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Energy access and firewood dependency in Windhoek's informal settlements, Namibia: Implications for biodiversity conservation and sustainability in Namibia

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FUTURE RESILIENCE FOR AFRICAN CITIES AND LANDS



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Introduction

- Rural to urban migration, is a global phenomenon.
- The city of Windhoek is no exception.
- Caused by many factors including but not limited to:-
 - Economic Opportunities
 - Educational Aspirations
 - Environmental Factors (e.g Climate Change)
 - Social Networks and Remittances ()
 - Urban Amenities and Services

(Campos et al, 2024, Greiner, 2011, Indongo, 2015,Wijesinghe et al., 2021)



Introduction

- Rural-urban migration contributes to the mushrooming of informal settlements in the city of Windhoek. Where they..
 - Clear vegetation and construct houses in marginal, including riverine drainage areas
 - Lack essential services: water, sanitation, adequate space, durable structures, or tenure security (UN-Habitat, 2017).
- Frequent flooding due to impacts of climate change worsen their plight





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The “inadequate provision of water and energy services in Windhoek’s informal settlements” was identified as a **key burning issue** at the Windhoek First Learning Lab in March 2017



Objective of the study

The extent to which energy challenges may contribute to deforestation and biodiversity loss in the city is largely undocumented

Investigate **energy sources** in informal settlements and **institutional arrangements** regarding **regulation of energy sources** in the city of Windhoek



Materials and Methods

A **household survey** was administered, and one **focus group discussion** (FGD) conducted in each of the three selected areas in informal settlements,

- Goreangab (survey, n=95, FGD, n=12),
- Havana (survey, n=96, FGD, n=10) and
- Okuryangava (survey, n=97, FGD, n=11)

April 2019,



Results and discussion



Firewood used is either bought or collected

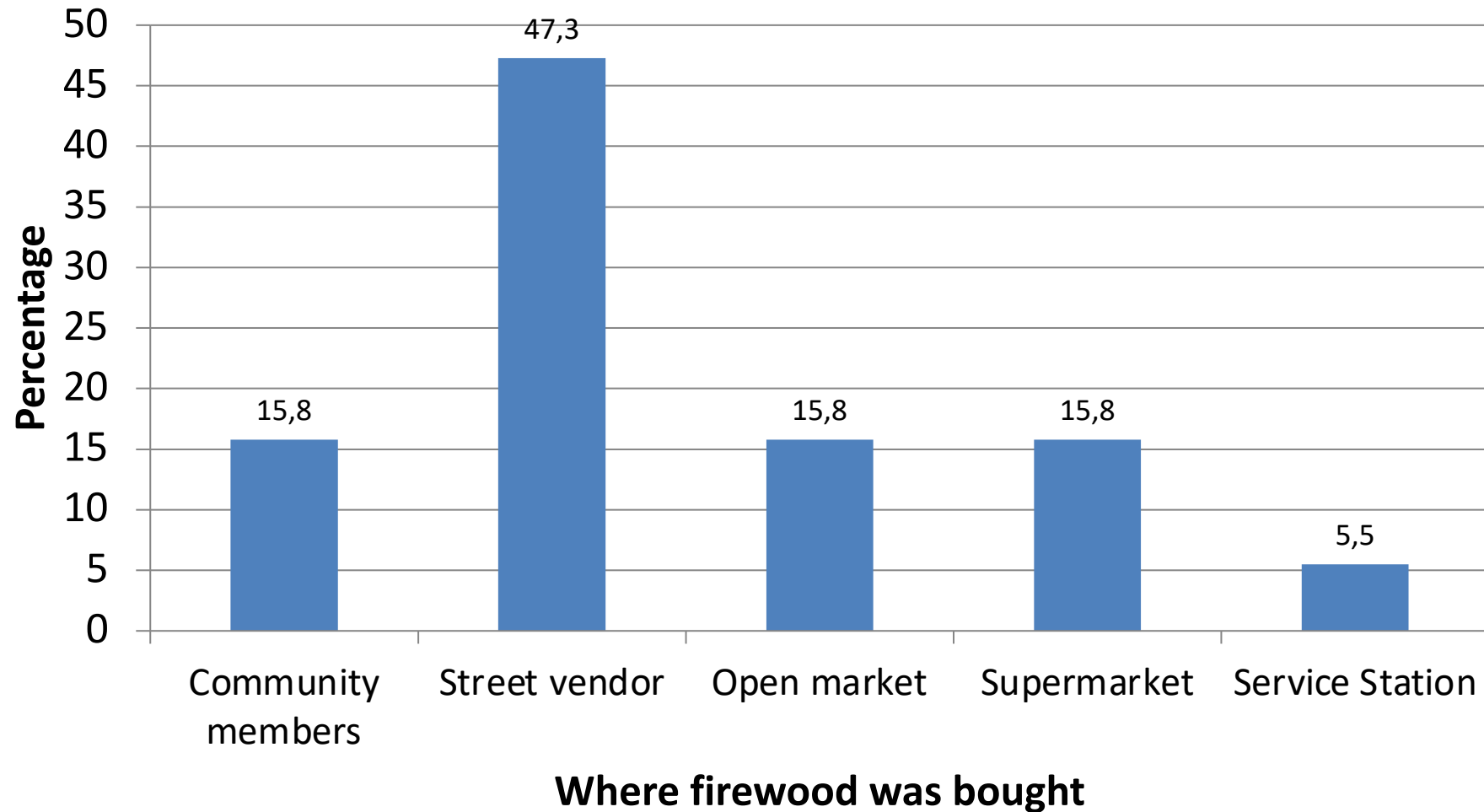


Bought from vendors (53.8%)



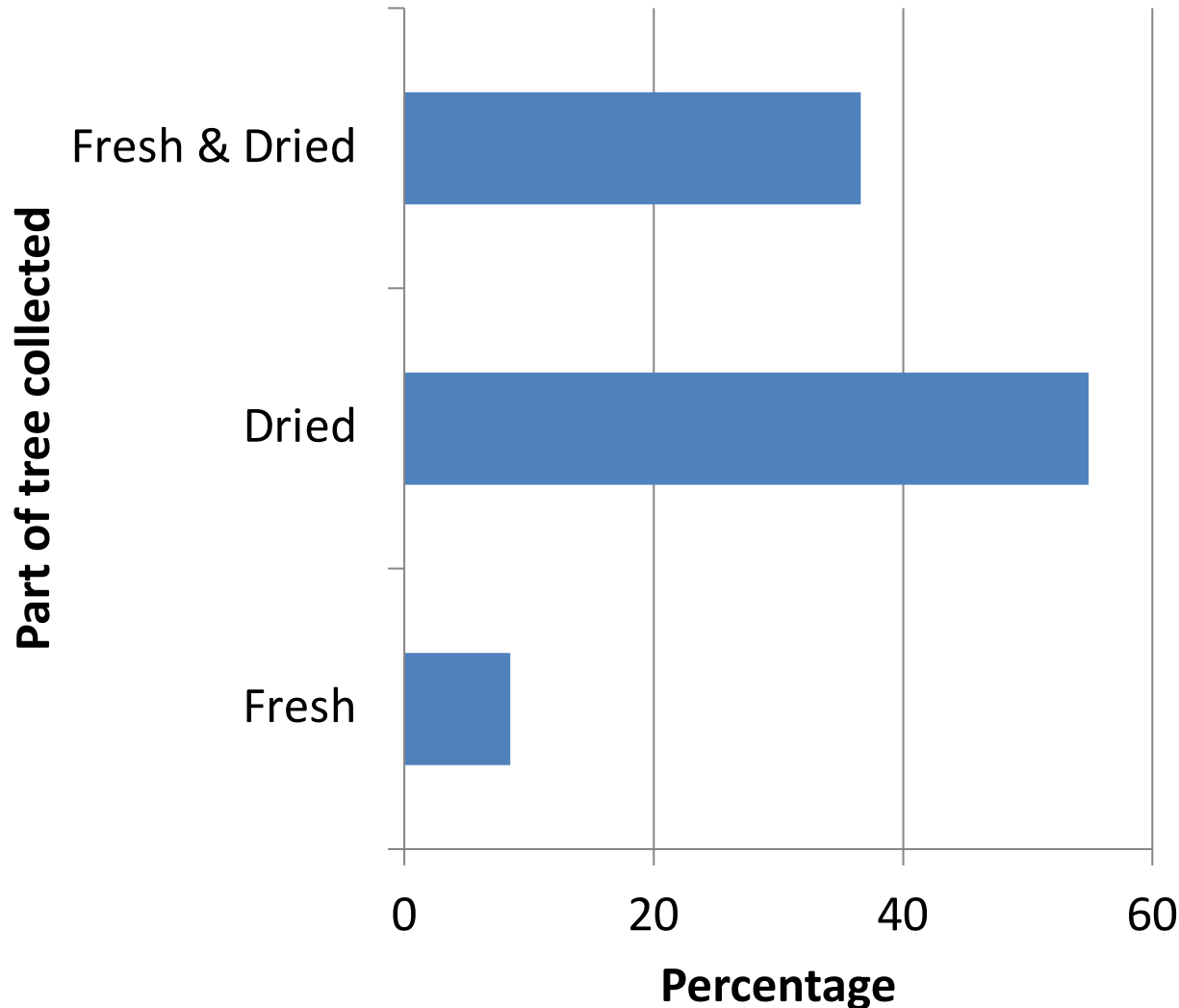
Collected (28.5%) from surrounding vegetation

Source of Firewood bought



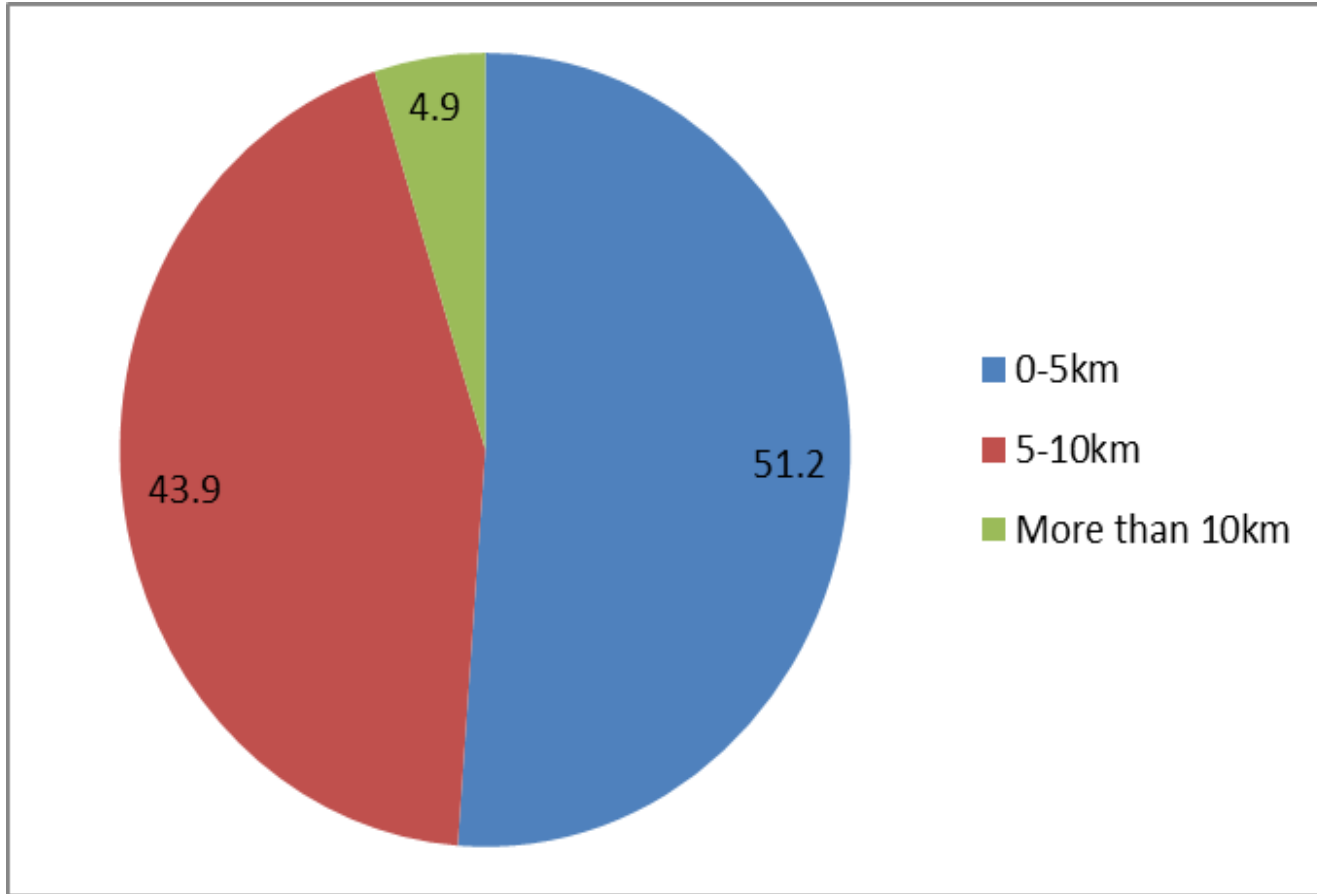
Commonly brought from the street vendors (47%)

State of wood collected



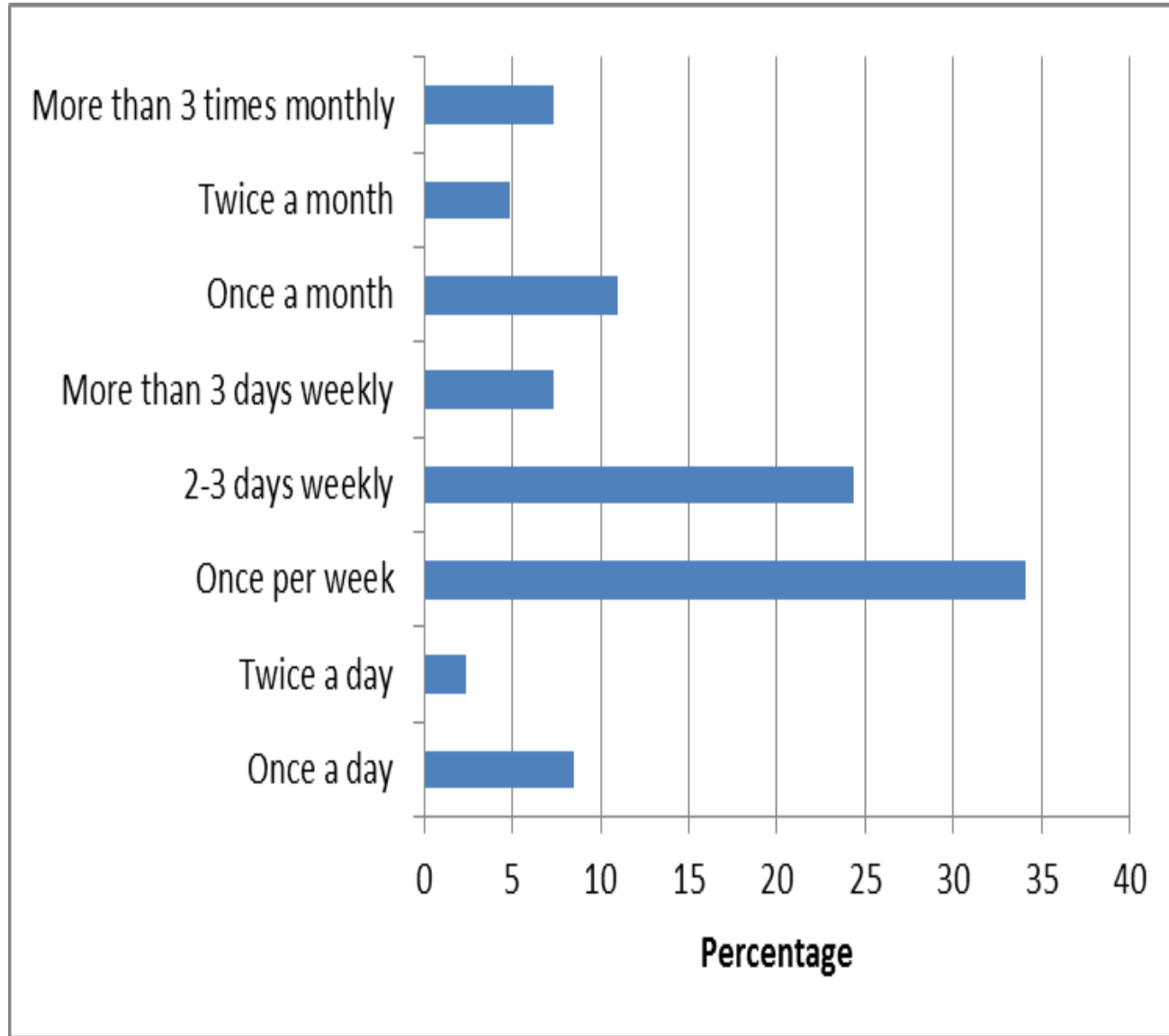
- Majority collect dry firewood (56%)
- 34% of respondents collect both fresh and dry firewood.
- Some farm owners authorize collection of dry firewood only.

Distance travelled to collect firewood



- Travel within 5 km from their households to collect firewood (51.2%),
- Travel more than 10km to get firewood (48.8%),
- Implications for time and energy spent
- Suggests extent of impacts of settlements **on availability of trees for firewood** and on **biodiversity**.

Number of times firewood is collected



- Majority of households collect firewood
- once per week (34%)
- 2-3 times per week (24%).

Observed changes in firewood collection

Changes	Frequency	Percent (%)
Decline in available trees	42	51.2
Increased distance to collection points	34	41.5
Both issues	6	7.3
Total	82	100



Suggested ways in which the municipality should assist in meeting energy needs

Suggestions	Percent (%)
Municipality should provide firewood	44.0
Municipality should provide solar energy	28.0
Municipality should provide electricity	20.0
Municipality should start selling wood	8.0
Total	100



Institutional Arrangements; City of Windhoek

Has **policies and regulations** that relate to **energy supply and other services** (Amutenya et al. 2024) to the city residents including informal settlements

- Firewood collection permits
- Formalization of informal settlements
- Renewable energy Policy
- City of Windhoek Climate Change Policy and Action Plan



Ecological and institutional implications of Firewood use

- Deforestation
- Loss of biodiversity
- underscores the need for:-
 - improved energy access,
 - sustainable resource management
 - accelerating formalization of Windhoek's informal settlements.



Future research and action

- **Estimate loss of biodiversity** due to removal of vegetation via construction of houses in informal settlements
- **Quantify volume of firewood collected** to determine the extent of the impact of deforestation due to firewood collection
- Determine **species of plants commonly collected** and habitat loss
- **Dialogue** amongst leaders in informal settlements and the city of Windhoek **on policies and regulations** and how best to work collectively to address issue of firewood collection and sustainability
 - Challenge : **Informality is illegal**





Getting the right **Balance** is the key

Informality, City Policies & regulations, biodiversity and sustainability



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Thank You.

