

# SAND MINING: THE ISSUES FOR RESPONSIBLE INVESTORS

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## WHY IS SAND MINING AN ISSUE?

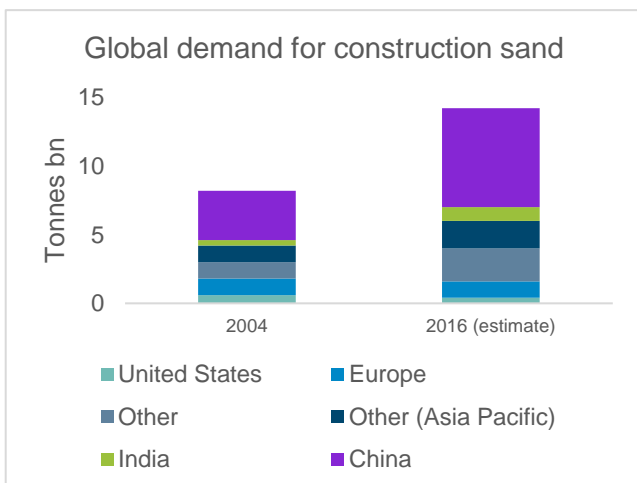
In our recent Amity Insight: Sustainable Cities - we looked at how cities have changed and some of the challenges they face, as they seek to adapt to accommodate ever more people. One of the issues we explored in the Insight was the increasing demand for construction sand as cities struggle to keep up with housing demand whilst competing to build the tallest buildings all over the world. In this SRI Expert Briefing we look deeper into this area of increasing concern.

## WHY DO WE NEED SAND?

Sand is used for a large variety of applications, ranging from water filtering to the production of semi-conductors, to the making of glass as well as paint, and it can even be found in cosmetics. However, it is the construction sector that requires sand in large amounts as it is the main component for concrete and asphalt. In fact, concrete is the most used man-made material in the world, with twice as much concrete used in construction than wood, steel, plastic and aluminium combined. As a result, sand is the second most consumed natural resource after water.

## HOW MUCH SAND DO WE USE?

Sand has become a globalised commodity and it is estimated that the world now consumes 15 billion tonnes of it every year<sup>1</sup>. Statistics are however uncertain, as national accounting is inconsistent and some uses of sand are often not reported – such as the sand used for fracking or land reclamation.



Source: the Economist

## WHY IS CONSUMPTION INCREASING?

With rising urbanisation, demand for construction sand has increased significantly. In the US alone, use of construction sand has increased by 24% from 2011 to 2016<sup>2</sup>. In developing countries, demand has risen even more rapidly: in India, the amount of construction sand used annually has more than tripled since 2000 and continues to rise, whilst China used more cement between 2011 and 2013 than the US used in the entire 20th century<sup>3</sup>. Places like Singapore and Abu Dhabi have also used vast amounts of sand over recent decades to allow them to expand through reclaiming land from the sea.

## WHERE DOES SAND COME FROM?

Sand is not a renewable material. Instead it is formed by erosive processes over time – in fact a very long time as the process takes thousands of years. Through wind, rain and other weather conditions, rocks are broken down into smaller particles. In the past we have extracted sand from quarries, however as these sources have become exhausted, sourcing now occurs from riverbeds and even from the bottom of the oceans.

## ISN'T SAND AN INFINITE RESOURCE?

It is true that there is a lot of sand on Earth and sand is a common resource which is easy to access. For instance the Sahara, the largest desert on earth, covers 10% of the size of the continent of Africa and is the size of the United States. As mentioned earlier, however, sand is not a renewable resource. In addition, not all sand is equal and therefore not all sand can be used for construction. Rounded sand grains found in sub-tropical or coastal deserts do not aggregate well in construction materials, whereas high salt levels in ocean sand requires cleansing first. In practice this means that places like Abu Dhabi, although on the edge of a desert, need to import sand from other countries.

## WHAT ARE THE ENVIRONMENTAL CONSEQUENCES?

Sand extraction has caused severe environmental damage including soil erosion, landslides, and disturbances to ecosystems, as well as beach disappearances. Sand plays an important role in protecting coast lines, and studies show that intensive sand mining has made tsunamis more devastating: when beaches disappear there is no natural barrier to flooding. Sand mining in river beds and lakes also causes problems as dredging destroys local habitats and thus fish disappear. Intensive sand mining has also led to infrastructure damage: globally there have been several cases of collapsing bridges, whilst in the US several coastal areas have seen the foundations of seafront houses break down. In Indonesia, sand

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mining from ocean beds has even led to the disappearance of over 20 small islands.

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## ARE THERE ANY OTHER ISSUES?

Access to construction sand has become scarce and therefore a source of conflict. The extraction of sand has consequently been linked to so-called “sand mafias” and corruption. Criminal groups are allegedly dredging sand without the consent of local communities and opponents have been killed whilst local authorities have allegedly accepted bribes to allow the activities to continue. As with all mining operations, relations with local communities are a key issue and companies operating in this sector should aim to support and protect human rights.

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## IS THERE NO REGULATION?

There are no international conventions to regulate sand extraction, use and trade. Some national regulations exist but are difficult to enforce. Local authorities have in some countries placed a ban on sand mining including parts of Kenya, India and California, but this does not always succeed to stop illegal mining. As supply becomes scarcer, some countries have also decided to keep the sand for themselves: Indonesia, Malaysia and Vietnam have all decided to limit the amount of sand that can be exported to Singapore – the world’s largest sand importer.

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## ARE THERE ANY ALTERNATIVES?

As construction sand becomes rarer and less available, researchers have been looking for alternative aggregates in concrete. Various waste streams from industrial processes are being considered. For instance copper slag (a by-product of copper extraction), coal ash, furnace slag (generated by the iron and steel industry), or construction waste could be substitutes to a certain extent. However, not all have proved to be equally strong when used to make concrete and not all these options have been approved by building standards where strength is an overriding concern. It is also possible to “manufacture” sand through the crushing of granite, which allows manufacturers to pre-determine the properties needed for construction purposes. Of course, in some cases concrete may be replaced all together by bricks or wood, even though these bring their own sustainability challenges.

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## WHY IS THIS AN ISSUE FOR INVESTORS?

Companies in a variety of sectors rely heavily on sand to manufacture their products. Within the construction sector, building companies as well as manufacturers of building materials should ensure they source sand in a sustainable

manner without causing environmental damage or fuelling local conflicts. Both represent areas of risk with potential reputational risk and could also put a company’s license to operate in a region in jeopardy.

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## WHAT IS EDENTREE’S APPROACH?

At EdenTree we invest in responsible companies and engage on a variety of relevant issues with our holdings. Through our positive screening process we are unable to invest directly in extractives companies. However we may invest in companies further up the supply chain that source raw materials to make their own products. Whether it is cobalt to make batteries, wood to make packaging or sand to make concrete, we expect companies to have robust sourcing policies in place, to question their suppliers and ensure resources have been extracted in a responsible manner. As this is an emerging area of risk, we will be scoping our exposure to sand use and seeking to engage where appropriate.

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## SOURCES

1. The Economist and the Freedonia Group
2. World Economic Forum
3. The Guardian, 30 December 2017

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## THE EDENTREE SRI TEAM



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We have a specialist in-house Socially Responsible Investment (SRI) team who carry out thematic and stock-specific research to identify ethically responsible investment ideas for our range of Amity Funds. Headed up by Neville White, Head of SRI Policy & Research, and supported by Responsible Investment Analyst Esmé van Herwijnen, the team is also responsible for creating an on-going dialogue with companies, allowing us to engage on a wide variety of ethical and socially responsible investment concerns. For investors, it's an added layer of assurance that client money is being invested in companies that are operating in a responsible and sustainable way. Our ethical and responsible investment process is overseen by an independent Amity Panel that meets three times a year, and comprises industry and business experts, appointed for their specialist knowledge.

**We hope you enjoy this SRI Expert Brief and find it useful and informative. For any further information please contact us on 0800 011 3821 or at [ifa@edentreeim.com](mailto:ifa@edentreeim.com)**