

## Response to Reviewer 1

1. Line 149:- The raw water has been defined by adding “untreated river water”:- The statement now reads as follows:

In this study the raw surface water or untreated river water was fed into the filter once a day and the resting time and filtration time were 24hrs and 2hr respectively

2. Three weeks were selected based on typical maturation periods. The following statement has been added after line 179:-

“The biological layer typically takes 20 to 30 days to develop to maturity in a new filter depending on the quality of the inlet water (CAWST, 2009; Mahlangu, 2011)”.

- 3 A C/N ratio of 1.8 was selected based on studies conducted by Aslan et al (2007), Gomez et al (2000) and Callado (2001). The following statement was added:-

“These two ratios were selected based on the optimum range of carbon to nitrogen ratio which was established by Aslan et al (2007), Gomez et al (2000) and Callado (2001) for de-nitrification in slow sand filtration, which ranged from 1.08 to 2.5”.

- 4 Data sets corrected due to typing error

- 5 Technical issues: Line 38 & 49 grammatical error corrected

- 6 The following references have been included:-

Lines 28-33            Murphy et., 2010 and CAWST, 2009.

Lines 37-38            Elliott et al., 2008; Mwabi et al, 2012; Van Halem et al., 2009.

Lines 40-42            Aslan et al., 2007; Craun et al., 1981; Shuval et al., 1977).

Lines:-87-89            Mahlangu et al., 2011

Lines:-91-96            Mohseni-Bandpi et al., 2013

Lines 98-100            Aslan et al., 2007; Gomez et al., 2000 and Callado, 2001

Lines 228-232            Wang et al., 1995; Drtil et al., 1995

Lines 55-57            Shaharudin, et al., 2017); Shuttle et al., 2006; Shoeman et al., 2002

- 7 Line 78; 91;            Gramatical errors corrected

- 8 Line 125 corrected: “Figure 1 shows the schematic diagram of the biosand filters which were constructed”
- 9 Line 145: Table 1: References included:-

Table 1: Summary of the design values used for the two filters (BSF & BSFC)

| Design parameter                          | Unit               | Recommended Value   | Applied Value |
|---|--------------------|---|---------------|
| Media depth                               | m                  | 0.3-0.5<br>CAWST (2007); Kubare et al. (2010)             | 0.3           |
| Supernatant depth                         | mm                 | 50<br>Lukacs (2002); Duke et al. (2006);<br>CAWST (2007)  | 50            |
| Surface area                              | m <sup>2</sup>     | 0.06<br>CAWST (2007)                                      | 0.071         |
| Effective size                            | mm                 | 0.15-0.40<br>CAWST (2007), Manz et al. (1993)             | 0.35          |
| Coefficient of uniformity                 | ---                | 1.5 to 3<br>Elliot et al. (2008); Manz et al. (1993)      | 2.64          |
| Filtration velocity (in clean filter bed) | m/hr               | 0.10 to 0.6<br>Kubare et al. (2010); Elliot et al. (2008) | 0.17-0.63     |
| Inflow rate                               | m <sup>3</sup> /hr | 0.03 to 0.04<br>CAWST (2007)                              | 0.04          |

- 10 Line 146: Gramatical error corrected
- 11 Line 174 the word “process” included