THE ETHICS OF INFORMAL SETTLEMENTS IN FLOOD PLAINS: INSIGHTS GAINED FROM A STUDY TESTING THE MERITS OF PALAEOFLOOD AND CONVENTIONAL FLOOD HYDROLOGY IN FLOOD CONTROL PLANNING AT SOWETO-ON-SEA

by

Mompati Solomon and Prof. M.F. Viljoen

Contributed Paper Presented at the 41st Annual Conference of the Agricultural Economic Association of South Africa (AEASA), October 2-3, 2003, Pretoria, South Africa

THE ETHICS OF INFORMAL SETTLEMENTS IN FLOOD PLAINS: INSIGHTS GAINED FROM A STUDY TESTING THE MERITS OF PALAEOFLOOD AND CONVENTIONAL FLOOD HYDROLOGY IN FLOOD CONTROL PLANNING AT SOWETO-ON-SEA

Authors
Mompati Solomon
Prof M.F. Viljoen
Dept of Agricultural Economics
University of the Free State
P.O. Box 339
Bloemfontein

Tel: 051 4012213
Fax: 051 4013473

ABSTRACT

Adhering to planning ethics is especially relevant when flood control planning of communities who settled in flood plains is at stake. Soweto-On-Sea (SOS) is an informal settlement in the flood plain of the Lower Chatty River near Port Elizabeth. As part of a research project which compared palaeoflood and conventional flood hydrology in the planning of flood control measures for SOS within a Cost Benefit Analytical (CBA) framework attention was also given to some ethical considerations. This paper, inspired by the conduct, rules and principles that govern the informal settlement of SOS evaluates some flood plain development and planning issues with a code of ethical conduct for planners and comes up with explanations for 'unethical' conduct of and towards flood plain residents as well as some suggestions for improving future planning and developmental endeavours.

1. INTRODUCTION

In common with other developing countries, South Africa is experiencing a massive influx of people into urban and metropolitan areas. This is due to the fact that agriculture has little opportunities for small-scale farmers and further exacerbated by perpetual droughts, which makes the land unprofitable to farm prompting able-bodied men, and women to leave the farmstead for better opportunities in towns and cities with hope of changed fortunes in the industrial sector. This has led to the rapid growth of shanty towns, as squatters move onto vacant land near cities, in a search for accommodation in close proximity to sites of potential employment (MacKay, 1994).

Local and regional authorities are developing high-density residential areas as quickly as possible in their efforts to cope with the growing demand for land, housing and basic services in and near cities. However, in their endeavour to accommodate this huge demand, both the shanty towns and the newly-established residential areas often become environmental disaster areas, not only for the people who live in them but also in terms of their pollution impact on neighbouring areas (MacKay, van der Merwe, van Eeden, Hops, and Banzana, 1994).

Based on the insights gained from a study testing the merits of palaeoflood and conventional flood hydrology in flood control planning at Soweto-On-Sea (SOS) this paper evaluates some flood plain development and planning issues at SOS against a code of ethical conduct for planners to derive explanations for 'unethical' behaviour of and towards flood plain residents as well as suggestions for an improved approach for future planning endeavours.

2.1 STUDY AREA

SOS is located in the greater Port Elizabeth metropolitan area. It lies within the catchment of the lower Chatty River. The Chatty is a small seasonal river which flows into the estuarine reaches of the Zwartkops River, a popular recreational area for bathing, sailing, rowing and angling, and an important asset for the regional tourism industry.

Until recently (Mackay *et al*, 1994), approximately 80000 people lived in about 15000 shacks in SOS. Many of the people were unemployed, with no visible means for support. The area was not formally zoned for residential use, and the existing local authority structures were not prepared to take responsibility for the upgrading of the settlement such that minimal services were available.

Because SOS developed in a totally uncontrolled manner, some 3000 shacks have been erected below the 1:50 year floodline of the Chatty River. This represented considerable danger to the 16000 people housed in these shacks, since the Chatty River is prone to infrequent but large floods. In addition, metropolitan by-laws prevented the provision of sewerage, potable water or many other services, or the granting of land tenure in the floodplain, below the 1:50 year floodline (MacKay *et al*, 1994).

3. ETHICAL PRINCIPLES IN PLANNING

According to the American Planning Association, (July 2003) http://www.planning.org/ethics/etchics.html as a guide for ethical conduct to all planning process participants (advisors, advocates and decision makers) the planning process must continuously pursue and faithfully serve the public interest.

"Planning Process Participants should:

- Recognise the rights of citizens to participate in planning decisions;
- Strive to give citizens (including those who lack formal organisation or influence) full, clear and accurate information on planning issues and the opportunity to have a meaningful role in the development of plans and programmes;
- Strive to expand choice and opportunity for all persons, recognising a special responsibility to plan for the needs of disadvantaged groups and persons;
- Assist in the clarification of community goals, objectives and policies in plan-making;

- Ensure that reports, records and any other non-confidential information which is, or will be, available to decision makers is made available to the public in a convenient format and sufficiently in advance of any decision;
- Strive to protect the integrity of the natural environment and the heritage of the built environment;
- Pay special attention to the interrelatedness of decisions and the long range consequences of present actions."

Against this framework which should also apply in South Africa the following reflections on views, knowledge, conduct and functions of different role-players on flood plain settlement issues at SOS obtained from interviews conducted during 2002 must be evaluated.

4. SETTLEMENT ETHICS: RESPONSES OF ROLE-PLAYERS AT SOWETO-ON-SEA ON FLOOD PLAIN SETTLEMENT ISSUES.

4.1 PORT ELIZABETH MUNICIPALITY

According to a spokesman of the Port Elizabeth Municipality, their line of work did not cover informal areas and therefore there is nothing they can do to arrest the situation at SOS. The explanation they gave is that squatting is no excuse and the only way of discouraging it is through cutting all ties with those who practice it. They believe that if they provide services needed for a basic livelihood, they will be acting out of line in that they will be helping in exposing the residents to further flood plights. Their decision is primarily based on rules and regulations and principles that govern them.

4.2 MZINGISI TRUST

The Mzingisi Trust is an organization which was established in 1992 as a charitable trust, established and incorporated in terms of Section 21 of the Companies act, with the Department of Justice Letter of Authority TM 3254. Its main purpose is to create opportunities for communities to improve their living standards through consultation, participation, and self-development (Organizational Profile, 1992).

The major challenge facing their organization according to the senior personnel interviewed are predominately human based. The group dynamics of the settlement makes it difficult to comprehend why, some people accept decisions made and end up disregarding them. Some are exploiters and usually look for opportunities from the trust that is to their benefit only. The trust characterized their problems into two, the gatekeepers and the potential squatters. Gatekeepers are individuals who have benefited from the projects organized by the trust before and are lying in waiting to see what new developments entail and how they differ from theirs. Their intentions are to disrupt new developments that differ from theirs and at the same time promote those that they will benefit from it.

4.3 SOWETO-ON-SEA RESIDENTS

From a survey conducted in 2002, (Solomon, 2003) at the settlement, 29 families from a total of 34 interviewed were recent dwellers and did not have any idea as to when the settlement started and reasons leading to its sprout. The reasons they gave for occupying the area was that they did not have any place to stay and that the municipality took a long time in allocating them land. Others stated that those who work are not paid much to afford a descent place to stay and let alone have enough resources to afford food, clothes, fees and bills. In most cases, only one member of each family had a job. They resorted to squatting as a means of survival and cannot comprehend why they have to pay service levies for land that is rightfully theirs. As far as they are concerned, flood hazards that are prevalent in their area are due to the act of God and they and everybody else cannot do anything about it.

4.4 DEDUCTIONS REGARDING FLOOD PLAIN SETTLEMENT ETHICS

From the aforementioned reflections the following can be concluded:

- The Port Elizabeth Municipality rightfully do not sanction squatting especially not in flood plains. However because squatting is a reality, it is a pity that the Municipality does not see it as a moral obligation to participate with its expertise and resources in guiding development in informal settlements.
- The aims of the Mzingisi Trust as a charitable trust is honourable from an ethical perspective, unfortunately the organization's experience with flood plain occupants is very negative. The self-serving conduct of these people may to a very large extent be as a result of poverty and unsatisfactory socio-economic circumstances, which make short term survival the dominant issue rather than ethical settlement conduct.
- Responses from flood plain residents points to poor socio-economic conditions and being uninformed about the hazard of flood plain settlement. Information dissemination about the dangers of squatting in the flood plain should be paramount on the agenda of developers.

5. PLANNING ETHICS: COMPARING THE MERITS OF PALAEOFLOOD AND CONVENTIONAL FOOOD HYDROLOGY

5.1 COMPARING PALAEOFLOOD AND CONVENTIONAL FLOOD HYDROLOGY

Comparing the merits of palaeoflood and conventional flood hydrology in the study area, assumes applying the potential flood damages based on the hydrology data in a Cost Benefit Analytical (CBA) framework. Table 1. shows the potential damage in Rands (R) of different flood events using both conventional and palaeoflood hydrology data. The flood event column gives a year recurrent period of floods of different magnitudes starting from a 2-year flood with a probability of occurrence of 50 percent to a 10000-year flood with a 0.0001 percent probability of occurrence. The potential difference of each flood event (of each hydrological data set) is the total sum of estimated damages in monetary terms to all households in the study area.

Table 1: Potential damage (R) of palaeoflood and conventional hydrology for different flood events in SOS, 2002.

Flood Probability (yrs)	Conventional Hydrology data (R)	Palaeoflood Hydrology data (R)
2	5225991	5225991
5	5371087	5371087
10	5511447	5511447
20	5653438	5653438
50	5653438	5842251
100	5653438	5987840
200	6149891	6129834
500	6477832	6291515
1000	6714229	6382711
5000	7429810	6602906
10000	7992208	6670442

From Table 1, there is a gradual increase in the potential damage with the increase in the flood event for conventional and palaeoflood hydrology data. This is basically due to the fact that the bigger the flood event, the higher the extent of damages exerted to infrastructure and property. The difference between the potential damage (in Rands) of the smallest flood and the biggest for conventional and palaeoflood hydrology is R2,766,217 and R1,444,451 respectively. Larger floods (between 200 and 10000-year floods) have greater potential damage for conventional than palaeoflood hydrology while potential damage for smaller floods (between 2 and 50-year floods) are the same. Overall, there is no significant difference in the estimation of potential damage by conventional and palaeoflood hydrology practices basically making it irrelevant which one to apply within a CBA framework to plan flood control measures. The one, which is cheapest and easiest to apply, will be selected. Normally it will be the approach based on conventional flood hydrology.

5.2 DEDUCTION REGARDING PLANNING APPROACH ETHICS

CBA has many commendable attributes and are therefore widely used. In this regard (Viljoen *et al*, 2001) stated "The CBA model has provided the underlying decision-making framework for the selection of flood damage control measures in many flood control projects such as the estimation of potential damages of prospective flood events. Its important attributes include reinforcing a pro-active approach to disaster management by highlighting the importance of forward-looking analyses that locate the relative merits of alternative preventive measures in a broader set of economic data." However, the technique also has some disadvantages such as focussing on the economic efficiency aspects with no or little regard to social, socio-economic and other welfare aims; using as numeraire a monetary unit which is insensitive to differences in living standards between individuals, and are often applied in a top-down approach by one or a few decision makers without proper consultation and participation of all stakeholders.

Mirroring these deficiencies against the ethical planning code motivates the introduction of a Multi Criteria Decision Analysis (MCDA) approach. The integration of MCDA in planning can facilitate the identification, ranking, screening and selection of feasible options that meet technical, economic, social and environmental objectives with maximised acceptance in a transparent and participatory manner. MCDA is a holistic approach to problem solving in that the process can be opened up to allow meaningful stakeholder participation in decision making as opposed to domination of the process by one decision maker or analyst

hence has been considered as a democratic and transparent methodology. In allowing a bottom-up instead of a top-down approach in problem solving, active participation more especially of the beneficiaries of a project enhances its success.

6. CONCLUDING REMARKS

Abiding by an ethical planning code of conduct should be honoured by all role players where flood plain settlement and flood control planning are at stake. From the insight gained from the flood hydrology comparison study at SOS deficiencies at two levels were identified, namely in the settlement within the flood plain and in the approach used to plan for flood control measures.

With regard to settlement, information obtained from interviews with the Port Elizabeth Municipality, Mzingisi Trust and flood plain residents has highlighted tension between the Municipality and residents and between the Trust and residents. Honouring settlement ethics by residents are very difficult due to their poor socio economic circumstances which make that if the struggle for short term survival is not satisfactorily addressed ethical issued will not be honoured by them.

Regarding the planning approach, it is important to mention that planning ethics require that endeavours must be made to move from a CBA approach to a MCDA approach which should involve all role players including flood plain residents in planning flood control measures and strategies. To emphasize this the following view of Anderson *et al (*1998) should be noted. The terms used to refer to people affected by a disaster reveal attitude about them. Aid agencies called them "victims", "survivors", "recipients", "clients", "beneficiaries", "respondents" and the "target population". Each of these terms implies different things. Some imply that these people are less fully competent to cope with their own lives and futures. Others imply admiration for or accountability to them. However, all imply that the aid giver is the active party. No one else develops anyone else. People and societies develop themselves. External agencies can help, but the people who live in the situation must take ultimate responsibility, and they can gain the advantages or suffer from the mistakes of their, and the donor's actions. They are, fundamentally, the "participants", not just in projects or programmes but also in development.

7. REFERENCES

Anderson, M.B., and Woodrow, P.J. (1998) **Rising from the ashes: development strategies in times of disaster**. *IT Publications.*

MacKay H.M. (1994) **Management of water quality in an urban estuary.** *Unpublished PHD Thesis. Department of Oceanography. University of Port Elizabeth.*

MacKay, H., van der Merwe, R., van Eeden, A., Hops, J., and Banzana, M. (1994) **Community-based planning for utilization and management of natural resources: lessons learned from the Chatty River floodplain project, Port Elizabeth, South Africa.** *Journal of Environmental Management.*

Organizational Profile (1992) **Profile of the organization**. *Mzingisi Development Trust.*

Solomon,. (2003), **An investigation into the economic value of palaeoflood hydrology and its integration into flood damage mitigation studies through comparison with conventional flood frequency / impact analysis.** *Unpublished MSc Mini Dissertation. Department of Agricultural Economics, University of Free State.*

Viljoen, M.F., du Plessis, L.A., Booysen, H.j., Weepener, H.L., Braune, M., van Bladeren, D., and Butler, M. (2001) **Flood damage management aids for integrated sustainable development in South Africa.** *WRC Report No 889/01*.

Website: American Planning Association, (July 2003)
http://www.planning.org/ethics/etchics.html