

Author Reactions to RC#2

On page 1768, I agree that the objective can be added as a sentence after line 15 as "The objective of the study is to simulate the effect of land use change in stream flow generation using SWAT"

Page 1773 discusses the data requirements for SWAT and what was used for analysis.

Page 1776-1779 discusses the key results of the study.

In my view, the main characteristics of an abstract are: (i) a brief methods/ tools (ii) data needs and (iii) key results. Page 1766 line 25-1767 line 1-20 clearly present these characteristics.

The bibliography represents international scientific literature. However, what the Referee should say is that previous relevant studies on this basin have not been cited. This was also pointed out by the first referee and I have since then included additional references.

One of the figures have been cited in the text e.g Fig.1 on page 1774 line18

Page 1775 line one should be changed as: From Fig.2, an increase in CN2 increases the stream flow, but the effect is more pronounced.....

Page 1775 line 10-11 should be revised to: "varied between 0.1–0.95. The result obtained by performing the variation of ESCO value showed that a decrease in ESCO value results in decrease in stream flow as shown in Fig.3."

Page 1775 line 20-22 should be revised to: "value of GWQMN was put at 0mm initially; by increasing the value of GWQMN the result gave a decreasing trend in the simulated baseflow and consequently on the stream flow as shown in Fig.4."

Page 1776 line 5-6 should be revised: By putting the initial value ϵ of the GW REVAP at 0mm, then varying it by between 0% to 50%, the result shown in Fig.5 indicates that when the groundwater "Revap" coefficient increases "

Page 1777 line 5-6 should be revised to: "The model over estimated the low flows at this station while the high flows were well estimated (Fig.6)."

The choice of the calibration/validation periods were based on data availability and the stream flow stations chosen presents the best records for Nyando basin.

The model calibration proceeded through optimization and the poor results could also be an indication of the model structure being inadequate to represent this system/basin.

Table 10: It is clear from any of the scenarios (A,B,C,D) that less % forest cover is associated with either less mean or peak simulated stream flow because of enhanced direct run off with a reduction of infiltration process. I do not see any confusion as pointed out by the referee. Many times scenarios must address the two possible extremes (0 to 100%) while we know the observed change is 7.5%.

Section 1.2 on page 1769 is changed to: 1.2 Model descriptions
Equation 4 has no A i.e. should be corrected to:

$$V = \frac{R^{2/3} S^{1/2}}{n}$$

Table 4 caption should be revised to: "Table 4: Model parameters used in calibration"