



Current Status of Harare Wetlands (July 2020)



CURRENT STATUS OF HARARE WETLANDS

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On behalf of Harare Wetlands Trust

SUMMARY

1. Harare's wetlands are critical to the future sustainable development of the city.
2. Wetlands form a vital part of the water supply infrastructure for Harare and many other urban centres.
3. Wetlands in Harare have already been greatly reduced in extent and the remaining portions extensively degraded.
4. Despite specific legislation to protect wetlands introduced during 2007, about half of all wetlands have been lost since this time through conversion to development.
5. This is adversely affecting the supply of surface and groundwater for Harare.
6. The problem is continuing - currently there are more than 250 sites where there are recent or ongoing developments on wetlands.
7. It is critical that remaining wetland areas should be kept free of development and agriculture, restored to their natural state and specifically managed for water production.
8. Failure to address this situation will directly enhance future water problems in the city.

1. Wetlands and Water

Wetlands are the primary source of water for Harare. These are areas where water collects and through which it gradually flows downstream to Lake Chivero and Lake Manyame. Wetlands serve to collect and store water, to moderate the flow of water, to purify the water and contribute to the recharge of groundwater. These important services are vital to the overall water system in Harare.

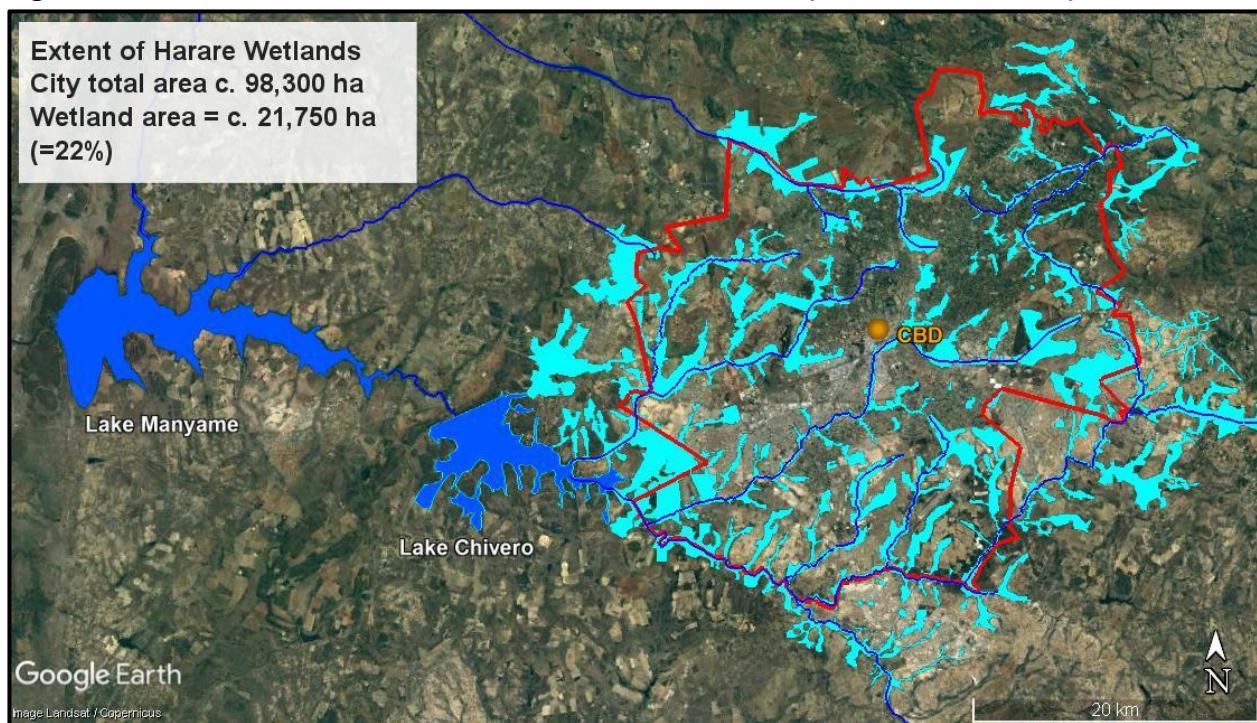
This is particularly important in light of the ongoing persistent water crisis whereby Harare Water is unable to provide adequate supplies of clean water to the majority of the city's residents.

Wetlands provide a wide range of additional important functions and services; primarily relating to the fact that they support high biodiversity and provide virtually the only remaining open spaces within the overall built up environment.

2. Current Extent of Wetlands in Harare.

The current extent of wetlands in Harare is about 21,750 ha, which constitutes some 22% of the overall area of the city (Figure 1). The majority of the city is drained by the Manyame, Mukuvisi and Marimba rivers, all of which feed into Lake Chivero. The northwestern portion is drained by the Gwebi River which flows into Lake Manyame, whilst the northeastern portion is drained by the Umwindsi River which forms part of the Mazowe Catchment.

Figure 1. Current extent and location of wetlands in Harare. (Source: HWT, 2020).



3. Reduction of Wetlands in Harare

The overall extent of wetlands in Harare has been greatly reduced in extent through conversion to development (Figures 2 and 3).

Figure 2. Example of housing development (red outline) within Tynwald Wetland (shaded area), immediately adjacent to a headwater drainage.

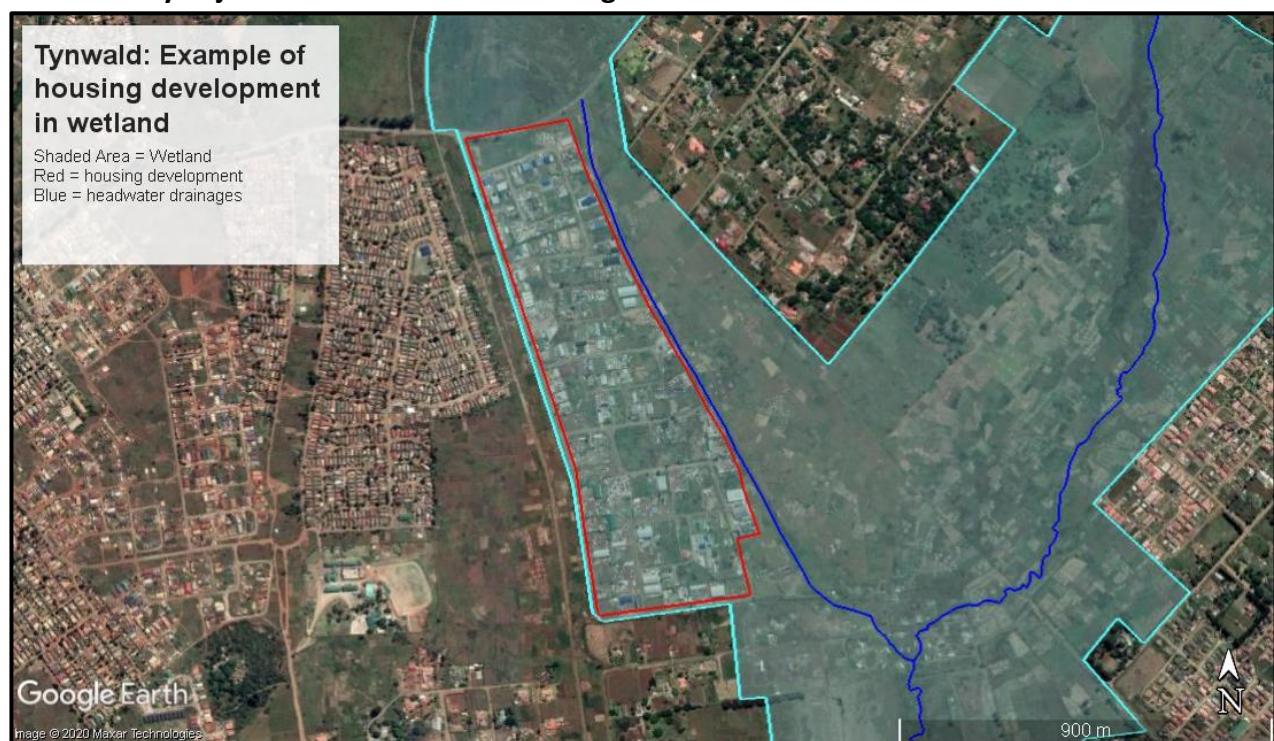
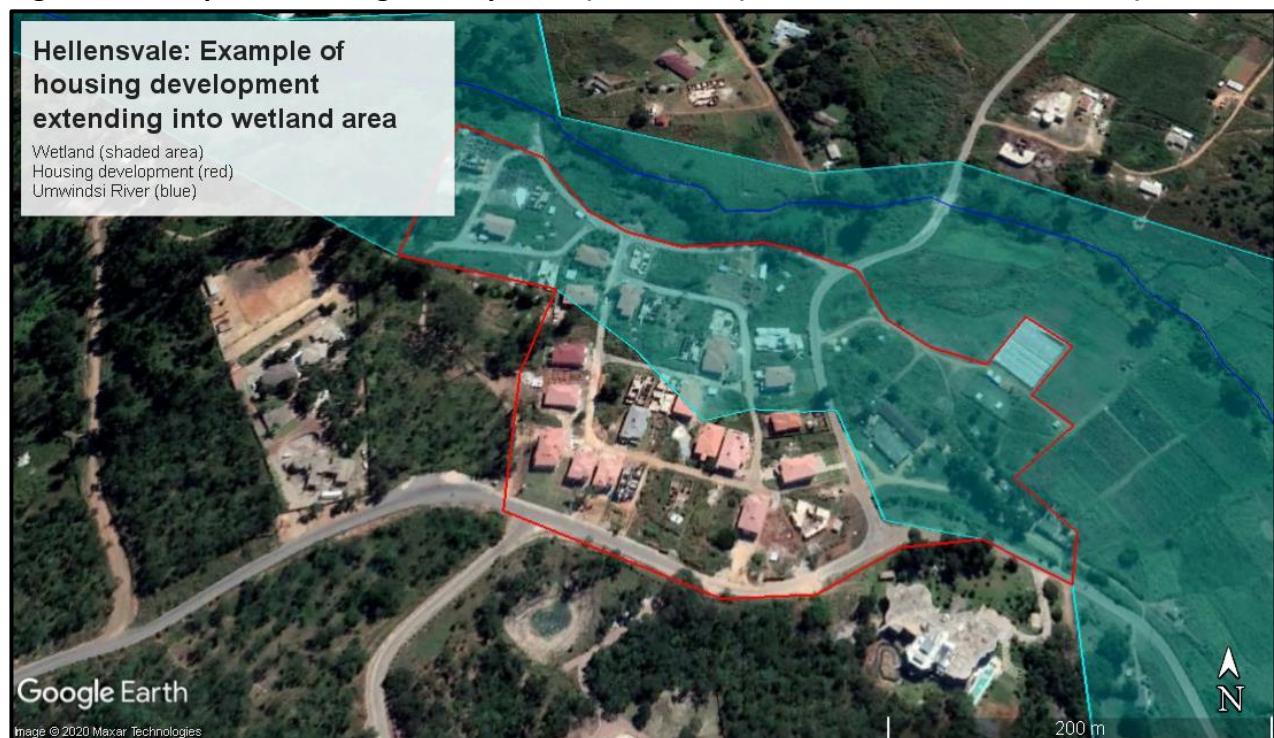
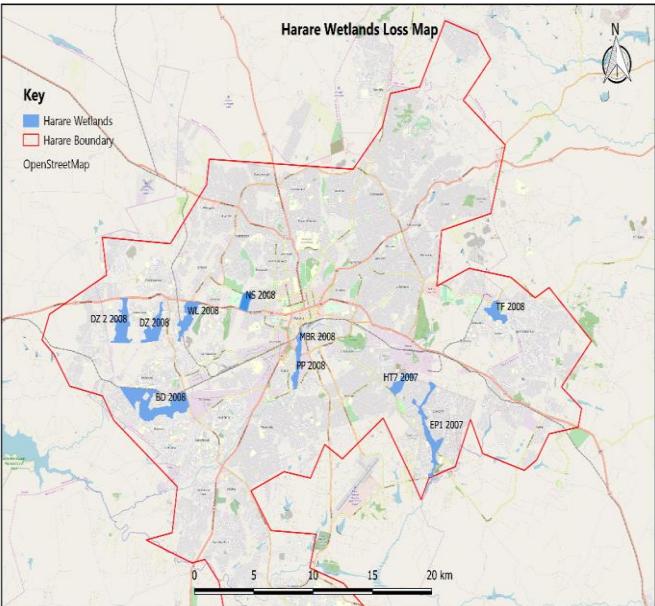


Figure 3. Example of housing development (red outline) within Hellensvale Wetland (shaded area).



It is estimated that most wetlands have already been reduced by between 30 and 70%. A recent study of 10 wetlands (Moyo and Cunliffe, 2020) shows a mean loss of area of 50% over the 11 year period from 2008-2019 (Figure 4). Figures 5-7 show the extent of loss for Kuwadzana, Warren Park and Budiriro as examples.

Figure 4. Loss of area for ten wetlands in Harare over the period 2007/8-2019.

Location of Wetlands	Name of Wetland	Loss (ha)	% Loss
	Budiriro	237	48.8
	Dzivarasekwa 1	54	32.5
	Dzivarasekwa 2	72	30.0
	Epworth	178	78.8
	Houghton Park	71	71.0
	Mbare	16	30.8
	National Sports Stadium	32	36.4
	Prospect Park	13	15.7
	Tafara	55	46.2
	Westlea	56	30.8
	TOTAL	784	49.6

(Source: Moyo, L. and Cunliffe, R. 2020. Loss of wetlands in Harare, 2008-2019. Unpublished report prepared for Harare Wetlands Trust, Harare.)

Figure 5. Loss of wetlands in Kuwadzana from 2008-2019 (30%).

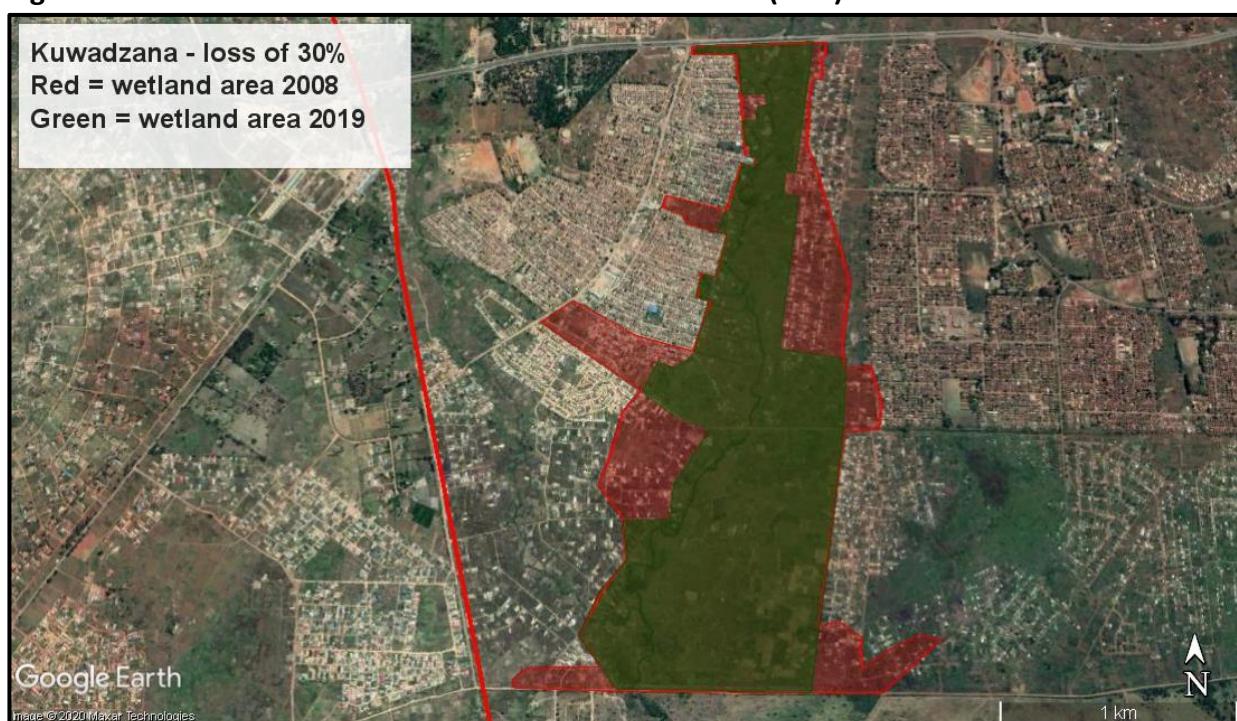


Figure 6. Loss of wetlands in Warren Park from 2008-2019 (31%).

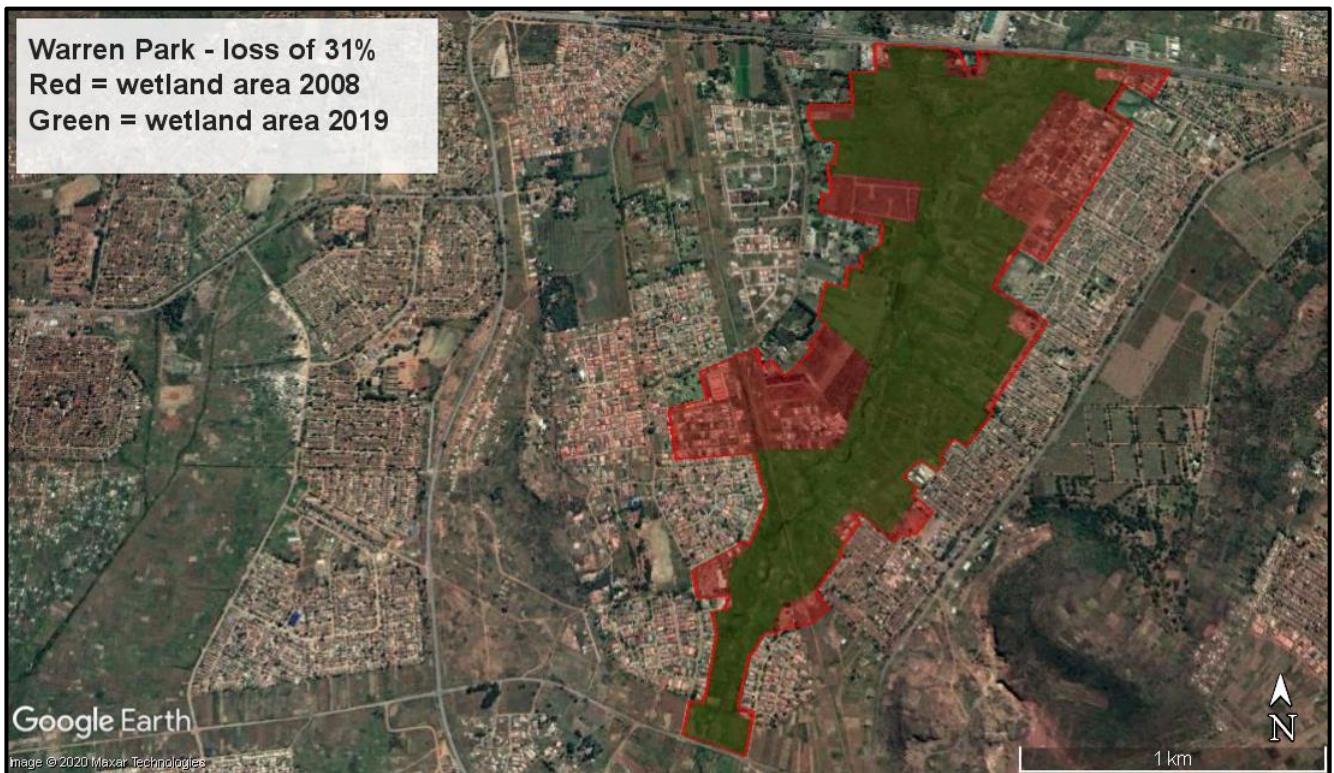
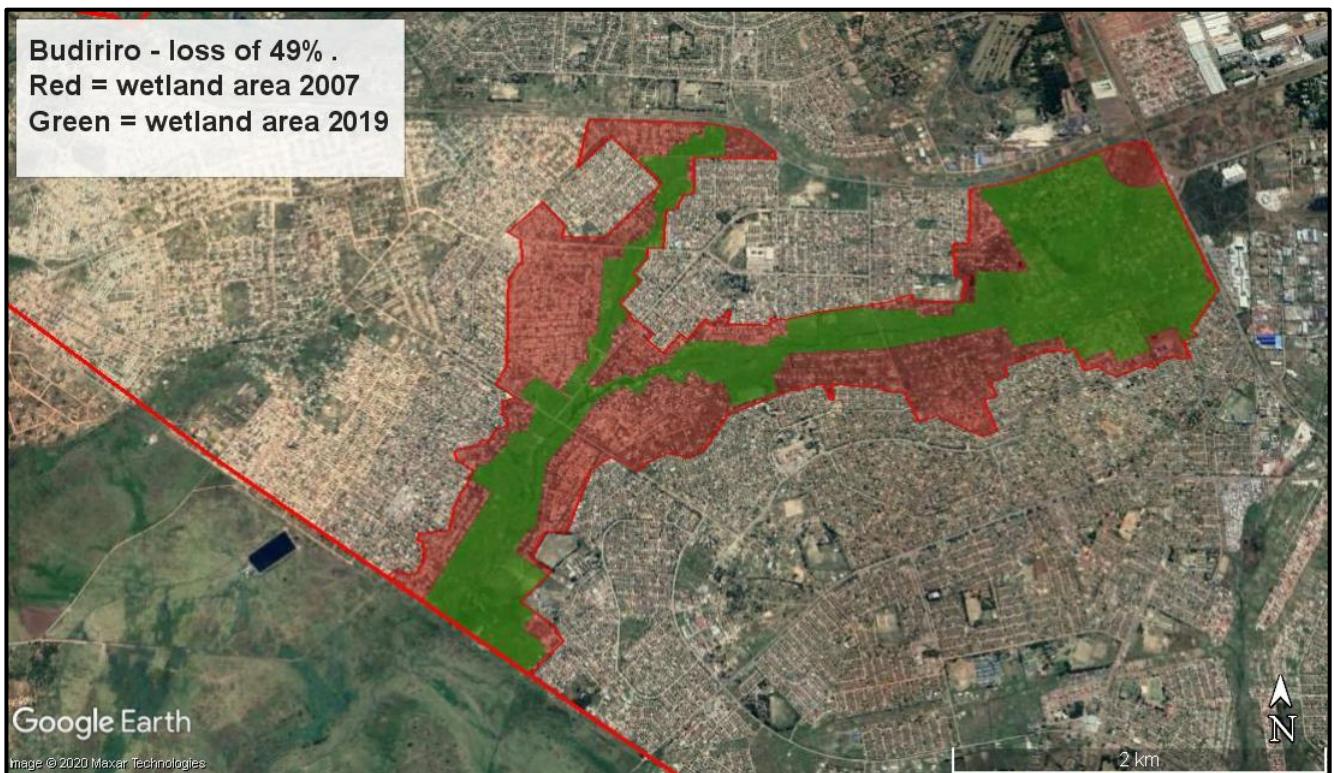
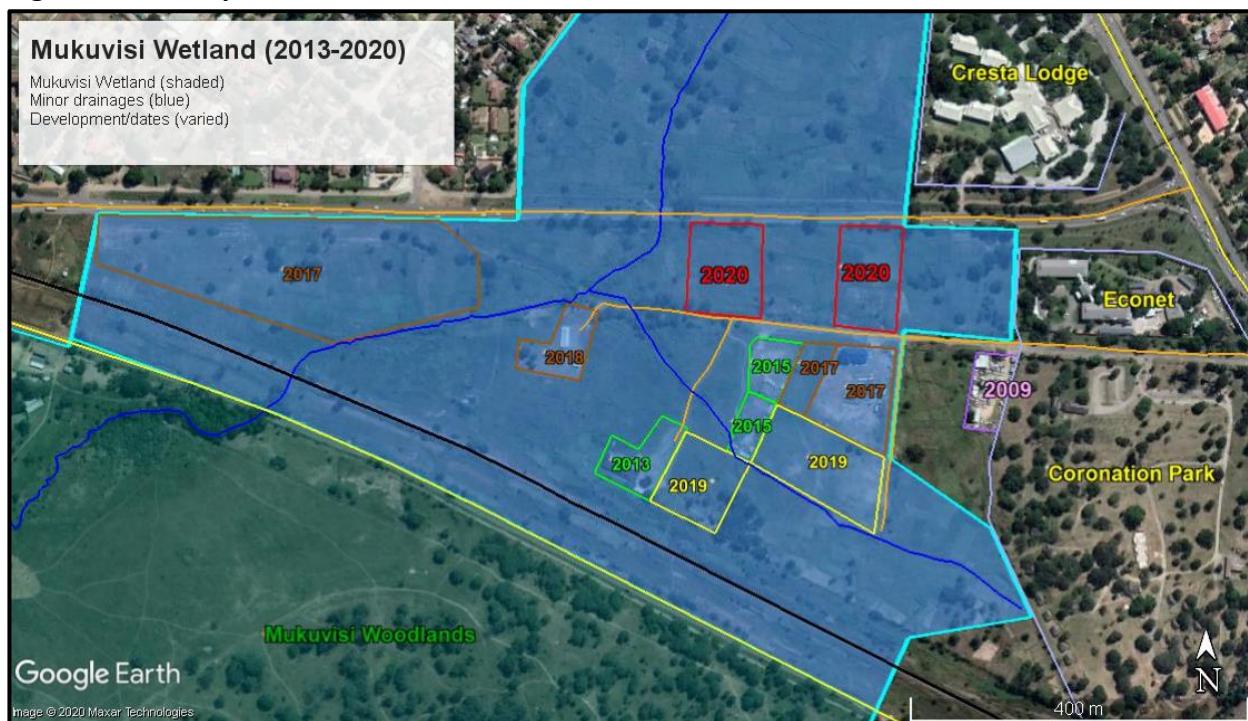


Figure 7. Loss of wetlands in Budiriro from 2007-2019 (49%).



Development often proceeds in piecemeal fashion leading to the gradual in filling of a wetland area. Figure 8 shows an example of how Mukuvisi Wetland has been gradually impacted by individual developments. The first of these started in 2013. Two more were initiated in 2015, then three in 2017, one in 2018, and two more during 2019. So far this year two more developments have been initiated (during the ongoing lockdown period).

Figure 8. Developments in Mukuvisi Wetland from 2013-2020.



Impacts of Development to Water Collection and Delivery

Development results in much of the soil surface area being sealed under roads, pavements, roofs etc. This results in increased and more rapid run off when it rains. This effect is exacerbated as there is less remaining natural wetland to receive and slow down the runoff. Results include reduced infiltration to groundwater, increased risk of flooding, drying of wetland areas, less opportunity for purification of water, and increased silt load and increased siltation within Lake Chivero, so further reducing the storage capacity of the lake.

4. Degradation of Remaining Wetlands

Virtually all remaining wetlands have been strongly degraded, particularly through conversion to agriculture, but also due additional activities including the abstraction of groundwater, extraction of sand and clay, the dumping of solid waste, release of sewerage and industrial effluents, and in places the direct draining of some wetlands. All wetlands have been impacted to a greater or lesser extent by use for agriculture, and to a greater or lesser extent by other aspects. Examples of some of these activities are shown below.

Examples of the spread of agriculture are shown for parts of Marlborough Wetland (Figures 9 and 10) and The Grange Wetland (Figures 11 and 12). Agriculture results in a loss of biodiversity and reduced ground cover. Often accompanied by local drainage works, this leads to increased run-off and erosion and downstream siltation. Removal of natural plant cover reduces the ability of the wetland to purify water, while water quality is further compromised though the use of agrochemicals.

Extraction of groundwater from wetlands and surrounding areas (Figures 13 and 14) is being carried out both for individual household supplies and for commercial use. Excessive use of groundwater is resulting in a lowering of the water table, and this is leading to a drying of wetland areas as well as reduced delivery of water to the downstream supply dams.

Some wetlands have been heavily impacted by the extraction of building materials, particularly sand (Figures 15 and 16), but also clay for making bricks. This results in loss of biodiversity and detrimental changes to the landscape, soil structure and hydrology.

Wetlands are being further degraded through widespread dumping of solid wastes on wetland areas and release of sewerage and other effluents to natural drainages (Figures 17 and 18). This results in increased pollution of surface and groundwater and directly contributes to increased costs of treatment of city water supplies at the Morton Jaffray Water Works at Lake Chivero.

Expansion of Cropping

Figure 9. Part of Marlborough Wetland downstream of sewerage ponds (2008).



Figure 10. The same part of Marlborough Wetland 2019 showing marked expansion of cropping.



Figure 11. Part of The Grange Wetland (2008) showing some cultivation.



Figure 12. The same area of The Grange Wetland 2018 showing marked expansion of cropping.



Extraction of Water

Figure 13. Borehole developed recently on Mt. Pleasant Golf Course on Vainona Wetland.



Figure 14. Commercial extraction of groundwater, Mandara.



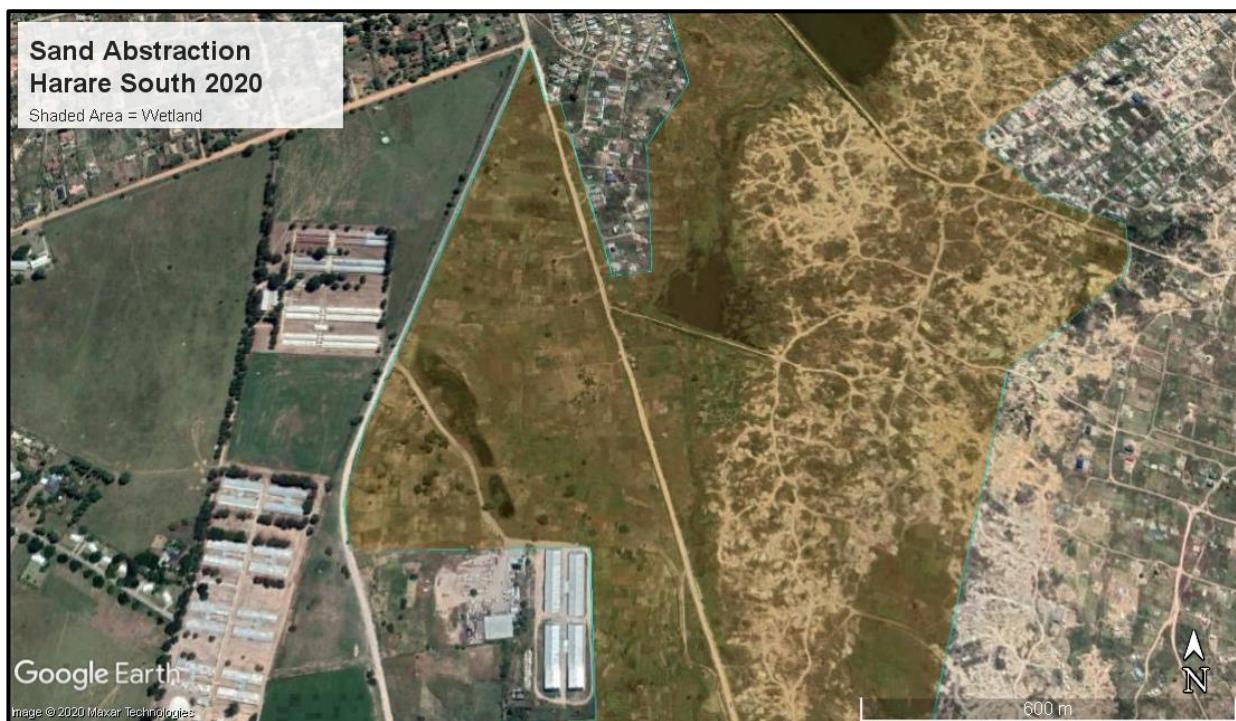
Sand Abstraction

Figure 15 shows an area near the airport in 2020, of which the central shaded portion comprises a wetland area. Figure 16 shows the same area in 2020, and on which one can see that much of the wetland area has been directly impacted by the extraction of sand (pale areas).

Figure 15. Wetland area (shaded) in Harare South 2000.



Figure 16. Same wetland area as above in 2020 showing widespread impact due to extraction of sand.



Pollution due to dumping of solid wastes and release of effluents.

Figure 17. Dumping of solid waste.



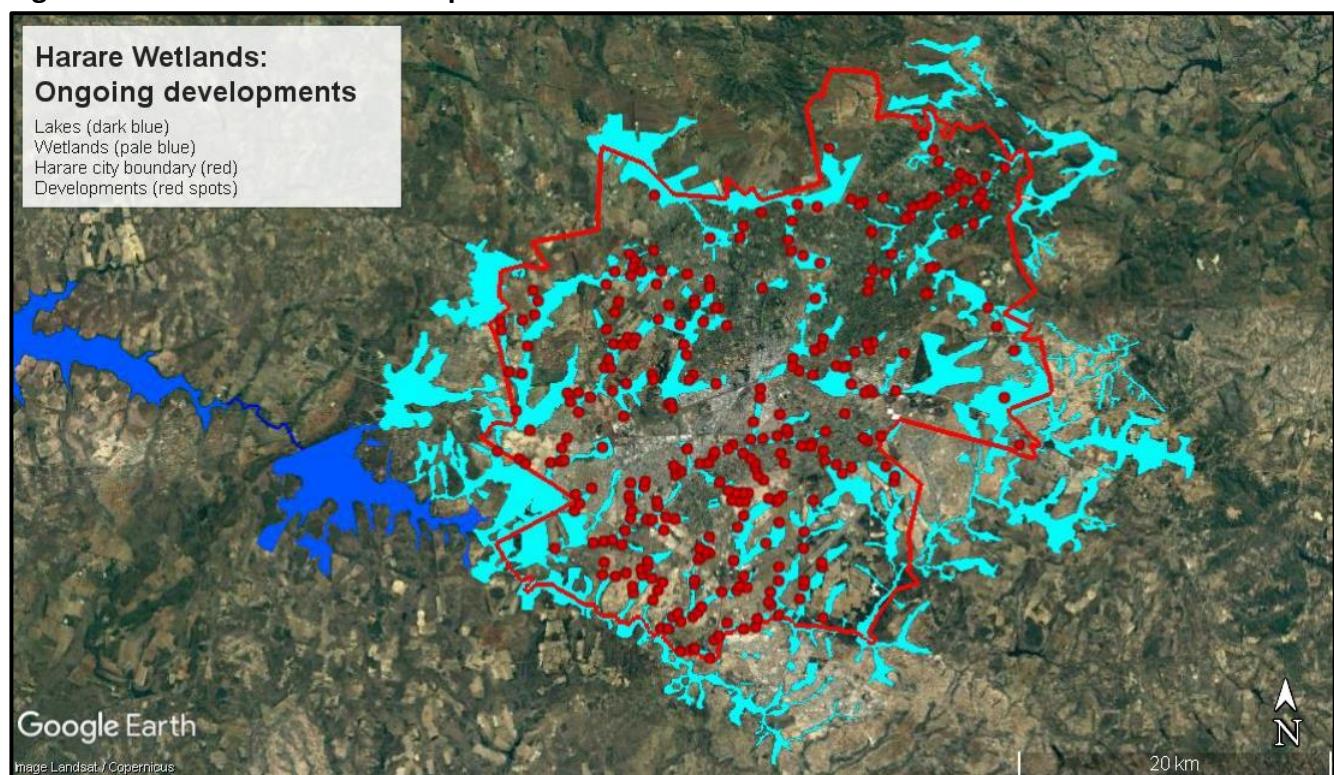
Figure 18. Release of sewerage from a blocked sewer main.



5. Despite legislative protection the loss is continuing

New legislation to protect wetlands was brought into effect in 2007. Despite this the loss of wetlands continues unabated. Analysis of recent GoogleEarth imagery resulted in the identification of over 250 sites where there are ongoing or recently initiated developments on remaining wetland areas in Harare (Figure 19). The message is clear, the development of wetlands is continuing at a rapid pace.

Figure 19. Current sites of development within Harare.



6. Implications for Sustainable Development of Harare

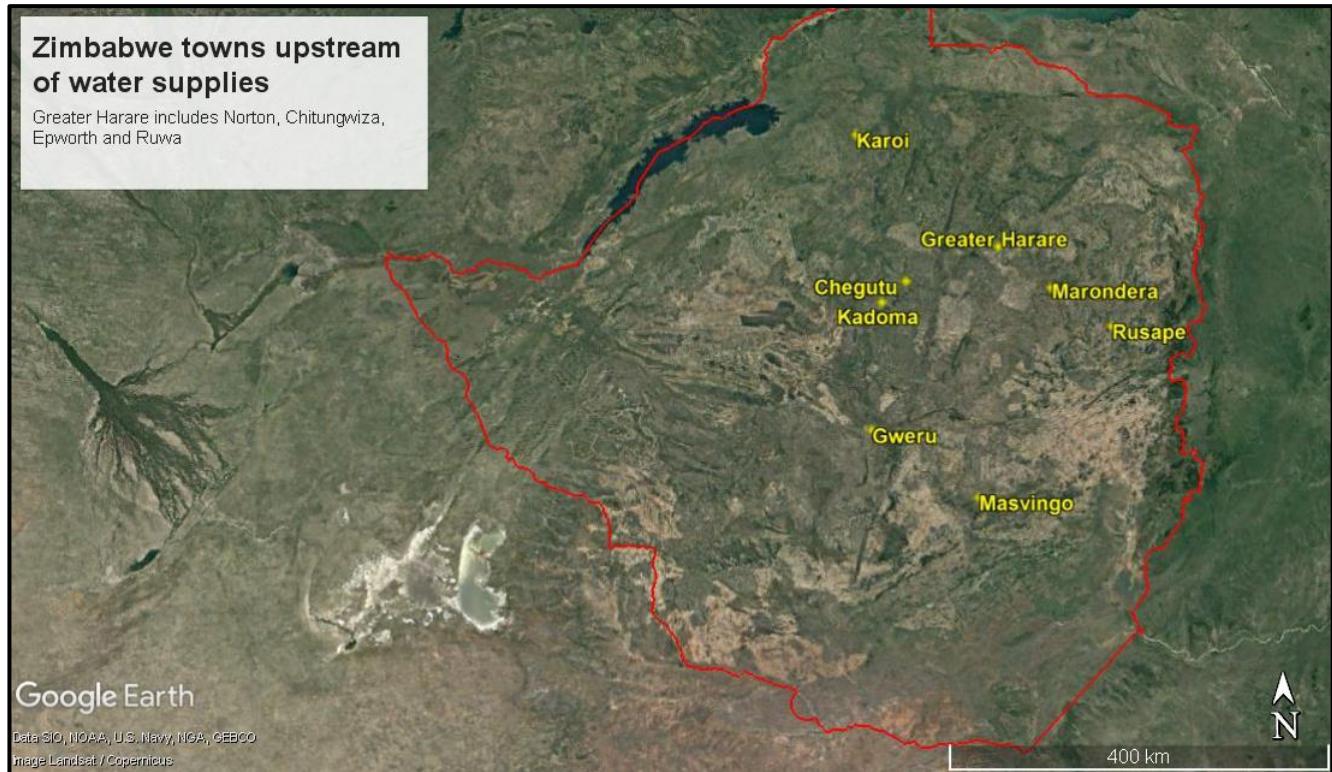
Degradation and loss of wetlands is directly impacting the city water supply, through enhanced runoff, increased flooding, reduced groundwater recharge, increased water pollution, reduced capacity for purification and increased siltation.

This situation is not compatible with sustainable development of the city. Sustainable development requires a reliable supply of clean water, and which will depend on the maintenance of intact wetland areas for the benefit of all residents. All remaining wetland areas should be kept free of any further development. Cultivation should be curtailed, and the wetlands should be allowed to return to a natural state and specifically managed for the production of water.

7. This applies to other urban areas in Zimbabwe

While the focus of this document is on Harare, it is important to note that the same considerations apply to many other urban areas in Zimbabwe (Figure 20). In particular, the towns of Norton, Chitungwiza, Epworth, Ruwa, Marondera, Rusape, Masvingo, Gweru, Kadoma, Chegutu and Karoi, like Harare, are all situated upstream of their main water supplies. This means that any development activities within these urban areas, particularly in wetland areas, will directly impact on their downstream water supplies.

Figure 20. Zimbabwean towns situated upstream of their main water supplies.



The end.