



Journal of Applied Biosciences 197: 20854 - 20863  
ISSN 1997-5902

## Co-integration Relationship between Urban Population Growth and Forest Area in the Democratic Republic of the Congo

David Famode Masamba<sup>1</sup>, Alphonse Mobonda Mata-Mowangi<sup>2</sup>, Koto-Te-Nyiwa Ngbolua<sup>3</sup>

<sup>1</sup>High Institute of Fishing, Democratic Republic of the Congo, High Institute of Fishing of Mbandaka, Democratic Republic of the Congo

<sup>2</sup>Department of Management of Natural Renewable Resources, High Institute of Fishing of Mbandaka, Democratic Republic of the Congo

<sup>3</sup>Department of Biology, Faculty of Science and Technology, University of Kinshasa, Democratic Republic of the Congo

Corresponding author e-mail: [jpngbolua@unikin.ac.cd](mailto:jpngbolua@unikin.ac.cd)

Submission 8<sup>th</sup> May 2024. Published online at <https://www.m.elewa.org/Journals/> on 25<sup>th</sup> June 2024.  
<https://doi.org/10.35759/JABs.197.5>

### ABSTRACT

*Objective:* This study aims to estimate the relationship between forest area (FA) and urban population growth concerning Democratic Republic of the Congo.

*Methodology and Results:* The data collected from World Bank by documentary technic, covering the period from 1990 to 2020. Phillips-Perron test showed that in first difference; the variables selected are stationary. We used the cointegration estimation after Johannsen test, which revealed that there is a nexus between the variables. The results from the Vector Error Correction (VEC) model showed that if urban population increases to one percent, forest area increases to 21.3%. Moreover, if population density increases to one percent, forest area declines to 11%. However, these results are not significant at 95%.

*Conclusion and application of results:* It revealed that explanatory variables have not a significant impact on FA. The actors must stabilize peri-urban agricultural population in the same landscapes for a long run, by using some innovative technics. The struggle against rural exodus by rural development policies remains also among solutions. In addition, we recommend the fishing, the aquaculture and the pisciculture like the durable economic activities, which have not a risk for climate.

**Keywords:** Urban population growth, Forest area, Sustainable development, Democratic Republic of the Congo.