



**AFRICAN FORUM**  
ON URBAN FORESTS

# 2nd African Forum On Urban Forests

*Green Horizons: Shaping the Future Resilience of African Cities through Urban Forests*

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*in partnership with:*



Food and Agriculture  
Organization of the  
United Nations



# Potential of Controlled Natural Tree Regeneration (CNR) towards urban forest management in Kampala, Uganda.

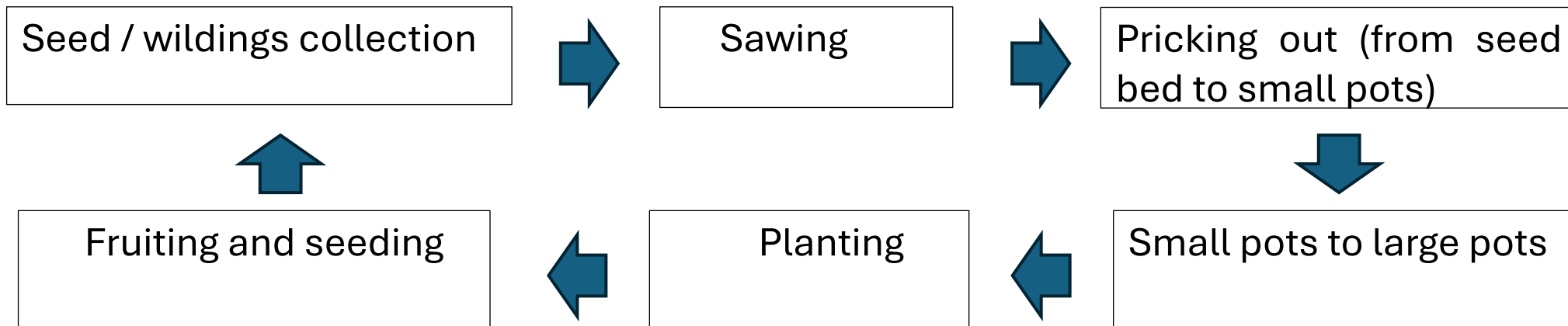
MARVIN BOGERE KIBALAMA



# Background of the research

## Controlled Natural Regeneration (CNR)

This is the strict management and protection of the natural re-growth of trees on streets and in parks of urban areas.

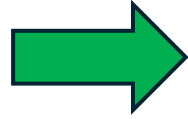


# Background of the research

## Controlled Natural Regeneration (CNR)



Mother tree (fruiting)



Seeds and wildings



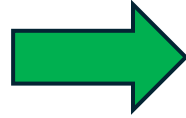


# Background of the research

## Controlled Natural Regeneration (CNR)



Seeds and wildings



Urban forester collects seeds and wildings

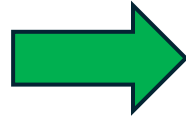


# Background of the research

## Controlled Natural Regeneration (CNR)



Urban forester collects  
seeds and wildings



Seed sowing and potting  
nursery activities



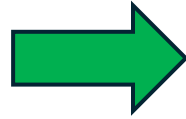


# Background of the research

## Controlled Natural Regeneration (CNR)



Seed sowing and potting  
nursery activities



Re-greening the urban  
areas (re-stocking)



# Justifications and significance of (CNR)

- There is no research on the potential of CNR in Kampala, Uganda.
- Kampala is constrained by limited financing and budgets.
- CNR ensures a free and constant flow of planting material for city greening.





# Objectives of CNR research in Kampala.

## Objectives

- 1) To quantify and compare regeneration capacities of common - type tree species in Kampala, Uganda
- 2) To assess the environmental impact of CNR in Kampala, Uganda
- 3) To evaluate the economic potential of regenerating trees by CNR in Kampala, Uganda



# Methodology

## Partnership

- Kampala Capital city Authority (KCCA) and NODAI graduate school / Doctorate researcher.

## Data

- Quantitative data, 144 (92%) out of 156 reports reviewed
- Extracted from nursery activity reports, spanning 3 years ( July 2021 to June 2024).
- Sit-down interviews with the working staff at the KCCA tree and plant Nursery staff.



# Methodology

## Analysis

- Species regeneration capacity
- Environmental services
- Cost offset analysis
- Excel package

## Limitations

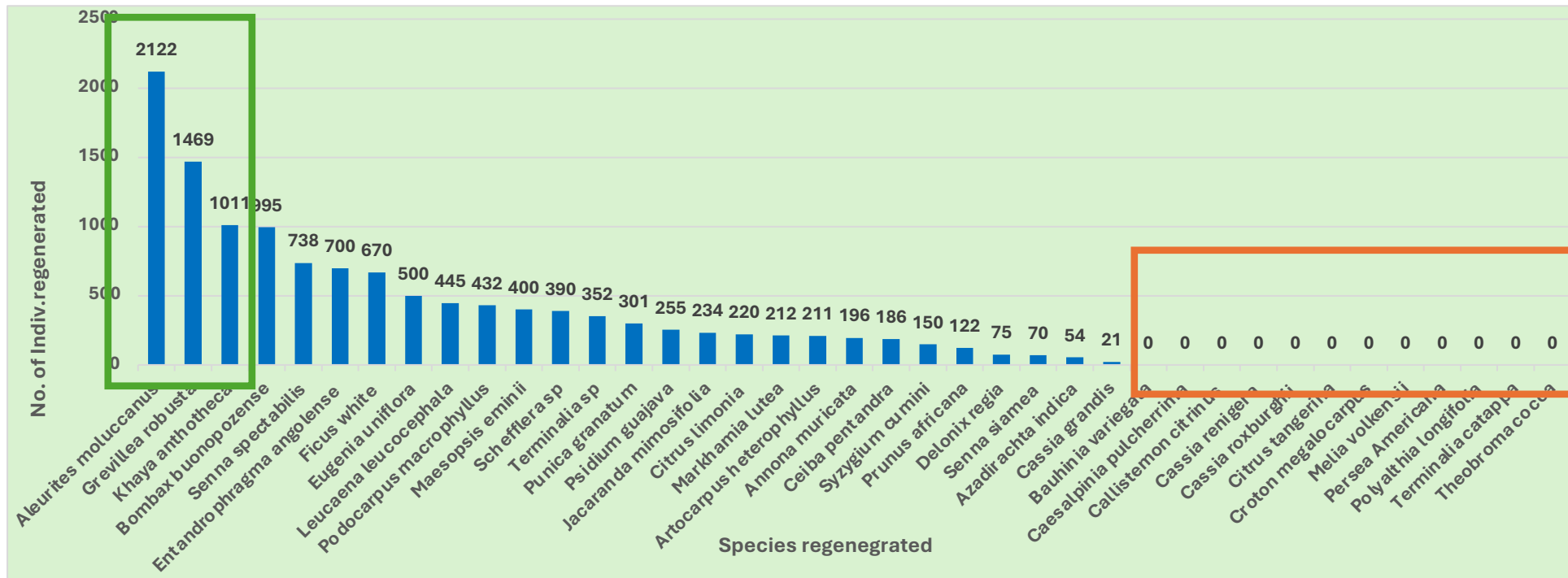
- Some data points were not recorded due to covid-19 reporting disruptions





# Results and Findings - Species regeneration capacity

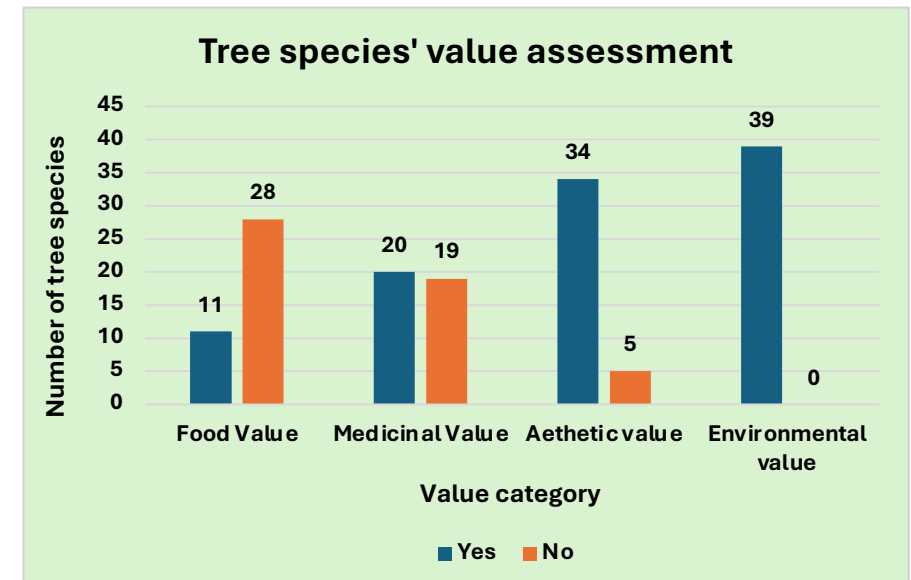
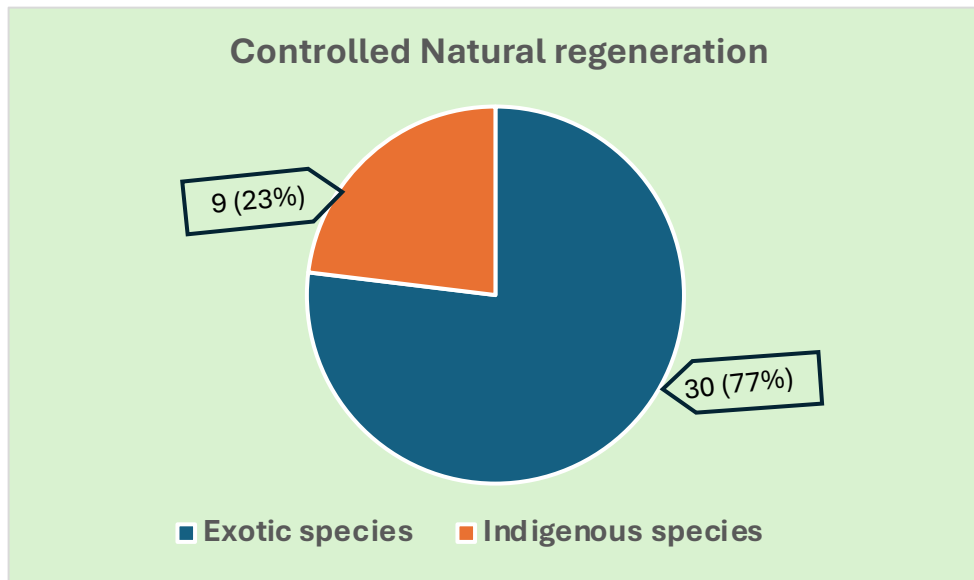
- 39 tree species regenerated in total
- *Aleurites moluccanus*, *Khaya anthotheca* and *Bombax buonopozense*
- No data on some species





# Results and Findings - Environmental effects of CNR

- More exotics regenerated
- High urban value trees are prioritized



# Results and Findings / Economic potential / effects of CNR

- Est. worth of seedlings at government procurement rates (3 yrs)
- At plant ready seedlings



*Aleurites moluccanus*

132,158,160/- ≈ 35,628 USD



*Grevillea robusta*

91,489,320/- ≈ 24,702 USD



*Khaya anthotheca*

62,902,800/- ≈ 16,983 USD



# Results and Findings / Economic potential / effects of CNR

- Three years' seedling cost offset estimated.
- Mean annual cost offset calculated.



Three years' cost offset

780,368,400/-  $\approx$  210,699 USD



Mean annual cost offset

260,122,800/-  $\approx$  70,233 USD



# Conclusions and recommendations

## Conclusions

- CNR has considerable potential to increase tree stock in urban Kampala at low cost.
- Accumulates non-indigenous tree species more than native species of trees.
- CNR has potential for protection and regeneration of high value and endangered tree species.

## Recommendations

- Increase application of nature-based solutions to cut cost and green cities.
- CNR regeneration should be complemented with Frank Santamour species diversity index method
- Community involvement in CNR regeneration can enhance CNR potential in cities.





# Future research and acknowledgements

## Future research

- Regeneration will provide opportunities for new tree species introduction from outside the country / region.
- CNR research will enable development of fruiting, seeding and flowering calendars for Kampala city.

## Acknowledgements

- Kampala Capital City Authority - Directorate of physical planning – Department of landscape design and implementation
- Tokyo University of Agriculture – Department of Forest Sciences.



# References

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# Thank You.

