sahel

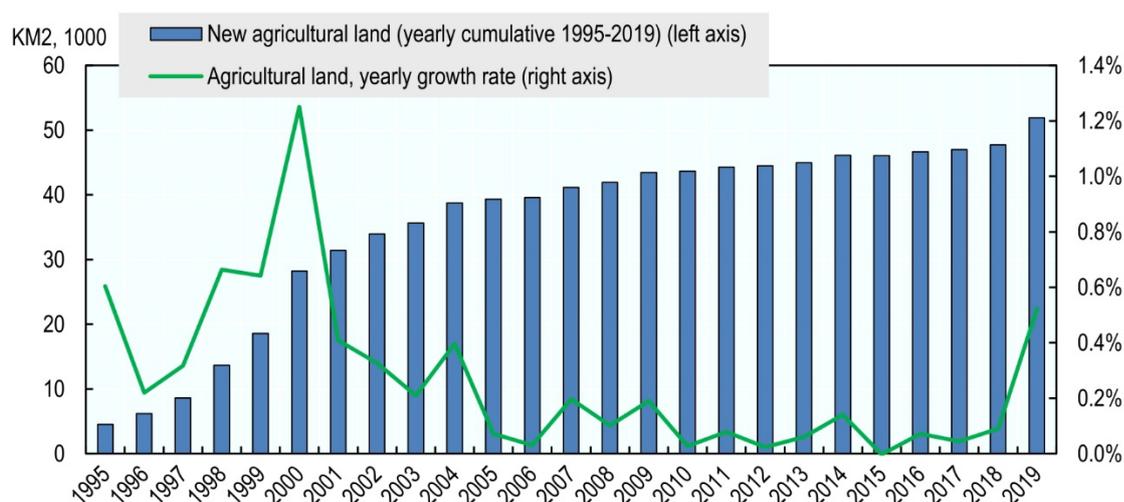
Demographic growth and urbanisation are major challenges for the Sahel agri-food sector, but they also open up unprecedented market opportunities. Assuming constant harvested areas and shares of exported and imported food, crop yields will need to increase in proportion to population to keep constant per capita supply levels. By 2050, this implies yields would need to increase by 230%. Similarly, if current trends continue, the cattle population will multiply by 2.8 during 2022-2050, putting ever-increasing pressure on already deficient biomass resources.¹⁵

Achieving sustainable crop yield increases and meat and dairy production increases while improving food security along the way represents a formidable challenge for Sahel societies. Overall, yield gaps between the Sahel and other world regions remain significant. For the most important cereals, current ratios of average local yields to those of the world's best performers range between 24 and 44 (maize), 23 and 58 (millet), 2 and 6 (rice) and 28 and 62 (sorghum) across Sahel countries.¹⁶ It means that for example, rice yields in Chad are 6 times lower than in Australia, the world's best performer.

However, a 'food revolution' has already begun in the Sahel, as elsewhere in Africa (AGRA, 2019^[13]). Although most increases in food supply were achieved through the expansion of agricultural land instead of yield increases in past decades, instances of local fast yield growth occur behind averages (Hollinger and Staatz, 2015^[14]). Solutions to increase agricultural productivity will largely need to be local. Meeting agri-food challenges necessitates close monitoring of local agronomic and environment conditions, climate change impacts and resilience (Sultan, Defrance and Iizumi, 2019^[15]), diets and market conditions. Meanwhile, widespread growth in local food markets is creating substantial incentives and payoffs for productivity increases.

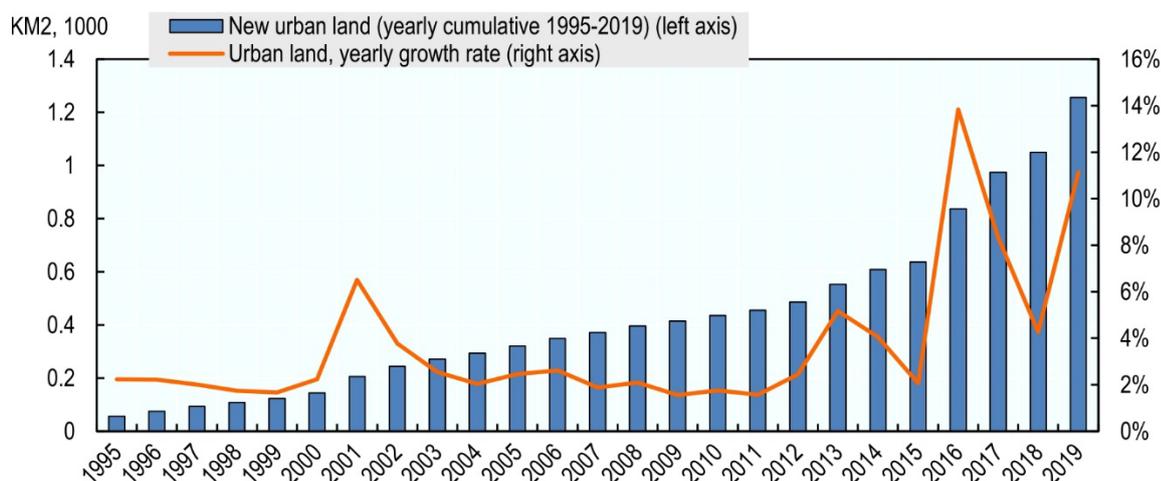
The impact of demographic and urban growth on natural resources is visible in land use patterns. Between 1992 and 2019, cropland in the Sahel went from 753 thousand km² to 805 thousand km² (ESA, 2021^[5]). The share of cropland in total land went from 15% to 16%. Land occupied by urban settlements, although representing a much smaller share of total land (0.04% in 2019), is growing at a much faster rate than agricultural land (Figure 1 and Figure 2).

Figure 1. Cropland expansion in the Sahel, 1995-2019



Source: Authors using ESA (2021^[5]).

Figure 2. Urban land expansion in the Sahel, 1995-2019



Source: Authors using ESA (2021^[5]).

The expansion of cropland and urban areas has significant implications for natural resources and environmental health. The replacement of grassland and savannah by agricultural plots or built-up areas can disrupt the fragile balance of local Sahel ecosystems, leading to reduced biodiversity, soil fertility and water availability. There are major data gaps on local environmental health, yet available evidence suggests widespread degradation. For example, the FAO estimates that about 80% of Sahel farmlands and 90% of rangelands are “seriously affected by land degradation, including soil erosion” (FAO, 2015^[16]).

Climate change also puts pressure on natural resources. The Sahel climate is historically extreme and particularly volatile in terms of both temperature and rainfall variability, making it hard to predict. However, models suggest climate change will significantly increase inter-annual and diurnal variability of climate variables in the Sahel, a major shock for local ecosystems.¹⁷ In addition, the region is heading towards higher average temperatures, and more rainfall, but more concentrated in time (UNHCR, UNISS and PIK, 2021^[17]). As rainfall patterns become more erratic, the frequency of droughts and floods will increase. Floods affected 1 million people and destroyed 75,000 homes in the Sahel in 2020 (UNOCHA, 2020^[18]). A hotter climate with more droughts and floods magnifies risks of soil aridity and erosion.

Multiple NRG frameworks have been developed but implementation remains a challenge

Given the centrality of natural resources in Sahel livelihoods and observed pressures, it is essential to assess natural resource governance (NRG) in the region. NRG is here defined as follows (adapted from IUCN (2017^[19])).

NRG refers to the formal and informal arrangements by which decisions over natural resources are being made, how powers, responsibilities and rights over natural resources are exerted, and how populations can access and benefit from natural resources. Formal arrangements include legislative frameworks, rules, regulations and policies from the local to the regional and international levels. Informal arrangements include social norms and processes in local communities.

Table 1 summarises key NRG frameworks, legislation, strategies and policies in Sahel countries, covering land, water, livestock, decentralisation and extractives.

Table 1. Key NRG frameworks, legislation, strategies and policies in the Sahel

Domain	Mauritania	Mali	Burkina Faso	Niger	Chad	Regional
Land	Land tenure ruling (<i>ordonnance</i>) (2000)	State Property and Land Code (2021), Agricultural Land Policy (2014), Agricultural Land Law (2017)	Agrarian and Land Tenure Reorganization law (2012), Rural Land Policy (2007) Rural Land Tenure Law (2009)	Rural Code (2021)	Three land tenure laws (1967)	ECOWAP (2015-2025)
Water	Water Code (2005)	Water Code (2002)	National Water Policy (2015) and other water laws	Water Code (2010)	Water Code (1999)	WAWRP (2016)
Livestock	Pastoral Law (2000)	Pastoral Charter Law (2001)	Law Orienting Use and Access to Pastures (2002)	Pastoral Law (2010)		ECOWAS Transhumance Protocol (1998) and Regulation regarding its implementation (2003)
Decentralisation	Law of Decentralized Territorial Collectives (2017)	Code of Territorial Collectives (2017)	Code of Territorial Collectives (2009)	Code of Territorial Collectives (2011)	Law on the Status of Decentralized Territorial Collectives (2000)	
Extractives	Mining Code (2014), Decree on ASM (2016)	Mining Code (2012) (includes sections on ASM)	Mining Code (1993) Ministerial decree on ASM (2019)	Mining Law (1993), ASM permits (2017)	Mining Code (2018) (includes sections on ASM)	ECOWAS Draft Mining Act (2019), WAEMU decree on foreign exchange regulations (2011), Africa Mining Vision (2009), OECD Due Diligence Minerals Guidance (2016), EITI Standard (2019)

Source: Consultations and references from IOM, ICMDP and ECOWAS (2019^[20]), Habas (2014^[21]), OECD, AfDB, UNDP and UNECA (2012^[22]), WSP (2011^[23]), EEAS (2021^[24]), USAID (2020^[25]), Noudjia (2018^[26]); for extractives: IGF (2017^[27]), OECD (2018^[12]), Cooper (2018^[28]), ITA (2020^[29]), ECOWAS (2022^[30]), EITI (2021^[31]).

Each Sahel country has its own governance mechanisms, but common features and challenges are apparent. The following common features stand out:

- Efforts to improve land and water legislation in Sahel countries have been significant. Mali and Niger updated key land tenure legislation in 2021 (Table 1), and other countries are pursuing similar processes. The legal framework for water also became more comprehensive over time. All countries have specific legislation on livestock. Regarding extractives, the mining codes and laws provide a solid legal framework for the industrial mining sector in particular. All countries have legislation on ASM.
- Legal responsibilities for natural resource management are strongly decentralised. Land and water governance rests largely on local governments in all Sahel countries (with the exception, to some extent, of Chad). The *communes* or villages are responsible for delivering land permits, certifying land transactions and local land planning. At the commune or village level, land tenure commissions play an important role. They include the *Commissions Foncières* (COFOs) in Mali, the *Commissions Foncières Villageoises* (CFV) in Burkina Faso and the *commissions foncières de base* (COFOB) in Niger.

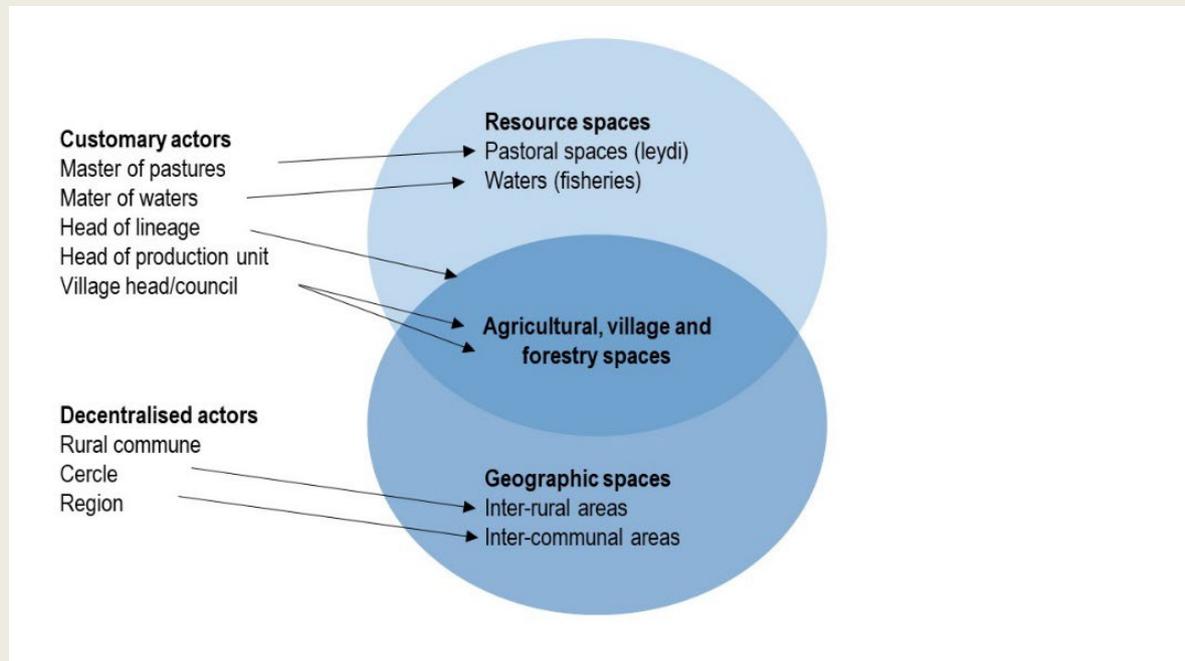
- NRG in Sahel territories involves both public and customary actors. Box 2 provides an example of the coexistence of public and customary authorities. Over time, countries have sought to integrate customary principles for natural resource management in law, to varying degrees across countries (Rochechoude and Plançon, 2009^[32]).
- Countries adopt good practices and approaches: For example, all countries formally endorsed GIRE ('integrated management of water resources', *Gestion Intégrée des Ressources en Eau*), principles for water management. All Sahel countries legally recognize pastoral rights to access grazing land and water for animals, as well as water rights for human populations.

Box 2. Coexistence of public and customary authorities in NRG: The case of the Inner Niger Delta in Mali

In the Malian Inner Niger Delta (central Mali, Mopti region), the co-existence of agricultural, pastoral and fishery activities determines natural resource use. Historically, customary practices have been regulating natural resource use by farmer, herder or fishing communities. The following institutions have shaped customary practices: (i) the villages, seats of political chiefdom, (ii) families and lineages, (iii) social hierarchical structures and (iv) customary roles of 'natural resource managers'. According to customary principles, political power within the village territory (usually delimited by geographical boundaries such as a river or a forest) is for the first-time occupant community. Customary natural resource management roles include the 'master of pastoral areas' (*joroo*), the 'master of lands' (*bessema*) and the 'master of waters' (*baba awgal* or *ji-tu*). Village territories may differ from areas supervised by customary natural resource managers. For example, the *leydi* is the pastoral territory supervised by a *joroo*, and *leydi* boundaries can differ from village boundaries (Bagayoko et al., 2017^[33]).

Administratively, village territories typically are subdivisions of the communes. Malian laws (including the *Code des Collectivités Territoriales*) recognise the political and economic role of customary authorities. Mayors and village chiefs are often also customary chiefs, but not always. Natural resource governance in the Malian Niger Delta thus involves customary and state actors ruling over different spaces (Figure 3).

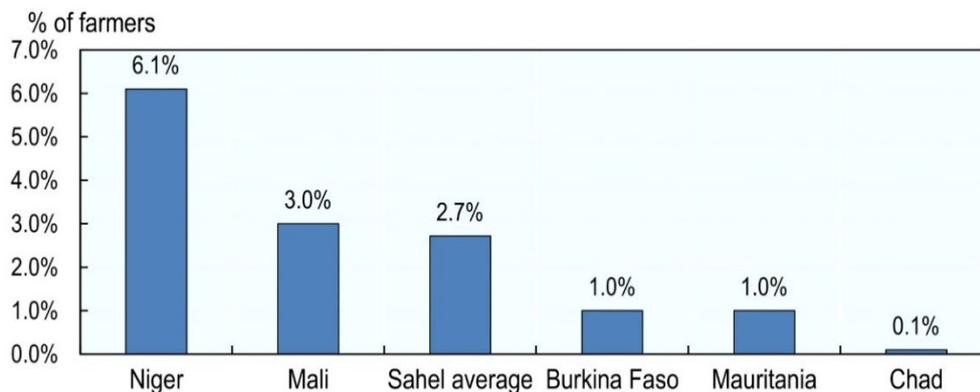
Figure 3. Local natural resource governance in central Mali: Customary and state actors



Source: Adapted from Bagayoko, Ba, Sangaré & Sidibé (2017^[33]).

Several challenges remain for NRG in the Sahel. Despite the adoption of land and water laws, regulations and policies, there is limited reliance on formal procedures in practice. For farmers, land titles and land ownership documents cover only small proportions of land, indicating low rates of formalisation (Figure 4). In many areas, customary principles remain the primary means to secure land and water rights (Kusunose, Thériault and Alia, 2020^[34]).

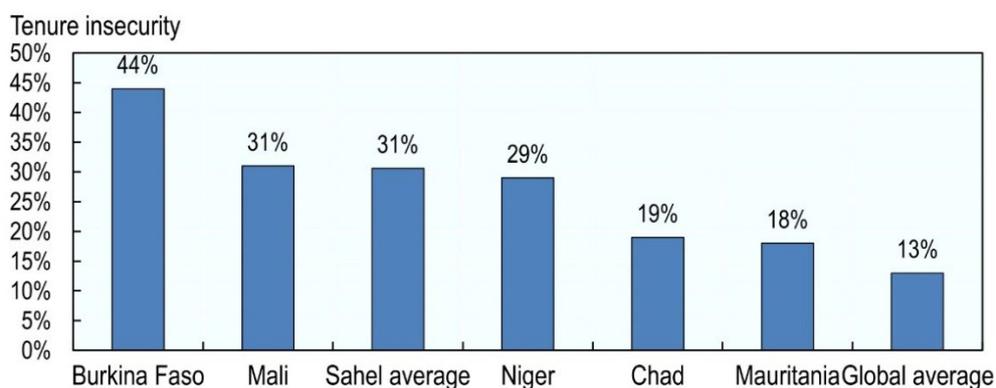
Figure 4. Estimated share of farmers holding land titles or another land ownership document



Source: World Bank Living Standard Measurement Studies (LSMS) for Mali (2017/18), Burkina Faso (2014), Niger (2014) (World Bank, 2022^[35]); World Bank (2015^[36]) for Mauritania, World Bank (2020^[37]) for Chad.

Citizen perceptions reflect the incomplete implementation of natural resource laws, regulations and policies. For example, perceptions of tenure insecurity remain high in the Sahel countries (Figure 5), suggesting low access to property rights and limited capacities by both citizens and authorities to enforce these rights. In Mali, Burkina Faso and Niger, 54.8% of people consider it ‘not at all likely’ or ‘not very likely’ that they would be able to find out who owns a piece of land in their community by engaging with government authorities. Similarly, in the three countries, 55.5% of people consider government ability to handle the provision of water and sanitation services as ‘very bad’ or ‘fairly bad’ (Afrobarometer, 2016/2018^[38]).

Figure 5. Percentage of people reporting tenure insecurity in Sahel countries



Note: 2020 data. Prindex defines tenure insecurity as the “percentage of people who believe it is somewhat or very likely that they could lose the right to use their property or part of it against their will in the next 5 years”. The global average is based on 140 countries.

Source: Prindex (2020^[39]).

Regarding extractives, there is a similar lack of concrete regulatory action and support on the ground. For the mining sector, the 2017 Resource Governance Index (RGI) scores for Sahel countries all fall within the ‘weak’, ‘poor’ or ‘failing’ RGI performance bands. ‘Weak’ performance implies that “a country has a mix of strong and problematic areas of governance. Resource extraction can help society, but it is likely that the eventual benefits are weak” (RGI, 2021^[40]). Looking at subcomponent scores shows the main weak points are in ‘national budgeting’ in Mauritania, and ‘political stability’ in Mali, Burkina Faso and Niger.

Recent evolutions in the ASM sector confirm issues of regulation and planning. When confronted with mining booms (‘gold rushes’), authorities often use force to curb the rapid expansion of an illegal local gold economy (IGF, 2017^[27]) that also entails a flow of migrant miners (RFI, 2020^[41]). Governments are still reacting to the growth in ASM with short-term approaches, rather than supporting the sector and anticipating future evolutions. Although environmental regulations feature in legal texts, incentives to comply are limited, and inspections are rare (IGF, 2017^[42]).

Consultations carried out for this report, in combination with available reviews, point to the following explanatory factors for the weak implementation of governance mechanisms on the ground.

- **Institutional and legal complexities.** In Mali, for example, several institutions are able to deliver land titles, permits and certificates. In Niger, regulations on water in the *Code Rural* differ from those of the Water Code. Such complexities render the implementation of natural resource management on the ground even more difficult. Mining regulations can also be confusing. In Mali, for example, the communes, the *Fédération nationale des orpailleurs du Mali* (FNOM) and the Chamber of Mines all can deliver mining permits, creating confusion among miners and inspectors as to who is working legally or not.

- **Low capacities of local governments.** The problem of low capacities in local governments is not new, yet it has become particularly acute in certain areas. Despite being responsible for most day-to-day natural resource management, local governments lack funding, staff, basic office supplies and space. Data is lacking for the Sahel, but in African countries where data is available, expenditures by subnational governments represent 16% of general government expenditure and 4% of GDP, which is lower than in all other world regions (OECD/UCLG, 2019_[43]).¹⁸
- **Political volatility** exacerbates the weakness of local governments. Many local governments have no control in parts of their jurisdictions. In this context, the reliance on the customary is strong, especially where customary roles for natural resource management are historically well established.
- **Limited uptake of formal governance mechanisms by populations.** To be effective, governance mechanisms not only need to be well designed; populations also need to understand and support them. In Niger and Chad, key elements of land tenure legislation are unavailable in local languages. Awareness of the Nigerien *Code Rural* or Chadian land laws is low in certain areas.

2 Natural resource governance and fragility

Governance of renewables: Links with fragility dimensions

This section identifies the links between governance of renewables (land, water, biomass) and the 5 dimensions of the OECD fragility framework. It analyses how weaknesses in NRG fuel fragility, and how fragility in turn jeopardises the implementation of effective NRG.

Economic Fragility

Land, water and biomass governance significantly influence the agri-food sector, the bedrock of Sahel economies. The performance of the agri-food sector is the largest determinant of job quality, purchasing power and socioeconomic well-being in the region. Projections foresee that the food sector will create 8.6 million new jobs by 2030 in the Sahel (20% of the 2030 labour force), all ultimately dependent on land, water and biomass resources (OECD/SWAC, forthcoming^[44]).

Better tenure security can encourage the adoption of soil conservation practices to address erosion and losses of soil fertility (Ehui and Sarraf, 2021^[45]). Similarly, a good water governance framework is necessary to stimulate investments in irrigation and water storage. The World Bank Enabling the Business of Agriculture (EBA) ‘Securing Water’ scores measure the extent to which the legal and regulatory environment helps farmers assess water-related investment risks. EBA Securing Water scores for Burkina Faso and Niger rank in the bottom 39% of 101 countries covered by EBA. Mali ranks in the bottom 8% (World Bank, 2019^[46]).

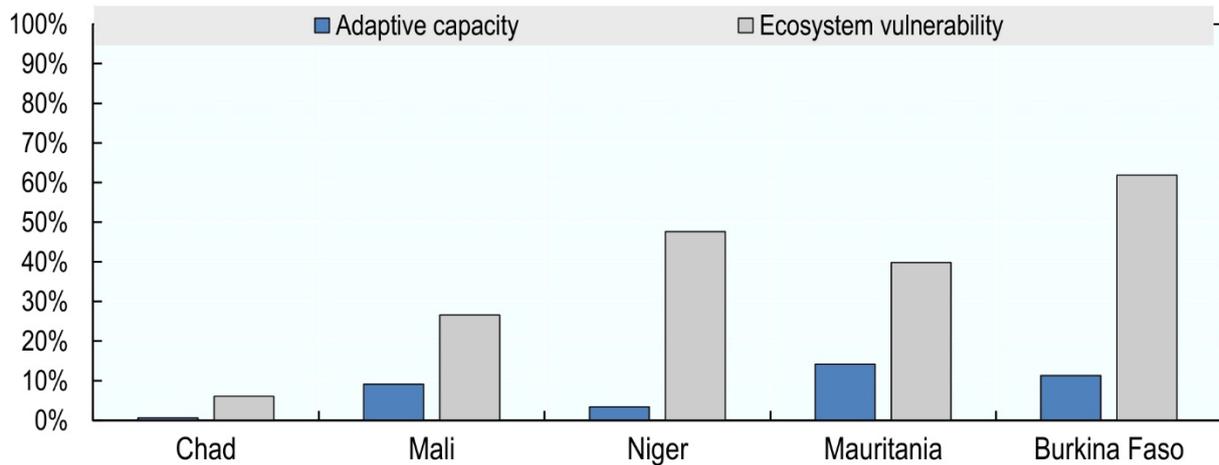
Inadequate stewardship of natural resources also jeopardises the resilience of populations to shocks (COVID-19, border closures, natural hazards), which perpetuates economic fragility in the form of poverty and aid dependency, as international actors continuously step in when crises happen. Poverty headcount ratios from the Global Multidimensional Poverty Index are at 68% in Mali (2018), 84% in Burkina Faso (2010) and 90% in Niger (2012 data). Aid dependency measured as the share of ODA in Gross National Income averages 9% for Sahel countries, high above the West African average of 2% (World Bank, 2022^[8]).

Environmental Fragility

Ineffective land, water and biomass management reduces ecosystem vitality and resilience in a context where human, animal and climate pressures increase. Available indicators suggest high degrees of environmental fragility in Sahel countries. Forty-one percent of the regional population lives in areas with high or extremely high water risk (including flood and drought risk).¹⁹ According to ND-GAIN indicators, Chad and Mali rank in the bottom tier of countries worldwide for ecosystem vulnerability to the negative effects of climate change (Figure 6). Adaptive capacities are low overall: All Sahel countries rank in the bottom 24% in the adaptive capacity score. Chad is particularly vulnerable given that it combines extremely

high ecosystem vulnerability with low adaptive capacities. The combination of environmental and other fragilities in the Sahel creates compounded risks and is particularly alarming. It means needs for climate adaptation, resilience strategies and coping capacities are highest where the state is weak and communities vulnerable.

Figure 6. Adaptive capacity and ecosystem vulnerability to negative effects of climate change in the Sahel: Percentile rank among all countries



Note: The percentile rank is the percentage of countries with lower adaptive capacity or more vulnerable ecosystems. The ND-GAIN adaptive capacity score covers six life-supporting sectors: food, water, health, ecosystem services, human habitat, and infrastructure. The ND-GAIN ecosystem vulnerability score captures ecosystem exposure to climate change, the sensitivity of livelihoods to ecosystem services, and adaptive capacities to cope with climate-induced ecosystem shocks.

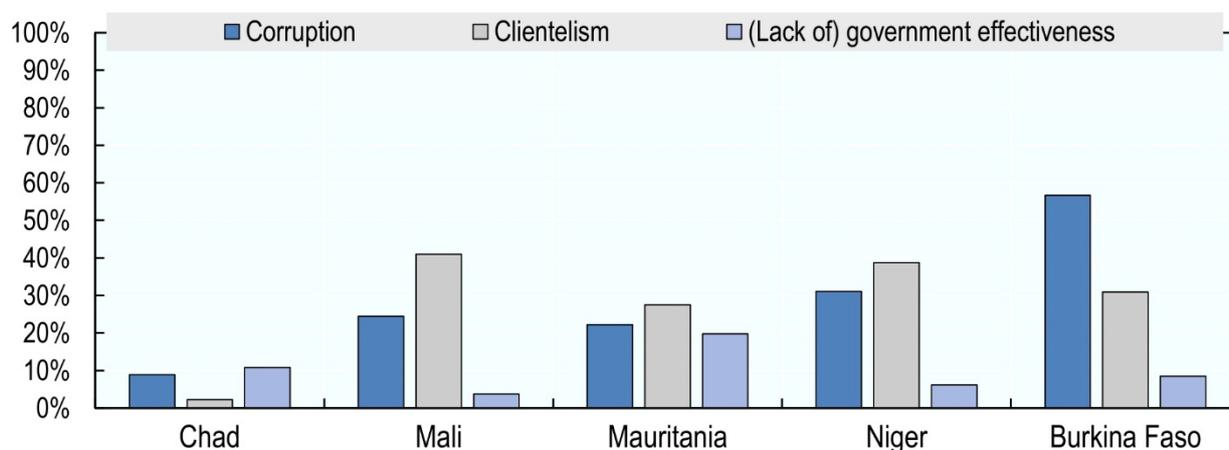
Source: University of Notre Dame (2022^[47]).

Political Fragility

Good governance of land, water and biomass resources is a prerequisite for a strong social contract, and even more so in the Sahel. The incapacity to arbitrate natural resource disputes based on transparent and fair rules generates corruption and clientelism, and greatly impedes on government effectiveness. All Sahel countries rank in the bottom 40% worldwide in at least two of three key perceptions-based indicators of political fragility: corruption, clientelism and (lack of) government effectiveness (Figure 7).

NRG failures widen the gap between populations and the state. Poor institutional performance and public service delivery fuels rent-seeking and political volatility. Political volatility plays against the effective implementation of NRG mechanisms. In all Sahel countries but Mauritania, perceptions of political instability and exposure to politically-motivated violence rank in the top 11% among all countries as per the World Governance Indicators (World Bank, 2022^[48]). Local governments hold significant responsibilities for day-to-day land and water management. Political volatility weakens local governments, which historically receive tiny proportions of public budgets, sometimes delivered with large delays and through ad hoc procedures. Political volatility is also detrimental to regional integration of natural resource management.

Figure 7. Perceptions-based indicators of political fragility in Sahel countries: Percentile rank among all countries



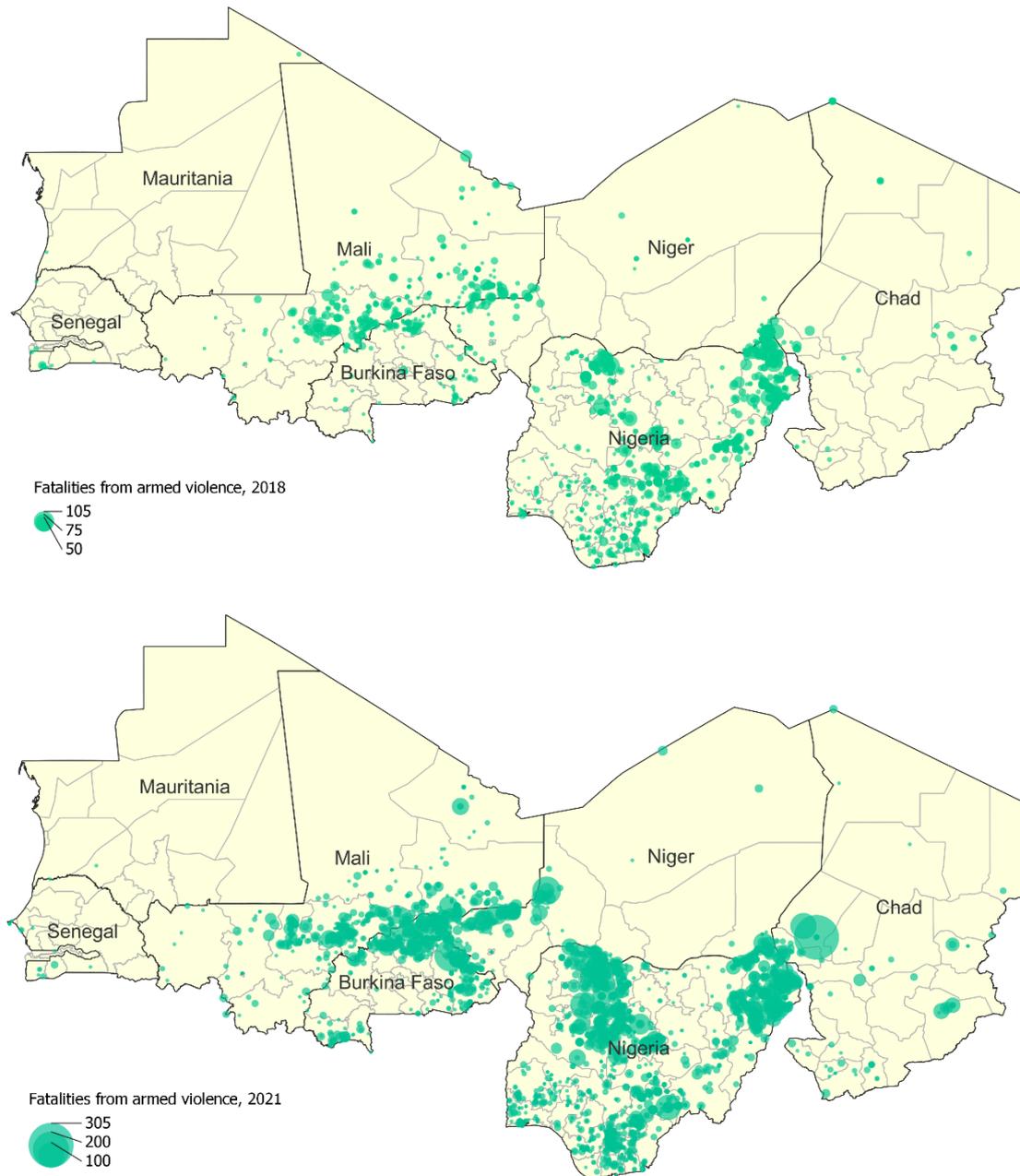
Note: The percentile rank is the percentage of countries with more corruption or clientelism, or worse government effectiveness scores. This means, for example, that 57% of countries score worse on corruption than Burkina Faso.

Source: For indicator selection: OECD (2020_[49]); for corruption: Transparency International (2021_[50]) (year of data is 2021); for clientelism: Coppedge et al (2020_[51]) (year of data is 2020); for government effectiveness: World Bank (2022_[48]) (year of data is 2020).

Security Fragility

NRG closely relates to the security dimension of fragility. Map 1 shows the spatial distribution of violence in the Sahel in 2018 and 2021. The number of fatalities from armed violence went from 2 818 in 2018 to 6 569 in 2021. The Mopti (Mali), Sahel (Burkina Faso) and Tillaberi (Niger) regions concentrated 48% of all fatalities from armed violence for G5 countries in 2021. As the map shows, beyond G5 countries, violence is also widespread in Nigeria. Actually, Nigeria represented 60% of fatalities from armed violence in 2021 if considering G5 countries plus Nigeria.

Map 1. Civilian fatalities from armed violence in the Sahel



Source: Authors using UNOCHA (2018^[52]) (for boundary shapefile) and ACLED (2022^[53]) (for fatalities).

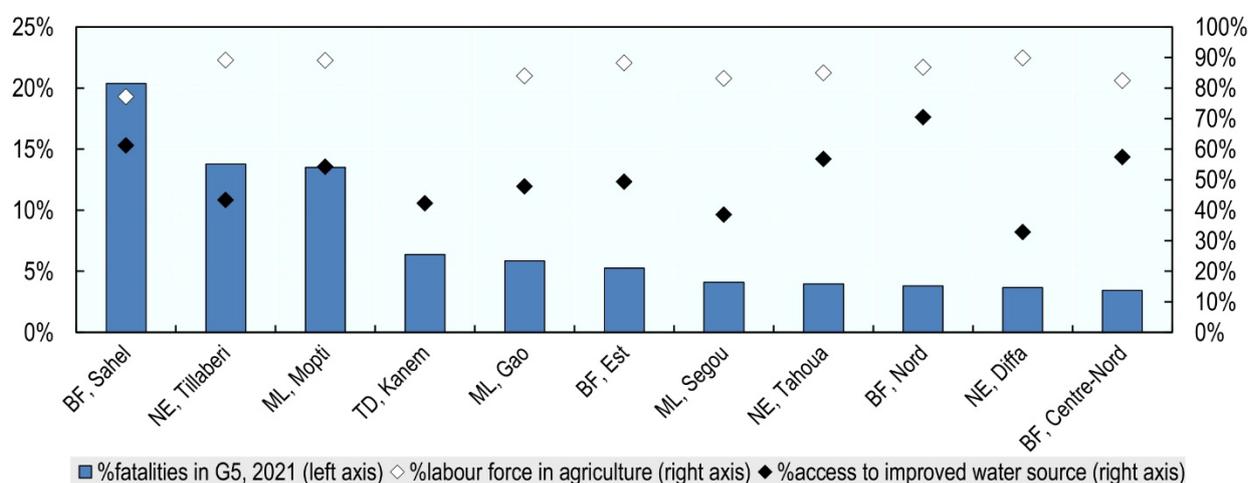
As a matter of fact, in the most violent territories, large majorities of the population work in agriculture, and are therefore directly dependent on land and water resources. Similarly, in these territories, access to water is low (Figure 8). In 2021, 84% of fatalities from violent events in the Sahel were in regions where more than 75% of the population works in agriculture, and at least 30% of the population has no access to an improved water source.²⁰ Poor NRG thus inevitably creates tensions in such contexts. In data samples of conflicts compiled by the AMEDD NGO (2021^[54]) in the Segou and Mopti regions of Mali, 60% of conflicts were land-related.

Flaws in NRG are however not the only driver of fragility in the Sahel. The surge in insecurity cannot be attributed to a single factor (Zyck and Muggah, 2013^[55]). Rather, it is the combination of several risks that

creates a context of increasing fragility and violence. Increasing security fragility results from the combination of the following main factors:

- Rapid cropland expansion and growth in livestock cheptel size, increased competition for land and water between farmers and herders, high livelihood vulnerability (food insecurity, poverty);
- Weak local governments with low territorial control leading to tenure insecurity and marginalization of certain groups, the proximity of borders rendering territorial control even more difficult, weak implementation of NRG mechanisms;
- The deterioration of West and North African security (conflicts in Libya and Northern Mali and expansion of jihadist factions) implying widespread circulation of small arms and light weapons, more opportunities to join armed groups and more possibilities to participate in illicit economic activities.

Figure 8. Agriculture and water access in Sahel regions concentrating most violence



Note: %fatalities from armed violence is the ratio of fatalities in the region (administrative area) to total fatalities in Sahel countries. Regions in the figure total to 84% of fatalities for G5 in 2021. No labour force data for Chad.

Source: Authors using ACLED (2022^[53]) (fatalities from armed violence, 2021), SWAC/OECD (2018) (share of labour force in agriculture), EU INFORM RISK (2022^[7]) (share of population with access to an improved water source).

Societal Fragility

Complexities in land and water regulations and low literacy in farming and livestock matters among magistrates often lead to contradictory decisions from courts, aggravating the lack of trust in the judiciary. Low access to justice, excessively slow courts or inconsistent judiciary decisions especially regarding natural resources, is a source of societal fragility. Low access to justice can follow from language barriers, a nomadic way of life, poverty, gender or other constraints. Mauritania and Chad are in the bottom 20% of countries worldwide for perceived access to justice, for both men and women (Coppedge et al., 2020^[51]).

State weakness or absence, and low access to justice, reinforce reliance on customary law which may perpetuate horizontal inequalities. According to a report from the International Crisis Group on Mali, “customary law is made up of unwritten rules that are subject to interpretation, and it sometimes lacks precision in its demarcation of land. It is also based on principles such as communal ownership of land that discriminate against the youngest or most vulnerable, like migrants and women” (ICG, 2020^[56]).

During consultations carried out for this report, NRG stakeholders expressed being alert to the impacts of societal fragility on NRG. Key local land and water governance mechanisms such as the COFOs in Mali or the Local Conventions in Niger require high levels of social cohesion, a dynamic civil society and possibilities for minorities and youth to participate in resource allocation and management discussions. In areas with deep societal fragilities, social preconditions necessary to implement inclusive, dialogue-based NRG solutions are often absent. The relationship between NRG and societal fragility highlights the importance of prevention and inclusiveness in land and water management across the Sahel.

Increasing numbers of uprooted people are another source of societal fragility, with implications for NRG. Violence in Central and South-East Mali, the Liptako Gourma, Eastern Burkina and Lake Chad is driving population displacements. The most insecure areas (for example, the Eastern part of the Mopti region in Mali) feature abandoned or destroyed villages (Maillard et al., 2021^[57]). In such contexts, where populations are gone, no NRG work can be done. In contrast, sudden influxes of displaced people can put peak pressure on land, water and biomass resources, rendering NRG extremely difficult.

Governance of extractives: Links with fragility dimensions

ASM is an ancient activity in the Sahel. Yet, the discovery of a Saharan gold deposit sprawling from Mauritania to Sudan in 2012 is driving a surge in informal digging and gold extraction (ICG, 2019^[58]). This section discusses links between the growth of ASM and fragility dynamics in the Sahel, with a focus on gold.

Economic Fragility

Weak minerals governance is a source of economic fragility. In the Sahel, low access to banking and financial services closely relates to illegal minerals trade. Gold derives its value not only from its selling price, but also because it can replace currency. In comparison with cash, it is easier to transport, and easier to exchange against other currencies. For this reason, traders may prefer to use gold in order to build up savings, transfer wealth in accounts abroad, purchase goods and services, and finance trade operations. Significant amounts of Sahel gold are smuggled to Dubai, a leading international gold trading centre (Marks, Kavanagh and Ratcliffe, 2021^[59]). The gap between reported gold imports to Dubai and reported combined gold exports from Mali, Burkina Faso and Niger amounted to 1.6 billion USD in 2018, and 3.7 billion USD in 2019 as per UN data, suggesting intense illicit trade (UN Trade Statistics, 2022^[60]).

The growing use of gold as currency and means to store value creates a parallel economy, which is self-reinforcing. For example, low access to finance implies small miners rely on credit from traders to fund tools and products. The development of a parallel economy and financial system increases risks of money laundering and tax evasion. It also constrains the accumulation of savings in local banks, and therefore credit provision and private sector investment.

Environmental Fragility

Ineffective NRG for minerals is an important driver of environmental fragility. The extraction of minerals requires large quantities of water. Gold production involves mercury and cyanide, highly polluting chemicals. Chemicals disposal is a source of severe pollution, with long term consequences for human and environmental health. There is no rehabilitation of former ASM sites. A case study in Bouroum, Burkina Faso found 20% of settlement areas next to ASM gold sites were exposed to cyanide-polluted soils (Razanamahandry et al., 2018^[61]).

In view of the importance of land and water resources for food production and Sahel livelihoods more generally, especially in rural areas, the unregulated expansion of ASM across Sahel countries is a major environmental and socioeconomic risk. It depletes countries' natural capital, exacerbates long term

vulnerabilities of Sahelian populations, and threatens agro-pastoral activities, food security and food safety. Where environmental risks are high and coping capacities low, the ability of ecosystems to support local livelihoods and economies are lower. In such contexts, populations (especially youth) are more prone to engage in informal ASM, fuelling illicit economic activities and further jeopardising environmental stewardship.

Political Fragility

Ineffective regulation of ASM and unclear policy (for example, when multiple institutions deliver ASM permits) undermines reliance and trust in public authorities. The inability of the state to provide a framework for the fruitful exploitation of the Sahel's mineral wealth deteriorates the social contract. In some areas, the control of gold production and trade by non-state actors creates alternative, 'hybrid' forms of governance (Raineri, 2020^[62]).

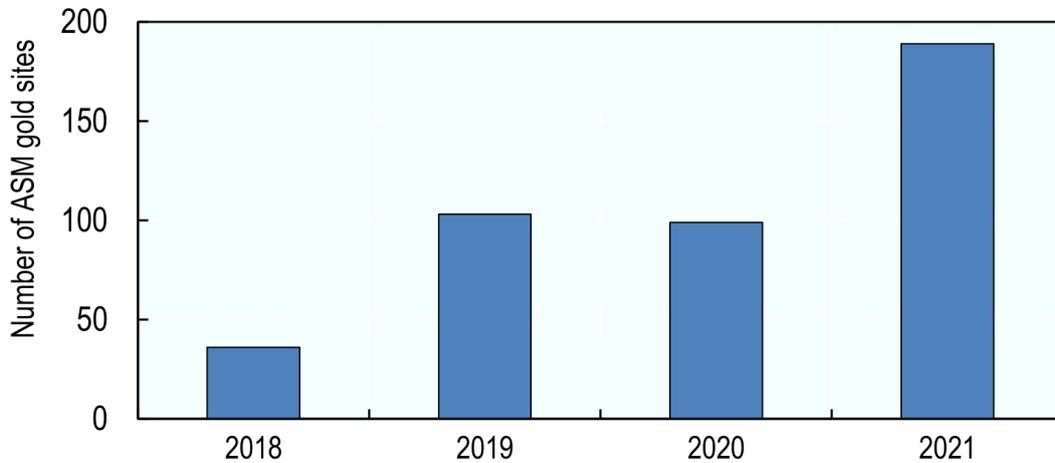
In recent years, the ASM boom often prompted violent action by public authorities across the Sahel. Such events fuel political fragility in several ways. They increase already strong anti-state sentiments. They suggest authorities adopt short-term and reactive approaches instead of pre-emptive approaches, and reveal the enduring presence of rent-seeking political logics. They indicate the absence of effective judicial and legislative constraints on executive power. Most importantly, the absence of regulation and supportive policy for a booming sector that provides large numbers livelihoods is a missed opportunity for poverty reduction and local development. It erodes government effectiveness and perceptions thereof.

Security Fragility

Links between the governance of extractives and the security dimension of fragility have become particularly strong in the Sahel. The ineffective governance of ASM results in the multiplication of unforeseen and unregulated local mining booms. For example, since 2016, a gold rush has been occurring in Tasiast, North of Nouakchott, Mauritania (IGF, 2017^[27]). About 20,000 artisanal miners converged on the site, with low surveillance from state authorities, causing environmental damage and human costs. In recent years, the Tibesti region (Northwestern Chad) witnessed 'gold rushes'. There are tensions and authorities at times forcibly close mining sites (RFI, 2020^[41]). The rapid inflow of migrant workers on mining sites can deprive farmers of their land, degrade soils and oblige herders to deviate from their transhumance routes. Tensions may also arise between artisanal or small-scale miners and industrial mining companies in places where attractive deposits have been discovered.

The deficit in NRG creates revenue opportunities for armed groups. The geographical overlap between armed violence and gold mining sites increased widely in recent years. In Burkina Faso, an increasing number of ASM gold mining sites are within the reach of jihadists, mostly in the Northern part of the country. The number of potential ASM gold sites witnessing a jihadi attack less than 3km away went from 36 in 2018 to 189 in 2021 (Figure 9). Jihadi groups can benefit either by collecting taxes and fees (e.g., by levying the *zaka*, a right-of-way tax), or by directly controlling gold mining sites (ICG, 2019^[58]). While there has been a declining trend in revenues from hostages, illicit trade in cross-border territories is flourishing. Gold trade merges with the trade of cigarettes, fuel, weapons, food and other goods obtained through pillaging.

Figure 9. Gold within reach: Number of potential ASM gold sites in Burkina Faso witnessing jihadi attacks less than 3km away



Source: Authors' computations using ACLED (2022^[63]) (for jihadi attacks), ANEEMAS (2022^[63]) (for location of ASM gold sites).

Societal Fragility

The absence of regulation of ASM aggravates societal fragility, notably through brutal working conditions, health impacts of mining work, child labour and gender issues. School closures and increased socioeconomic vulnerability caused by the COVID-19 pandemic, in combination with conflict, push child labour upwards (Peyton, 2020^[64]). As of 2018, estimates of the number of children working on ASM sites in Mali, Burkina Faso and Niger exceeded 100,000, however “most sources indicate that children rarely work in production galleries, generally limiting themselves to related activities such as water transport and mineral treatment” (OECD, 2018^[12]). Child labour magnifies risks of abuse. Available information suggests violence against children is widespread on ASM sites in the Sahel. Violence includes not only forced labour, degraded working conditions and exposure to dangerous chemicals, but also violence in its worse forms (torture, sexual violence).

Child labour in ASM prevents large numbers of children from attending school. Attempts to set up mobile classrooms on ASM sites have proved widely unsuccessful so far (*ibid.*). As the gold rush continues, more children will be pulled out of school as they follow their parents towards mining sites. The inability for children to access school and education creates a significant loss of human capital with lasting and deeply damaging consequences for Sahelian societies.

The governance deficit in ASM is also detrimental to women. About half of workers on ASM sites are women, who carry out the grinding of minerals and ensure food supply for miners. Yet, according to associations of women in mining, women often do not receive an equitable share of mining revenues (*ibid.*). Women on ASM sites are exposed to violence, including forced labour, prostitution and sexual violence. Ineffective governance of ASM reinforces gender inequalities in the Sahel.

3 The role of development co-operation

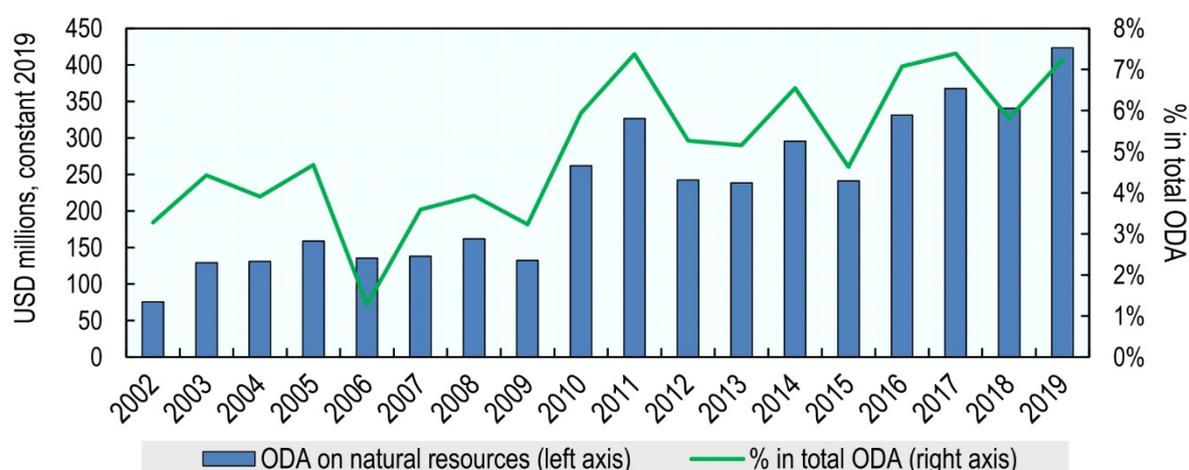
How donors support natural resource governance in the Sahel

Trends in ODA for natural resources

Tracking donor support to NRG is not straightforward, as donors may influence NRG in several ways. Yet, looking at trends in ODA to key natural resource-related spending categories can provide basic indications on (i) the importance of natural resources among donor priorities, (ii) which donors are the biggest players on natural resource issues, (iii) how donor support evolves across time, countries and purposes (e.g. renewables or extractives). To this end, this section looks at trends in ‘ODA for natural resources’ measured as the sum of selected, natural resource-related creditor reporting system (CRS) categories (see mapping in Annex). Natural resource-related categories include water management, water supply, agricultural land and water resources, forestry and fishery development, and mineral management and prospection.

ODA for natural resources in the Sahel went from 76 million USD in 2002 to 423 million USD in 2019 (in constant 2019 USD, Figure 10). In 2019, donors spent 4.7 USD per person on natural resources in the region. Increasing donor spending on natural resources followed the inflationary trend in aid allocations to Sahel countries. The share of disbursements to natural resources within total ODA disbursements remained stable since 2016, at around 7%.

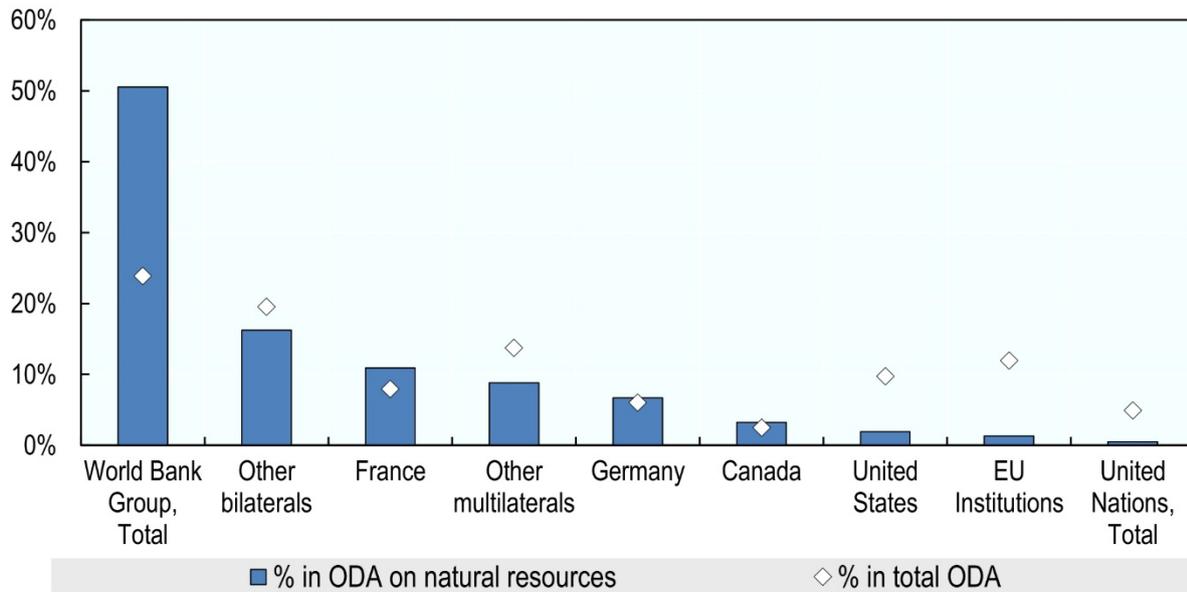
Figure 10. ODA for natural resources in the Sahel (disbursements)



Source: Authors using OECD (2021_[65]) (CRS dataset).

Certain donors provide high shares of total and natural resources ODA to the Sahel. In 2019, the World Bank, EU, US, France, Germany, UN and Canada jointly supplied 67% of ODA to the Sahel (by decreasing order of contribution). The World Bank is the dominant player in ODA for natural resources, followed by major bilaterals (France, Germany, Canada, US), the EU and UN (Figure 11). In 2019, the World Bank supplied 51% of ODA for natural resources. The World Bank, France, Germany and Canada are bigger players in natural resources than they are in total ODA. The reverse applies to the US, EU and UN.

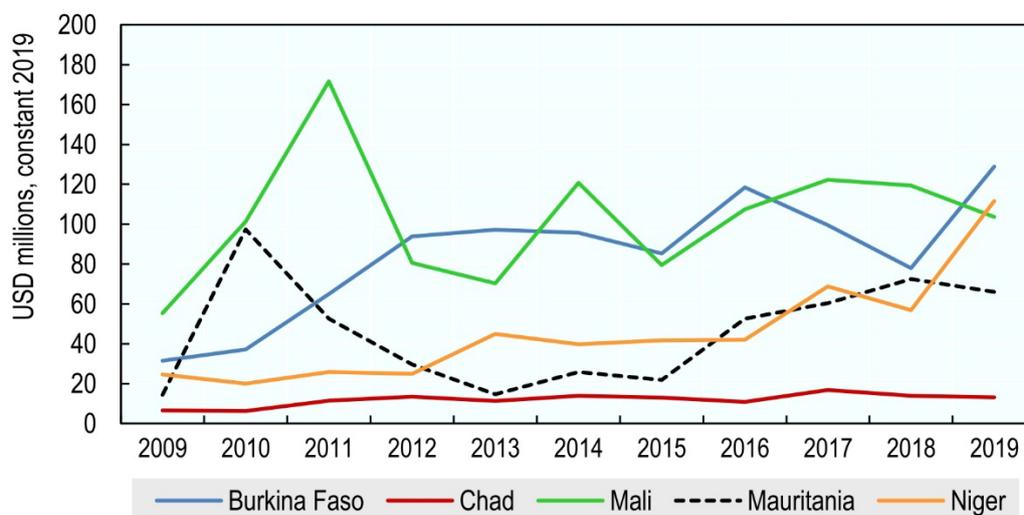
Figure 11. ODA for natural resources in the Sahel across donors (2019)



Source: Authors using OECD (2021^[65]) (CRS dataset).

Levels of ODA diverge across Sahel countries. During the past decade, Mali attracted the largest share of total ODA to the Sahel (OECD/SWAC, 2021^[66]). The distribution of total ODA across Sahel countries in 2019 was as follows: Mali 32%, Niger 25%, Burkina Faso 22%, Chad 12% and Mauritania 9%. Likewise, the level of ODA for natural resources differs across Sahel countries. Most recently, Mali, Burkina Faso and Niger attracted more financing than Mauritania and Chad (Figure 12).

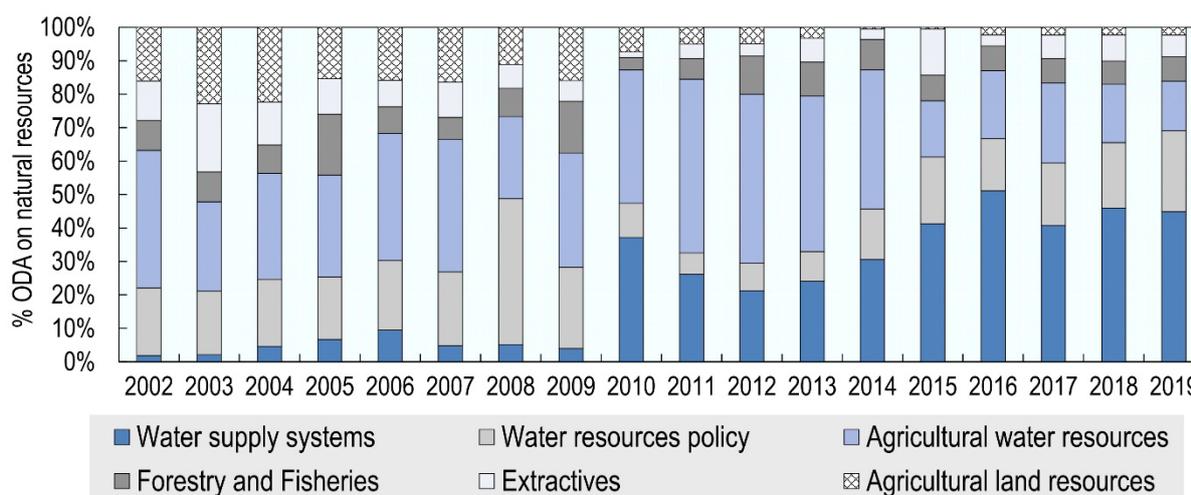
Figure 12. ODA for natural resources in Sahel countries



Source: Authors using OECD (2021_[65]) (CRS dataset).

In terms of composition, the bulk of ODA for natural resources goes to water, a sensible prioritisation in the Sahel context, but implying that land and extractives receive relatively less attention. ‘Water supply systems’, ‘water resources policy’ and ‘agricultural water resources’ together represented 84% of ODA for natural resources in 2019 (Figure 13). Water supply systems (the largest spending category) mostly covers water infrastructure: ‘potable water treatment plants; intake works; storage; water supply pumping stations; large scale transmission / conveyance and distribution systems’ (OECD, 2021_[67]). The share of agricultural water resources (irrigation) declined over time to the benefit of water supply systems. Conflicts in Mali and beyond may have played a role in this trend, by creating urgent water supply needs in urban areas damaged by conflict and/or facing large influxes of displaced people.

Figure 13. Composition of ODA for natural resources in the Sahel



Note: The list of CRS codes included in each category is provided in Annex.

Source: Authors using OECD (2021_[65]) (CRS dataset).

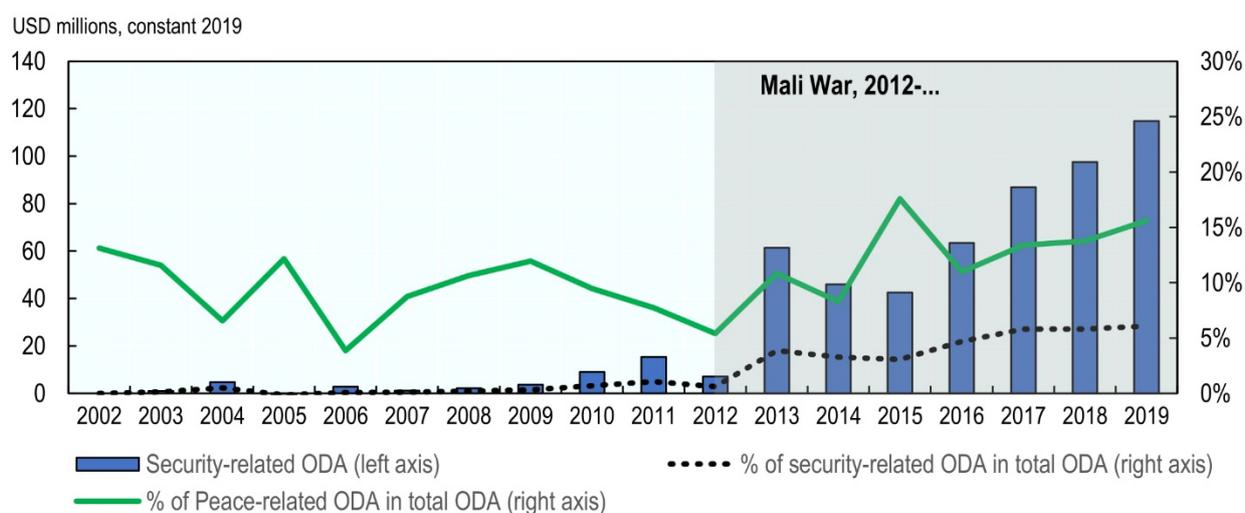
Support to NRG and broader trends in aid to the Sahel

As the previous section shows, natural resources are attracting growing ODA financing. Accordingly, NRG figures prominently in current Sahel projects, plans and strategies. Consultations conducted for this report emphasized the following ongoing initiatives, for the largest donors: the World Bank-funded Regional Sahel Pastoralism Support Project (PRAPS), starting a new phase in 2022 (World Bank, 2021^[68]), and the Lake Chad Region Recovery and Development Project (PROLAC) (2020-2025); the adoption of new EU Integrated Strategy for the Sahel in April 2021 (European Parliament, 2021^[69]), and the forthcoming introduction of an EU territorial development project in Mali; the implementation of the FREXUS project (2019-2023), funded by the EU and Germany (GIZ, 2021^[70]); the UN Climate Security Mechanism (Albrecht, 2021^[71]); UNPBF projects (UN Peacebuilding, 2020^[72]), and UNDP Regional Stabilisation Facility for Lake Chad (now extended towards the Liptako-Gourma); France's Minka fund; USAID's RISE programme (2018-2024) (USAID, 2021^[73]); and several programmes funded by Canada on ASM (Government of Canada, 2022^[74]).

Financing for natural resource-related projects, and donor approaches to NRG also need to be put in the context of evolving international Sahel priorities and strategies. During consultations, participants mentioned the growing 'securitisation' of international support to the region, and increasing interest for 'stabilization' or 'counter-insurgency' responses, echoing recent research on donor behaviour in the Sahel (Venturi 2017, Charbonneau 2021). Participants in consultations linked securitisation tendencies with the multiplication of peace operations and increased foreign military involvement in the region during the past decade. Notable interventions include the French Serval and Barkhane operations, the establishment of MINUSMA, and the military response of Cameroon, Chad, Niger and Nigeria to Boko Haram attacks in the Lake Chad area. Effort and resources invested in these endeavours (implying 'failure is not an option'), the strong visibility and leadership of peace and defence actors, and increasing levels of violence and armed groups activity, all push towards a greater focus on peace and security issues.

ODA data, to some extent, corroborates this diagnosis. The share of overall peace financing (as opposed to humanitarian or development financing) in total ODA for G5 countries went from 7% in 2012 to 12% in 2019 (see mapping of ODA across HDP categories in Annex, Table 3). In Mali, the share of peace financing went from 5% to 16% during 2012-2019. Financing towards security-related categories (a sub-component of peace financing, comprising child soldiers, civilian peacebuilding, peacekeeping operations, reintegration of soldiers, and land mines) rapidly increased in post-2012 Mali (Figure 14). The share of security-related financing in total ODA to Mali went from 1% in 2012 to 6% in 2021, reaching 115 million USD.

Figure 14. Increasing financing for peace and security activities in Mali



Source: Authors using OECD (2021^[65]) (CRS dataset). The mapping of ODA to the Peace component and to security-related categories is in Annex, Table 3.

Policy orientations for improved and fragility-sensitive support to NRG

Governments, donors, regional organisations, the civil society and other natural resource stakeholders have significant scope to support NRG in the Sahel in ways that address the root causes of fragility and maximise positive impacts for local livelihoods. NRG improvements will require political commitment from national authorities and compliance with good governance standards, including accountability, transparency and inclusiveness. Donors and other stakeholders can complement national efforts with financing, expertise, dialogue and partnerships. Below are four key policy orientations for improved and fragility-sensitive support to NRG.

Scaling up good NRG practices across Sahel territories

Growing policy attention for NRG and increasing ODA flows towards natural resources can be seen as a positive trend, but the financing needs to be put to good use. More balanced financing across countries and resources (i.e., higher relative and integrated support for land, biomass and extractives) can help promote integrated natural resource management approaches covering renewables and extractives over a wider geography.

Without adequate implementation of NRG rules and regulations, no impact can be achieved. Together with consultations, ‘good practice’ cases in and outside the Sahel (see examples in Box 3) show how to maximise the likelihood of positive impact when designing activities in support of NRG. Key principles include a focus on:

- **Inclusiveness and justice:** Inclusiveness means ensuring all community members can contribute to NRG, and especially youth, women and migrants, to resorb marginalization and promote conflict resolution through dialogue. It also means ensuring rules are accessible and understandable by all community members (translators may play an important role). Improving access to justice for farmers and herders, and improving the literacy of magistrates in farming and livestock matters, is essential to promote the peaceful resolution of natural resource conflicts (Réseau Bilital Maroobe, 2021^[75]).

- *Working with local governments and customary authorities*: Bagayoko, Ba, Sangaré & Sidibé (2017^[33]) emphasise the importance of working with customary authorities for the case of central Mali:

“In practice, most local populations continue to refer themselves to informal and customary natural resource management arrangements. This situation explains a number of difficulties encountered during the implementation of development projects, whose leaders tend to underestimate the importance of consulting customary authorities (...) there are numerous examples of herders allowing livestock to enter agricultural perimeters because they were not consulted through the joro” Bagayoko, Ba, Sangaré & Sidibé (2017^[33]).

- *Using different tools depending on the intensity of fragility*: Different NRG tools should be used depending on local fragility dynamics. In fragile areas experiencing conflict, implementing formal NRG mechanisms such as the COFOs or Local Conventions will prove extremely challenging if not impossible. Such tools are rather for prevention. More flexible approaches (such as the UNPBF mini-grants in the Liptako-Gourma) should be used in the most unstable areas.

Box 3. Supporting NRG in fragile areas: Good practice examples in and outside the Sahel

The national methodological guide on Local Conventions in Niger²¹

In the 1990s, several Sahelian states reintroduced Local Conventions, along with other decentralization policies, to resolve major concerns related to the management of terroirs. In 2020-2021, following advice from the USAID TerresEauVie Activity (under the RISE II Initiative), Niger’s Rural Code capitalized on best practices in this area, giving rise to a national guide. Combining national legislation and traditional provisions, the guide puts the community in charge of natural resource management (diagnosis of the problems, development of consensual rules, and implementation of rules without need for external support).

In Mazamni (Zinder region), this process enabled the resource management committee of the Kouyikam grazing area to delineate 15 km of livestock corridors providing cattle access to watering points without trampling over crops. This also halved conflicts between farmers and herders in a single year. Communities have empowered themselves to manage their natural resources and conflicts, while maintaining an ongoing and open dialogue.

UNPBF mini-grants in Liptako-Gourma

The United Nations Peacebuilding Fund (UNPBF) launched a mini-grant initiative to promote better natural resource governance and peace in the Liptako-Gourma. Recognizing that fragile areas are usually inaccessible to development workers, the initiative provides mini-grants to local associations that work on peacebuilding and natural resource governance in the Liptako-Gourma. The approach allows to support local efforts to build peace around natural resource use, and offers opportunities for training, learning and increasing the inclusiveness of peace efforts.

Promoting Gender-Responsive Approaches to Natural Resource Management for Peace in North Kordofan, Sudan

The project was jointly implemented by UNDP, UNEP and UN Women in the locality of Al Rahad, North Kordofan State, Sudan, during 2016-2018. Climate change and environmental degradation strongly affect North Kordofan, where natural resource-related conflicts have become frequent (UNEP, UN Women, UN Peacebuilding and UNDP, 2019^[76]). Female-headed households have become more widespread due to migration of young men and pastoralist men who are leaving families behind while continuing along their transhumance route (ibid.).

The project aimed to empower women economically, increase their involvement in resource governance and their leadership and participation in conflict resolution. It had three components: first, livelihoods improvement through training, food cooperatives and market access; second, support to communities in developing a 'Community Environmental Action Planning Process'; third, capacity building for women in conflict mediation and resolution. According to reporting by UN agencies, the project improved perceptions of women's capacities, increased women participation in local conflict resolution mechanisms, and increased women's incomes and capacities (ibid.). Among lessons learned, implementing agencies underline the need to support women livelihoods and incomes first, before engaging on the 'softer' aspects of governance and conflict prevention.

Joint Wetlands Livelihoods Project in north-east Nigeria

In the early 2000s, DFID through ITAD supported the implementation of a Joint Wetlands Livelihoods (JWL) project in the Hadejia-Nguru Wetlands, north-east Nigeria. While the initial goal of the project was to improve livelihoods of local communities dependent on wetlands, it soon became clear that the main problem was water management, and the project became a water governance project. Partners in the project included Federal and State Ministries, two River Basin Development Authorities, customary authorities and local governments.

The project worked with stakeholder groups at three levels: the river basin (water policy issues), the wetlands (inter-State water management and sharing issues) and community (water use issues). JWL created a platform in which all stakeholders could discuss water issues in order to adjust policy, reallocate government budgets and negotiate new rules for river basin management; "the aim was also to improve water management that created new or restored opportunities for productive water use" (ITAD, 2001^[77]). JWL recognized that key success factors for improved water management are (i) better rules and (ii) the physical capacity to manage water according to new rules (ibid.). As a result of JWL's policy engagement, Nigeria created a 15 million USD trust fund to invest in small-scale water management projects across the Komadugu-Yobe River Basin.

Integrating links between NRG and fragility in Humanitarian, Development and Peace (HDP) efforts

The increasing focus on peace and security aspects, a consequence of higher instability in the region, should not obscure the role of deeper fragility drivers and natural resource governance issues. If structural tensions around the use of natural resources are left unaddressed, security gains will only be temporary. Crisis responses cannot limit themselves to the security perspective and need to integrate the role of natural resources.

There are several pathways to better incorporate the role of NRG across HDP efforts. First, fragility analysis can be used for the design and monitoring of HDP interventions. Like in Chapter 2, it involves answering the following questions:

- How is the intervention affecting the availability of natural resources for food production and trade?
- How does it support reduced corruption risks and better local government effectiveness in natural resource management? How does it engage with relevant customary authorities?
- How does it affect the local political economy of natural resource use? How does it influence access to and disputes over land, water and biomass, or access to revenue sources by armed groups (for extractives)?
- To what extent is it inclusive of youth, women, migrants, forcibly displaced people or other marginalised groups? How does it influence access to justice and the quality of the judiciary system?

Responding to these questions will require additional and innovative analyses of socioeconomic, ecosystem and conflict dynamics. Better analyses of local fragility dynamics and the role of natural resources therein can provide a baseline to build better understanding between HDP actors and populations. In this vein, ECOWAS developed a pedagogical guide on conflict prevention in relation to mobile livestock (ECOWAS, AFD and CILSS, 2021^[78]). The guide has been disseminated towards military forces active in the Liptako-Gourma area, to help them understand the needs of herders and therefore facilitate dialogue between the military and herders.

Second, HDP actors should aim to comply with the principle of ‘do no harm’ on natural resources. While humanitarian operations provide essential relief to populations, they can have adverse consequences for natural resources. The sudden emergence of informal settlements can significantly affect the value and accessibility of land. Humanitarian agencies and contractors may also dig water wells or dispose waste with consequences for water resources and soils. There is a dearth of tools to measure the impact of peace operations on natural resources.

Investing in the next generation of NRG mechanisms

Although much data and analysis on natural resources has been produced, it is often not used for policy design, nor available in the institutions and agencies in charge of implementing governance mechanisms. Land tenure and water regulations are updated without consideration of the latest data on land use, resource use and resource health. At the local level, decisions on land and water are taken without using land and water use maps and data on local ecosystem health. The Sahel needs a new generation of land and water governance mechanisms, which make full use of available data, mapping techniques and natural resource management intelligence.

Donors can support the upgrade of land and water governance in the region down to the local level in two major ways. First, they can support vertical and horizontal data and knowledge sharing across natural resource governance stakeholders, and facilitate science-policy dialogue. Regional and international knowledge-based institutions should receive particular attention. These include the Lake Chad Commission, the Niger Basin Authority, the Liptako-Gourma Authority, ECOWAS, and the CGIAR International Water Management Institute. Much knowledge and cross-border data on Sahel ecosystems and hydrological basins is sitting in these institutions, yet is not used by national or local authorities.

Second, donors can help natural resource governance stakeholders leverage the potential of available technologies, including information and communication technologies (ICTs) and satellite imagery, to collect, organise and access data. Strengthening cadastral systems through the digitisation of land tenure records is critical. For example, the USAID Mobile Applications to Secure Tenure (MAST) project implemented in Burkina Faso in 2016-2017 with the Burkinabè *Observatoire national du foncier* used “a simple android app and a semi-crowdsourced methodology to facilitate the mapping and documentation of land in a more efficient, transparent, and affordable manner” (USAID, 2021^[79]). At a more macro level, the European Space Agency (ESA) supports the use of earth observation data drawn from the Copernicus programme satellites in Africa through the Earth Observation Africa initiative (ESA, 2021^[80]). The potential of technology and digital tools for NRG remains largely unexploited.

Increasing support for the development and regulation of ASM

The surge in ASM gold mining should not be left off the radar of international donors, as it has direct consequences for local development, security and conflict. Contrary to illicit substances such as drugs or fake medicines, gold (like other minerals) is an authorised product. Hence, regulating production and trade not only allows governments to minimise revenues for illegal networks, but also to maximise economic opportunities in the extractives sector. In general, good extractives governance should seek to minimise

negative externalities (loss of natural and human capital) in order to maximise economic and development payoffs for society.

Donors can support regulation of the ASM sector, maximise its contribution to livelihoods, and reduce risks of fuelling conflicts in several ways. First, donors can support data collection, planning and policy on ASM, as well as training on mineral extraction, processing and trade techniques. Better data on mining potential can help anticipate booms. The World Bank-funded DELVE initiative, of which OECD is a partner, started to compile ASM data as part of the 2020 State of ASM Sector Report (DELVE, 2022^[81]). Training of ASM workers and inspection staff can increase miner safety, improve income prospects, reduce environmental damage and favour formalisation of the sector. Overall, better data and understanding, and the provision of concrete incentives for miners and traders to comply with rules will help avoid the potential counterproductive effects of formalisation policies, which have been observed elsewhere (Hunter, 2020^[82]).

Second, harmonisation of export tax regimes across West African countries through WAEMU and ECOWAS, and the use of reasonable tax levels, can reduce incentives to smuggle gold across borders and also support formalisation (OECD, 2018^[12]). Better access to finance and basic banking services will help bring gold into the formal circuit and away from illicit economies. WAEMU foreign exchange regulations ask traders to repatriate foreign currencies at domestic level to protect the CFA. Yet, doing so is often costly for traders. Similarly, high interest rates incentivise the use of gold as a means to finance trade operations. Healthy development of the minerals industry requires a coherent trade policy framework and reduced costs of financial services.

Third, donors can support international efforts to promote good practices in the governance of extractive resources. The Voluntary Principles for Security and Human Rights provide guidelines for mining operators on conducting risk assessments, and handling relationships with public and private security forces (VPSHR, 2022^[83]). The OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas (2016^[84]) is a framework to assess conflict-related risks along mineral supply chains (Box 4). The Extractive Industries Transparency Initiative (EITI) is increasing coverage of ASM, yet data gaps remain significant (EITI, 2021^[85]). The EITI and OECD are working together in the central Sahel, and the OECD has signed a Memorandum of Understanding with the *Autorité de développement intégré des états du Liptako-Gourma* (ALG) to promote the implementation of Guidance principles in the area, including in the ASM sector.

Box 4. The OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas

The OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High Risk Areas clarifies how companies can identify and better manage risks throughout the entire mineral supply chain, from miners, local exporters and mineral processors to the manufacturing and brand-name companies that use these minerals in their products. The Guidance is applicable to all minerals and global in scope. Since its adoption in May 2011, the Guidance has become the leading industry standard for companies looking to live up to the expectations of the international community and customers on mineral supply chain transparency and integrity.

The objective of the Guidance is ultimately to promote responsible private sector engagement in post-conflict fragile states. One of the main areas of focus of the implementation programme of the Guidance is to ensure that international standards do not further marginalize workers of the informal sector. The OECD Guidance therefore entails an Appendix on “suggested measures to create economic and development opportunities for artisanal and small-scale miners” calling on all stakeholders to engage in legalisation and formalisation programmes of artisanal mining communities.

The objective is two-fold:

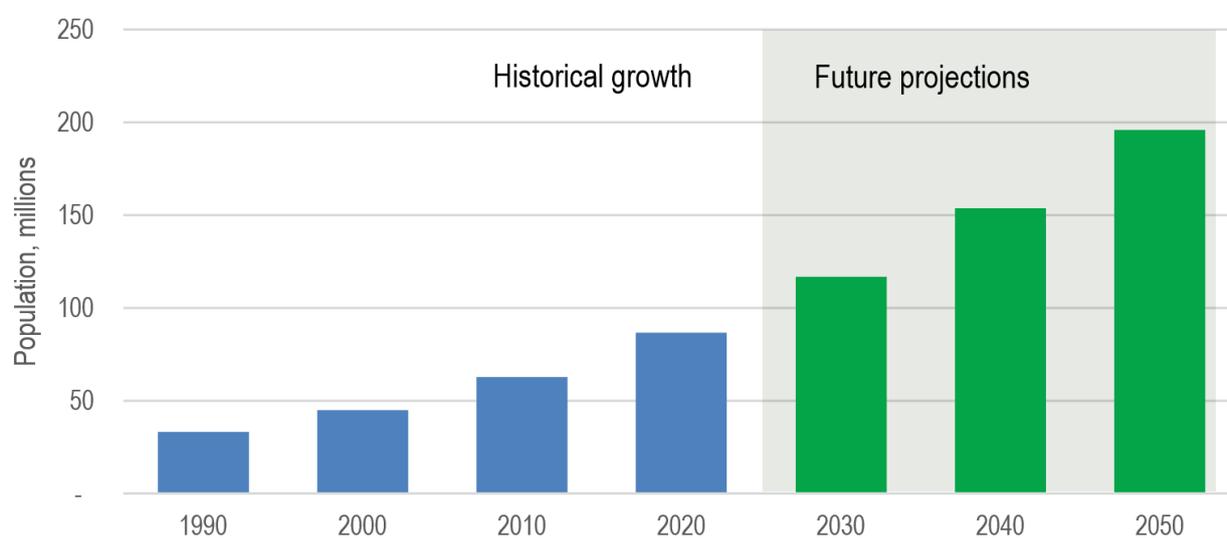
- To build secure, transparent and verifiable supply chains from mine to market and enable due diligence for legitimate artisanal and small-scale mining.
- To ensure that legitimate artisanal mining communities can benefit from ongoing trade in conflict-affected and high-risk areas, to support their development and thus contribute to the general improvement of the situation on the ground.

The OECD acknowledges that in producing countries, responsible production and sourcing of ASM gold has the potential to foster sustainable economic development in mining communities, increase public revenues, reduce the share of gold that finances conflict, human rights abuses and illicit activities of armed groups, criminal networks and terrorist organisations, and promote broad-based development. In 2016, the OECD Centre for Responsible Business Conduct released a booklet providing practical guidance and answering frequently asked questions relating to sourcing gold from artisanal and small-scale mining (ASM), globally. It clarifies expectations embodied in the OECD Due Diligence Guidance.

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Annex

Figure 15. Population in G5 Sahel countries



Note: Projections are medium variant projections. Countries included are Mauritania, Mali, Burkina Faso, Niger and Chad.

Source: UN DESA (2019^[86]).

Table 2. ODA for natural resources: Selected CRS categories

Description	CRS code	Voluntary code	Mapped category for composition analysis
Water sector policy and administrative management	14010		Water resources policy, data and administrative management
Water resources conservation (including data collection)	14015		Water resources policy, data and administrative management
Water supply - large systems	14021		Water supply systems
Basic drinking water supply	14031		Water supply systems
River basins development	14040		Water supply systems
Agricultural land resources	31130		Agricultural land resources
Agricultural water resources	31140		Agricultural water resources
Forestry policy and administrative management	31210		Forestry and Fisheries
Forestry development	31220		Forestry and Fisheries
Fishing policy and administrative management	31310		Forestry and Fisheries
Fishery development	31320		Forestry and Fisheries
Mineral/mining policy and administrative management	32210		Extractives
Mineral prospection and exploration	32220		Extractives
Urban land policy and management		14010	None (no financing observed)
Rural land policy and management		14015	None (no financing observed)

Source: OECD (2021^[67])

Table 3. Mapping of ODA towards peace and security-related activities

Description	CRS code	Mapped HDP component	Security-related
Emergency response	700	H	
All other categories		D	
Public sector policy and administrative management	15110	P	
Public finance management (PFM)	15111	P	
Decentralisation and support to subnational government	15112	P	
Anti-corruption organisations and institutions	15113	P	
Legal and judicial development	15130	P	
Democratic participation and civil society	15150	P	
Legislatures and political parties	15152	P	
Media and free flow of information	15153	P	
Human rights	15160	P	
Women's rights organisations and movements, and government institutions	15170	P	
Security system management and reform	15210	P	x
Civilian peace-building, prevention and conflict resolution	15220	P	x
Participation in international peacekeeping operations	15230	P	x
Reintegration and SALW control	15240	P	x
Removal of land mines and explosive remnants of war	15250	P	x
Child soldiers (prevention and demobilisation)	15261	P	x

Source: Authors using OECD (2020_[49]).

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Notes

¹ Adapted from IUCN (2017_[19]).

² OECD (2018_[12]).

³ See OECD (2020_[49]) for references and definition on the 5 dimensions of the OECD fragility framework.

⁴ Computed using WRI (2021_[100]) (for water risk scores) and EU INFORM RISK (2022_[7]) (for population data).

⁵ Razanamahandry, Andrianisa, Karoui, Podgorski, & Yacouba (2018_[61]).

⁶ Computed using ACLED (2022_[53]) (fatalities from violent events), Allen, Heinrigs & Heo (2018_[97]) (share of labour force in agriculture) and EU INFORM RISK (2022_[7]) (share of population without access to an improved water source).

⁷ Computed using ACLED (2022_[53]) (for location of jihadi attacks), ANEEMAS (2022_[63]) (for location of ASM gold sites).

⁸ OECD (2018_[12]).

⁹ Biomass is defined as the quantity of above-ground dry matter, which refers to “any form of vegetation above the ground without accounting for its water content” (ACF, 2020_[98]).

¹⁰ Data is for the 2018 year.

¹¹ The Samasse et al (2020) study covers Senegal, Mauritania, Burkina Faso and Niger.

¹² 2019 data from OEC (2021_[11]). Gold dominates exports in Mali, Burkina Faso and Niger. In Mauritania and Chad, iron ore and oil respectively dominate official exports.

¹³ Value year for the DELVE data on number of workers in ASM for gold is 2018 for Mauritania, 2016 for Mali, 2017 for Burkina Faso, 2016 for Niger and 2017 for Chad. Labour force data is from OECD/SWAC (forthcoming_[44]).

¹⁴ Numbers in this paragraph were computed using UN DESA (2018_[99]) and UN DESA (2019_[86]).

¹⁵ The 2.8 figure was obtained by computing the number of cattle heads per capita for Sahel countries over 1990-2020 using FAOSTAT (2022_[3]) and UN DESA (2019_[86]), before computing a linear projection of per capita cattle heads for 2021-2050. For a study on the impact of livestock population growth on biomass resources, see Rahimi, et al. (2021_[96]).

¹⁶ Computed using data from FAOSTAT (2022_[3]) and UN DESA (2019_[86]). For example, for millet, Mali has an average yield of 0.9 tonnes/ha (2019 data). The world’s best performer, Mexico, has an average yield of 13.8 tonnes/ha, hence the ratio equates 14.6.

¹⁷ According to Lewis and Buontempo (2016_[91]), modelling results indicate that although absolute impacts of climate change on climate variables (such as temperature) are larger in the Arctics, the impacts on inter-annual or diurnal variability of these variables is larger in the Tropics.

¹⁸ For Europe & North America, these two ratios stand at 27.5% and 12% respectively (OECD/UCLG, 2019_[43]).

¹⁹ See note 4.

²⁰ See note 6.

²¹ USAID's RISE II project provided the content in this paragraph.

²² The OECD Centre for Responsible Business Conduct (RBC) provided the box content.