

Perception of Microgardens in Dakar, Senegal

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UPA for food security

Urban and Periurban Agriculture (UPA) is nowadays called to enhance metropolitan resilience and to shape more sustainable local food systems. From this point of view UPA is so interesting because, bridging food production and consumption locally, it is an emblematic sector where all facets of food security can be dealt with.

Aim

The research focuses on the perception of a specific segment of UPA in Dakar, Senegal: the social and environmental perception of Microgardens (MGs) by the potential consumers.

Microgardens



- small scale **urban gardens** that use different techniques, adapted to the local context, such as organic vegetable gardening, **soilless cultivations**, simplified hydroponics, aquaponics, bio-intensive method, etc.
- focus on **recycling** materials as productive inputs such as containers, growth mediums and so on.

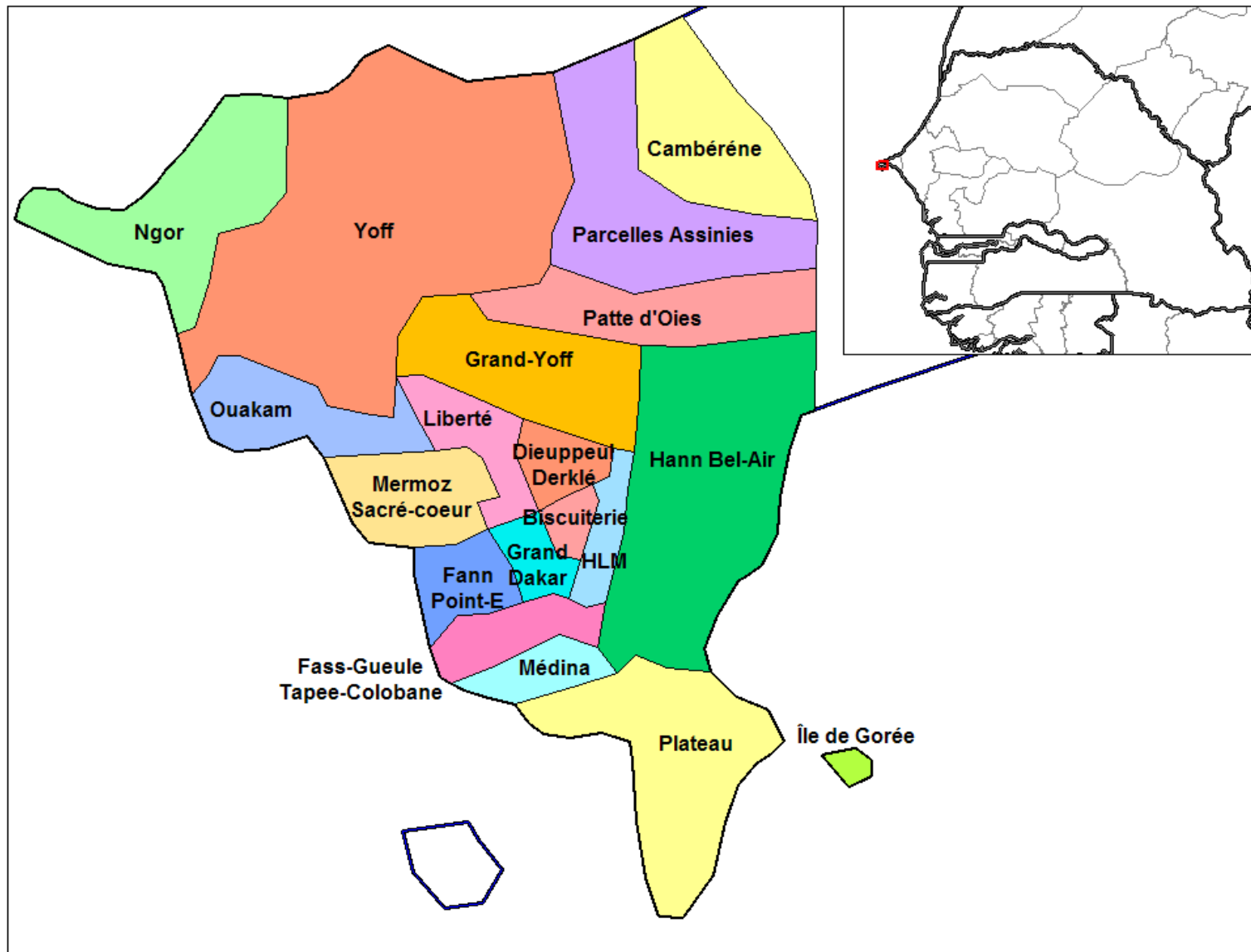
By using recycled materials, small and vertical residual spaces and employed people's free-time, MGs approach integrate deeply with the city's specific resources.

Microgardens

- West African MGs program started in 1999 when FAO proposed this approach in Senegal.
- 15 years MGs program
- Nowadays, active Microgardeners are more than 7000 in Dakar, mostly organized in more than 130 Community Production Centers (CPCs).
- Some of these community centers are in turn gathered in 5 Production Poles.
- 12 Training and Demonstration Centers (TDCs) constitute the backbone of this network while in the final phase (2015-2016) of the programme a strategic MGs Central has been activated with the aim of managing the input supply for the whole production chain.

Methodology

- Multiple Correspondence Analysis, followed by a Hierarchical Cluster Analysis.
- MCA is an extension of CA with more than two variables and a generalization of the principal component analysis with categorical instead of quantitative variables .
- In the present study, MCA was performed as a pre-process for hierarchical clustering analysis to retrieve all the information that this type of analysis can provide. MCA transforms categorical variables into continuous variables and enables the characterization of groups of individuals based on categories using a smaller number of variables.
- Cluster analysis following a MCA is often used to classify individuals into homogeneous groups; in this case, the clusters are derived from the MCA dimension object scores.
- Hierarchical classification was performed using Ward's aggregation, a hierarchical classification algorithm.



- Sex
- Who is the one who normally buy vegetables for the family?
- Does the consumption of vegetables change seasonally?
- Are MGs known to the respondents?
- Where did the respondent hear about MGs?
- Propensity of the respondent to pay more for buying better quality vegetables.
- Propensity of the respondent to move more for buying better quality vegetables.
- Relative importance of knowing the producer (social value)
- Relative importance of having access to the production site (environmental value)
- Propensity of the respondent to self-organize to have alternative marketing solution for purchases (self-organized purchase group)

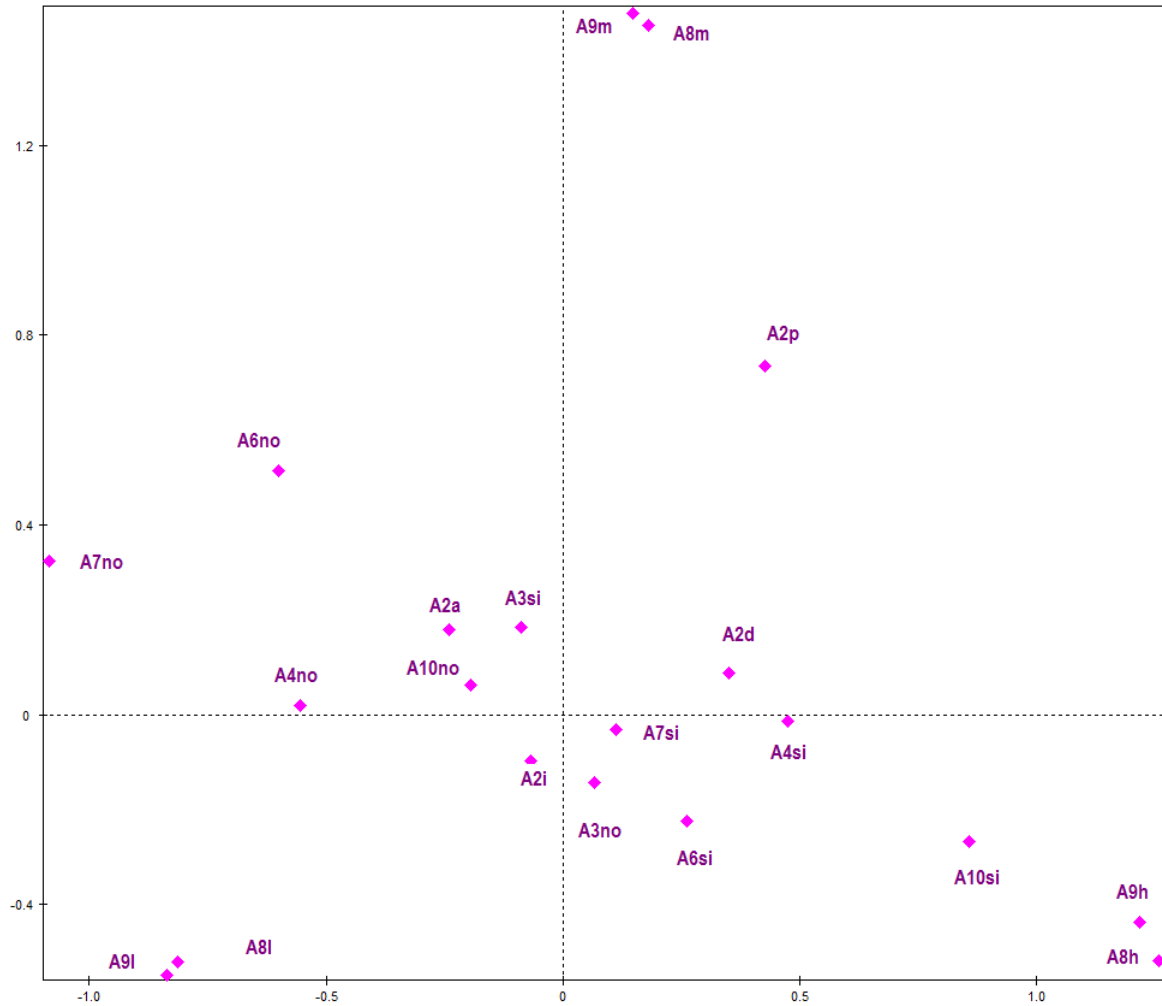
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Variables with low component loadings were sequentially excluded from the analysis. A solution with eight variables was selected as a fair compromise between the readability of the results and the maximization of the explained variance based on the first two axes.

- Who is the one who normally buy vegetables for the family?
1. *me* 2. *parents* 3. *housekeeper*
- Does the consumption of vegetables change seasonally?
1. *yes* 2. *no*
- Are MGs known to the respondents?
1. *yes* 2. *no*
- Propensity of the respondent to pay more for buying better quality vegetables.
1. *yes* 2. *no*
- Propensity of the respondent to move more for buying better quality vegetables.
1. *yes* 2. *no*
- Relative importance of knowing the producer (social value)
1. *low* 2. *medium* 3. *high*
- Relative importance of having access to the production site (environmental value)
1. *low* 2. *medium* 3. *high*
- Propensity of the respondent to self-organize to have alternative marketing solution for purchases (self-organized purchase group)
1. *yes* 2. *no*

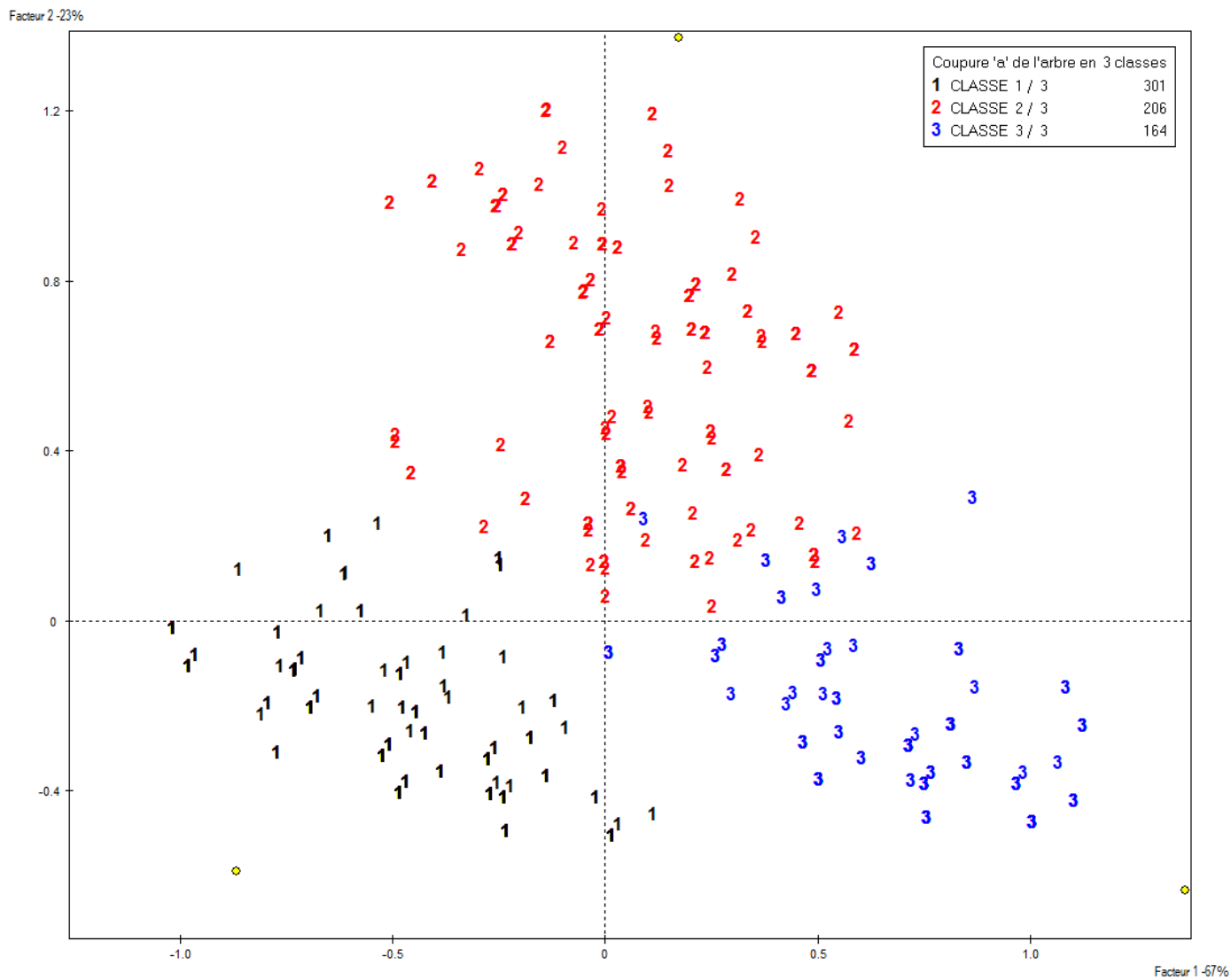
Results: MCA

Facteur 2 - 23%



Facteur 1 - 67%

Results: HCA



First cluster 44.86% of the sample, 301 respondents.

not interested in knowing the farmer (A8) or 2) the production place of vegetables (A9), and 3) do not know the MGs networks (A4). Responsible (A2) for their own food purchases, are 4) not available to move more to get their vegetables (A7) or to directly acquire from MGs (A10). This cluster is called "The negatives", people with no relation with MGs' network, there is not a net rejection of MGs project, but only a lack of knowledge of MGs.

Second cluster 30.70% of the sample, 206 respondents. 1) a medium interest for knowing the farmer (A8) and 2) the production place of vegetables (A9), and 3) the scarce availability in paying more for quality vegetables, for economic reason. This cluster is called "The inactives": they seem quite interested in alternative food networks but they haven't money for acquiring from MGs' points.

Third cluster 20.44% of the sample, 164 respondents. It is called "The positives", including MGs' consumers, that 1) acquire vegetables from MGs, 2) available to spend more for quality vegetables, 3) very interested in knowing farmers and place of production, 3) knowers of MGs. They are already MGs' consumers and they love this experience.

Conclusions

According to this first exploring study on population perception, we can say that it is advisable to implement MGs, but must be increased communication and training on this technique and its direct benefits to the population.

Policy should invest in the communication and promotion of this practice, as direct economic investment is limited, but the population benefits in economic, social and environmental terms can be considerable.

Research and development agenda dealing with UPA should focus more and more on the sensitization of consumers. This could be one of the key issues for triggering more impactful effects of UPA, and in particular on MGs, in dealing with food security promotion.



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*NUOVE SFIDE E NUOVI VOLTI
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