

Co-producing urban knowledge: towards meeting Sustainable Development Goal 11

FINAL RESULTS LUANDA



Table of Contents

Table of Contents	02
List of figures	03
Sustainable Development Goals	04
SDG 11	05
The commitment toward the SDGs in Angola	08
Research aims	08
Methodology	09
Profile of research sites	10
Socio-economic profile of the total sample	11
Target 11.1	14
Target 11.2	20
Target 11.6	23
Target 11.3	28
Conclusions	30
Acknowledgements	31
Contacts	32
Further Information	32

List of figures

Figure 1. The sustainable development goals (SDGs) (UN Habitat).	04
Figure 2. The 5 P's Of Sustainable Development (UN Habitat).	04
Figure 3. Cover of INE report (INE, 2018).	08
Figure 4. Focus group Nova Urbanização (Author, October 2018).	09
Figure 5. Focus group Km12A (Author, October 2018).	09
Figure 6. Map with location of research sites, Luanda (Bennett, 2020).	10
Figure 7. Tap 2 Nova Urbanizaçao (Author, October 2018).	15
Figure 8. Latrine Luanda (Author, October 2018).	15
Figure 9. Informal water providers Km12A (Author, September 2018).	15
Figure 10. Communal water Nova Urbanização (Author, October 2018).	15
Figure 11. Home based business Cariango (Author, September 2018).	16
Figure 12. Transport Luanda (Author, October 2018).	20
Figure 13. Transport Luanda (Author, October 2018).	21
Figure 14. Transport Luanda (Author, October 2018).	22
Figure 15. Waste and sanitation Nova Urbanizaçao (Author, October 2018).	25
Figure 16. Participatory mapping Luanda (Author, October 2018).	26
Figure 17. Focus group Cariango (Author, October 2018).	30

Sustainable Development Goals



Agenda 2030 and the Sustainable Development Goals (SDGs) were adopted in September 2015 by the United Nations member states and replaced the Millennium Development Goals (MDGs).



Contrary to the MDGs, the SDGs apply to all countries in the world – rich and poor – and to all of society, especially the most vulnerable, with the commitment to “leave no one behind”. There are a total of 17 goals, with 169 targets and 231 unique indicators to monitor their progress until the year 2030.

The SDGs represent an integrated view of sustainable development with 3 pillars, reflecting its social, economic and environmental dimension, and 5 p's, representing its 5 key elements: people, prosperity, planet, peace and partnerships.

Top:

Fig 1. The sustainable development goals (SDGs) (UN Habitat).

Above left:

Fig 2. The 5 P's Of Sustainable Development (UN Habitat).

11 SUSTAINABLE CITIES AND COMMUNITIES



SDG 11

Make cities and human settlements inclusive, safe, resilient and sustainable

In an increasingly urban world, almost all SDGs are relevant to cities. However, SDG 11 is specifically focused on cities and urban communities. The goal has 7 targets that refer to what needs to be achieved and 3 targets that refer to the tools that are necessary to achieve SDG 11, all with their respective indicators.

TARGET

11.1

By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums



INDICATOR

11.1.1

Proportion of urban population living in slums, informal settlements or inadequate housing

11.2

By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons



11.2.1

Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities

SDG 11

11.3

By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries

11.3.1

Ratio of land consumption rate to population growth rate



11.3.2

Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically

11.4

Strengthen efforts to protect and safeguard the world's cultural and natural heritage

11.4.1

Total per capita expenditure on the preservation, protection and conservation of all cultural and natural heritage, by source of funding (public, private), type of heritage (cultural, natural) and level of government (national, regional, and local/municipal)



11.5

By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations

11.5.1

Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population



11.5.2

Direct economic loss in relation to global GDP, damage to critical infrastructure and number of disruptions to basic services, attributed to disasters

SDG 11

11.6



By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management

11.6.1

Proportion of municipal solid waste collected and managed in controlled facilities out of total municipal waste generated, by cities

11.6.2

Annual mean levels of fine particulate matter (e.g. PM_{2.5} and PM₁₀) in cities (population weighted)

11.7



By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities

11.7.1

Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities

11.7.2

Proportion of persons victim of physical or sexual harassment, by sex, age, disability status and place of occurrence, in the previous 12 months

The commitment toward the SDGs in Angola

The Angolan government has demonstrated its commitment towards the SDGs through the following initiatives:

- The strategic framing of the National Development Plan 2018-2022 includes the SDGs and calls for the active participation of all in their implementation
- Development of an SDG Baseline Indicator Report by the National Statistics Office (INE, 2018) – but lack of data to monitor all indicators

The National Development Plan refers that: “although each country should decide on the way in which the goals are included in its national planning strategies, policies and processes, the responsibility for the implementation of the SDGs is not limited to governments, but requires a global partnership, with the active participation of civil society, the private sector, universities, media and the United Nations. The need to mobilize financial resources, as well as strengthening the capacities for implementation, monitoring and evaluation, especially in Plans for Monitoring and Evaluation must also be highlighted” (GoA, 2018: 56).



Fig 3. Cover of INE report (INE, 2018).

Research aims

The overall aim of the research is to turn the city of Luanda, in line with SDG 11, more “inclusive, safe, resilient and sustainable” through the:

- Exploration of new methodologies to implement and monitor SDG 11 indicators
- Generate a database to inform the formulation of new urban policies or the implementation of existing policies
- Create and strengthen mechanisms of knowledge (co-)production and experience sharing between different urban actors

Methodology

Between 2018 and 2019 the following activities were undertaken:

- Selection of three neighbourhoods in Luanda: Cariango (Cazenga), Km12A (Viana) and Nova Urbanização 1 and 2 (Cacuaco)
- Presentation of the project to the government (INE, GTRUCS, MINOTH), international community (UN Habitat, UNDP), civil society, academia and neighbourhood representatives
- Identification of local community members, university students and researchers and training of research teams on data collection through the use of tablets
- Survey with a total of 682 questionnaires with a focus on the SDG targets 11.1; 11.2; 11.3; 11.6; 11.7 (housing and basic services; transport; participation; waste management; environment and public spaces)



- Participatory mapping, focus groups and sharing and validation of preliminary results in each neighbourhood



Fig 4. Focus group Nova Urbanização (Author, October 2018).



Fig 5. Focus group Km12A (Author, October 2018).

Profile of research sites

Map with location of research sites Luanda

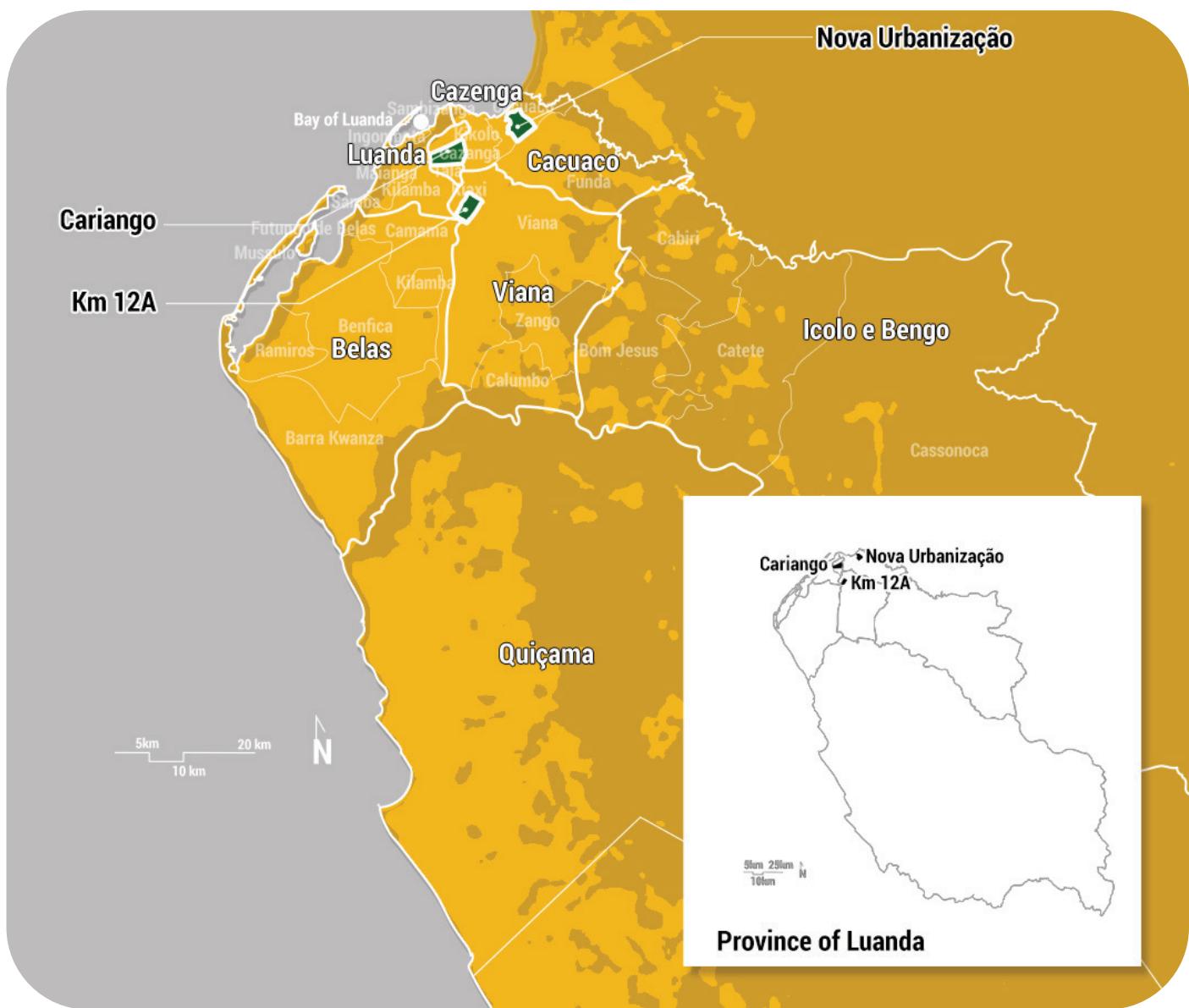


Fig 6. Map with location of research sites, Luanda (Bennett, 2020).

Nova Urbanização 2

3200 residents
4 sectors
Recent neighbourhood
Men: 48% Women: 52%
Average household:
6,2 members

Cariango

10.800 residents
5 blocks
Upgraded neighbourhood
Men: 40% Women: 60%
Average household:
6,4 members

Km12 A

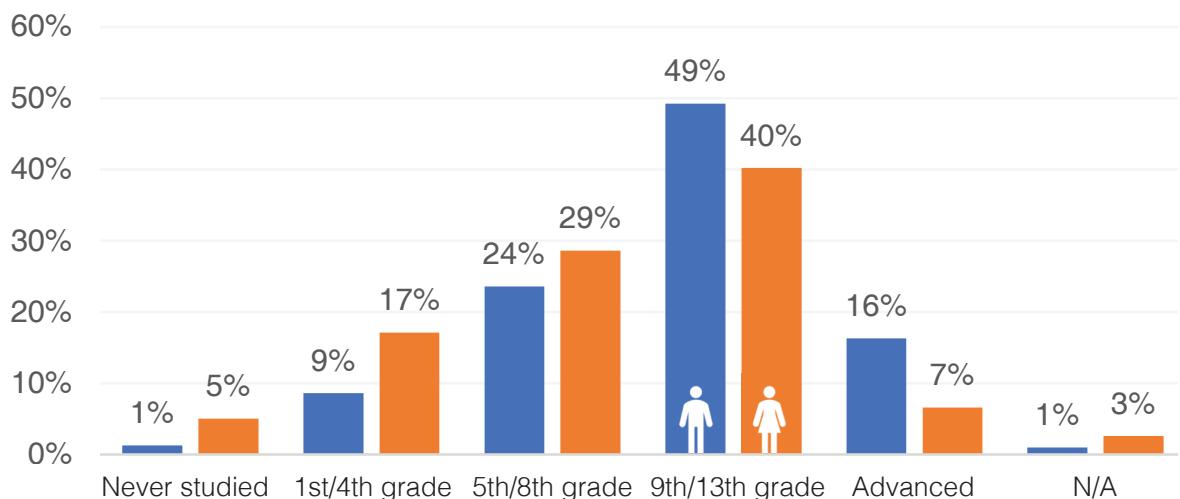
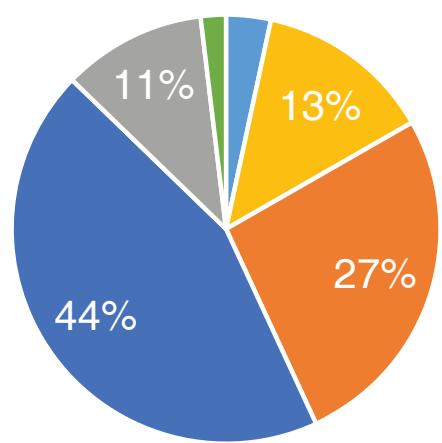
22.867 residents
17 sectors and 97 blocks
Old neighbourhood
Men: 45% Women: 55%
Average household:
7,2 members

Socio-economic profile of the total sample

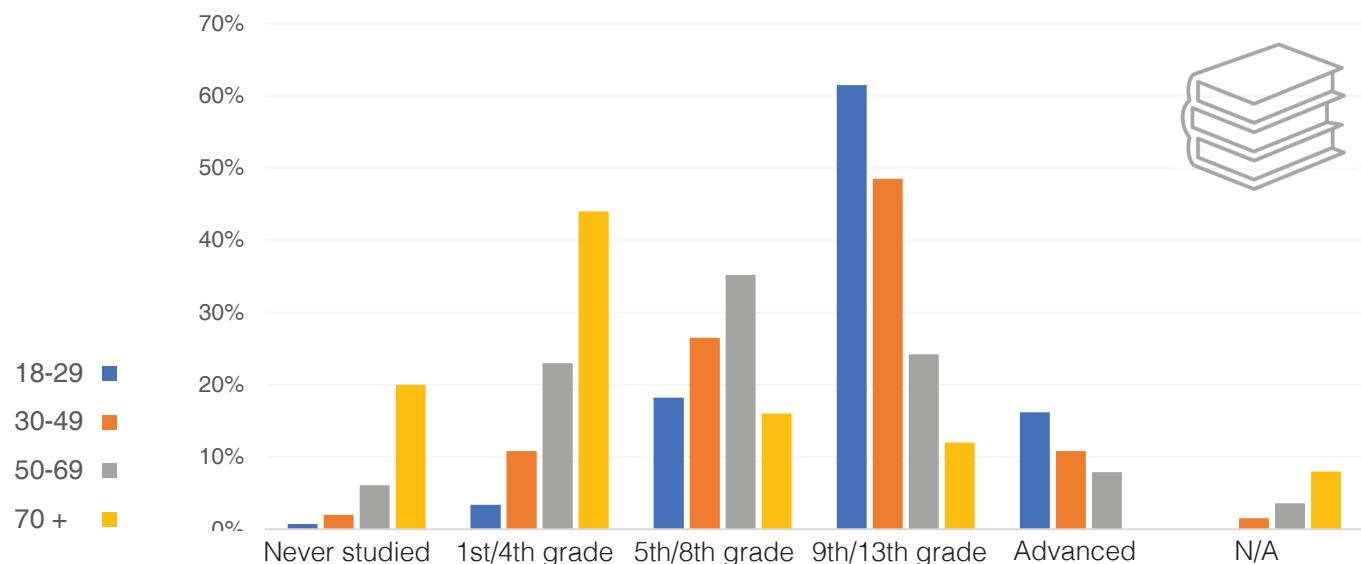
- Almost half (44%) of the total of respondents has completed at least secondary education – but these levels are slightly higher among men (49,2%) than women de (40,2%) and those between 18 and 29 years old (61,5%)

Education

- Never studied
- 1st/4th grade
- 5th/8th grade
- 9th/13th grade
- Advanced
- N/A

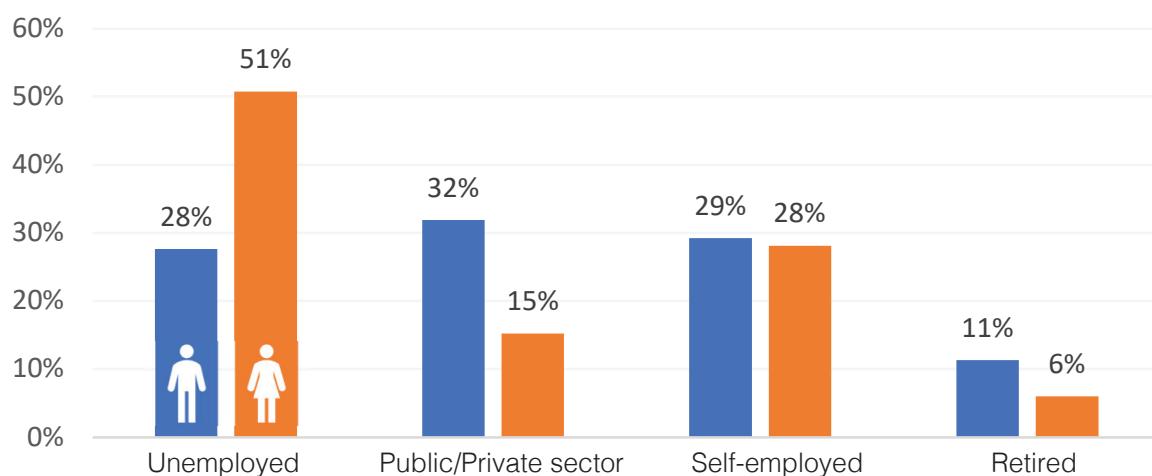
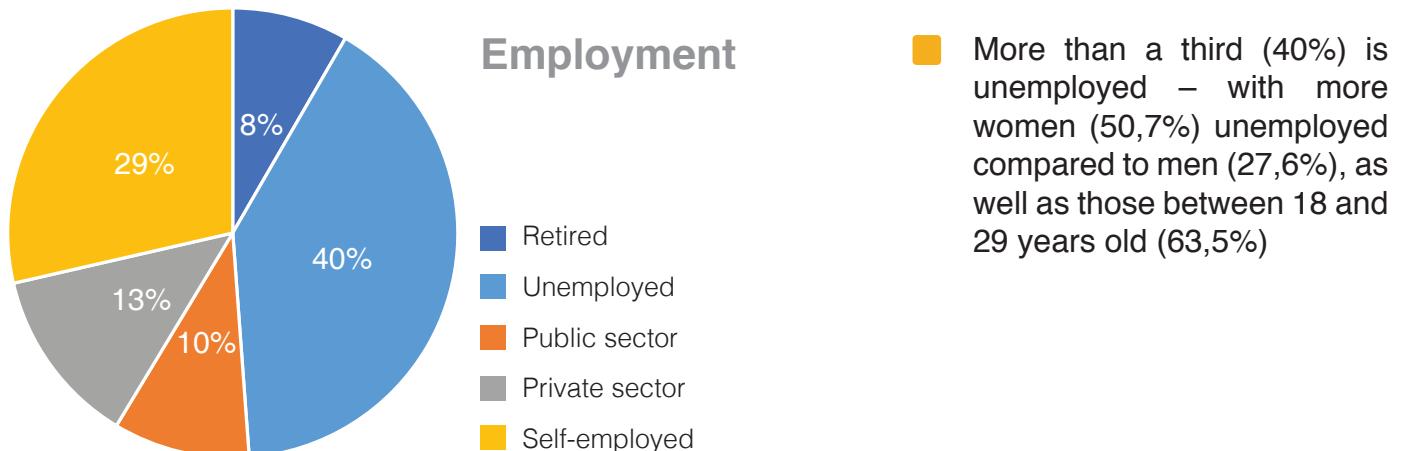


Education in % men vs women

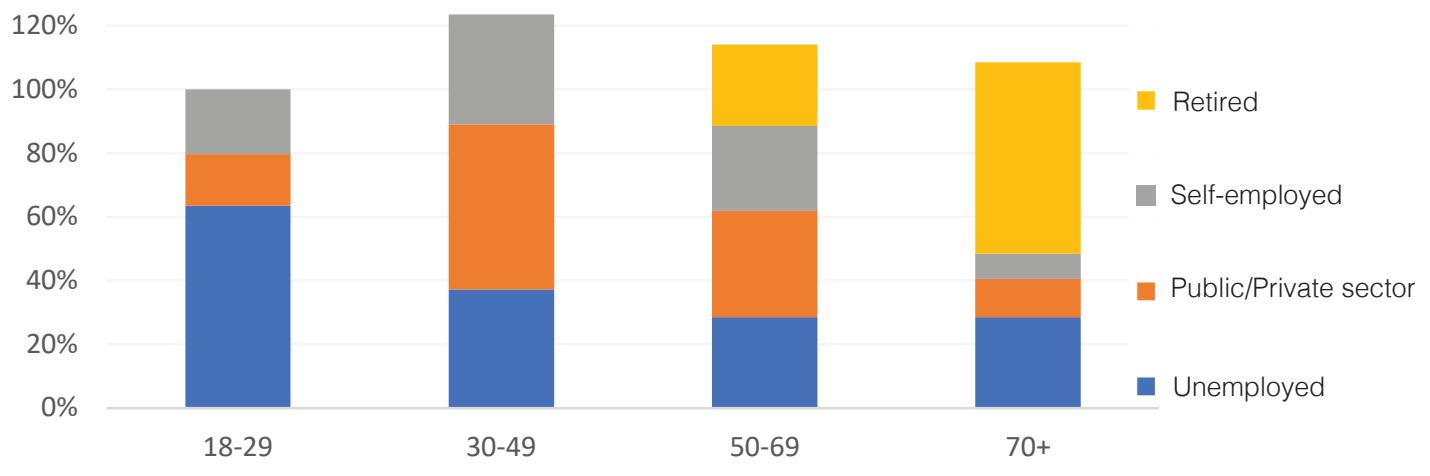


Education in % by age

Socio-economic profile of the total sample



Employment in % men vs women

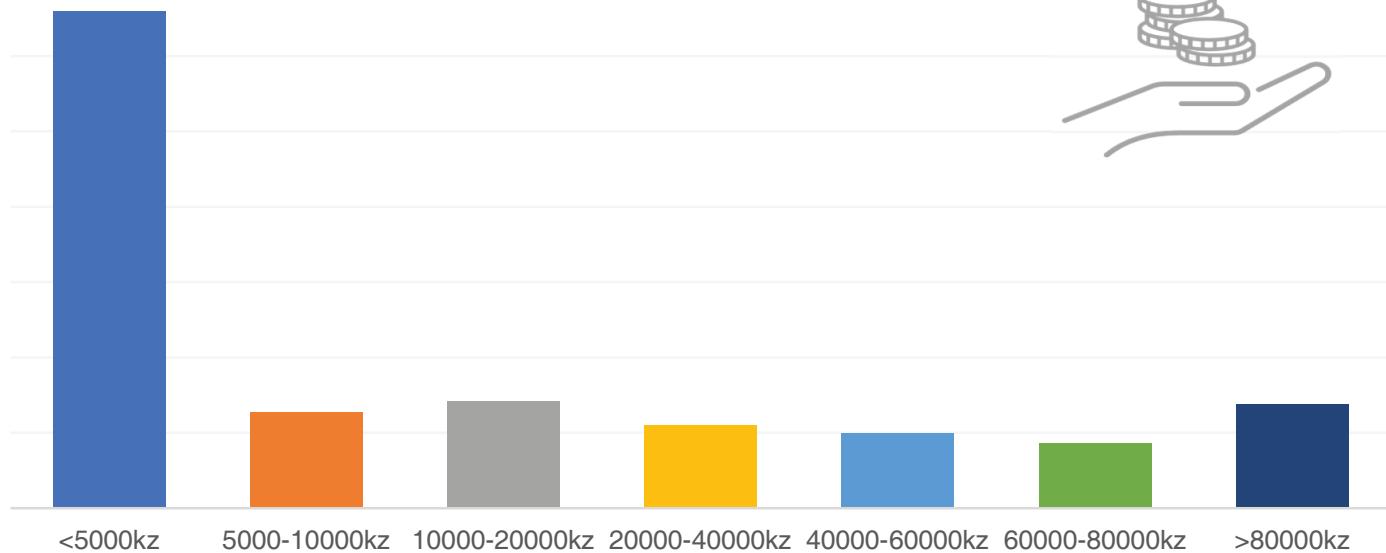


Employment in % by age

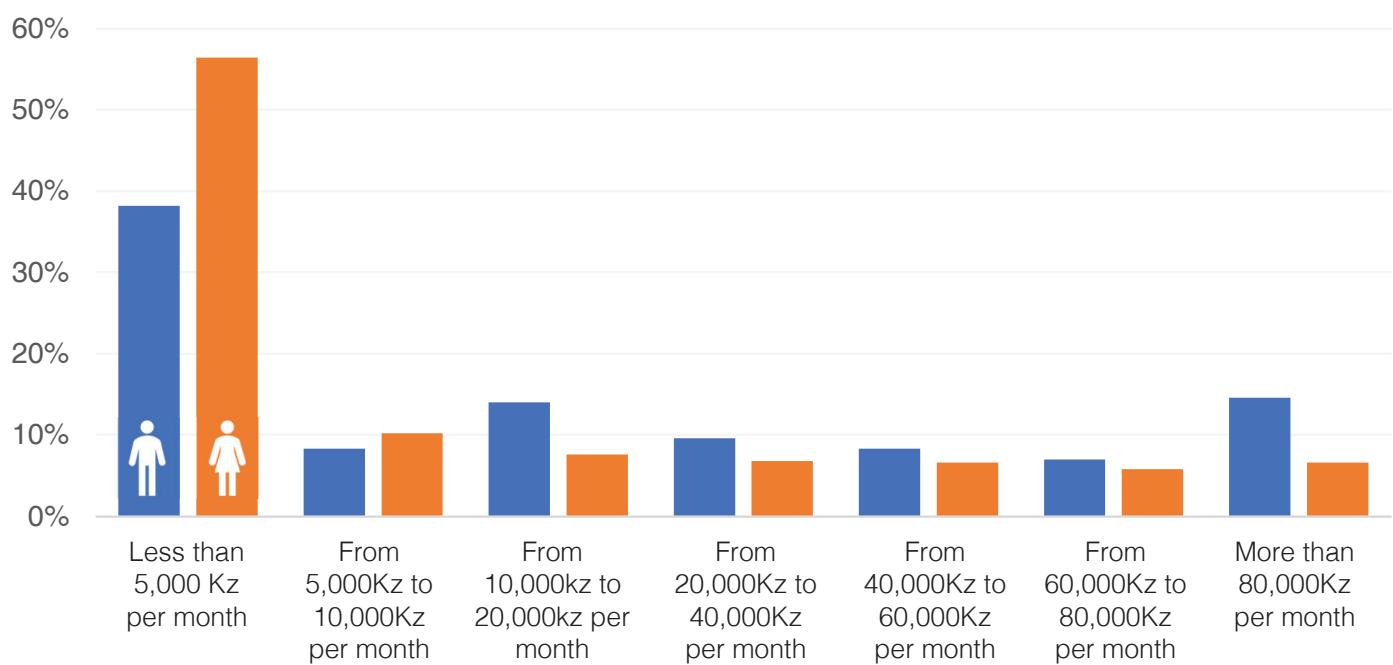
Socio-economic profile of the total sample

Almost half (49%) has a monthly income (combining all sources of income) below 5.000 AOA a month, these levels are higher among women (56,4%) compared to men (38,2%)

- 91.7% has a cellphone and 30% has access to the internet
- 6% has some kind of disability



Monthly income



Monthly income in % men vs women

Target 11.1

Target 11.1

Indicator 11.1.1



By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums

Proportion of urban population living in slums, informal settlements or inadequate housing

Indicator baseline INE

In Angola, 34% of urban households do not have access to a source of water that is adequate for consumption and 54% do not have access to an appropriate toilet that is not shared

More than half (69%) of urban households do not have access to a source of water that is adequate for consumption and an appropriate toilet that is not shared

Source: INE (2018)

Indicador used

Result

Access and tenure

The majority has accessed housing through the informal market: about 35% through auto-construction, 25% through purchase and 19% through inheritance

Only a minority (2%) has legal tenure

Access, quality and cost of basic services

About half (51%) has a residential water connection

The majority (81%) considers water to be of good or sufficient quality

However, the same majority (89%) treats water before consumption

Monthly expenses with water are high (8704 kz/month) and considered unfair

Expenses increase with the use of private sources of water (example of neighbourhood Km 12A)

Analysis and recommendations

- The proportion of the urban population living in informal settlements is not equal to the proportion of the urban population living without access to basic services. In other words, the lack of legal tenure does not limit access to basic services.
- However, overall access levels remain low, costs high and highly variable between neighbourhoods.
- The monitoring of access to housing and basic services should include indicators to measure the cost, quality and the regularity of services delivered.



Fig 7. Tap 2 Nova Urbanização (Author, October 2018).



Fig 8. Latrine Luanda (Author, October 2018).



Fig 9. Informal water providers Km12A (Author, September 2018).



Fig 10. Communal water Nova Urbanização (Author, October 2018).

Access to housing

About 35% of respondents accessed housing through auto-construction, 25% through purchase and 19% through inheritance. Inheritance and purchase as modes of access increase as neighbourhoods are older (Km 12A and Cariango)

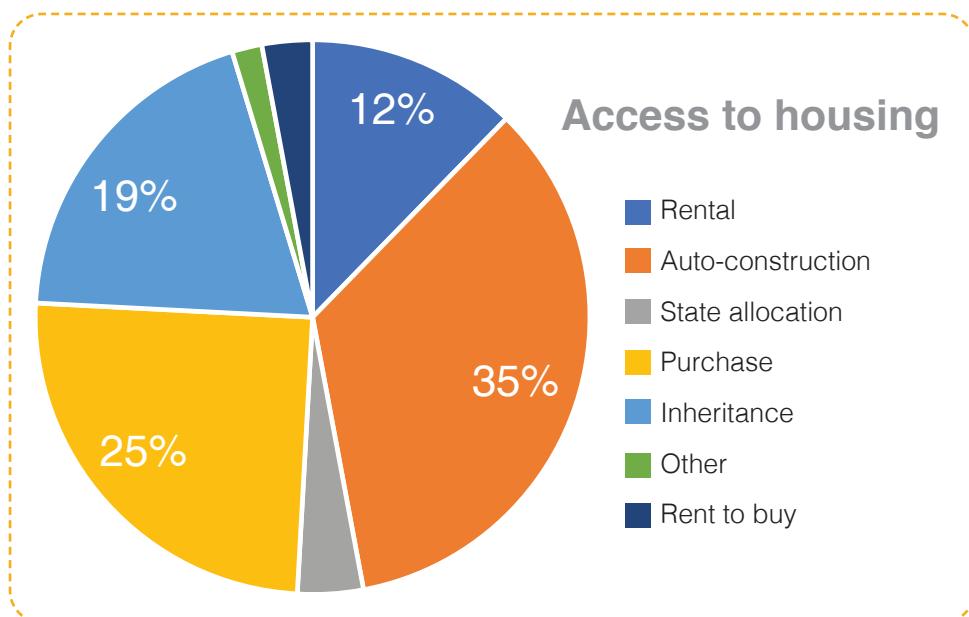
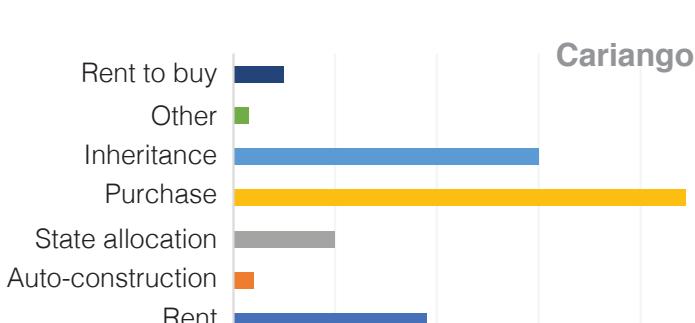
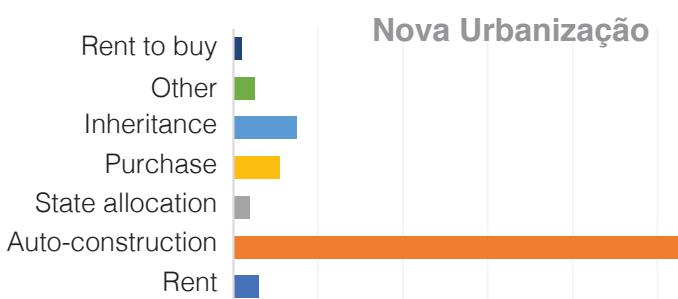


Fig 11. Home based business Cariango (Author, September 2018).

Access to housing per area

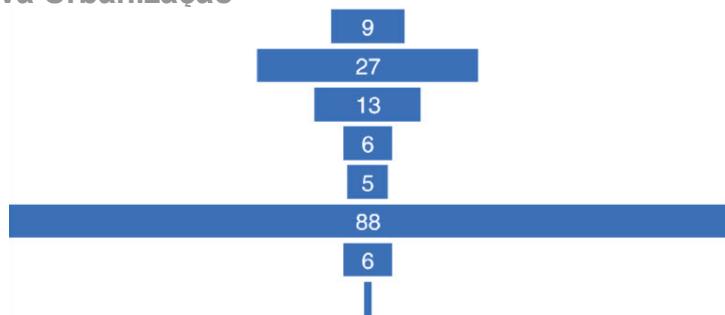


Tenure

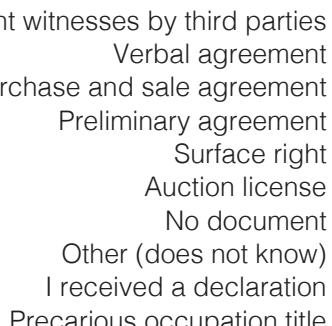
- More than half (59%) received a declaration as proof of ownership, 13% has a purchase and sale agreement, 10% has a verbal agreement
- 8% does not have any document to prove ownership, with the lack of documentation being highest in the older neighbourhoods (Km 12A and Cariango)
- Only 2% has some kind of document issued by the state (for example surface right, auction license, precarious occupation title or location sketch)
- There is no significant relation of proof of ownership between women or men, but there is some variation between tenure and level of education: 57,9% of those who do not have any document has completed at most primary education while 50% of those with some document issued by the state has completed up to higher education.



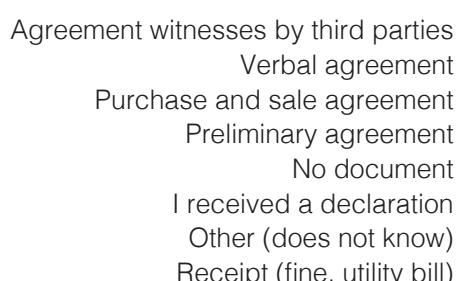
Nova Urbanização



Cariango



Km 12 A

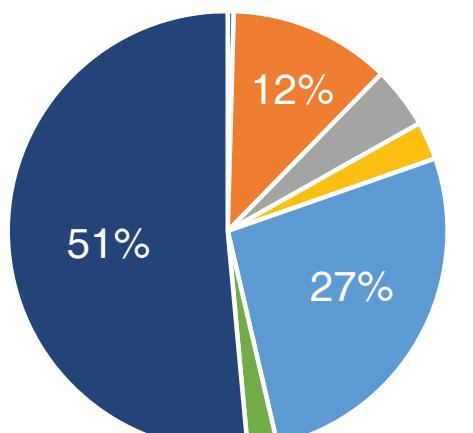


Source and quality – water

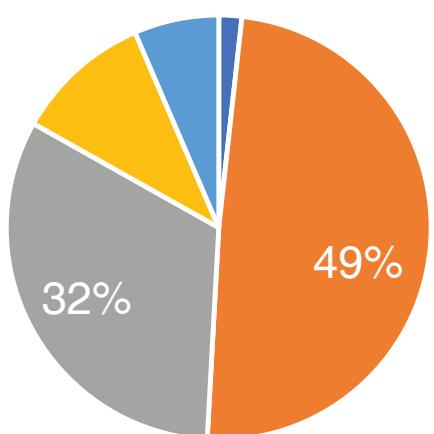
- The majority of respondents (51%) has a residential water connection, while almost a third (27%) depends on a neighbour's water tank (the majority of these being residents of Km 12A)
- The majority (81%) considers water to be of good or sufficient quality
- However, the same majority (89%) treats water before consumption



Main source of water

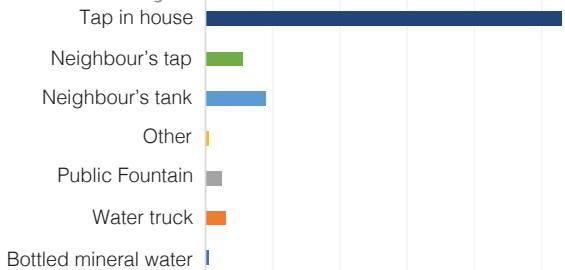


Quality of water

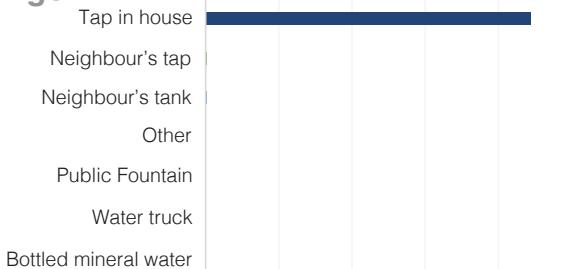


Main source of water per area

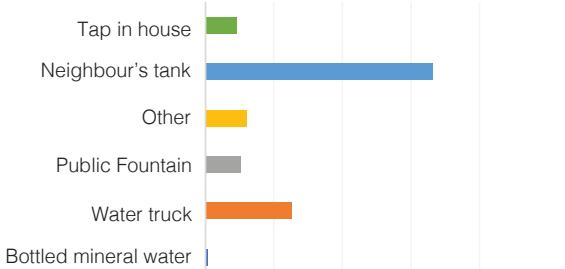
Nova Urbanização



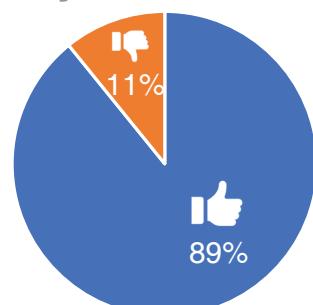
Cariango



Km 12 A



Do you treat water?



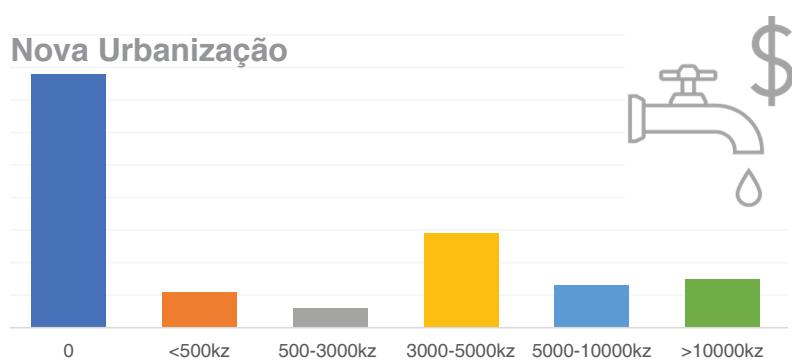
Cost of services – water

- An average of 8704 kz/month is spent on water (total of all sources of water)
- Expenses are higher with higher dependence on private sources (Km 12A), while the high level of non-payment in Nova Urbanização is due to connections that were made but not registered
- 74% of respondents does not consider this a fair amount

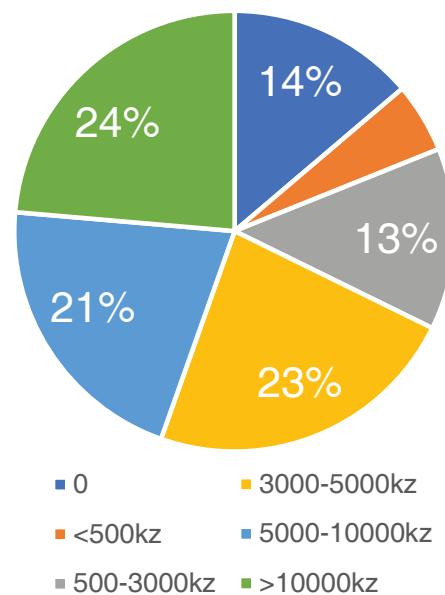


Monthly water expense per area

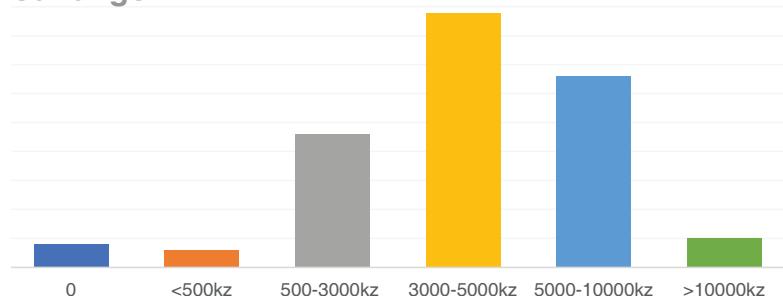
Nova Urbanização



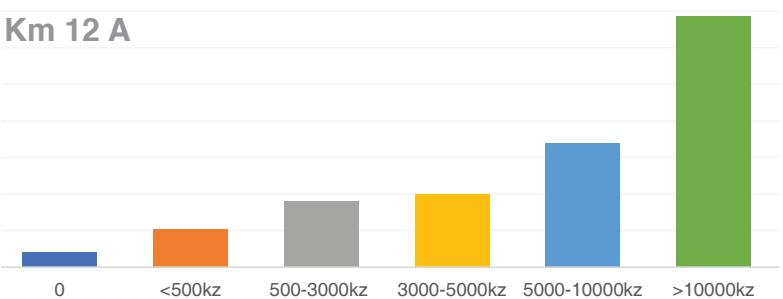
Monthly water expense



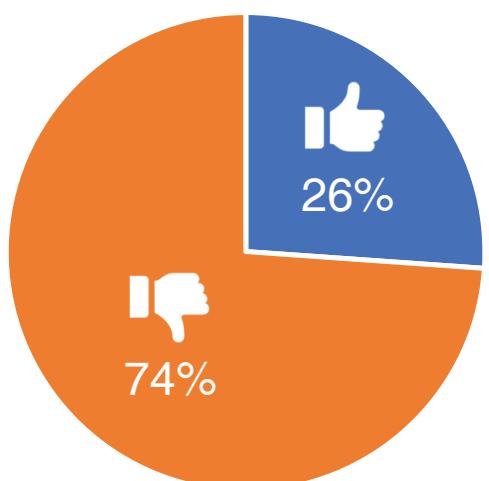
Cariango



Km 12 A



Is it a fair amount?



Target 11.2

Target 11.2

Indicator 11.2.1



By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons

Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities

Indicator Used

Access to, cost and safety of transport by sex, age, and persons with disabilities

Result

77% uses private transport (taxi bus) as main mode of transport, 13% combines this with another mode of transport

About a third (33%) spends between 300 and 600kz a day, while 41% spends above 600kz a day

The distance spent from home to the main access point of transport generally is not more than 300 m

However, about a third (32%) does not feel safe using transport for fear of muggings and reckless driving

Analysis and recommendations

- Inadequate access to transport is not determined by price of or distance to existing systems, which are considered relatively accessible to those who use them, but by the lack of safety in neighbourhoods
- The monitoring of the use of and access to public transport should be extended to include private transport.
- Transport systems can be improved by improving conditions of safety, using indicators such as the state of local infrastructures (eg. public illumination), public safety (policing/night patrolling) and crime levels.



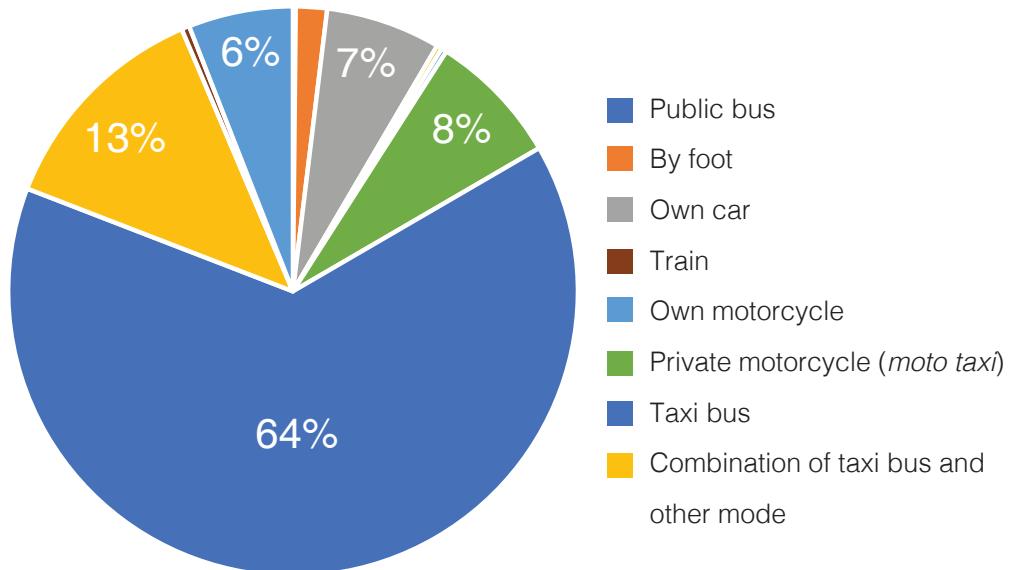
Fig 12. Transport Luanda (Author, October 2018).

Main mode and cost of transport

- 77% uses private transport (taxi bus) as the main mode of transport, 13% in combination with another mode of transport
- About a third (33%) spends between 300 and 600kz a day, while 41% spends above 600kz a day
- However, 19% of respondents answered not to have any transport expenses – which can be explained by the high number of residents that do not use transport because of being unemployed or self employed



Main mode of transport



Daily transport expense?

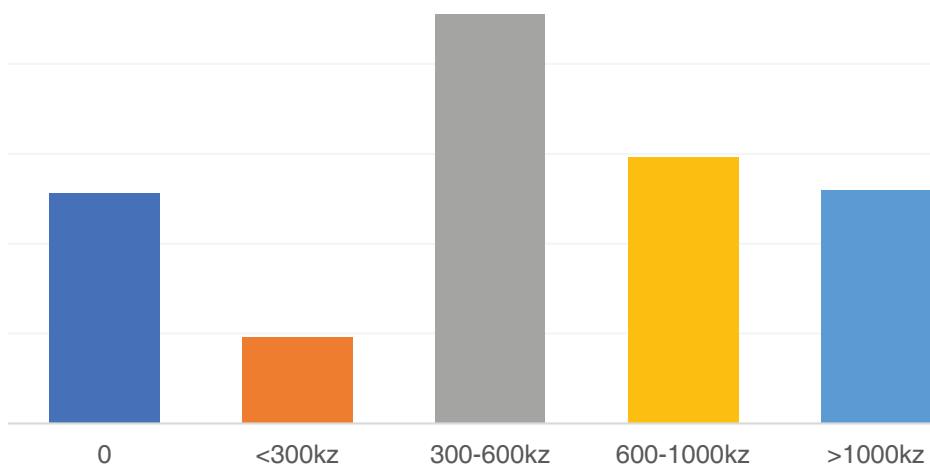


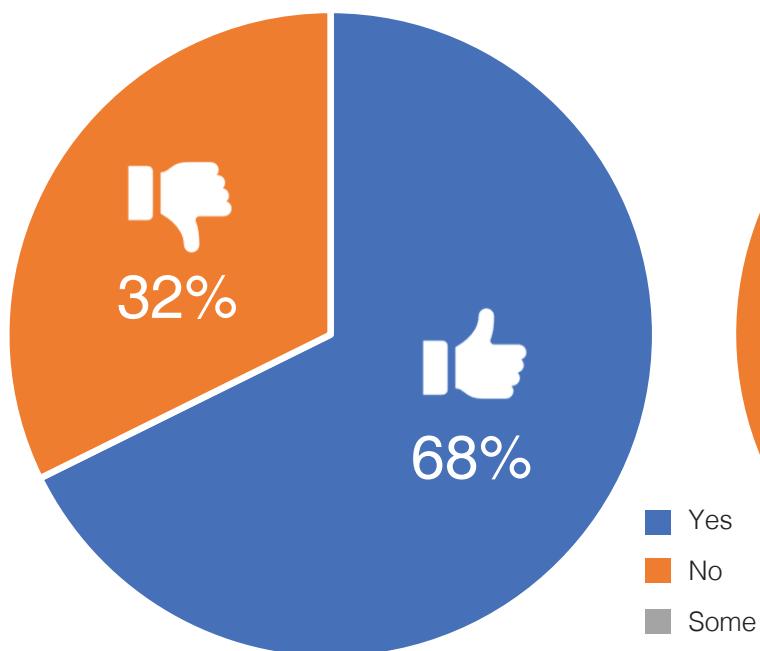
Fig 13. Transport Luanda
(Author, October 2018).

Access and safety

- The distance from home to the main transport access point is generally not more than 300 m
- However, about a third (32%) does not feel safe using transport for fear of muggings or reckless driving. Notably, there is no major difference in the lack of sense of safety between men (28%) or women (35,7%).
- The majority (87%) of the different modes of transport do not have priority seats for the elderly or those with disabilities
- It was not possible to collect a sufficiently sized sample of residents with disabilities to assess the experience of this group of residents.



Do you feel safe?



Priority seats?

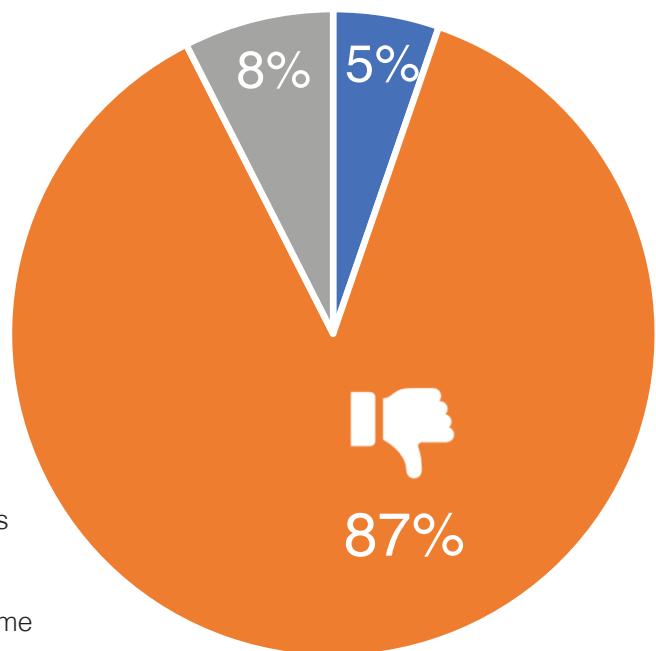


Fig 14. Transport Luanda (Author, October 2018).

Target 11.6



Target 11.6

By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management

Indicator 11.6.1

Proportion of municipal solid waste collected and managed in controlled facilities out of total municipal waste generated, by cities

Indicator 11.6.2

Annual mean levels of fine particulate matter (e.g. PM_{2.5} and PM₁₀) in cities (population weighted)

Indicator Used

Result

Level and frequency of municipal waste collection

According to the majority of respondents (76%) there is no system of municipal waste collection

The levels of collection vary greatly between the different neighbourhoods, ranging from 70% to 19%

When there is collection, the frequency generally is more than once a week

Local perceptions of environmental issues

For 54,3% of respondents the environmental issues that most affect them are floods

According to 89% of respondents there have been no activities/talks about environmental protection

Analysis and recommendations

- An improved waste collection system does not just depend on improved municipal services, but also on campaigns and activities to raise environmental awareness.
- It is important to consider local perceptions of environmental issues that are not necessarily linked to air quality.
- The prevalence of floods is mainly linked to unplanned occupation and/or the lack of drainage systems. Therefore, the monitoring of negative environmental impacts in the city has to consider other indicators such as urban expansion and corresponding interventions such as upgrading and urban planning.

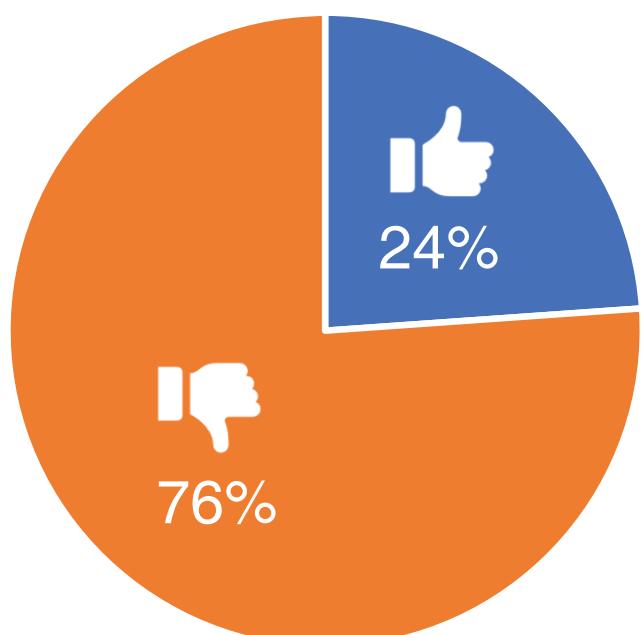
Level and frequency of municipal waste collection

- According to the majority of respondents (76%) there is no system of municipal waste collection, the biggest difference being between Cariango where according to a majority (70%) there is collection and Km 12A where only 19% reported that there is collection
- When there is collection, the frequency generally is more than once a week
- When there is no waste collection residents deposit their waste in containers but also in inappropriate public spaces

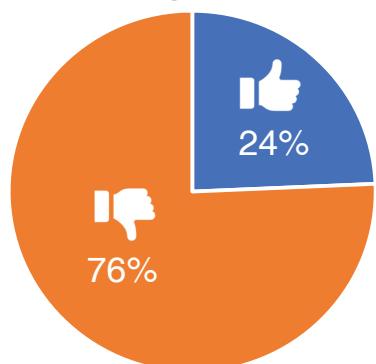


Yes
No

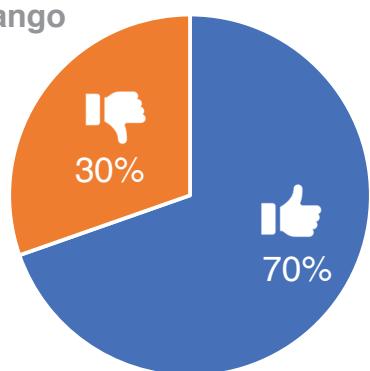
Is there a municipal waste collection system?



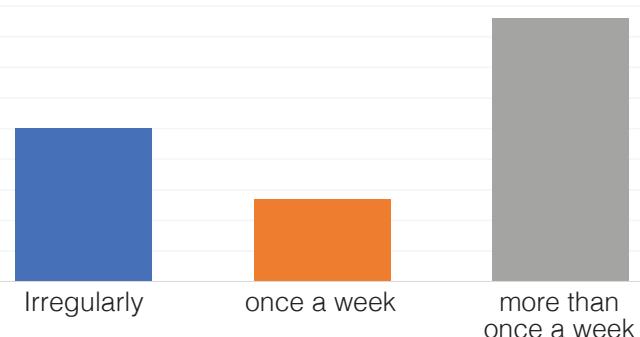
Nova Urbanização



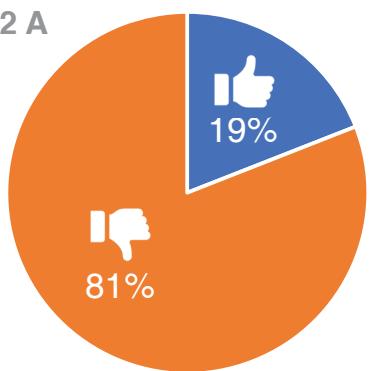
Cariango



Frequency of collection?



Km 12 A



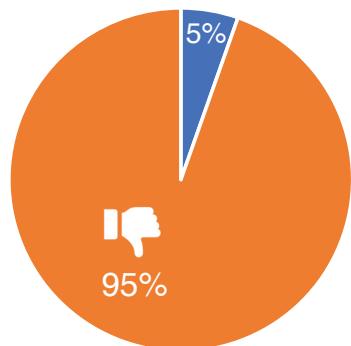
Quality of air/environment

- It was not possible to measure the levels of air quality and there are no publicly available data on these levels
- The main environmental issues according to 54,3% of the respondents are floods/floodings, as well as issues specific to each neighbourhood – such as waste (burning) in Km12A, the effects of clay soil in Nova Urbanização and the lack of trees and vegetation in Cariango
- According to 89% of respondents there have been no activities/talks about environmental protection
- Those that have taken place have been mainly facilitated by block and neighbourhood leaders

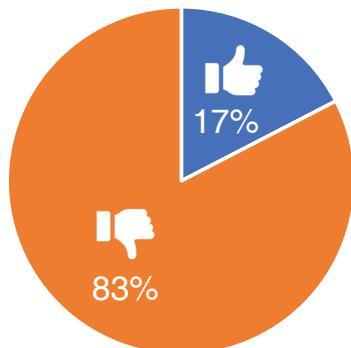


Activities/ talks about environmental protection?

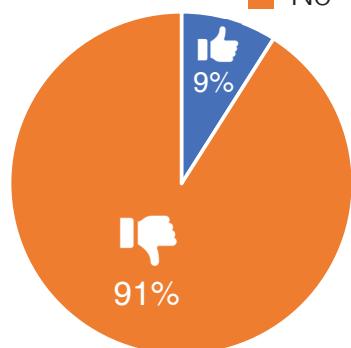
Nova Urbanização



Cariango



Km 12 A



Main environmental issues

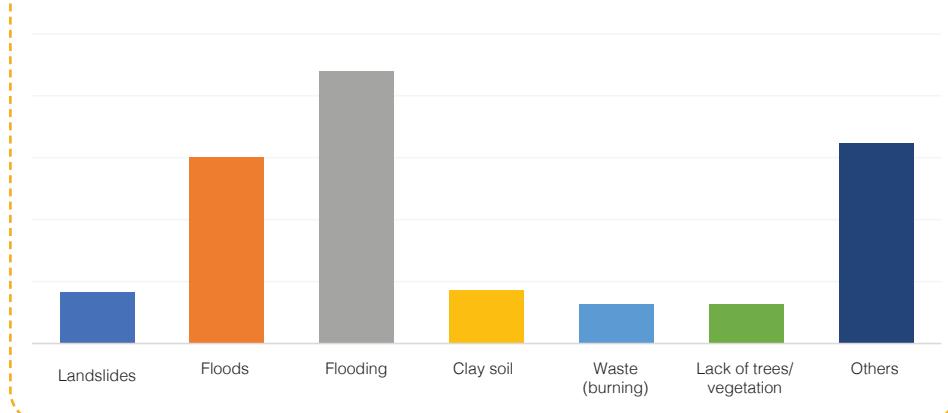


Fig 15. Waste and sanitation Nova Urbanização (Author, October 2018).

Target 11.7

Target 11.7

Indicator 11.7.1



By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities

Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities

Indicator used

Existence, use and level of satisfaction with public spaces by sex, age and persons with disabilities

Result

According to a majority (82%) of respondents there are no public spaces in their neighbourhood

The levels of satisfaction with public spaces are low: a majority (87.5%) of respondents is dissatisfied or very dissatisfied with existing spaces

74,6% of women use these spaces sometimes or often, against 65,7% of men

66,7% of those above 70 years old say never to use these spaces against 20% of those between 30 and 49 years - 77,3% of whom use the spaces regularly

Analysis and recommendations

- The use of spaces is conditioned by the lack of maintenance and safety. Therefore, green and public spaces require functional structures/mechanisms for their management.
- The monitoring of green or public spaces needs to include indicators on their effective access and use, especially by the most vulnerable.



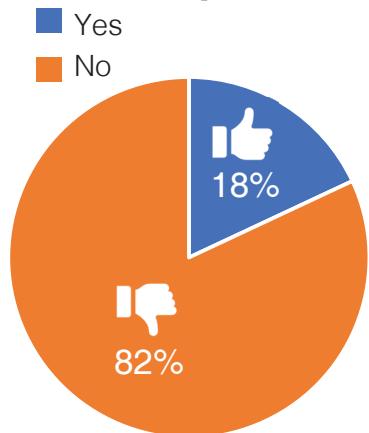
Fig 16. Participatory mapping Luanda
(Author, October 2018).

Existence, use and level of satisfaction with public spaces

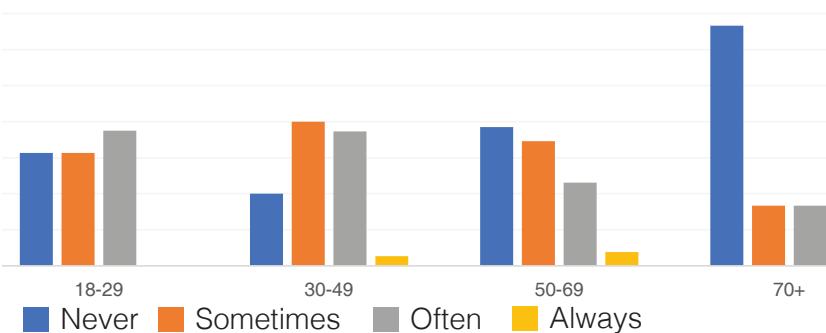
- According to a majority (82%) of respondents there are no public spaces in their neighbourhood
- The neighbourhood of Cariango represents an exception (48%) but the space there is a community centre, not a green and public space
- The levels of satisfaction with public spaces are low: a majority (87.5%) of respondents is dissatisfied or very dissatisfied with existing spaces
- 66,7% of those above 70 years old say never to use these spaces against 20% of those between 30 and 49 years of whom 77,3% use the spaces regularly, likely for having children
- The use of public spaces is somewhat higher among women: 74,6% use them sometimes or often, against 65,7% of men



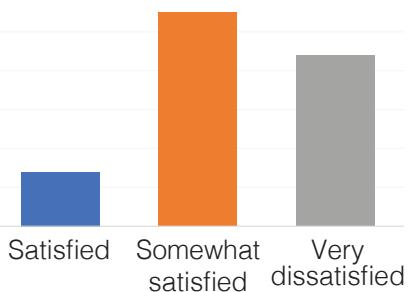
Public spaces?



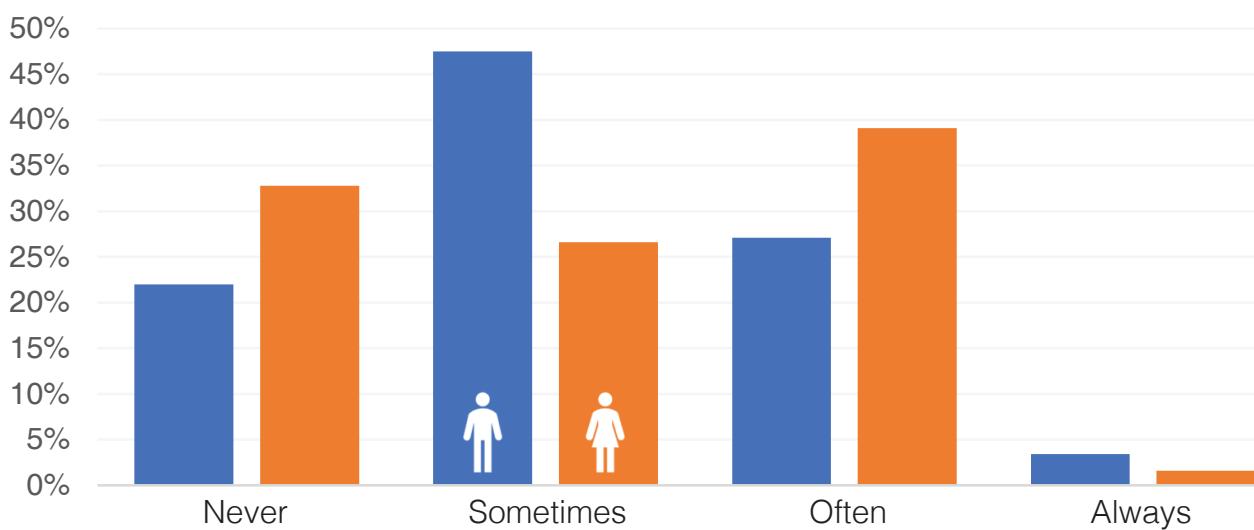
Use of spaces by age



Level of satisfaction



Use of spaces men vs women



Target 11.3

Target 11.3

Indicator 11.3.1



By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries

Ratio of land consumption rate to population growth rate

Indicator 11.3.2

Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically

Baseline value of the INE indicator

11.3.1: The ratio of land consumption rate to population growth rate is 7,1.

Source: INE (2018)

11.3.2: In Angola 5,2% of municipalities conduct urban planning and management (# of municipalities with master plans)

Source: INE (2018)

Indicator used

Result

Existence and participation of local structures of participation

All neighbourhoods have participation structures to communicate and solve community concerns that mainly consist of neighbourhood residents' committees

These local structures are most contacted by men as well as those above 50 years old, compared to women: 55,5% of men have contacted a residents' committee sometimes or often against 38,9% of women

There are no significant differences in the participation in these local structures between men and women

Analysis and recommendations

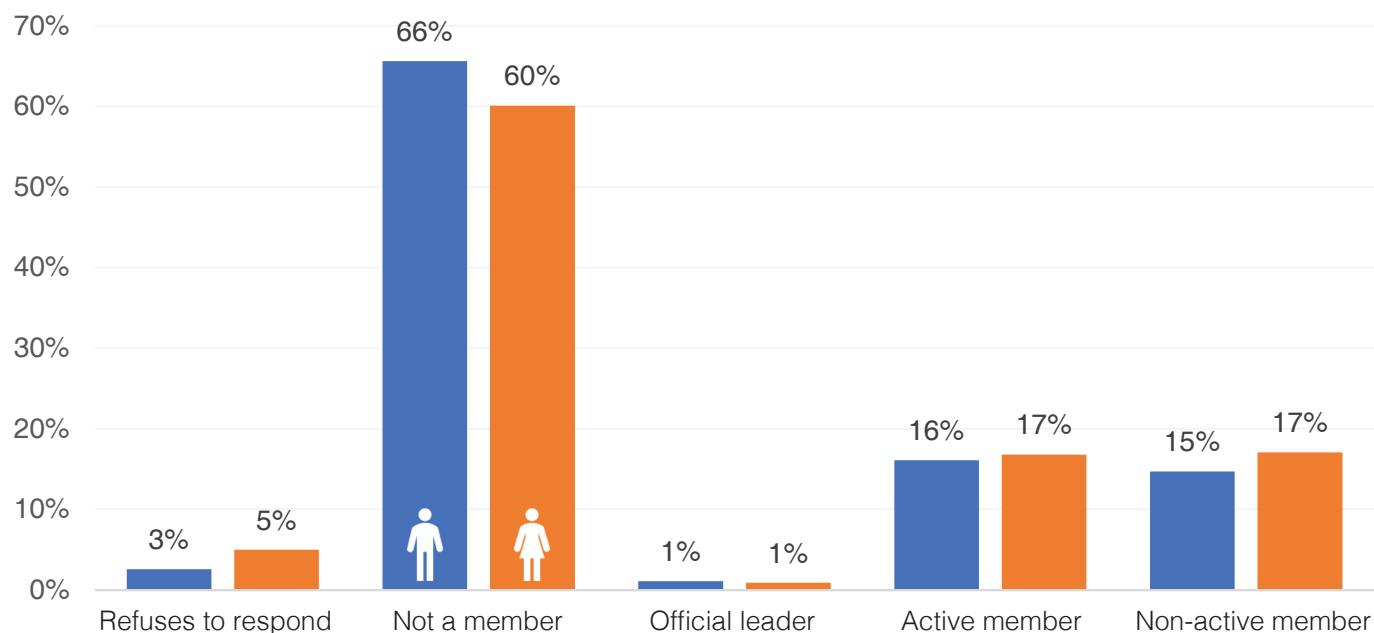
- The monitoring of local participation structures should include a recognition of the existence of neighbourhood leadership and administration structures.
- There is a need for more attention to and support of the access to and participation in these structures by women and the youth in order to guarantee their regular and democratic functioning.
- There is a need for more attention to and support of existing community partnerships and initiatives and their contributions to the creation of solutions for urban planning and management issues.

Concerns and participation

- The levels of crime and lack of safety, followed by noise, waste and lack of basic services are indicated by respondents as the main concerns in their neighbourhoods
- With regard to these issues respondents mainly contact the local residents' committee or local administrator, followed by entities such as the police
- These local structures are most contacted by men as well as those above 50 years old, compared to women: 55,5% of men have contacted a residents' committee sometimes or often against 38,9% of women
- There are no significant differences in the participation in these local structures between men and women



Participation in residents' committee



Conclusions

The results of this research are not conclusive or completely representative, but point to the importance of going beyond quantitative indicators and the need to include indicators that allow for the measuring of the qualitative dimensions (price, quality, safety, inclusivity and sustainability) of targets in order to achieve SDG 11.

In addition to household surveys that incorporate these kind of indicators, this monitoring should include methods such as focus groups specifically dedicated to the experience of vulnerable groups such as women, the elderly, persons with disabilities, but also the urban youth.

The results show general tendencies and patterns, but vary between the neighbourhoods. This highlights the importance of disaggregated analyses that show the variety that exists at the local level. In other words, the research points to the need to localize the indicators to monitor the SDGs in order to reflect these local realities and perceptions and inform the formulation of appropriate urban policies and interventions.

The results are focused on a number of SDG 11 targets, but show that without the achievement of the goals and targets related to poverty eradication (SDG 1), decent work and economic growth (SDG 8) or industry, innovation and infrastructure (SDG 9) these targets will not be achieved, thus requiring interventions that are holistic, inter-sectorial and involving multiple actors.



Fig 17. Focus group Cariango (Author, October 2018).

Acknowledgements

The study “Co-producing urban knowledge: toward meeting SDG 11” is part of a comparative study conducted in the cities of Maputo, Mozambique – in collaboration with the Centre for Policy Analysis, Eduardo Mondlane University – and Luanda, Angola – in collaboration with Development Workshop Angola – with support of the Leading Integrated Research for Agenda 2030 in Africa (LIRA 2030) programme. The programme is implemented by the International Science Council (ISC) in partnership with the Network of African Science Academies (NASAC), with the support of the Swedish International Development Cooperation Agency (Sida).

The research team recognizes and thanks the support and collaboration of the following people/entities:

Municipal Administrations

- Municipal Administration Cacuaco/Cacuaco District
- Municipal Administration Cazenga/Tala Hadi District
- Municipal Administration Viana/ Estalagem District

Residents' Committees

- Gabriel Canhangana Coordinator of Bairro Nova Urbanização 2
- Jorgina Lourenço Secretary of Bairro Nova Urbanização 2
- Bonifacio Quiwana Fiscal of Bairro Nova Urbanização 2
- Candido António 2º vogal of Bairro Nova Urbanização 2
- Manuel Fernande Coordinator of Bairro Nova Urbanização 1
- Simão David Secretary of Bairro Nova Urbanização 1
- Gonçalo Baptista Neto Coordinator of Bairro Cariango
- Simão Freitas Francisco Secretary of Bairro Cariango
- Gonçalves Pedro Mafumba Coordinator of Bairro Km12A

University Students

- Artur Vissuma
- Agnelo João
- Aristoteles André
- Jorge da Fonseca
- Maria Cadula
- Maria Dombaxi
- Maximiliano Inacio
- Samuna Jaime

Others

- Afeu Siamatuka
- The management of the Teresian School in Viana
- The Municipal Directorate of Education of Cacuaco
- Leaders of sectors 3,4,5,8,10,11,15,16 of Km12A

SUPPORT



Contacts

- **Principal Investigator:**
Dr. Sylvia Croese
African Centre for Cities, University of Cape Town, South Africa
Email: sylviacroese@gmail.com
- **Co-Principal Investigator Luanda**
Massamba Dominique
Development Workshop Angola
Email: massambaodeth@gmail.com

Further Information

- Government of Angola (2018), National Development Plan 2018-2022.
- National Institute of Statistics (INE) (2018), Sustainable Development Goals. Baseline indicator report Agenda 2030. Luanda: INE.
- All data collected are openly available online:
<https://www.datafirst.uct.ac.za/dataportal/index.php/catalog/832>