



## **Research Insight – mid May 2020**

# **“Sand Mining in Africa: What are the key considerations for Policy Makers?”**

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## **Abstract**

The mining sector is key in the economic development of every country. Minerals are used in different sectors as raw materials and their demand is expected to increase with the anticipated boom in industrialisation and urbanisation. Although in the past, the mining sector was characterised by the common precious minerals including gold, diamonds, copper, tin, cobalt just to mention but a few. In recent years, countries are putting emphasis on the crucial role of developmental or construction minerals/materials including sand and gravel.

The impact of construction minerals has been ignored for decades and this explains the institutional and regulatory gap in the governance and development of these minerals at the national, regional and international level. Nevertheless, the important role of these materials is now obvious following the UN Sustainable Development Goal (SDG) 11 which emphasises the need for sustainable cities and communities. Construction materials such as sand are key in the construction of these cities.

There are indeed several construction minerals that are key in achieving UN SDG 11, however, this short paper will focus on sand mining. Sand is one of the most mined material and yet the least regulated globally. Whereas there are several issues to be addressed with respect to sand mining, this paper will focus on the regulatory and institutional gaps in the governance and management of sand mining in African countries. The paper also follows the practical questions asked by some African policymakers during the online seminar organised by the Extractive Hub on the 1<sup>st</sup> of May, where I presented on the issue of ‘Sand Mining & Land Access’.

## **1. Introduction**

Often, mining discussions are focused on precious minerals including among others gold, diamonds, cobalt just to mention but a few. These are indeed well regulated at the national, regional and international level. But what about the impact of construction minerals such as sand and gravel, whose global demand currently stands at 40 to 50 billion tonnes per year? Are we aware of the crucial role of these construction minerals in the global economy? A recent report by UNEP indicates that, sand and gravel are the second-largest resource extracted and traded by volume after water.<sup>1</sup> Further the demand for sand has increased three-fold over the last two decades due to growing population and increasing urbanisation and infrastructure development.<sup>2</sup>

Taking stock of the above therefore, the main question to be addressed in this short insight is whether African policymakers are ready to effectively and sufficiently utilise construction minerals for their economic development? What institutional and regulatory gaps need to be filled for these countries to be able to benefit from sand? Some of these questions were raised in the recent Extractives Hub online seminar on ‘Land Access in the Perspective of Energy and Mining Projects’, held on the 1<sup>st</sup> of May 2020. Joined by other experts, my presentation focused on ‘Sand mining and land access’. In addressing these questions, this research employs a three-step framework in the form of sections. Section one is the introduction, and this highlights the role of construction minerals in achieving the UN SDG 11 on sustainable cities; section two discusses the regulatory gaps to be filled by policymakers with respect to sand mining; section three gives the concluding remarks.

### **1.1. Role of Minerals in the value-chain: Focus on construction raw materials**

A minerals industry value-chain basically refers to the various stages a minerals project undergoes to produce the final product. Each stage adds value to the product and in economic terms, presents opportunities.<sup>3</sup> Most minerals are used as raw materials in various sectors of the economy and as such they have a significant role to play at the beginning of a value-chain.<sup>4</sup>

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<sup>1</sup> UNEP 2019. Sand and sustainability: Finding new solutions for environmental governance of global sand resources. GRID-Geneva, United Nations Environment Programme, Geneva, Switzerland.

<sup>2</sup> UNEP 2019. Sand and sustainability: Finding new solutions for environmental governance of global sand resources. GRID-Geneva, United Nations Environment Programme, Geneva, Switzerland.

<sup>3</sup> Tiess, G., 2011. General and International Mineral Policy: Focus: Europe. New York: Springer Wien.

<sup>4</sup> Nalule, V.R., 2020. Mining and the Law in Africa: Exploring the social and environmental impacts. Springer Nature.

Basically, mineral raw materials are categorized into energetic and non-energy raw materials. Energetic raw materials include crude oil, natural gas, brown coal and hard coal. Non-energy raw materials include metallic minerals, industrial minerals and construction minerals. Generally, construction minerals are raw materials in the construction industry which occur as rocks in the geological sense and often are mineral mixtures (e.g. sand and gravel, clay, granite).<sup>5</sup> The focus in this short paper is on the non-energy raw materials specifically sand as a type of construction mineral. To understand the crucial role of sand and why it should be regulated at the national, regional and international level, we must appreciate its role in achieving UN SDG 11 which relates to sustainable cities and communities. In this respect, the next section discusses construction minerals in the context of UN SDG 11.

## 1.2. Construction Minerals in the context of UN SDG 11

UN SDG 11 provides for ‘Sustainable Cities and Communities’. With the anticipated boom in urbanisation and population growth, more cities will have to be built hence increasing the demand for construction minerals such as sand. The key figures below put SDG 11 into perspective:

**Table 1: SDG 11 Key figures<sup>6</sup>**

Urban population estimated to reach 6.5 billion by 2050
90% of urban expansion estimated to be in developing countries in the coming decades
828 million estimated to live in slums especially in developing countries
Economically, cities generate about 80% of the global GDP
9 out of 10 mega-cities expected to be in the developing world in future

Table 1 above clearly indicates that, developing countries such as those in Africa will require more construction minerals including sand and gravel to cope with the anticipated urbanisation and population growth. In this respect, we must ask ourselves if African policymakers are planning for this anticipated boom in urbanisation and population growth. Are they managing the crucial mineral which is key in urbanisation?

<sup>5</sup> For a full discussion see, Nalule, V.R., 2020. Mining and the Law in Africa: Exploring the social and environmental impacts. Springer Nature.

<sup>6</sup> United Nations Development Programme: Goal 11, <https://www.undp.org/content/undp/en/home/sustainable-development-goals/goal-11-sustainable-cities-and-communities.html>. Last accessed on the 3<sup>rd</sup> of May 2020.

According to the United Nations Development Programme (UNPD), two-thirds of all humanity which is 6.5 billion people will be in urban areas by 2050. This therefore implies that construction minerals including sand will be on a high demand to ensure the construction of cities, roads and railways. The international community has set some targets to achieve the UN SDG 11 and some of these are highlighted in table 2 below:

**Table 2: Some of the targets for the UN SDG 11<sup>7</sup>**

Support least developed countries in building sustainable and resilient buildings utilizing local materials
By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries
By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety
By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums

The targets illustrated in table 2 above reveal among others the need to utilise local materials for urbanisation; need to ensure safe and affordable housing; access to affordable and safe transport. African countries are directly impacted by SDG 11 because estimates show that, the continent will contribute one-third of the anticipated increase in urbanization by 2040.<sup>8</sup> Consequently, the demand and consumption of construction minerals such as sand will greatly increase on the African continent. Although there are several issues to be addressed with respect to sand mining, the focus in this short paper is on the legal and regulatory framework.

<sup>7</sup> United Nations Development Programme: Goal 11, <https://www.undp.org/content/undp/en/home/sustainable-development-goals/goal-11-sustainable-cities-and-communities.html>. Last accessed on the 3<sup>rd</sup> of May 2020.

<sup>8</sup> BP 2018, Global Energy Outlook

## **2. Sand Mining and its associated effects in Africa: Case of Uganda, Ghana, Sierra Leone and Mozambique**

Basically, sand mining involves the extraction of sand through an open pit, or it can also be dredged from ocean and riverbeds or mined from beaches and inland dunes. Sand is the main ingredient of concrete, plaster and asphalt paving, which are used in the construction industry. Besides being used in the construction industry, sand is also essential in the protection of the environment as it buffers against strong tidal waves and storm. Additionally, sand is used in the making of glasses; used in beaches and it is also a habitat for crustacean species and marine organisms. Sand is also used in reclamation as topsoil in abandoned mines (post-mining land reclamation).<sup>9</sup>

Although sand mining is crucial for urbanisation, the activity is associated with various social and environmental impacts. Socially, illegal sand mining has escalated crime and violence; it has also escalated corruption on the part of governmental officials who ignore the non-compliance of mining permits by companies; excessive sand mining on beaches can also negatively impact on the development of the local tourism industry.

It is a known fact that, sand mining also negatively impacts on the environment especially the rivers and wetlands. For instance, in Uganda, due to lack of monitoring, most mining companies operating in the Lwera wetland were scooping sand from the wetland 12 metres underneath instead of the recommended 3 metres; in **Sierra Leone**, the beaches along Lakka, Tokeh and Lumley were negatively impacted by the illegal sand mining, prompting the Environmental Protection Agency (EPA) in 2018 to temporarily put some measure to reduce on the sand mining activities on these beaches.<sup>10</sup>

**In Ghana**, illegal sand mining is a direct threat to coastal tourism in the central region. Additionally, the activity has had various social and environmental impacts as evidenced in several areas including Cape Coast and Elmina; sand beach at Moree; Biriwa, where that the sand that served as a defence mechanism against the heavy tidal was removed by illegal miners;

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<sup>9</sup> Nalule, V.R., 2020. Social and Environmental Impacts of Mining. In *Mining and the Law in Africa* (pp. 51-81). Palgrave Pivot, Cham.

<sup>10</sup> Awokono Newspaper, <https://awokonewspaper.com/sierra-leone-news-beaches-under-attack-from-sand-miners/>. Last updated on 22 October 2018. Last accessed on 3<sup>rd</sup> May 2020.

and many other affected areas.<sup>11</sup> In **Mozambique**, several companies are involved in the extraction of sand including the China's Dingsheng Minerals which was issued with licences in 2019. The country has experienced the negative impacts of sand mining. For instance, in 2015, following the extraction of sand, coastal flooding was experienced at the village of Nagonha in Nampula Province destroying 48 houses leaving 290 people homeless.<sup>12</sup>

The challenges above partly point to the lack of effective policy planning, regulation and management. In this respect, the next section taking the case study of Uganda, highlights some of the key policy and regulatory considerations that African policymakers should take into consideration in the development and management of sand mining activities.

### **2.1. Sand Mining in Africa: Legal and Institutional Gaps**

As discussed in the preceding section, not much attention was given to construction minerals in the past- this explains the current institutional and regulatory challenges in managing sand mining on the African continent.

We must take note of the transboundary character of sand mining which is influenced by the scarcity of sand in some regions hence leading to international sand trading. This has indeed influenced UNEP to take initiatives aimed at formulating standard global rules on sand mining governance and management. Albeit, these initiatives are likely to be less effective if the issue of sand mining is not adequately tackled at the national and regional level.

Nevertheless, African governments are actively addressing the exploitation and governance of construction minerals including sand. In Uganda for instance, just like in many African countries, the previous mining legislations did not consider the regulation and governance of construction minerals such as sand. However, this is being rectified by the new mining laws. In this respect, Part V of the Mining and Mineral Bill 2019, provides for the exploitation of construction minerals. The Bill under clause 100, requires mining companies interested in exploiting construction minerals for commercial purposes to acquire a licence.<sup>13</sup> The Bill also

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<sup>11</sup> For a full discussion on the environmental impacts of sand mining, see, Nalule, V.R., 2020. Social and Environmental Impacts of Mining. In *Mining and the Law in Africa* (pp. 51-81). Palgrave Pivot, Cham.

<sup>12</sup> Nalule, V. R. (2020). Social and Environmental Impacts of Mining. In *Mining and the Law in Africa* (pp. 51-81). Palgrave Pivot, Cham.

<sup>13</sup> Clause 100 of the Mining and Mineral Bill, 2019



provides for large-scale, small-scale and artisanal mining of construction minerals.<sup>14</sup> Although the Bill recognises that the government has ownership of these minerals,<sup>15</sup> the issue that arises is whether there are strong institutions to ensure that the government governs sand extraction in the whole country. With the increased role of sand, it might be necessary for the government to establish an independent institution focused on managing sand mining activities in the country.

Additionally, it is important to note that, construction minerals are different from precious minerals and as such the technical and financial requirements to develop these resources may differ greatly. Are these differences taken into consideration by the policy makers when including provisions relating to construction minerals in the mining laws? What about the rehabilitation and mining closure requirements? Are the concerned companies able to offer financial guarantees to ensure that the land is rehabilitated at the end of their operations? Are there provisions to ensure that sand is preserved for the anticipated urbanisation on the African continent?

There indeed several issues with respect to the regulation and management of construction minerals and all of them cannot be addressed in this short paper. Nevertheless, it is important for policy makers to understand that construction materials are different, and their impact may differ. For instance, the Ugandan Mining Bill defines ‘Building substances’ to refer to non-metallic or non- fuel minerals that include clay, marram, sand or any stone commonly used for construction or similar purposes.<sup>16</sup> With this definition, all the construction minerals are put in the same category and as such will be regulated in the same way. But we note that, the importance of these minerals might not be the same. For instance, the circumstances surrounding sand mining are different from those surrounding marram. In this respect, it might be necessary to pay extra attention to some key construction minerals and devise means of effectively monitoring the development of these.

Taking stock of the above, we note that there are still institutional and regulatory gaps to be filled by policymakers with respect to the governance of sand mining on the African continent.

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<sup>14</sup> Large-Scale mining is provided for under clauses 103-106; small-scale mining is provided for under clauses-107-109; and artisanal mining is provided for under clauses 110-112. The Mining and Mineral Bill, 2019

<sup>15</sup> Clause 99 of the Mining and Mineral Bill, 2019

<sup>16</sup> The Mining and Mineral Bill, 2019

The laws have to address the role of sand in the anticipated urbanisation on the African continent; the laws have to effectively put measures in place to ensure that companies to comply with land rehabilitation requirements at the end of their activities; the laws have to provide for local development, where by areas and communities where sand is mined from benefit from the resource.

### **3. Concluding remarks**

In a nutshell, there are various challenges associated with sand mining. Firstly, most African countries lack proper legislation regulating the sector; there is also lack of adequate data as most sand mining activities are undocumented; lack of finances on the part of environmental agencies and as such they fail to monitor the activity and lack of policies supporting responsible sand mining.

The institutional and regulatory gaps with respect to sand mining is evident in most African countries. These gaps must be addressed if the continent is to benefit from the anticipated increase in urbanisation and infrastructural development. The international community is taking initiatives to govern sand mining globally, however, solid initiatives have to be effected at the national and regional level. There are indeed many considerations that cannot be exhausted in this short paper. Rather, the paper gives a brief insight of how sand mining should be regulated and managed on the African continent.