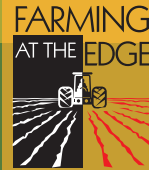


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ABSTRACT

The South African sugar industry burns 90% of the crop at harvest while 10% is harvested green. The trend to burn cane at harvest has increased over the past twenty years, despite growing pressure from the public and environmental legislation. This paper explores the influence that public pressure and legislation are having on the practise of burning and examines the actions that the industry has implemented in order to protect the privilege of burning sugarcane at harvest. A communication model and case studies are used to illustrate the interaction between the sugar industry, government and public role players over cane burning. Communication has proved to be a key management tool that has had to be dynamic and on going in order to engage the various role players effectively.

It is presumed that the advantages of burning outweigh those of trashing and it is for the nuisance rather than the health factor that the public want cane burning banned on farms adjacent to residential or tourist areas. The government, however, regards agricultural burning as a contributory factor to high air pollution levels during the winter months and expects these levels to be reduced.

Will the public be able to force change to the current practice of burning cane at harvest in the South African sugar industry or will the steps taken by the industry provide adequate protection? Although favourable outcomes have been achieved, cane burning remains under pressure from the public and government.

Keywords: cane burning, communication, environment, legislation

INTRODUCTION

Air pollution is a major problem in South Africa and the quality of air is seen as fundamental to the protection and promotion of human health (Glazewski, 2000). Sources of air pollution range from mining and industrial activities, including large coal burning power stations, oil refining, the use of coal and wood for domestic heating and motor vehicle emissions (Table 1). The contribution from agricultural operations generally is minimal but it is greater at specific times of the year. Climatic conditions in South Africa aggravate the problem of air pollution because high-pressure cells bring sinking cold air (inversions), which traps the polluted air at low altitude. Inversions occur most frequently during prolonged dry periods in the winter months, are dominant along the coastal cane belt and coincide with the burning and harvesting season. It is during this time that the practice of cane burning comes under the greatest pressure, especially where farms border residential areas. However, winds can carry the smoke and smuts great distances making communication with the public critical. These smuts then become a great nuisance far from the site of burning. At this time it is presumed that the advantages of burning outweigh those of trashing sugarcane.

A communication model has been developed through the experience gained in this case study. Parts of this model were successfully applied in the second case study.

LEGISLATION AND PUBLIC PRESSURE

The National Environment Management Act 1998 (NEMA) encourages the public to report transgressions and makes the Minister more accessible and answerable to the public. The combination of this new environment act and the increased awareness of human rights in South Africa have resulted in the public pressurising the politicians for effective delivery. The influence of the public in environmental matters can no longer be ignored and government is expected to act more positively on these issues in the future. Therefore creative ways will have to be devised to ensure that the public understand in the case of the sugar industry, why cane is burnt as well as the necessary control measures that must be implemented by growers to prevent or reduce smuts.

MANAGEMENT OF ENVIRONMENT AFFAIRS IN THE SOUTH AFRICAN SUGAR INDUSTRY

The sugar industry introduced an environment management plan in May 1991 in which it stated that there was a 'need to minimise atmospheric pollution caused by cane burning.' An Environment Work Group (EWG) was set up at the same time in the South African Sugar Association (SASA) to support implementation of the environment plan. The group was composed of members from the milling and grower sectors, as well as SASA. In each mill area a local environment committee (LEC) was established to co-ordinate local environmental programmes.

Before 1993, there were no burning policies in place and it was only after the events described in this case study, that Codes of Burning Practice were formulated and implemented. Following the enactment of the NEMA in 1998, sugarcane millers and growers agreed to manage their own environmental affairs, while the EWG (SASA) was made responsible for educating, informing and disseminating information on the environment to the industry, the public and Government. SASA Experiment Station's Extension Officers (based at the local level) were required to offer technical support for the LECs.

In order to gain public understanding and trust, it was necessary for the cane growers to adopt strict compliance with their local Codes of Burning Practice, together with the implementation of a planned system of communication between the industry, public and government. Effective management of this communication system has become the key to establishing the credibility of the growers in the eyes of the public and government. A model (Figure 1) illustrates the dynamic nature of the communication process. At any one time all nine pathways can be operational. The paper will now examine, through two case studies, the role of the structures and communication in protecting the privilege of burning cane at harvest.

CASE STUDY 1: MAIDSTONE (DURBAN / NORTH COAST)

The first case study involves an on-going interaction among cane growers, residents and the government in the Durban / North Coast area.

Leadership Communication with Growers (Figure 1, Line 1)

This communication can take place in many ways, for example through formal industry structures or publications. Seminars and sugar industry publications provided a successful way to educate and inform the growers and the public on environmental issues.

Local Grower Leadership/LEC Communicate with Local Growers (Line 1 and 2)

During 1993, growers in the Maidstone area came under great pressure from residents of the coastal town of Ballito. A group called 'Citizens Against Burning' circulated petitions to ban the burning of cane. At this stage there were no burning regulations in place. The Maidstone LEC Chairman took the initiative and produced the first *Code of Burning Practice* (Figure 2), which industry leadership accepted in 1994 as a blueprint for the industry. This code defines the most suitable time for burning depending on the weather, climatic and topographical conditions and the proximity of residents. It also determines the logistics required when burning (logging burning, using the weather forecast). The control of burning is therefore localised and decentralised, with the grower making his own decision within the prescribed code. Newsletters (Figure 3) were sent to growers to inform them about how the Codes were being implemented

successfully. Growers were updated regularly by the LEC Chairman. A control office was set up in Ballito to record complaints from residents.

Local Grower Leadership and The Public (Line 3)

The Maidstone LEC realised the importance of publicity and enhancing communication with the public. This was achieved through articles in the press and a newsletter that was sent to 4 000 Ballito residents informing them of progress being made (Figure 4). Complainants receive letters that update them with the latest smuts fallout statistics (Table 2) and, if necessary, (sometimes) a telephone call from the LEC Chairman as a gesture of concern and promise of follow up. A meeting between concerned residents, provincial officials and sugar industry leadership is arranged when the complainants feel that self-regulation is not working and that their concerns are not being taken seriously. It is very often important for example, to link the number of recorded complaints to the actual burning event, as one fire can sometimes result in numerous complaints.

Local Grower Leadership plus LEC Interaction with National, Provincial and/or Local Government (Line 4)

A delegation from the national government met with the industry in September 1998 to discuss the self-regulation of burning. This was an indication that the burning of cane was under threat throughout the industry, but more especially in sensitive areas like Ballito, and that the national government might, albeit reluctantly, ban burning, or control the burning of cane by permit. It was the intention of Government that each region would have specific conditions for burning by permit.

Following discussion, the delegation agreed that the logistics of implementing a permit system in South Africa with its 50 000 growers would make a permit system inefficient. There was also concern that the difficulty in policing a permit system would make enforcement very difficult. The delegation also appreciated the potential dangers from arson and runaway fires when the harvested fields have a blanket of trash, which could be deemed more hazardous than the problem of smuts. Fortunately the record of interactions that had taken place between the growers, residents, EWG and provincial government in the Ballito area convinced the delegation that there was a degree of trust between all parties, and that the application of the Codes of Burning was effective.

The occurrence of local elections in 2000, spurred politicians in this area to take action against the local growers on a number of issues including cane burning. During the 2001/2002 season the municipal boundaries were extended to include agricultural land which resulted in a number of critical meetings with the Durban Unicity municipals and councillors to brief them on the industry, burning and the measures used by farmers to minimise the nuisance of smut fall-out.

Sugar Industry Leadership with Government and Public (Line 5 and 8)

The EWG (SASA) facilitates meetings between government and growers, and growers and the public. It strives to keep government updated on industry environment activities through transparent interaction.

Public to Government (Line 7)

NEMA has brought the Minister and government legislation closer to the public.

Public to Grower (Line 9)

This is not the usual line of communication, but the Code requires that residents have to be directly informed if cane is to be burnt within 500 m of a sensitive area

CASE STUDY 2: SEZELA

This South Coast area has refined the Maidstone model (Figure 7). They have nominated a regional leader who undertakes communication line 2, 3 and 8. Penalties are introduced on the third infringement of their Code. The LEC holds an annual meeting with the public where the LEC, growers and public interact (2,3,9). The strict enforcement of their Code has resulted in a 30% reduction in complaints since 2000 (Figure 8) which shows that the communication strategy in combination with the Codes is achieving its goal.

CONCLUSIONS

It is clear that there is increasing pressure from the public in sensitive areas of the sugar industry calling for the burning of cane to be banned. The industry is coming under increasing pressure through the socio-economic and political developments in these areas. Coastal holiday resorts are expanding in many parts of the cane belt and new residential areas are developing within the cane belt. Residents of these surrounding areas are more aware of their rights with respect to the environment.

In order to protect the privilege of burning cane at harvest, the industry will have to adhere strictly to the local codes of burning practice and ensure that it engages the government and the public in a dynamic and evolving manner.

ACKNOWLEDGEMENTS

Eric Hulbert, the Extension Officer in the Maidstone area was instrumental in setting up the communication model with Ray Rogers, the Maidstone LEC Chairman.

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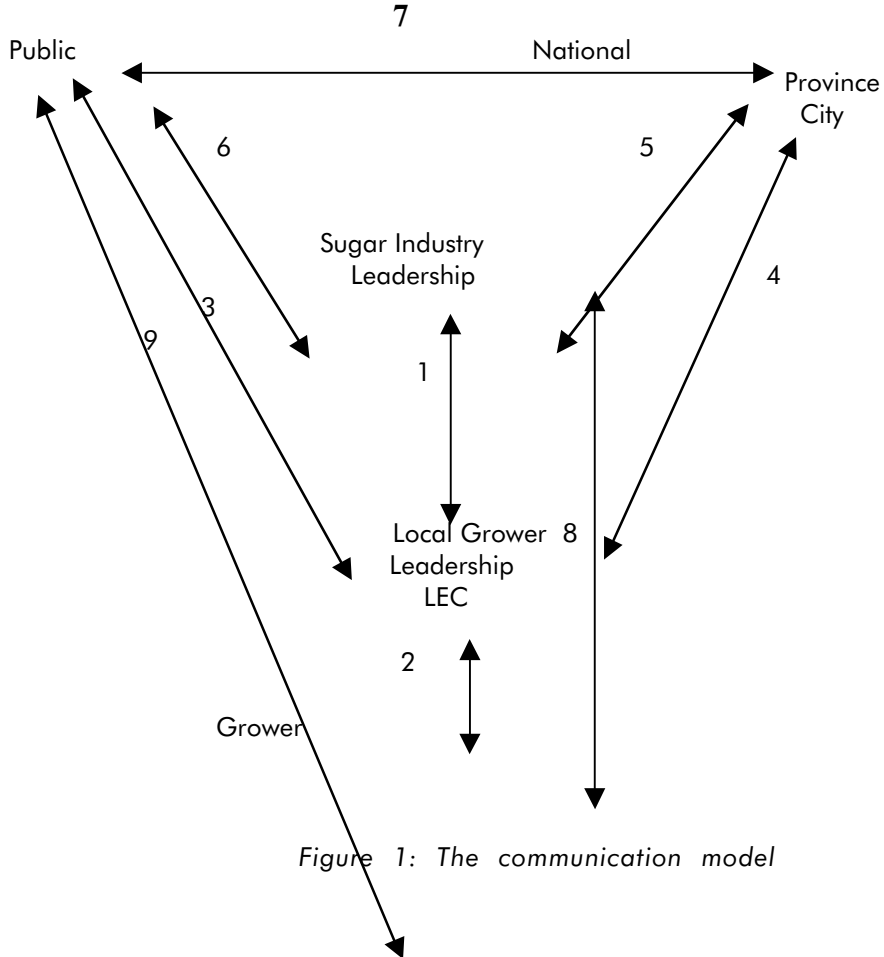


Figure 1: The communication model

19 98	19	15	32	26	15	19	7	10	2		145
19 99	16	29	53	41	30	35	6	6	3		204
20 00	3	10	14	34	6	15	1 1	12	3	0	108
20 01	4	5	21	28	35	12	8	10	0	0	123
20 02	18	18	26	6	3	5	5	13	1	0	95

FIGURE 2: CODES OF BURNING PRACTICE (ABRIDGED)

MAIDSTONE ENVIRONMENT COMMITTEE
CANE BURNING CODE OF PRACTICE

1. DEFINITION OF SENSITIVE AREAS

Sensitive areas include all urban residential areas or industrial complexes and all District and National roads and power lines.

2. SPECIFIC OBJECTIVES OF THE CODE OF PRACTICE

- a) To avoid smuts deposits in sensitive residential areas or industrial complexes.
- b) To prevent traffic accidents caused by smoke hazards moving across district and national roads from controlled or accident fires.
- c) To prevent 'arcing' between power lines and the ground below which causes surges and cuts to industrial and domestic power.
- d) Develop a suitable public relations programme with respect to the Cane Burning Code of Practice.
- e) To confine cane burning immediately adjacent to sensitive areas to unavoidable circumstances.

3. PRACTICES AND PROCEDURES

REQUIRED ACTION ARISING FROM THE CODE OF BURNING PRACTICE

- All cane fires must be logged as to field number, date, time and wind duration
- No cane burning will take place up-wind of a sensitive area. This will often be the case between 4 am and 11 am, where land to sea breezes can deposit smuts in sensitive areas
- Sensitive areas include all urban residential areas or industrial complexes, and all district and national roads
- Whenever an unintended burn occurs which may affect sensitive areas, the MCP estate or grower will notify local authorities immediately

Figure 3: Newsletter sent from Maidstone Environment Committee to growers in 1998



'Dear Grower

.....If there is no perceived improvement, members of the public do not contact the Ballito office, preferring to contact the State or Provincial Air Pollution Control officers. This happened in August 1997.

I believe that the majority of growers have heeded the Code of Burning Practice over this and past seasons, and I thank you for this. However, there are a few who have continued to cut corners and as a result a meeting was called by the Maidstone Grower Council in October 1997. At the meeting, growers mandated my committee to investigate a system of penalties similar to that in operation at Dalton. A copy of the proposal has been sent to you under separate cover.

The system is designed to target those who persistently ignore the Code of Burning Practice, and to ensure that nobody is unfairly accused.'

(letter abridged)

Figure 4: Letter from Maidstone LEC Chairman to Complainant in the Ballito Area

'Dear Mr Everitt [President]

I am writing to you in order to update you of the situation regarding smuts fallout. I must thank you for registering smuts fallout at the Ballito control office. The data collected is used in formulating new burning regulations.....



Figure 5: Press Release/Letter to all Residents in Ballito area

'Dear Neighbour

.....To protect his right to use his property (e.g. harvest his cane), the farmer will need to understand and heed the following :

- The public has a right to enjoy their property.
- That he was there first has no legal or moral status.
- Burn responsibly.
- Continue cane burning immediately adjacent to sensitive areas only in unavoidable circumstances (see later). Sensitive areas are defined as all public urban areas or housing complexes and all district and national roads and power lines.
- No cane burning will take place when wind direction may affect a sensitive area.
- Growers should consult the Weather Bureau before burning.
- Growers should communicate with their neighbours in sensitive areas if unavoidable burning is to take place (see later).

All steps above are clearly stated in a Burning Code of Conduct that has been accepted by all cane producers. Where the public believe that there has been negligence, they should report this to their local authorities where channels of communication have been opened directly with the sugar industry Local Environment Committees.

The following points are made to explain burning from the farmers point of view :

- The deliberate burning of cane at harvest is a stressful operation and farmers prefer not to burn.....
- Many fires (up to 50% on some farms in some years) are not planned and are the result of arson or vandalism. These unplanned fires result in 90% of the smuts that fall on urban areas in the vicinity of these fires.....
- If trash is not burnt at harvest, the resultant trash blanket is a fire hazard and makes run away fires difficult to control. Thus the controlled burning of fire breaks between urban areas and cane fields is desirable. This, together with drought, eldana and the replanting of fields, constitute the unavoidable circumstances mentioned earlier.
- Cane cutters find burnt cane easier to cut than trashed cane, they cut more in a day and wages are higher. Planned trashed fields often end up being 'accidentally burnt'. Green whole stalk mechanical harvesters cannot be used on the steep slopes found on the North Coast.

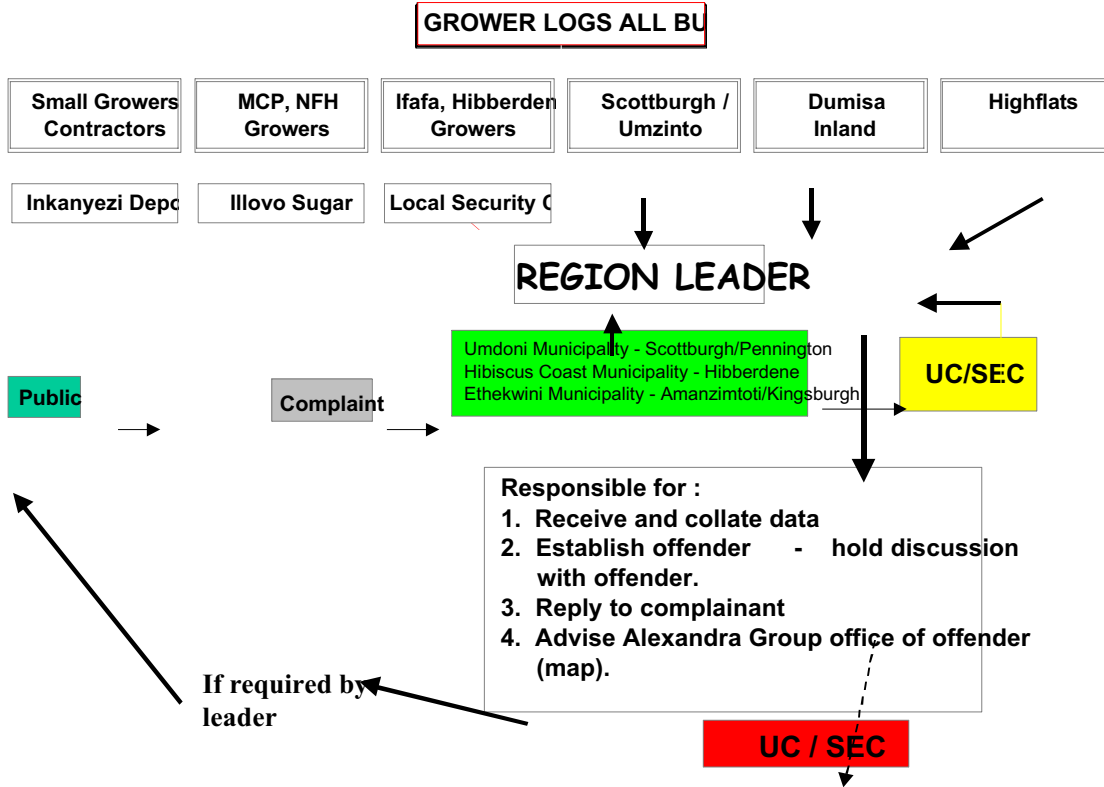
If the needs of the farmer and rural householder are understood by each other, and they communicate, then the heat can be taken out of the issue.' (Letter abridged)

Figure 6: Letter from the Local Authority to the LEC warning the Committee about future changes in the borough

'BURNING OF CANE'

With the rapid urbanisation of this area and the imminent creation of a new municipality stretching from just short of the Tugela River through to Tongaat, it appears to me that the time has come for a review of the current practice. Up to now the areas in which burning has taken place have not been within the area of jurisdiction of the Dolphin Coast municipality; but with the advent of the new municipality, most of the cane farms will now fall under the jurisdiction of the local Council.

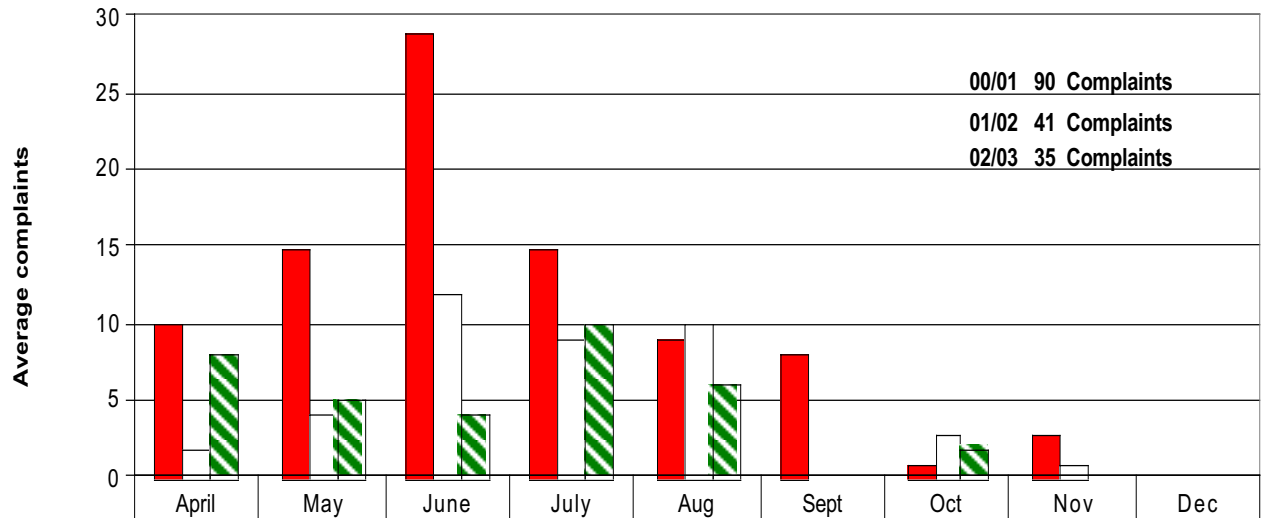
Figure 7 Sezela Smuts Fallout



3rd fallout offence – 2 day
Delivery forfeit (MGB)

Figure 8: Sezela Smuts complaints

**Smuts Complaints
2000/2001/2002**



	April	May	June	July	Aug	Sept	Oct	Nov	Dec
■ complaints 00/01	10	15	29	15	9	8	1	3	0
□ complaints 01/02	2	4	12	9	10	0	3	1	0
▨ complaints 02/03	8	5	4	10	6	0	2	0	0