



# ZAMBIA NEWSLETTER



DECEMBER 2016



## Zambia commemorates world wetlands day 2016

This year's theme, "Wetlands for Our Future: Sustainable Livelihoods" draws attention to the important role of wetlands in supporting sustainable livelihoods. Millions of Zambians directly depend on wetlands for agriculture, fisheries, livestock rearing and much more through wetlands dependent.



### View From The Youth.

*Mukuma Thomas*, This month's view from the canopy follows youth thinking to our newsletter readers. Over the 19th and 20th centuries, Europe's large carnivore populations saw their numbers and distribution decline dramatically, mainly due to human intervention, such as hunting pressure and habitat loss. This trend, however, was reversed in the last few decades, primarily thanks to the European Union's Birds and Habitats Directives, forming the backbone of nature conservation in Europe. The Nature Directives protect a range of species and habitats across the 28 member states of the European Union, including bears, lynx, wolverines and wolves.



### At The Verge Of Extinction.

*Mwale Jackson*, it seems a timely moment to summarise the current rate of Rhino deaths. We all know the image of a rhino poaching by now. Seen the bloated carcass of a once majestic animal and of course, the cruel empty space of missing horns set against blood red tissue and bone. We're able to easily float it in front of our eyes... whether we've seen the image once or a hundred times. Seen the bloated carcass of a once majestic animal and of course, the cruel empty space of missing horns set against blood red tissue and bone. We're able to easily float it in front of our eyes.



### The World and Elephants.

*Mukuka Mwamba*, Under the current trajectory, the future of many living .es-  
thetic values  
Soil formation  
Medicinal resources  
Fresh water  
Air quality regulation  
Climate regulation  
Water regulation  
Erosion regulation  
and waste treatment  
Water purification  
pest regulation  
Disease and-  
Pollination  
extreme events  
Moderation of  
Photosynthesis  
Nutrient cycling  
religious values  
Spiritual and and ecotourism  
Recreation  
physical health  
Mental and Food  
Raw materials  
The way we appropriate natural resources has had a tremendous impact on the Earth's environmental systems, impacting both people and nature. This, in turn, affects the state of biodiversity and

## ECOSYSTEM SERVICES: LINKING NATURE AND PEOPLE

While it produces dramatic results in your yard and garden, this isn't the only use farmers have found for biochar. This product is one of the most exciting fields of research and has practical applications for storage of nutrients, as insulation in building, and as filters, silage agents, feed supplements and energy storage in batteries. Presently, 90 percent of the biochar used in Europe is utilized in animal farming. When biochar is used beneath poultry litter it absorbs the ammonia, reducing the smell almost immediately.<sup>21</sup> Poultry farmers may also find that, used as a feed supplement, incidence of diarrhea and allergies in the animal decreases and feed intake improves.

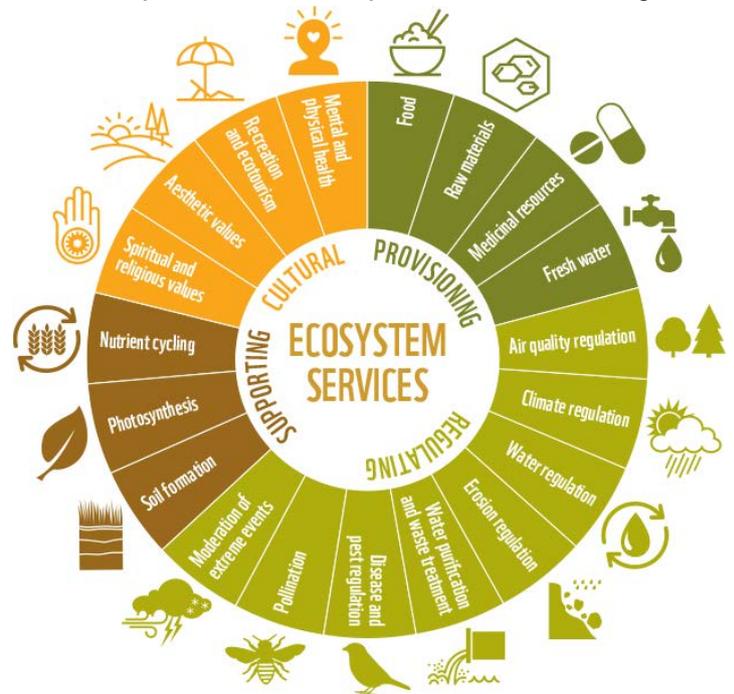
In the construction industry, the extremely low thermal conductivity and ability to absorb water makes biochar outstanding for insulating and regulating humidity in buildings.<sup>22</sup> Biochar also efficiently absorbs electromagnetic radiation, making for a healthier interior environment.

Since biochar has a large surface area for the size of the product, it also has great potential to filter water and can be used as a soil additive for remediation in areas of former mines and landfill sites. It can also be used to prevent pesticides from entering surface water and to treat pond and lake water contaminated with pesticides and fertilizers.<sup>23</sup>

As biochar is an excellent absorbent material, it may even be added to mattresses and pillows to absorb perspiration and odors, and shield against electromagnetic radiation. The insulation qualities help reflect heat and reduce heat build-up during the summer months. Plants naturally absorb carbon from the air and isolate it in the plant, as it is used for nutrients. When yard waste is burned in an oxygenated atmosphere, carbon is released and the process increases the total amount of carbon in the atmosphere.

As yard waste decomposes or is composted, carbon is also released back into the air. However, when the same waste is treated to create biochar, the process becomes carbon negative, as the carbon remains inside the product and is not released into the atmosphere. Once the biochar is added to the soil, it may remain for up to 1,000 years, providing a home for beneficial soil microbes and efficiently keeping carbon in the land. The biochar will be put back into the soil to stabilize carbon and serve as a basis for improving soil microorganisms, retaining water and preventing soil erosion.

This process emulates the natural production of charcoal, with the exception that charcoal is used mainly as fuel and the primary application for biochar is used to amend the soil with the intention to improve soil function and reduce carbon emissions. The production of biochar is the combination of time, heat and pressure that may vary between different processors. The main process is called pyrolysis, or the heating of biomass in limited or absent oxygen environments. With the production of biochar, energy is produced in the form of gas or oil that may be recovered and used. The Stockholm project anticipates using the energy byproduct to heat homes. The biochar will be put back into the soil to stabilize carbon and serve as a basis for improving soil microorganisms, retaining water and preventing soil erosion. While the application of biochar may have an immediate and positive effect on the soil and plant life, it is actually the beginning of a long-term process of restoring the soil. Colonization of the soil with beneficial microbes and fungi and the increase in surface area may dramatically increase the ability of the land to nurture growth.



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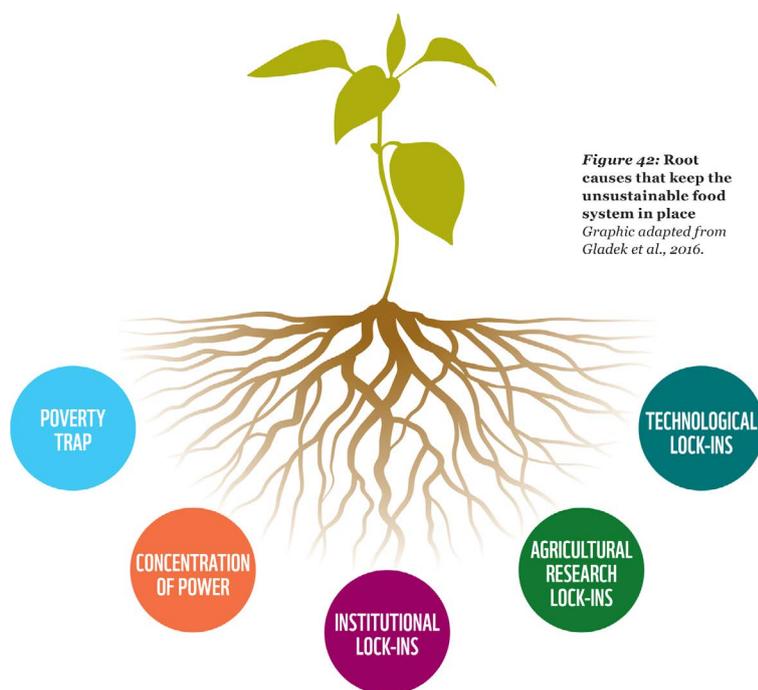


Figure 42: Root causes that keep the unsustainable food system in place  
Graphic adapted from Gladek et al., 2016.

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