t

c

tStIc

cIC

cScIt

Cattle population

Tsetse fly population

**Descriptions of model variables**

𝑺c: Number of susceptible cattle population

𝑰c: Number of infected cattle

𝑹c: Number of recovered/removed cattle

𝑺t: Number of susceptible tsetse flies

𝑰t: Number of infected tsetse flies

𝑵c: The total cattle population.

𝑵t: The total tsetse population

**Descriptions of model parameters**

𝜷c: The cattle contact rate

𝜸c: Recovery rate for cattle

𝜷t: The tsetse flies contact rate

By considering the assumptions and the notations of variables and parameters, the ordinary differential equations describing the dynamics of African Animal Trypanosomiasis in the cattle and tsetse fly populations take the form as;