Stakeholders participation in urban infrastructure design and implementation: Experiences and challenges

A case of Hanna Nassif Project, Dar es Salaam, Tanzania

W. J. Kombe¹, University College of Lands and Architectural Studies, Tanzania

ABSTRACT

This paper is intended to describe the participation of the users in Hanna Nassif community based infrastructure improvement project. The paper describes the steps in which the key actors in the Community (Community Development Association members, Sub-ward (Mtaa) leaders and other members of the community) participated in the designing and implementation of basic infrastructure.

Inspite of the deficiencies observed, such as delays or slow execution of tasks and variation in quality, an in-depth examination of the entire process depict promising results. Unlike the conventional squatter upgrading, this approach has high potentials for inducing norms for sustainability as well as enhancing local capacity. The technical skills transferred, local resources mobilised, reduction of future public management needs and not least the employment generated have consolidated household well-being and improved the overall power of the grassroots. A plea is made for more attention to nurture the concept and improve it by for instance defining or developing communication tools for stakeholders, rationalising the process and evolving structures for facilitating wider spread stakeholders participation in infrastructure design and implementation.

INTRODUCTION

The growing plethora of literature about stakeholders or users participation in the provision or improvement of community

¹ Kombe is a Lecturer at the University College of Lands and Architectural Studies and the Project leader for the Hanna Nassif phase II community based infrastructure improvement project. The author wish to acknowledge with thanks the critical remarks made on the preliminary draft by COWISERVICE Plan Directors and Engineers as well as the contribution by the project technical support team and ILO/ASIST.
infrastructure services and facilities suggests a declining role of the public dominance in the service provision sector and the need for new options. With the increased pressure for more decentralisation and democratisation over the past decade, substantive participation of the users in all levels of development projects is likely to become centrepiece of development discourse in the coming decades.

Yet there is hardly a consensus as to what participation really entails; how it should be undertaken or even be facilitated. Citing Uphoff et al, (1979) Fekade notes that whereas economists tend to conceptualise participation in terms of involvement by (rural) people in sharing of benefits, development administrators focus on people taking role in implementation, political scientists on the other hand, perceive participation in terms of involving people in decision making (1994:60). None of these sectoral conceptions, however, satisfactorily fit the stakeholders participation as undertaken in Hanna Nassif project.

In Hanna Nassif project, participation of the stakeholders has focused on active substantive participation of beneficiaries from the very initial stages of the project including the identification of the problem, the derification of options and implementation. Methods used to promote participation of the stakeholders include delegating key responsibilities and decision making to the community members and capacity building of both the local organisation (CDA) and individual community members. Participation of the users has not been a one-touch activity, but a continuous process involving several actors and processes.

The key actors in the phase two project implementation are the University College of Lands and Architectural Studies (UCLAS) as Executing Agency; the International Labour Organisation (ILO) as an Associate Agency, COWI SERVICE PLAN as the engineering design consultants; the local Community Development Association (CDA) as the key actor at the local level and the representative of the ultimate owners or users, also see diagram 1).

---

2 See for instance Satterthwaite and Hardoy (1989); Garcia-Zamour (1985); UNCHS (1985; 1987); Hardoy et al; (1992); Yap (1993); Kombe (1995); Kombe and Volker (1997) and Choguill (1999)

3 Substantive participation as used here refers to a situation where users practically share and influence decision making by freely expressing their experiences, needs and priorities.

4 The first phase of the Hanna Nassif project was supported by UNDP, Ford Foundation, ILO and UNCHS.
Diagram 1: Key actors involved and their roles in the design

CDA & Mtaa leaders
- Approve designs in collaboration with UCLAS
- Mobilise resources in cash and kind
- Animate community members
- Represent the community? Users

Users, Hanna Nassif Community

UCLAS, Executing Agency, ILO/ASIST
- Execute infrastructure works
- Build community capacity
- Solicit users stakeholders experiences and preferences
- Supervise construction works
- Examine and approve design proposals
- Facilitate discussion, presentation

Cowi Service Plan Consultants
- Prepare draft & final design proposals
- Solicit users stakeholders experiences and preferences
- Evaluate tenders
- Ensure quality

Manage community contracts

HANNA NASSIF SOCIO-ECONOMIC CHARACTERISTICS AND COMMUNITY ORGANISATION

Hanna Nassif is one of the 54 major informal settlements in Dar es Salaam City. The settlement is located about 4km. from the City centre and covers 50 hectares. Overall the land slopes gently from North to the South. Msimbazi valley which surrounds the settlement to the South-east and South-west constitute the main discharge basin for storm water run-off.

Hanna Nassif settlement is a low income area, with about 22,000 inhabitants constituting 5,045 households in 1895 houses. Most of the residents are self-employed outside the settlement. The main income generating activities include farming and petty trade. A few residents are salaried, most of the latter are employed in the service sector in city centre.

As a result of the phase I community infrastructure improvement which was carried out between 1992 and 1996, when the phase II project commenced in April 1996, an active Community Development Association (CDA) with about 400 members was in place. By many yardsticks CDA was a strong organisation. It had an office building, interim leaders and a bank account which was operational. Further, most of the CDA leaders were knowledgeable about the community-based infrastructure

5 CDA is the main grass-roots organisation that facilitated community participation during phase I.
upgrading concept and well versed with a number of technicalities inherent in project implementation including administration of “community contracts”, material procurement and other administrative aspects of the project. Phase I project components included improvement of one kilometre murram road with lined side drains, 1.5 kilometre side drains and 600 metres main drain, 700 metres footpath along the main drain and roads, two major protected outlets for drainage discharge into Msimbazi creek, more than 10 road drifts and 10 vehicular culverts crossing. Phase II covers construction of 2.6 km of storm drains, 2.0 km gravel roads, 35 road crossing, 4km side drains, 25 footbridges and water supply network consisting of 10 water kiosks and also improvement of solid waste collection system, see map 1.

ACCLIMATISATION AND INITIAL ANIMATION SESSIONS

When phase two commenced, decision on the types of infrastructure and their alignment routes had been agreed upon by the community. Therefore in the initial process of executing phase two, discussions between UCLAS and the CDA leaders focused more on why and how the community would participate in the infrastructure design and implementation and getting to know each other rather than on what infrastructure would be built and where.

In an attempt to clarify the importance of the engineering design in the entire exercise, reference was made to some of the problems which emanated from insufficient experience and failure to appreciate the need for engineering design and expertise during phase one.

During the initial discussions we already observed problems associated with lack of patience among the CDA members who felt that the executing agency (UCLAS) was spending too much time talking instead of carrying on with construction. Many a time the TST members were confronted with the question, “when will the actual construction start? How long will these discussions last etc.” This indicates that most of the residents saw their role as actors during construction and not during the design process. Most of them appeared reserved and felt that design a reserve for

---

6 Total project budget for phase one was 608,000.U$, whereas phase two budget is about million U$.

7 This refers to for instance the case where the local residents had without engineers advise or support dug a drain with intention to channel storm water off their housing simply because they thought that the land form (gradient) was sloping away from their houses, only to find the water flowing into their housing area.

8 Inspite of repeated explanations that unlike phase one, in phase two, animation of the community members shall constitute the entry point to the project design and implementation processes, CDA and the community at large wanted UCLAS to commence construction immediately after signing of the contract. This was understandable because what seemed to matter among most settlers was tangible benefits including access to paid jobs.
experts. After clarification that the intention was not to require them to prepare design proposals but to give their views and actively contribute by narrating their experiences and options, gradually they could see their role. When it was pointed out that the community members would be responsible for identifying the most convenient location of the proposed water kiosks as well as carrying out negotiation with land owners in order to persuade them to donate the land required for kiosks before the engineers could embark on detail designs for the kiosks, most CDA members became excited and found this idea not only appealing but a practical area of interest.

**PRE-DESIGN PARTICIPATION**

The major strategy adopted to ensure stakeholders participation during the pre-design stage was to require the four pre-qualified consulting firms to mandatorily arrange meetings with the community members and solicit their proposals during the reconnaissance survey.

Often discussions were conducted in a casual manner i.e. without formal procedures. This was important in order to stimulate discussions among the local community members and create conditions for them to freely and openly give their views and experiences based on critical reflection on their social and physical environment.

Participation of the CDA members, however, became more lively during site visits apparently because then every member could point out and narrate his or her experience about infrastructure problems in the neighbourhood. On the other hand CDA leaders active participation became more conspicuous during the site visits because then they were able to accentuate their role and also impress upon the residents that they (CDA leaders) were working hard to find solution to the their problems\(^9\). The most often asked questions during the reconnaissance tour in the area were: Why is it that only road number 2, 3 and 4 will be improved; Why not this or that road? What will happen to houses which have been built too close to the road or proposed drains? Will the project pay compensation if a house is demolished?

During the reconnaissance surveys, the consultants seized the opportunity to initiate discussions with the CDA members and other community members met along the route. These discussions were intended to solicit residents views as regards their dislikes and likes, and their assessment of the performance of the infrastructure such as the trapezoidal drains which were constructed during phase I. Apart from request for providing footbridges most residents preferred open drains to closed ones

---

\(^9\) In view of the local politics in Hanna Nassif bragging by the CDA leaders seems to have been a deliberate move or gesture intended to thwart attempts by some community members who had been challenging the legitimacy of the CDA.
(the CDA leaders recited their experiences and confidently maintained that open drains were better because they are easy to clean)\textsuperscript{10}.

**PARTICIPATION DURING PRELIMINARY DESIGN STAGE**

When CowiService Plan consultants were selected and awarded the contract to prepare the engineering drawings for the infrastructure services, it was projected that the design phase would be accomplished within a 4 weeks period. However, for various reasons design proposals were only completed after nine months. The delay was mainly attributed to:

- underestimation of time required to make contacts and to reach consensus among the key actors in the project
- unforeseen problems associated with difficulties of carrying out detailed cadastral survey (along the routes) in a densely built informally housing area
- unexpectedly long processes and time consuming exercises required to negotiate with owners of the land required for the water kiosks
- frequent and at times changing demands from the actors involved. This includes additional assignments and change of design and presentation materials. In an attempt to ensure that the overall costs of the execution of the project are within budget, a lot of time was spent negotiating with the designers and identifying areas where cost cutting measures had to be effected. This in particular refers to costs for the water supply system.
- an internal conflict within the community culminated into temporary suspension of the activities of the two CBOs for four months\textsuperscript{11}.

The TST, the CDA and some community members attended the presentation of the draft design proposals by the consultants. Using Kiswahili the consultants gave in-depth explanation on the proposals they had prepared for water supply, drains and roads construction. Bright colours (marker) pens were used for the participants to ease visualisation. During the presentation the community members often wanted to be assured that the proposed size of the drains and roads would not affect the adjoining houses.

\textsuperscript{10} In spite of these lived experiences narrated by the community members, one of the consulting firms, quite unexpected proposed a closed drainage system.

\textsuperscript{11} Hanna Nassif Community Trust Fund (HNCDTF) is the initial CBO which was established in Hanna Nassif in 1994, later, because ideological differences and varying interests particular scramble for power among the Trust Fund members the CDA emerged. There was also a misconception among Trust Fund members about their role in the use of the project funds.
**DESIGNATION OF LAND (SITES) FOR THE CONSTRUCTION OF WATER KIOSKS**

While the consultants were preparing the design for infrastructure services it had been agreed that the CDA would in collaboration with the local community members identify potential sites for locating the proposed 10 water kiosks. After the CDA had visited several areas and carried out initial negotiations with the land owners, the TST members joined the CDA to assess the individual sites and the geographical distribution of the same in the neighbourhood. During the visit it became clear that most land owners were adamant to donate their land until modalities for sharing profits from water sales from the kiosks and the overall management arrangement for the same were known and agreed upon.

After assuring landowners that the modalities for running and sharing profits from the water sales at the kiosks will be concluded before final designs are made, all of them co-operated fully. It is at this stage the consultant were invited to work with the CDA in order to take measurements for the size of the plots which the land owners were willing to contribute before final designs could be prepared.\(^{12}\)

**FINAL DESIGNS**

The consultants amended the draft design according to the recommendations of all stakeholders, which was presented to all stakeholders using visualisation techniques. Issues as cost and maintenance implications of various design options were discussed with the community, and final designs were selected. After the presentation the consultants, the TST, CDA and Mtaa leaders once again went around the area in order to make on spot assessment of the practicability of the solutions opted for the critical problem areas.

This time, the visualisation techniques included a comprehensive drawing (scale1:1000) of the entire housing area showing the proposed improvements and all the existing buildings. With this drawing the location of houses which belong to some of the CDA members as well as alignment of the proposed infrastructure could be located, and as result many members were better oriented to follow the presentation.

**CONSTRUCTION**

It took around nine months to finalise the designs, and it is thus needless to add that even renown consultants may have difficulties of coping with such a time demand to communicate with the community. Furthermore, the CDA and the community

\(^{12}\)The consultants had to change the size of the kiosks after realising that some of the land that will be available will be too small to accommodate the kiosks they had proposed.
members as a whole were increasingly loosing patience with both the implementing agency as well as the engineering consultants.

In order to avoid further delays and subsequent demoralisation of the community members, it was agreed to start ‘peace meal’ construction of some sections while the consultant finalises the design work\textsuperscript{13}. After discussions with the CDA it was agreed that construction of drains be undertaken as the first priority, primarily because control of floods was the most felt problem in Hanna Nassif.

As a result of the good work which was done to build local capacity during phase I, phase II inherited a well experienced “Construction Committee” with a foreman as the head, and team members who were both conversant with the project and ready to handle most site works\textsuperscript{14}. Engineers are, however, at the site to \textit{inter alia} ensure plan or organise the work and ensure quality control. They are also responsible for advising the community in situations where adjustments or changes have to be made on the design. Jointly with the construction committee the engineers prepare cost estimates for the community contracts and approve the procurement of construction materials. The CDA and Local (Mtaa) leaders on their part mobilise residents and also negotiate with the property owners in cases where disputes were eminent, (see diagram 1).

**CHALLENGES**

Users participation in the implementation of infrastructure in Hanna Nassif was not only intended to ensure effective deployment of local resources (e.g. labour) but also to transfer of skills and build local capacity in form of enhancing responsibilities in maintenance and the overall management of the future CDA activities. However, users participation in design of infrastructure services is a fairly new approach, which poses some challenges which are worthy underlining:

- It is difficult for most community members to conceptualise and understand technical drawings. The use of plans to exhibit physical (infrastructure) structure does not often convey the correct message to a lay person. Use of visualisation tools including models in scale and three-dimensional drawings would be ideal. This requirement would, however, imply additional costs.

- Participation of stakeholders is a time-consuming process, which most consultants are unlikely to endure without additional pay. This may increase the costs and the delays may

\textsuperscript{13} Fekade (1994):170) citing Uphoff (1979) cautions that participation of stakeholders is likely to wither if a promise to deliver a certain service (tangible) which was the basis for the participation is withdrawn or suspended.

\textsuperscript{14} The Construction Committee is a subcommittee of the CDA.
demoralise stakeholders. It thus appears necessary to develop clear methodologies and strategies for stakeholder participation in planning, design, construction and maintenance (including scope of work, stakeholders participation chart, communication tools and design outputs from a consultant).

- In the project, the planning stage overlaps with the design stage, which may lead to unforeseen delays in the design. For instance most of the discussions, negotiations and formalisation of the preliminary agreements which were conducted during the design phase could have been undertaken as planning tasks. This suggests the need for a phased approach and a varied (more output oriented and efficient) mode of remunerating consultants commensurate with the stage of their engagement.

- In the planning phase, enough time is required to allow for the internal organisation and evolution of teamwork spirit between all stakeholders. Many projects including Hanna Nassif have shown that the more actors are involved in a project, the more the time is required to develop common vision, expectations and most importantly appreciate the ultimate values inherent in the concept.

- User participation in the implementation may result in lower productivity when compared with conventional construction systems. However, the capacity building of communities to maintain infrastructure may well reduce the life-time costs of infrastructure. Detailed cost-benefit analyses are needed to provide a better understanding.

- When community members are left to act on their own, for instance in procuring construction materials occasionally they buy poor quality or sub-standard materials which may affect the quality of the outputs. Institutionalisation of quality control measures would appear to be an important aspect even though the quality and performance of the infrastructure built through labour based skills has so far proved to be quite satisfactory15.

- Conflicts may arise within the community due to heterogeneity, varying interests among community members, and changing power structures. Needless to emphasise that while complex relationships and heterogeneity in the local community could constitute a barrier to substantive participation, the effect may be overcome, or at least mitigated, if glaring structural differences in a society are critically a priori examined and not taken for granted.

- One of the prerequisites for consolidating the approach is to adapt it and campaign for a wide-spread (city and town level) application. In order to achieve this, however, local

---

15 The stability of the infrastructure services built during phase I was successfully tested last year during El Nino. Surprisingly none of the services provided suffered any serious damages.
governments and institutions responsible for infrastructure development have to change their attitudes first about local community abilities and about Labour Based Technology. Training institutions on their part can and should play a leading role by changing the software so as to bred a generation of engineers and planners who are not only ready to design with community but also work with them using labour based skills.

LESSONS LEARNT AND CONCLUSION

Although it is too early to bring forward the outcomes of stakeholders participation in the design of basic infrastructure services in Hanna Nassif, it is imperative to underscore here the key issues which emerge from the stakeholders participation in the Hanna Nassif project:

Firstly, participation of stakeholders in design process is a new approach not only in the engineering field but also other disciplines including planning and architecture. There are however increasing initiatives to disseminate the approach. In so far as the Hanna Nassif case is concerned, the specific project circumstances such as the existence of an organisation and experienced local organisation (CDA) seem to have influenced the high level of participation achieved. Further the fact that stakeholders participation in the design was being undertaken after phase I execution, created enthusiasm among many residents who had seen their neighbours in a better living environment following phase one infrastructure improvements. It is therefore likely that the degree of participation could have been lower had it not been for the phase one outputs.

Secondly, users have participated in making the most important decisions pertaining to the design and implementation of the project. Residents were inspired to participate because they wanted to gain, share benefits i.e. so that the road, drain or water system which will be provided run close to their houses. This is manifested by the fact that most of the residents who were frequently attending meetings and presentations were those from the residential areas which were not improved during phase I (Kasseva 1997). In other words for residents to actively participate (in design of infrastructure service) they have to perceive tangible results of their engagement.

Thirdly, stakeholder participation in Hanna Nassif project, was a continuous process that cuts across pre-design and post-design stages. It is therefore difficult to draw a demarcation line or delimit stakeholder participation to any definite stage of the process. As noted, in community infrastructure improvement projects design phase often continues even during implementation. Amendments are often made at the site, this in turn may create stimulating

---

16 Some participated primarily because they expected to be employed in the project.
environment as members of the community challenge one another and try to exhibit the skilled learnt in the course of searching for options.

Fourthly, the successes recorded in Hanna Nassif can hardly be dissociated from the strong neighbourhood leadership under both the Community Development Association (CDA) and the Sub-ward leaders. An experienced and widely accepted leadership was of great help in mobilising, and leading discussions among the residents during presentations. However, the effectiveness of an organisation such as the CDA could be greatly enhanced if stronger linkages are forged with the key stakeholders at the community level and the city level.

Fifthly, stakeholder participation in Hanna Nassif project started already during project formulation stage\textsuperscript{17}. The design of drains, water supply system has been strongly influenced by residents views and preferences. The type of drains, the alignment within the housing clusters and location of water kiosks were influenced by residents both men and women.

Stakeholders participation in design of basic infrastructure is often an expensive process that necessarily demands time and patience which many do not have. As may be expected a part for the motivation for a serious consulting firm to tender and participate in a project is to make profits. Repeated fieldwork, elaborated details and illustrated presentations are costly. Substantive participation also imply higher management costs, and make the project more complex to administer. The consultants have repeatedly shown concern regarding the profit which will be made in this engagement\textsuperscript{18}. The Hanna Nassif project is a good example which may show that even experienced consulting firms have to be ready to learn the intricacy of designing with the people and not for the people. This underscores the need for evolving more elaborate working tools and clearer output formats for engaging consultants who are required to work in an informal area. From a glance, the cost of the whole process appears high. However, in-depth analysis in particular long term impacts suggests the contrary. Doubtlessly, technical capacity of the local community members including ability to manage development initiatives, use of technical drawings and construction skills has been enhanced. That many persons (both men and women) who have worked with the project have found

\textsuperscript{17} The community played active role in the definition and prioritisation of the problems already during phase I. During phase II, short-listed consulting firms made extensive discussions and consultations with residents before they could prepare and submit project (consultancy) proposals.

\textsuperscript{18} Admittedly the consultants have put in more in the design than they had anticipated and probably budgeted for. However, it is not all losses, they have hopefully made a name for future gains in similar project.
jobs in the construction activities in the city, suggests that their power to compete has increased.

Considering the experience so far learnt from the Hanna Nassif project, it suffice to reiterate that it is not only the users who need time or patience to learn and adopt to the new approach but also consultants, individual technical personnel involved and institutions.

What can be furthermore inferred from the stakeholders participation initiatives taken here is that norms and behaviours which are conducive to sustainability of the improved infrastructure have been consolidated. Some of the mistakes which could be committed at design stage have been avoided because users views and experiences were tapped to shape decision making. What is also incontestable is that participation has engendered greater sense of solidarity among the community members, raise awareness and greatly improved self-esteem or confidence among the users. The raising number of women involved and getting skills in construction activities indicate that the well-being of some households is or will improve.

As noted, the achievements recorded here is a result of interaction of many actors and social processes which have by and large reinforced one another. Experience suggests that these can be easily faltered if destabilised by political motives or economic interests and misconceptions\textsuperscript{19}. It is for this reason that continuos nurturing and adaptation of the concept to the local context is considered a necessary precondition during its replication.

REFERENCES


\textsuperscript{19} Experience has shown that links with political and administrative power structures are a \textit{sine qua non} for the effectiveness and sustainability of grassroots organisation. However, the role of political actors in enhancing and supporting meaningful participation in development projects \textit{inter alia} depends on unambiguous comprehension of the concept.


