

# The Expansion of Sugar Production and the Well-Being of Agricultural Workers and Rural Communities in Xinavane and Magude

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## List of Acronyms

A1A	Letter used to classify agriculture workers in Xinavane Sugar Factory)
ACP	África, Caraíbas e Pacífico (Africa, Caribbean and Pacific)
AdX	Açucareira de Xinavane (Xinavane Sugar Company)
CISM	Centro de Investigação em Saúde da Manhiça (Manhiça Centre of Health Research)
DAA	Direcção Adjunta da Agronomia (Direction of Agriculture)
EN1	Estrada Nacional número 1 (National Road Number 1)
FAOSTAT	Food and Agriculture Organisation Statistical Database
HIV/SIDA	Human Immunodeficiency Virus / Síndrome de Imunodeficiência Adquirida
IESE	Instituto de Estudos Sociais e Económicos
INEFP	Instituto Nacional de Emprego e Formação Profissional (National Institute of Employment and Professional Training)
INSS	Instituto Nacional de Segurança Social (National Institute of Social Security)
MICS	Inquérito de Indicadores Múltiplos (Multiple Indicators Cluster Survey)
MTS	Meticais (Mozambican currency)
PA	Posto Administrativo (Administrative Post)
RGP	Recenseamento Geral da População (General Population Census)
SDAE	Serviço Distrital da Actividade Económica (District Office of Economic Activity)
SINTIA	Sindicato dos Trabalhadores da Indústria Açucareira (Union of Sugar Industry Workers)
STD	Doenças Sexualmente Transmissíveis (Sexually Transmitted Diseases)
TARV	Tratamento Anti-retroviral (anti-retroviral treatment)
UNAC	União Nacional dos Camponeses (National Peasants’ Union)
UNWFP	United Nations World Food Programme
WENELA	Witwatersrand Native Labour Association



## Summary

Discussions of the impact of sugar production on poverty in southern Mozambique have given great importance to increases in monetary income derived from wages of estate workers and income earned by outgrowers. Income is an important question, but it is only one determinant of well-being. Well-being is not just a matter of consumption and ownership of assets. It also depends on the provision of health care and on the experience of work itself, both paid and unpaid. It also reflects the milieu within which one lives, the quality of the air one breathes, the water one drinks, and the landscape within which one lives. In this report we focus particularly on the impact of sugar production on the quality of work, its social costs and the implications for both personal and environmental health in rural communities. We argue that historically the profitability of sugar production in Xinavane was based on systems of production that were not healthy for either workers or the environment in which they lived. Expanding sugar production today requires new ways of working, of recruiting labour and using resources.

We hope this report will help those concerned with improving the well-being of the people of this region to consider issues they may have left aside and to question some of their assumptions about the impact of sugar production in the Incomati valley. This applies to both those who assume that the creation of jobs in sugar is the salvation of the people of the Incomati Valley, and to those who assume that the conversion of land to sugar has no support from local farmers.

Our research is a case study of the impact of expanded sugar production in the area of influence of the Açucareira de Xinavane (AdX), focusing on the localities (postos administrativos) of Xinavane, 25 de Setembro, 3 de Fevereiro, Ilha Josina Machel and Magude. Field research was carried out in July 2012. We looked at the organisation of production by AdX as well as by outgrowers.

In this research, we identified four areas of concern regarding the impact of expanded production of sugar cane on well-being in this area.

### **First, the relation between improved material well-being and growth of jobs and income**

Here we found that it is unrealistic to expect AdX to continue to expand employment much beyond its present level of around 10 000 workers. At this point multiplier effects are weak. We also noted that a very large part of the present agricultural labour force is paid at the lowest wage-level, and part of it is seasonally recruited. For subsistence, the salary they receive needs to be supplemented by other activities based in either farm or off-farm (including emigration) work.



**Second, the trade-off between increased income from sugar and reduced access to irrigable land for rural livelihoods**

Here we found that the conversion of the Incomati valley to monocultural sugarcane production has increased the vulnerability of households to price movements on international commodity markets – not just for sugar but also for staple foods. It has also reduced the range of alternative income earning activities for small-holders whose subsistence currently depends on a range of activities including fishing, cattle-raising, exploitation of marshland products and irrigated food production.

**Third, the incidence of health conditions related to the organisation of recruitment and work in the cane-fields**

Here we found that the organisation of sugar production is both highly dependent on chemical inputs and critical timing of tasks. Systems of recruitment, lodging and payment of agricultural workers encourage haste and leave to the workers themselves the responsibility for ensuring their well-being. They can compromise worker (and community) safety. They also complicate control of diseases such as malaria and HIV/AIDS.

**Fourth, the relation between sugar production and environmental health, particularly the quality of land, air and water**

Here we noted the problems of controlling pollution of air by cane-burning and chemical dust, of chemical seepage in soil and water, and, longer-term, the availability of water and of the ecological balance of the Incomati basin.

We observed that at a local level the different institutions concerned with regulating the impact of expanded sugar production – local government, the trade union SINTIA, civil society organisations and AdX itself – focus mainly on the question of jobs and wages. This is a central issue, but we hope that this report leads them to consider the wider questions of well-being raised in this report.

AdX is justly proud of its role in the economic recovery of the Incomati Valley, yet on the basis of this case study, there are strong reasons for questioning whether the expansion and consolidation of mono-cultural cane production in the Incomati Valley can continue to bring rapid improvements in well-being to workers and households in these communities.

# 1. Introduction

Government encouragement for the recovery and expansion of sugar production in the difficult years of the late 1990s was intended to contribute to economic recovery in northern Manhiça and eastern Magude districts (see Map 1).

**Map 1: Maputo Province**



Bowen 2000: 68

These areas were still affected by the destruction and dislocation of the war and by the increasing precariousness of jobs for migrant workers in South Africa. This report seeks to consider the impact of the renewal and expansion of sugar production in these areas from the broad perspective of material well-being, including jobs and income but also health, both personal and environmental. Our particular focus is the well-being of agricultural workers and the communities that neighbour the Açucareira de Xinavane (AdX). Well-being is not just a matter of consumption and ownership of assets, it also depends on the provisioning of health care and on the experience of work itself, both paid and unpaid. It also reflects the milieu within which one lives, the quality of the air one breathes, the water one drinks, and the landscape within which one lives.

There are many factors affecting the well-being of populations in this region other than the expansion of sugar production – changing forms of migrant labour, climatic shifts in cycles of rainfall, the rapid spread of HIV/AIDS and new healthcare initiatives, to name just a few. The impact of expanded sugar production is difficult to isolate and is just beginning to be felt. What it will be depends in part on how it is organised. The objective of our research has been identifying the connections, direct and indirect, favourable and unfavourable, between sugar production and the material well-being of agricultural workers and neighbouring communities.

In mapping the connections that link well-being and expanded sugar production in this region, we were struck by the extent to which the model of expansion of sugar production implemented by AdX reproduces in some ways that of past: direct estate production based on dislocation of small-scale farmers from irrigable land and pasture and dependence on seasonal recruitment of wage-labour. Although associations of smallholding outgrowers do not provide a large share of the sugarcane milled by AdX, the high income obtained by some of the associations has led to great enthusiasm for conversion of more land to sugarcane both on the part of individual farmers and government officials. The conversion of land from food and cattle to sugar is not being imposed on a reluctant population. The implications of this process need some wider reflection, by government, civil society and communities themselves. We hope that this report contributes to that reflection.

The remainder of this introductory chapter explains the framework we are using to look at the relation between sugar production and well-being and discusses our methodological approach.

## **The expansion of sugar cane production and well-being**

The recovery and expansion of sugar production in this region was intended to improve rural well-being by providing employment and income for households in an economically depressed region. We are in part concerned with tracing changing and differentiated patterns of income distribution across different kinds of households.

Sugar plantations have often been criticised for their negative long-term impact on the well-being (particularly health) of their workers and on the communities scattered around them. The reasons have to do in part with the nature of large-scale sugar production: intensive water use, usually requiring investment in irrigation, and the correlation between sugar content of the cane, timely harvesting and rapid processing. In fact, however, the impact of cane production depends on the variable ways that production is organised. Historically plantations in Africa were often established in colonial contexts where conditions of recruitment, housing and work were particularly bad (Gibbon 2011), but they need not be so.

Take for example the impact of irrigation on the incidence of malaria and schistosomiasis. Cultivation of sugar cane demands a regular supply of water. Where rainfed production is not possible, it is an irrigated crop, dependent on a system of dikes and channels that can be breeding areas for malaria-transmitting mosquitoes or for the snails that are vectors for schistosomiasis. But in areas where these illnesses are already endemic, the way that sugar is grown and workers are treated may actually lead to a reduction in these illnesses and not in their increase. If drainage is good and stagnant water is not allowed to accumulate, if chemical treatment is used to limit the breeding of vectors, if those who are infected are treated and workers protected from new infection through supply of protective equipment and improved housing, then a sugar plantation can improve conditions of health.

Or consider the relation between recruitment of labour and the incidence of HIV/AIDS. If workers are recruited seasonally only for cane-cutting from outside the area of the plantation, housed in compounds and return home at the end of the campaign, then it is likely that both men and women will have more than one sexual partner. If recruitment is organised so that workers have employment throughout most of the year and have access to local housing and land, and if priority is given to local recruitment, then it is possible that workers live with their families, that sexual partners are fixed and that programmes of HIV/AIDS treatment can be easily organised. If companies are free to reduce their labour costs as much as possible, they may not be interested in providing family housing or land, but if government policies either oblige them or provide incentives to do so, they may consider these costs as contributing to higher long-term productivity.

In considering how different social forms of organising sugar production can affect well-being we are focusing particularly on agricultural workers, their families and surrounding communities. We consider factors that directly link the expansion of sugar production to the well-being of workers and others that have more generalised and long-term consequences for neighbouring communities. In looking at direct impacts on workers we focus on the impact of the labour process and living conditions on health condition of workers; the impact of wages on patterns of consumption of workers; and changes in the organisation of household activities. In the more generalised indirect impacts, we consider the impact of increased wages on local investment, diversification and market development; the impact of sugar production on patterns of disease and access to formal health services; and, finally the impact on the distribution and quality of water, land and air.

## Methodology

Our findings are based on a short qualitative field-study in July 2012 in which we interviewed different kinds of people affected by sugar production in the region of Xinavane: agricultural workers, their families, health workers, managers, civil servants and representatives of trade-unions, community organisations and religious groups (see Appendix A). We focused our research on the catchment areas in the Incomati valley around the blocks of AdX cane production in the Administrative Posts of Xinavane, 25 de Setembro, 3 de Fevereiro, Ilha Josina Machel and Magude. We did not have the resources to extend our study into the locality of Sabie, to follow AdX's expansion into Moamba. The areas we studied are those that share the Incomati valley with AdX and where the majority of its agricultural workers reside (though not the families of most of the cane-cutters).

To frame and supplement this qualitative work, we have used existing census and survey data, secondary literature, published epidemiological studies (particularly from CISM), ethnographic case studies, and statistical data from AdX on its recruitment patterns. We have also drawn from the wider literature on past and present relationships between the well-being, particularly health, and the organisation of sugar production in Mozambique and elsewhere in the region. The study was carried out by a team of five researchers: one researcher from IESE, Yasfir Ibraimo, one associated researcher, Bridget O'Laughlin and three final-year students from the Faculty of Economics of Eduardo Mondlane University: Sónia Bila, Aldino Jovo and Salvador Ngove.

We chose to work in the area associated with AdX for three reasons: (i) because it is the larger of the two sugar producers working in Manhiça district; (ii) because it is now cultivating areas that were formerly planted to sugar and also expanded into areas where sugar has displaced citrus plantations and food production; and (iii) because on the basis of early experience of one of our research team, we expected that there would be relatively easy access to information on employment patterns, working and housing conditions. That proved not to be true. We received limited access to some areas of the plantation and to employment records only in the last week of our stay in Xinavane. The presence of the company is so pervasive in the district, however, that we found ways of talking to a broad range of AdX workers at home or in public spaces and could observe from public roads aspects of field operations, including ways of working. Having chosen AdX, we then realised that its expansion took it into Magude district, geographically a small area within the administrative post of Magude, but where about 78% of the population of the district live. Our study had therefore to cross district boundaries. We did not have enough researchers and time to follow AdX operations into the district of Moamba.

We initially expected that working and living conditions might be different for workers hired by outgrowers to those of workers at AdX. In reality, the differences we found were not so great. The leasing arrangements under which the associations functioned meant

that their cultivation practices were essentially the same as those in the cane-fields of the estate. The smallholder associations recruited their own workers but they had to be contracted by AdX in all but one of the associations we visited. There is only one large private grower in Xinavane, Vamagogo estates, which did manage its own production and contract workers itself. Their management let us talk to workers in their accommodation.

Our short research proposal with a credential from IESE was submitted to the District Administrators of Manhiça and Magude who authorised us to talk to relevant government services and to heads of administrative posts and localities. They in turn facilitated our presence in rural communities. The officers of the smallholder associations were particularly generous with their time and facilitated our interviewing of AdX workers recruited through the associations. Appendix A provides a list of most of the people with whom we spoke formally, but there were also many informal conversations and explanations that helped us understand sugar production better.

We had neither sampling frame nor random procedure for picking households. We tried to ensure that we spoke with agricultural workers of different kinds and members of their households and that we included some households where there was no one working for AdX, Vamagogo or the associations. In Manhiça district we interviewed household members in the administrative posts of Ilha Josina, Xinavane, 25 de Setembro and 3 de Fevereiro. In Ilha Josina we focused on Nzonguene, a locality outside the immediate recruitment areas of AdX and Vamagogo, but where there is some interest in becoming part of a sugar-growing association. In Magude we mainly interviewed household members in the administrative post of Magude, which is in the Incomati Valley where most of the population of the district is clustered, but also made a short survey visit to Motaze, an area outside the immediate zone of influence of AdX. Within the area of influence of AdX, it was difficult to find households without plantation workers; most included people who had done this work in the past or were trying to be recruited.

Since most agricultural workers receive a task wage, we had decided not to interrupt work to interview workers in the fields. The exception was associations where we spoke with some permanent workers and the management board of the association who were in most cases also permanent employees of AdX. We used a semi-structured interview form to assure that we had some basic information on the worker and household and interviewers were encouraged to probe areas of interest that emerged during the interviews. Appendix A shows the disproportionate number of men among our semi-structured interviewees; this reflects the places we interviewed people beyond households – a private encampment, a shabeen, a bus-stop or the pump-station of an association. In addition to semi-structured interviews on household livelihoods, we had focus group discussion with the boards of farmers’ associations on their histories, objectives and difficulties.

## Chapter outline

This report is divided into six chapters, including this introduction). In Chapter 2, we describe both the history of sugar production in this area and its long-term involvement in migrant labour to South Africa. These are areas that were slow to recover from the devastating impact of the war and have been deeply affected by unemployment and the move towards casualisation of labour recruitment in South Africa. We start with historical context because any question of impact must take account of the historical context in which the expansion of sugar has taken place. Chapter 3 describes the organisation of sugar production both within large estate of Xinavane, AdX and among outgrowers that also deliver cane to the AdX mill: the new associations of smallholders and a small number of heterogeneous private farmers. The main focus of the chapter is on agricultural workers: patterns of recruitment and conditions of housing and work. Chapter 4 identifies some of the principal direct linkages between expanded sugar production and well-being of workers and communities: patterns of employment and income, health implications of the labour process, use and quality of land, water and air. It also considers some indirect linkages: the multiplier effects of trade and investment, shifts in prices, access to health services, the reorganisation of household work and resources. Chapter 5 discusses how various local institutions – government, SINTIA, the sugar workers’ union, other civil society organisations and AdX itself – confront the relation between expansion of sugar production and the well-being issues raised in Chapter 4. It notes that jobs, wages and producer incomes are the most frequent areas of concern, neglecting many of the important social costs of production that this research has identified. Chapter 6 summarises the conclusions of the report.

## 2. A History of Livelihood Change

Any study of the impact of the recovery and expansion of sugar production has to take account of the context within which it is taking place. Historically there are three aspects that are of particular importance here: (i) long-term labour migration from this area to the South Africa mines; (ii) appropriation of a large part of the alluvial lands of the Incomati Basin for commercial agriculture and ranching; and (iii) the prolonged impact of the war.

### Interdependence of migrant labour, agriculture and cattle

Both Magude and Manhiça districts were over several generations important recruitment areas for the WENELA, the recruitment agency for the South African mines. The familiar system of oscillating migration both heightened the pressure on women's agricultural labour and provided a fund for investment in housing and cattle and sometimes agricultural inputs or water-tanks. Rainfed agriculture in these areas is very risky, with herds of cattle and wage-income providing an edge of security. In 1981, herds were differentiated in size but 50% of households in Magude and 25% of households in Manhiça owned cattle and in both districts families without a team of oxen and plough rented teams or exchanged labour to have their fields ploughed. As in other areas of southern Africa, remittances were often controlled by the miners' patrilineal kin rather than by their spouses. The latter were often less enthusiastic than their in-laws about investment in cattle.

The deferred payment system obliged miners to remit about half their wages to Mozambique. The pressures of unionisation led subsistence-based wages to rise suddenly in the 1970s providing miners, particularly those in skilled bands, with money to invest in their agricultural production when they had access to alluvial land. The sudden reduction of recruitment quotas after Mozambican independence reinforced the differentiation in rural households between those with regular income from well-paid wage-labour and those, many of them women-headed households, that had no substantial remittance income.

During the 1980s, undocumented emigration increased with the advance of the war in Mozambique and, particularly in the case of Magude, the flight of entire families across borders. Recruitment of Mozambicans on regular contracts declined on the mines and with that the regular flow of remittances in money and kind. Since 1994, it is easier for Mozambicans to migrate legally with passports, but many continue to migrate without documents. Not only has the relative importance of mine-labour declined since 1994 for Mozambicans, but the casualisation of formal sector jobs in South Africa has meant that many work irregularly for labour contractors, without secure residence or jobs. Although roads are still clogged at the end of the year with trucks carrying home migrants and goods, most households in Magude and Manhiça cannot count on regular remittances. The interdependence between peasant farming and income from wage-labour has thus become much less reliable.



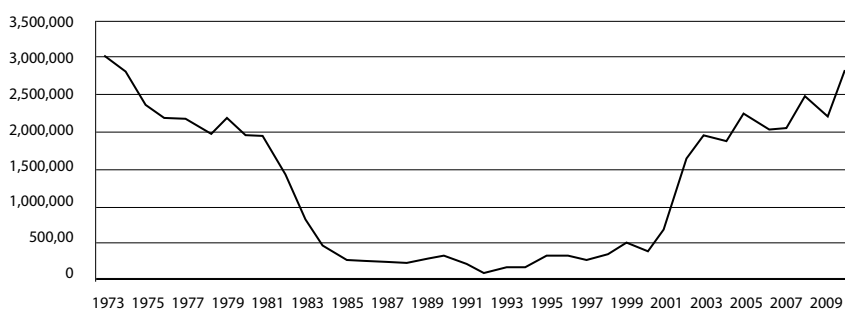
## Appropriation of land for large-scale commercial agriculture and ranching

The second factor shaping the political economy of the region of Xinavane was the appropriation of much of the alluvial land along the Incomati River by large-scale commercial agriculture, sugar plantations in the case of Manhiça, and large settler farms and ranches in the case of Magude. Settlers cultivated a range of crops, including citrus, and raised cattle. Some areas of the Incomati valley were left as reserves for local peasants, in part because of smallholder and cooperative schemes organised by the Swiss mission (Gengenbach 2000). After independence most of the Portuguese settlers left. After independence both were under state-management. Large farms in Magude were merged into a state citrus farm. Some of the smaller farms became cooperatives and others were redistributed to local peasant farmers, easing the competition for *nhaca* land (Ibid). After independence the sugar plantations in Manhiça came under state-management.

Commercial sugar production based recruitment of casual agricultural workers both from within the district and other areas of Mozambique has a long history in Manhiça. The Incomati Estate, the precursor of AdX, was established by British capital in 1914 and acquired by a Portuguese company in the 1950s. Maragra, also Portuguese owned, was set up in 1969. The Incomati estates faced direct competition for labour with the South African mines. This was resolved with the assistance of the colonial state by recourse to forced labour and later by contract labour, much of it recruited from Inhambane and Gaza. Local women were hired for weeding, and by the 1970s some were working as cane-cutters (Bowen 2000).

The sugar estates and settler farms did not take over the entire Incomati valley. Areas with alluvial soils but difficult access such as Ilha Josina remained centres of smallholder commercial fruit and vegetable production. Experimental cash crops such as wheat were introduced to some smallholders in the 1950s. After independence, levels of sugar production on the estates declined, radically so in the 1980s during the war. Graph 1 below shows total sugar cane production in Mozambique, i.e. including central Mozambique, but the 20 year trough holds for Manhiça.

**Graph 1: Production of sugar (ton.) Mozambique, 1973–2010**



Source: FAOSTAT

## The impact of the war

The war and its aftermath are the third important aspect of the context to take into account in assessing the impact of the reawakening of sugar. The enormous fall in sugar production during the 1980s and 90s mirrors other processes of economic decline in these two districts. Renamo's strategy of attack on the government included stopping the movement of people and goods on EN1. The stretch between Bobole and the turnoff for Xinavane was known as the corridor of death, and the Magude road from Xinavane to the South African border also became impassable for normal cargo and personal transport. Government troops and militias protected the plantations and the main towns, but shops, schools, clinics and administrative buildings were burnt down at locality level. Herds were decimated. Renamo moved thousands of head of Magude cattle to its base close the South African border and the Frelimo army also requisitioned cattle to feed its troops. Both sides also used herds of cattle as disposable mine-detectors. Emigration to South Africa was differentiated. Well-paid South African miners began investing their money in good urban housing rather than in their farms or herds. Other migrants never succeeded in finding well-paid jobs and rarely were able to send remittances, either for investment or to aid their families with everyday consumption.

Many people fled into the protected centres – the vilas of Magude, Xinavane and Manhiça, sometimes venturing back during the day to cultivate their fields (Bowen 2000). In more distant areas both young men on their own and entire families crossed the border to settle in South Africa or moved to Maputo. Refugees sometimes took over fields left behind by others and outlying areas of the state-farms and sugar estates also had scattered peasant fields. Renamo eventually occupied the two western administrative posts of Magude, not giving up their separate administration until 1995 (Gengenbach 2000).

The process of resettlement was prolonged and complicated in these districts. Magude was known for the reluctance of some of its inhabitants to leave refugee camps in South Africa to return home. Overlapping claims to land fostered ugly disputes between returnees and those who stayed behind over control of the land along the Incomati. The clause of the 1997 Mozambican land law that recognised use-claims derived from ten years of continuous occupation made it easier to settle such conflicts and gave rights to those who occupied former state-farm land. The destruction of herds, the casualisation of work and the dominance of South African production in horticultural marketing in Maputo city made it difficult, however, to stimulate local commodity production and reverse the economic decline of these districts.

## Renewed investment in sugar

In 1998 Tongaat Hulett Sugar acquired a 49% stake in Xinavane<sup>1</sup> and took over the management of the estate, renamed Açucareira de Xinavane (AdX). Tongaat Hulett is a South African company that produces a broad range of products derived from sugar-cane. It operates in six countries in Southern Africa: South Africa, Botswana, Namibia, Swaziland, Zimbabwe and Mozambique (See Map 2). In Mozambique Tongaat Hulett is currently operating sugar estates im Xinavane and Mafambisse.<sup>2</sup> On the basis of investment in modernisation of the factory and rehabilitation of the estate, Tongaat Hulett's ownership share in AdX became 88% in 2008,<sup>3</sup> i.e. the Mozambican government became a small minority shareholder.

**Map 2: The presence of Tongaat Hulett in Southern Africa**



Source: Tongaat Hulett Annual Report 2012: 8

- 1 Also in 1998 Illovu took over 50% ownership of the nearby Maragra Sugar Estate and also began rehabilitation of the irrigation infrastructure and expansion of the mill.
- 2 The Sugar Mafambisse is located in Sofala Province. The Tongaat Hulett owns 85% of shares, and the remaining 15% belong to the Mozambican state (Tongaath Hulett 2012: 102).
- 3 <http://www.hulett.co.za/ops/mozambique.asp>

The investments made by Tongaat Hulett in the AdX industrial complex increased its milling capacity. As a consequence, in order to provide sufficient cane to the factory, AdX had to expand its cane production, combining its own land with associations of small producers and that of independent private growers. These investments were essentially aimed at taking advantage of the opening at preferential prices of the European Union market to sugar produced in the ACP (Africa, Caribbean and Pacific) countries.

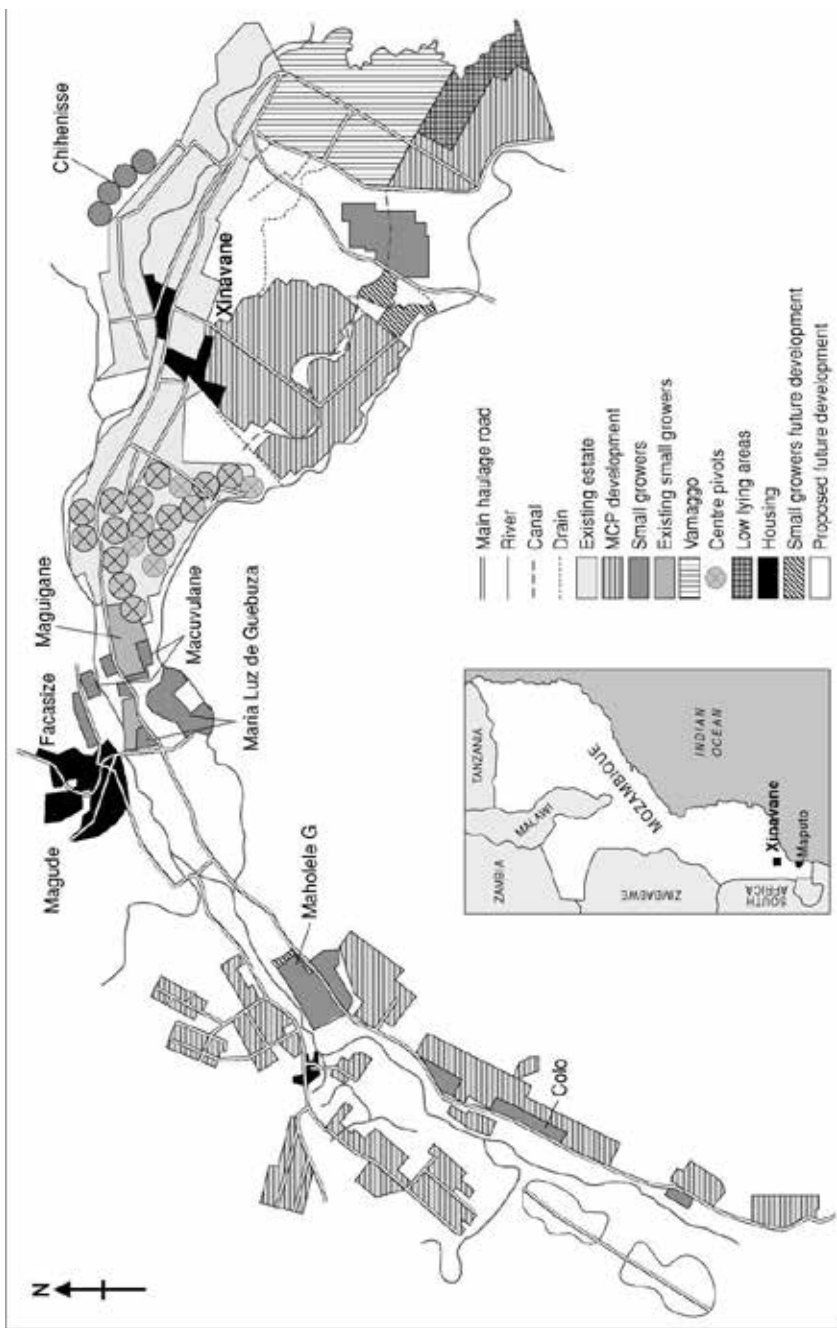
In Xinavane, Tongaat Hulett rehabilitated the irrigation infrastructure and expanded the production capacity of the mill to around 208 000 tonnes of raw sugar in 2009–2010. During the rehabilitation phase, most of the original canals, drains and pumps designed for flood irrigation have been repaired and re-designed to the present flood, floppy and pivot irrigation systems. With government support, AdX paid compensation to take over irrigable estate land occupied by smallholders during and after the war. Many of those paid compensation considered it to be a lot of money at the time, although some see it differently now. In some areas, particularly the flood plains along the river, there were government-supported projects to establish associations of smallholders who would lease their land under contract to the estate. Each of these associations has a slightly different history and distinctive outcome.<sup>4</sup> Because of the success of some associations in distributing substantial income to their members (the system is described in more detail in Chapter 2), even associations in areas that initially refused proposals from AdX to lease land to the company, such as Ilha Josina, are now discussing the possibility of converting their land to sugar cane.

AdX is less dependent on outgrowers (they have about 4 000 hectares in sugar cane) than is the neighbouring company, Maragra, which had very little room for expansion. AdX is able to depend primarily on direct estate production of cane (about 12 000 ha) for provisioning the expanded capacity of its mill because it has been allowed to take over state-farm land previously planted to citrus along the Incomati in Magude and Moamba districts. This expansion was almost completed by 2009 although AdX is still negotiating with some smallholders to take over intervening areas. The following AdX map (see Map 3), copied from Jelsma et al. (2010) shows the areas producing cane for Xinavane in 2009. Since it crosses district boundaries, the relation between government and the company involves coordination between districts as well as between national and local government. It also involves coordination between management of AdX and that of other units of Tongaat Hulett.

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4 See Jelsma et al. 2010 for a detailed discussion of the associations.

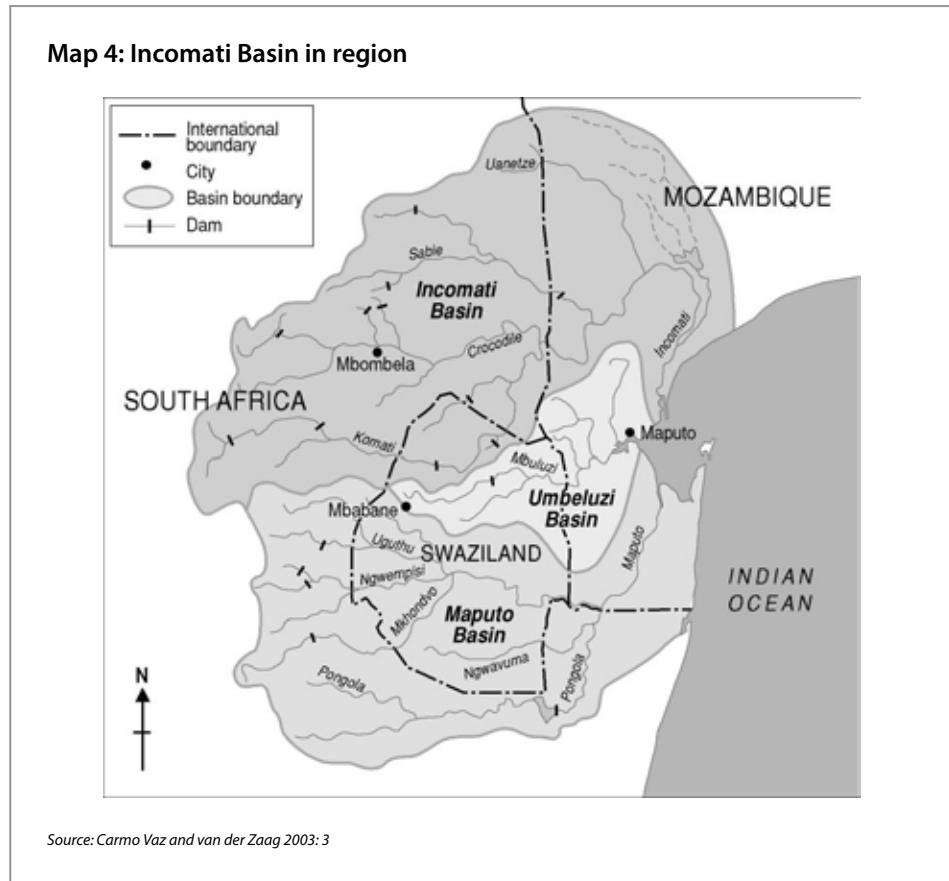
Map 3: Holding of AdX in the Incomati Valley 2009



Source: Jelima et al 2010: 7 (provided by AdX)

## The regional context of increased sugar production: climate and the water question

Global climatic shifts are affecting this region, but recurrent cycles of drought and flood are also affected by the ecology of the river basin itself. This major expansion of the area under cane has ecological implications that are regional in scope. The Incomati river basin crosses Mozambique, South Africa and Swaziland, as illustrated by map 4 from (Carmo Vaz and Van der Zaag 2003: 3).



Carmo Vaz and Van der Zaag (2003) noted that at the time of their study, i.e. before the expansion into Magude and Moamba, about 67% of all water used for irrigation in the basin was for sugar cane production. All three countries have major cane plantations on the Incomati. A more recent study (Lorentzen 2009) of sugar production on the South African side of the basin notes that there are also domestic, municipal and industrial water use. Water for livestock and game and rain-fed agriculture are also implicit users of

water yet provincial authorities do not seem to envision a conflict between a short-term development advantage and the ecological integrity of the region. Lorentzen argues that what is seen as a positive contribution to regional income and employment may eventually become a liability (Lorentzen 2009: 63), a question of relevance for Mozambique as well.

## Demographic reflections of well-being

The history of livelihoods is reflected in the demographic patterns encountered in this area: long-term male migration to South Africa, dislocations prompted by the devastation of the war, cycles of drought and flood and inflows of migrants, particularly men, to work on the sugar estates.

Table 1 shows that the central areas – towns, localities involved in the outgrower associations and major centres of recruitment of AdX workers – have grown since 1997, whereas in the area dominated by smallholder agriculture and emigration, population has declined.

**Table 1: Changes in population size by administrative post**

Locality or Administrative Post	Total population in 1997	Total population in 2007	Percentage change
Xinavane <sup>5</sup>	21 098	24 002	13.76
3 de Fevereiro	34 415	40 208	16.83
Ilha Josina Machel	9 720	9 346	-3.85
Magude	42 788	53 229	24.40

Source: RGP 1997 and 2007

The proportion of women headed households remains extremely high, although it has declined slightly in the towns (Table 2).

**Table 2: Percentage of households headed by women**

Administrative Post	1997	2007
Xinavane	40	38
3 de Fevereiro	49	58
Ilha Josina Machel	50	55
Magude	52	45

Source: RGP 1997 and 2007

5 In 2007, 25 de Setembro was still administratively part of Xinavane, so we cannot distinguish it from the Vila of Xinavane in these data.

When we look at gender ratios, the extreme imbalances between men and women in the post-war period seem to have been redressed. The gender ratios are similar to what they were in 1981 (See Table 3).

**Table 3: Male/female ratio, resident population, present**

District	1981	1997	2007
Magude	79	72	82
Manhiça	89	77	85

Source: RGP 1981, 1997 and 2007

When we looked closer at the underlying data, however, we found that it is not so clear that economic revival has brought men back home or kept them from ever leaving. Gender ratios are also affected by immigration by men looking for work in sugar production and by women leaving for urban centres, both Maputo and in South Africa. When we discriminated the population by age group as well as gender, it appeared that the proportion of resident but not present women was increasing faster than that of men. Shifts in mortality also affect gender ratios; mortality rates from AIDS are now higher for women than for men.

Adult mortality is an issue in this region. The CISM long-term demographic surveillance project covers some of the areas in Manhiça where labour is recruited by Xinavane. It shows that infant mortality in this area is lower than in most rural areas of Mozambique, but the IMR (infant mortality rate) remained stable at 80 during the surveillance period. More puzzling is that the probability of dying from ages 15 to 60 (adult mortality) increased from 0.4 in 1997 to 0.6 in 2005 (Nhacolo et al. 2006). This means that life expectancy decreased from 53 to 46, not what one would hope for in the post-war period.

## Conclusion

In analysing the connections between the expansion of sugar production and changes in well-being, we cannot abstract from the longer-term historical context that is reflected in the diversity of livelihoods among rural people in Xinavane and Magude. Sugar cane has long been important in this area, but even more so has been the gendered history of labour migration to South Africa, reflected in high numbers of women-headed households, imbalanced gender ratios, interdependence between agriculture and off-farm income, and economic differentiation between rural households. Post-war stagnation, exacerbated by casualisation of labour recruitment and unemployment in South Africa and cycles of drought and flood, gave rise to a crisis of livelihoods in this region. The renewal of sugar production promised new jobs in agriculture. The next chapter looks at what these jobs are.





### **3. Present organisation of agricultural work in the sugar sector**

#### **Introduction**

The principal objective of this chapter is to describe the existing organisation of agricultural work in the sugar sector in Xinavane and Magude. This description will focus on two different kinds of sugar-cane producers in this area, the estates of AdX and the outgrowers contracted by AdX. There are three kinds of outgrowers: (i) Vamagogo, a South African company; (ii) associations of small producers; and (iii) small private producers. We are concerned with three principal aspects: labour processes in cane production; patterns of recruitment of workers; and conditions of work and lodging. We begin with AdX because its manner of organising sugar production determines to a great extent the production patterns of the various types of outgrowers.

#### **The sugar company of Xinavane**

AdX is an agro-industry integrating agricultural (the production of sugar cane) with industrial (production of sugar) activities. This sugar company is dedicated to the production of sugar and molasses for the domestic market and for export. Refined sugar and cane derivatives are not produced at the Xinavane factory. The company creates both permanent and seasonal employment. Permanent workers are concentrated in industrial, service and administrative tasks while casual workers are concentrated in agricultural tasks. Our focus in this report is on the working conditions of agricultural workers, both seasonal and permanent.

#### ***Description of labour process in agriculture***

The agricultural work in cane production is complex, involving various steps and types of workers. Table 4 below describes the principal tasks in sugarcane production.

**Table 4: Production of sugar cane**

Activity	Timing	Labour processes
Cleaning and field preparation	February or March or after the burning and cutting of the cane	This activity can take two different forms. First, when land is being used for the first time for cane production, the irrigation system must be surveyed, designed and built. This work is sub-contracted by AdX. Second, when land is already used for cane production, land is cleaned and prepared after the harvest. The work of raking together the cane trash is done manually, mainly by women.
Fertilizer application	After the cleaning and preparation of the land	
Irrigation	Seven days after the application of fertilizer	Irrigation is very important for the development of the cane. It is carried out twenty to thirty times during the production cycle. It has been partially mechanised.
First herbicide application	One month after harvest	This activity takes place when the ground is humid. It is done manually. According to the Department of Hygiene and Safety, all measures to assure worker safety are followed.
Second herbicide application	70 days after the first application when cane is well established	The second application is done when the cane is already high. It is carried out manually.
Spraying for pest and fungus control	98 days after the beginning of the production cycle	Spraying is carried out as necessary. Sometimes aerial spraying is used but when the cane is high it must be carried out manually.
First weeding	100 days after the beginning of the production cycle	This weeding is carried out manually with a hoe, mainly by seasonally contracted women.
Pesticide application	120 days after the beginning of the production cycle	Chemical treatment is used against smut and rust. It takes place from one to five times depending on the variety of cane and the month in which the cane is harvested.

Activity	Timing	Labour processes
Second weeding	140 days after the beginning of the production cycle	
Second fertilizer application	No later than 160 days after the beginning of the production cycle	If cane was cut late the previous year only one fertilizer application is done.
Herbicide application (hardening agent)	A few days before cutting the cane	Application of a hardening agent dries the cane rapidly, stopping growth and flowering. It is carried out by aerial spraying. Sprayers try to avoid electrical lines along the roads and at field boundaries. The way aerial spraying is done has led to complaints by some of the people who live near the cane-fields. They say that the liquid can fall near their homes, creating respiratory problems and skin irritations.
Burning and cutting of the cane	Ten to 14 months after planting or after the harvest of the previous year	Before the cane is cut, it is burned to maximise sucrose content, drive out snakes and pests and strip some of the sharp leaves. After cutting the cane should be milled within 48 hours or it begins to ferment and loses sucrose content.

The process of production involves different kinds of workers working together in different ways. The field supervisor is responsible for the management of fields and workers, overseeing the tasks of weeding, irrigating, applying herbicides and fertilizers, operating pumps and guarding fields. The section or block chief defines what constitutes the daily task for particular kinds of work. The foreman controls the work of those recruited for field-tasks.

There are still various manual agricultural tasks at AdX, though the tendency is towards mechanisation. The irrigation workers are accountable for moving sprayers along the field at least every two hours. The nature of their work has altered with the introduction of drip irrigation and automatisation. The new systems have increased labour productivity. Manual irrigation requires more workers. At AdX irrigation workers include both women and men. They work in two shifts, from 6am to 2pm or from 10am to 6pm. The pump operators are responsible for controlling the capture of water from the river and its distribution to the irrigation canals.

The weeders, generally women and locally recruited, do manual weeding when the cane is too high for herbicide spraying and also clean the fields after cane-cutting. Some

mechanised tasks, such as fertilizer application and insecticide spraying, must in some cases be done manually. Cane-cutting is always done manually, almost always by men who have come to Xinavane from elsewhere.

For most manual workers, the task is the basic unit of work and payment in the cane-fields. Each day each worker has a particular target to achieve. In the case of weeders, for example, the target is often 3 rows of 100 metres each, while the cane-cutters might cut 8 rows of 100 metres. The task is not rigid, however. For the weeders it depends on the height of the weeds.

In some cases, when a worker is unable to finish the defined task, it can be finished by a friend or by someone else incapable of doing a complete task. Workers are not allowed to do more than one task during a single day. In the summer the work day is from 5am to 1pm and in winter from 6am to 2pm.

Since agricultural work is organised as task work, there is variation in the monthly earnings of workers in the same wage-band doing the same kind of work. For example, the fact that the monthly wage of workers in the A1A band is defined as MTS 2 544 does not necessarily mean that is what they earn. Their monthly wage depends on the number of days in which they have completed the required task. A half-day or nothing at all may be marked for an uncompleted or poorly completed task. Sometimes workers are only given half-day tasks to do.

The cane-cutters do not manage to work thirty days a month because the number of cane-cutters contracted is higher than the number of existing tasks on particular days. One cane-cutter interviewed referred to sometimes being without work five days out of the month.

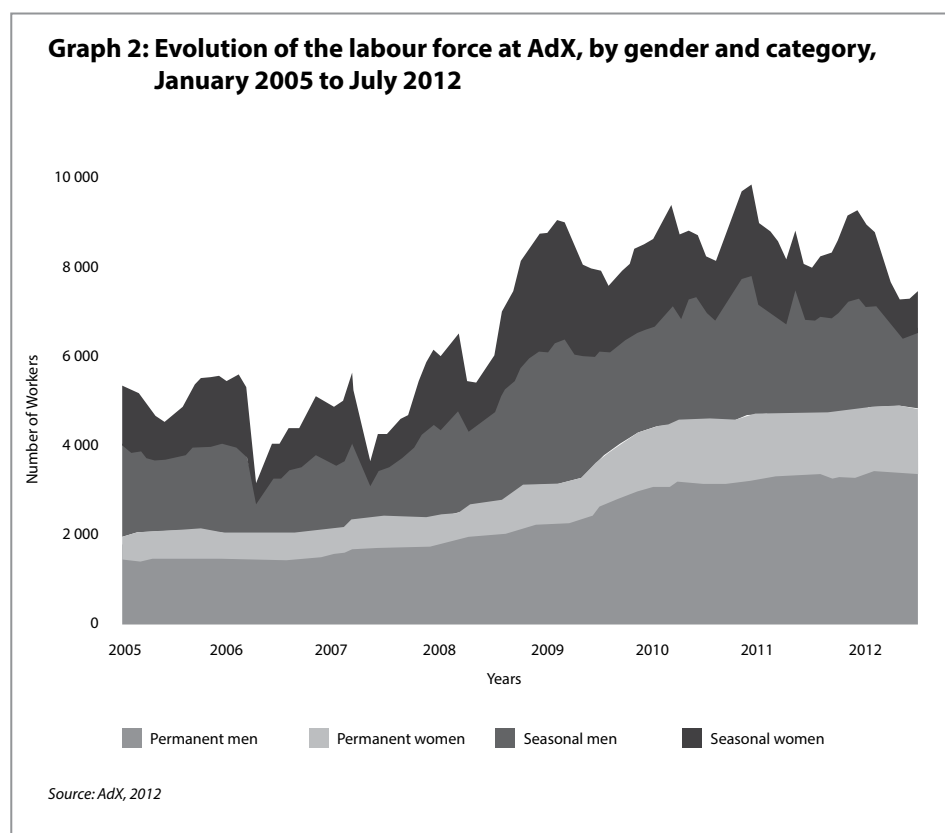
### ***The labour force at AdX: patterns of recruitment***

The process of production of sugarcane is carried out by a labour force that has both permanent and seasonal cohorts. The permanent workers are those who are regarded as staff of AdX and have indefinite contracts. Seasonal workers are those who have a temporary link with the sugar company, though with contracts of no less than three months. They are contracted to carry out certain activities during a limited time period.

All of the employment data furnished to us by AdX refer to the number of workers employed, not to the number of days they worked per month. Monthly wage data thus refer to the maximum earning possible per month, not to the wages actually worked, which correspond to the number of days worked. Graph 2 shows the evolution of the labour force at AdX by gender and job category from January 2005 to May 2012. In general during this period the number of AdX workers grew until 2008, i.e. during the period of expansion. Considering specifically work-status and sex, there was a regular increase up until 2008 in the proportion of permanent workers, especially for men. In relation to seasonal workers,

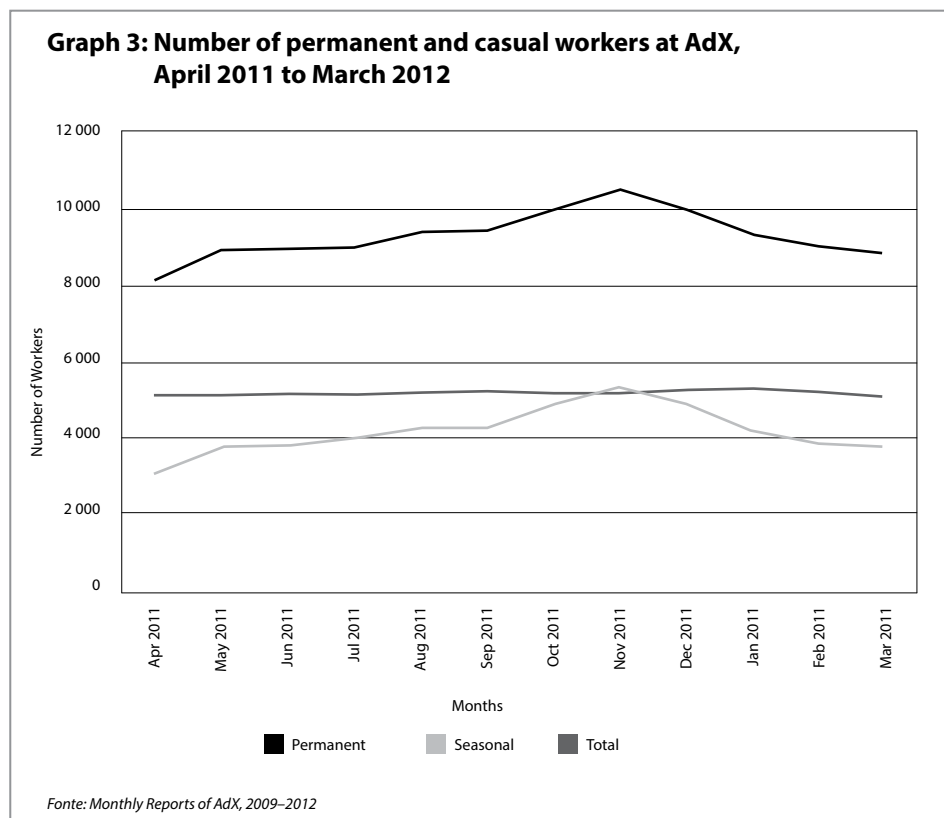
given the variability of agricultural activities over time, there is a certain regular seasonal fluctuation.

In the years to come, a gradual stabilising of the labour force is expected at AdX, as a consequence of the mechanisation that is taking place (for example, the mechanisation and automatisisation of irrigation) and because AdX has nearly reached the maximum milling capacity of its factory. Mechanisation will permit AdX to reduce its dependence on seasonal labour and to increase labour productivity but at the cost of a reduction in the number of jobs.



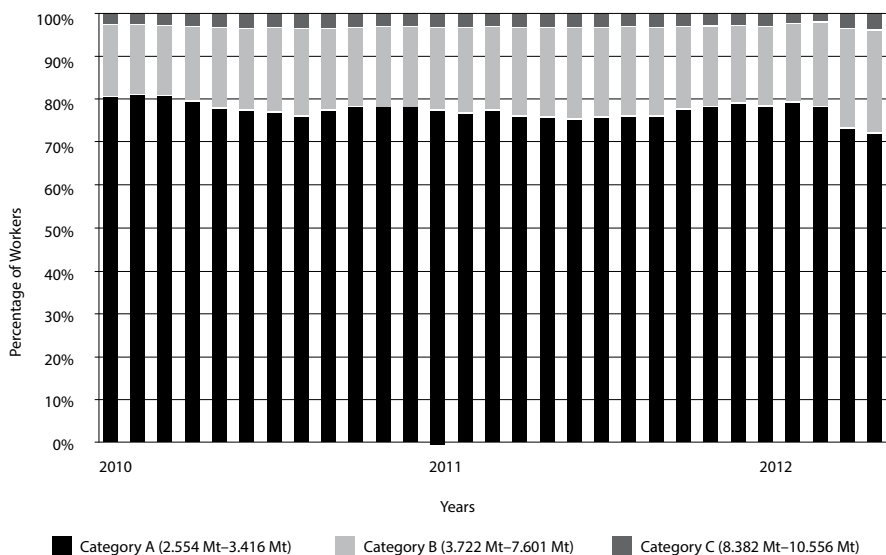
Graph 2 illustrates the evolution of the total labour force of AdX; there is no breakdown here of the number of specifically agricultural workers. Data drawn from monthly payroll reports, however, do allow us to distinguish some information on agricultural workers. These data show that the greater part of the labour force is concentrated in the Joint Direction of Agriculture (DAA), which is responsible for the coordination of work in the cane-fields, including contracting workers. Graph 3, drawn from the AdX monthly payroll

reports for the agricultural year from April 2011 to March 2012, shows the relatively large size of the permanent labour force in agriculture employed across the year. The number of seasonal jobs, however, varied between 3 052 in April and 5 367 in November at the height of the harvest. AdX says that all seasonal workers are on contracts of at least three months. Cane-cutters are hired for the duration of the campaign, but locally hired weeders and cleaners, most of them women, have short-term contracts.



Although the *Monthly Reports* from the AdX personnel office show a tendency towards stabilisation of part of the labour force, there is also a concentration of workers in the lowest pay scale. Graph 4 shows the predominance of workers from pay scale A, i.e. with a maximum monthly salary between MTS 2 554 and MTS 3 416 among agricultural workers. Indeed this wage band consists mainly of agricultural workers.

**Graph 4: Percentage of agricultural workers by pay scale (A,B and C), 2010 to May 2012**



Fonte: Monthly Reports of AdX, 2009–2012

The process of recruitment of agricultural workers has changed over time. In the colonial period and during the period of labour scarcity after Independence, recruitment depended on partnerships between the sugar company and the chiefs of neighbouring localities. The chiefs mobilised people willing to work and sent their names to the office of the sugar estate. In the specific case of the cane-cutters, AdX subcontracted another company to manage their recruitment and lodging. During the cholera outbreak in 2010 there were deaths in worker hostels whereupon AdX decided to internalise once more management of recruitment and lodging.

Presently recruitment of workers is managed directly by the sugar company. In agricultural work, the section chiefs determine how many workers are needed for a particular activity. Agricultural workers such as weeders, irrigators or cane-cutters go to the fields and offer themselves for work. After they have been accepted they present their identity cards at the main office of the company and formalise their contracts. Another route for recruitment, not frequently used at AdX, is through the National Institute of Employment and Professional Training (INEP), which has an office in Manhiça town. The minimum contract is three months. We spoke to various seasonal workers who had done five or six contracts without ever obtaining a permanent contract. When they finish their three month contracts they stay home, to be taken on again only in the following year.



Given the absence of alternative sources of employment in the districts of Manhiça and Magude, there are now many people ready to work at AdX on a wage-basis. This shortage of jobs and dependence on monetary income from family subsistence contribute to injustice in the recruitment process. Some people in the catchment area of AdX complained that recruitment is based on ties of kinship, friendship and even bribery. Some also mentioned that to move from a seasonal to permanent job also requires these kinds of relations with the section chiefs. But promotion can also depend on the worker's regularity, effort and efficiency during the year. Completing tasks properly for example is important.

The recruitment of cane-cutters, called *magaulanes*, differs from that in other areas of work at AdX. They are an extremely important group of workers for the estate, which is why priority in recruitment is given to those who already know how to cut cane. Most of the cane-cutters currently come from other regions: Inhambane, Beira, Zambézia, Chimoio e Tete. Given their knowledge of the cane-cutting period and the availability of work at AdX, they migrate alone or in groups from their home areas to Xinavane. After most of the cane has been cut in November and December, most return home. In the following year, the contracting process is similar. At the beginning of the 2012 harvesting period many more cane-cutters appeared at the gates of AdX than could be employed. They camped outside the gates. Fearing that the confusion could turn into demonstrations by the unemployed, the company arranged for them to have transport back to their home areas.

## ***Wages***

The following table shows monthly wage targets by job category set by AdX in 2012.

In general wage levels reflect workers' levels of experience and qualification. According to the wage table, for example, irrigation workers are in category A2 (MTS 3 317) and A3 (MTS 3 416). Category A is the lowest on the sugar estate. Weeders are classed among the lowest paid of all workers in AdX: A1A (MTS 2 554).

**Table 5: Monthly wages set by AdX in 2012 (agricultural work)<sup>6</sup>**

Grade	Base salary in MTS
A1A	2 554
A1	3 246
A2	3 317
A3	3 416
B1	3 722
B2	4 747
B3	5 586
B4	6 411
B5	7 601
C1	8 382
C2	9 626
C3	10 556

### ***Housing and Transport<sup>7</sup>***

AdX has seven housing complexes: Tanninga, Fábrica velha (Madala), Matequinhene, Aguiar 1 and 2, Maholele and Timanguene. The hostels house workers who come from outside Xinavane.

The hostels at Aguiar (Xinavane) and Timanguene (Magude), where cane-cutters are housed, are located in the midst of the cane-fields in zones far from the towns. In the hostels each room is shared between ten people. They sleep on mats. Some cane-cutters live in the hostels when they begin working at AdX but when they establish families, they move out. There is no family housing in the hostels.

The cane-cutters begin work at 3am; they are transported from hostel to field by truck or trailer. For other workers there are fixed pick-up points, but there is not enough transport for everyone. Many walk to work and some go by combi-taxi, paying MTS 10 per trip. Some of the permanent workers receive bicycles from the company or buy them.

<sup>6</sup> Document provided by SINTIA

<sup>7</sup> We did not succeed in obtaining access to the AdX hostels. The following information comes from interviews with workers and inspectors.

## ***Safety and sanitation***

AdX attends carefully to questions of work safety. It has an active worker safety campaign that addresses accidents in the factory and field and on the roads. Information on safety issues is posted throughout AdX installations. Areas of peril are referred to in 'Huley's rules' painted for all to see at the entry to the main compound in Xinavane City (these are rather difficult to understand, see photo in Appendix B). Advice on handling equipment safely and avoiding work accidents is discussed during the induction training.

All workers are provided with working equipment such as cane-knife, boots and uniform by the company. The free provision of this equipment does not, however, assure its use. According to some cane-cutter interviewed, they prefer to wear their own clothing rather than their uniforms because the cutter's uniform is white and easily soiled. They also think it is too heavy and makes work more difficult. The cane-cutters do not have access to protective masks, so they complain of respiratory problems caused by dust.

There are no sanitary facilities in the cane-fields. In the past there was also shortage of drinking water in the fields. Pressure placed by the union led to the introduction of mobile water tanks. Permanent water tanks are refilled by passing trucks particularly during the hottest months. Access to drinking water is still a problem since some workers must bring it with them from home. Every worker receives a container for transporting water. Sometimes they drink from the irrigation canals instead. This water is drawn directly from the river and is untreated. Workers bring food from home; no meal or supplement is furnished by the company.

## ***Health care***

According to the assistant director for health and safety at AdX, before being admitted and signing their contracts, those recruited to work at AdX must undergo medical examinations at the AdX clinic. The entry exams are obligatory and are intended to determine whether or not the worker is fit for the task they are to undertake. The tests include tuberculosis, but not HIV/AIDS or malaria. If workers have a health problema that makes them unfit for work in one area, they may still be placed in a different area. After admission, new workers go through an induction process – a short training course in questions of health and work safety. When they finish their contracts, seasonal workers have another medical examination, referred to as the exit exam.

Workers have access to a clinic and rights to health care. The clinic is particularly concerned with work accidents. In the cane-fields a worker trained in first aid by the Red Cross responds to work accidents. In the past the company experimented with having full-time first aid staff in the fields, but they had so little work that they became demoralised. Cases

of serious injury are sent to the AdX clinic or to the Xinavane hospital, which is right across the road from AdX headquarters.

Access to the subsidised National Health Services remains the principal source of health care for AdX workers and their families. Families are strictly speaking not eligible for health care at the AdX clinic (though we saw some there) and most of the workers themselves prefer to go to the local health posts that are situated close to home. There are often long queues, but we spoke to no one who paid more for access than the nominal MT 5 fee. They got some medicines free through the NHS but also purchased from private pharmacies.

### ***Social security***

All AdX workers, seasonal as well as permanent, have contracts and are registered in the National Institute of Social Security (INSS). AdX discounts 3% from workers' pay-slips to cover their monthly contribution to the INSS and also pays a contribution. In principle, workers can file for payment of sick leave, but the process is complex and slow. Many seasonal agricultural workers resent these discounts because they do not expect to ever have a contractual status that will allow them to make future claims for either sick leave or pension.

### ***Wider social assistance***

AdX has a well specified social plan with dedicated funding for social spending. It has built schools, health posts and houses for staff in both Xinavane and Magude towns and in communities adjoining its production areas in Timanguene and Maholele. It provides a tractor and trailer for cleaning the town of Xinavane and at one point also lent two ambulances. It has both HIV/AIDS and malaria prevention programmes.

AdX is now discussing with the health authorities its contribution to the relocation of the Rural Hospital of Xinavane, which was in the colonial period operated by the Incomati estate itself. There is no clinic available for the AdX blocks in Magude and Moamba. There are discussions about building a clinic in Timanguene that would serve exclusively AdX workers from both these areas. Currently many severe malaria cases among hostel-dwellers in Timanguene are treated in the National Health System hospital in Magude town.

### ***Outgrowers***

Xinavane Sugar Estates (AdX) is the largest sugar producer in southern Mozambique. In fact AdX is able to depend mainly on its own production to supply its factory. There are, however, various kinds of outgrowers also selling their cane to AdX. These include a large

South African enterprise, Vamagogo, that has rented land from AdX; associations of small sugar producers that act like companies, contracting in services from AdX and selling it their cane; and a small number of small private cane-farmers based in Magude.

## ***Vamagogo***

The hand painted 'Vamagogo' sign at its entry gate belies the large farming enterprise within. Vamagogo Estates was formed in 2001 by a well-known South African Firm, Sunshine Seedling Services that is diversifying its activities in the region. It has about 1 400 hectares in cane and another 2 000 hectares in meat-cattle in Chibanza, on the outskirts of AdX. It has a long-term lease (37 years remaining) on this land from AdX, and has invested heavily in site survey and construction of irrigation infrastructure with improvements still on-going. It buys its own inputs and organises the production process, depending on AdX only to buy its cane.

The only workers on permanent contract are a small number of administrative staff and skilled machine operators and mechanics. The managing director told us that permanent contracts do not make economic sense in sugar production since tasks are not constant across the year. Vamagogo hires local women seasonally for weeding and cleaning. It provides transport from Tanninga but expects that some women from Ilha Josina live close enough to walk to work (see Map 1, Chapter 1). They enter at 6am in the winter, earlier in summer, often with a walk of an hour or more before that. Cane-cutters are hired for the length of the cutting season from May to December. In the past the company has recruited in Inhambane, but in 2012 workers from central Mozambique arrived en masse at their gates, many of them having been chased away from AdX after having failed to get jobs there. Vamagogo hires women cane-cutters, though men are the majority. Last year's best cane-cutter was a woman from Inhambane, though she has not returned this year. Veteran workers help friends or kin or those from the same region to be signed on.

Vamagogo houses workers in a compound inherited from the Incomati Estates and has also housed cane-cutters in the Vamogogo encampment operated by AdX. There is a water fountain for the camp and some houses have electricity. Each small building has two rooms, some of them still used as warehouses. Each room should house eight workers, but some of them have as many as twelve workers, many sleeping on mats on the floor (see photo, Appendix B). The current manager plans to upgrade the housing but observed that this will require convincing the directors of the company.

Vamagogo sets its wages for most field tasks 10% higher than AdX, hoping to attract more regular workers. The exception is cane-cutting where there is an agreement to keep wages at the same level to avoid inciting work stoppages at AdX. As at AdX daily wages for most field jobs are set on the basis of a task, set in relation to field conditions. For the cane-cutters this is MTS 242 per task, usually 8 rows of 120 metres. There are also half-tasks paid at half rate. Vamagogo provides no social assistance. There are currently no deductions for

either the union or for INSS. The general manager says he would like to bring Vamagogo’s workers into the scheme and has offered to pay both contributions for a while, but workers are reluctant to join. Among the permanent workers at both Vamagogo and AdX, there are clerics who counsel and organise religious ceremonies for migrant workers; this is not a management initiative.

Vamagogo houses an internal labour reserve, in the sense that there are more cane-cutters contracted or living in the encampment than there is cutting to be done on a particular day. Groups of workers climb on to the lorries before sunrise but do not know till they get to the field whether they will actually have a task. They form regional groups – those from Inhambane, or Zambezia or Gaza, for example – that help each other to be chosen or to shove others out of the way. Sometimes a contracted worker will give half the task to a friend working without contract, sharing both the burden of the work and part of the payment. Those who do not get a task sometimes take on other work instead. One of the supervisors regularly contracts workers from the encampment for his brick-making business. A cutter who gets work every day can earn over MTS 6 000 in a month, but the workers we spoke to and the payslips we saw suggested that MTS 3 000 per month is normal.

Cane-cutting is demanding work; the cutter must know how to top the plant quickly and make the right diagonal cut cleanly and close to the ground. Regional groups compete against each other and sing mutually insulting songs to keep up the pace. Some smoke cannabis to help them keep going. Fights sometimes break out. There is a pause from 9 to 9.30am and a food supplement (Morvit) is distributed to the cutters.

Cane-cutters sometimes cut themselves badly. There is a first aid box in the field and one person in the company has some training in basic first aid. Serious cases are sent to the hospital in Xinavane. Workers wear a basic uniform – black top and trousers – to protect them from the sharp and scratchy leaves of the cane-plants. They also receive a cane-knife and rubber boots to wade through water and to protect them from snakes. There are deductions from wages for these, but the manager said that these are reimbursed if the workers stay more than two or three months (suggesting a high rate of turnover). We were told that cane cutters also receive protective goggles because of the dust, shin-guards and gloves that they do not like to use. Workers we spoke to said they did not receive this equipment and it was not mentioned on the pay-slips we saw. Machine operators wear a different uniform and receive protective helmets.

Most groups finish the task by 2pm or so and take the lorry back to the camp where they sweep the encampment, wash, change clothes and prepare their food. Most cooperate with others in their room to buy a monthly ‘ranch’ of staples – maize flour, rice, oil, beans, peanuts, onions and dried fish, sometimes tomatoes, and take turns cooking. They can buy dry staples on credit from a company shop in the encampment, but most do not like to do so, not trusting the deductions on their pay slips. They also buy soap, clean mats to sleep on and credit to phone home. The first things they save for are decent clothes to wear off the field and a cell phone. They all worry about theft in the hostel. Most try to send some

money home or to save up for their return trip. Even the better paid machine operators say that their salary does not stretch to drinking tinned beer. They make do with local brew.

### ***The associations***

The formation of the associations in Xinavane and Magude was an important part of the strategy of expansion undertaken by AdX and facilitated by the government. In reclaiming land once cultivated by Incomati, the company encountered claims by communities and individuals who under the Land Law could legitimately claim rights to occupation through continuous cultivation for ten years or more. In moving into Magude, AdX took over the abandoned land of state citrus farms both around Magude town and in Timanguene. In some areas, it also made sense for the company to extend its holdings in intervening areas, some of which were occupied by family farmers and cattle-owners, or to assure that investments in pumping-stations and canals were not compromised by marauding cattle. In such cases, with assistance from the government, AdX offered household heads either cash compensation for their land, or the opportunity to set up their own outgrowers' associations with the initial survey and construction of irrigation infrastructure provided through AdX. The process has been very lengthy; the first association was that of Maguiguane, formed in 1998, and new associations are still being formed now. Most of the associations, at the behest of AdX and the government, have kept a small section of irrigated land for food production.

Not all communities where AdX proposed to take over land from family farmers agreed to accept compensation or put their land into sugar. In Ilha Josina, for example, farmers initially rejected the company's offer and decided to stick with their own horticulture/grain/cattle production. The association strategy did, however, ease AdX's expansion into land that had never been planted to sugar. We met family farmers who took compensation but now feel that they were not paid enough, some who complain of the loss of access to cattle-watering places, and others who were expelled from land they were farming when their claims to ownership were not accepted. In general, however, those who signed contracts with AdX to grow sugar are happy that they did so, though they may quibble about how much they get paid for their crop, and others are now approaching the company to see whether they can get into an outgrower scheme. The Armando Guebuza association in Ilha Josina, the area that first rejected the AdX offer, is now trying to persuade the company to take it on. To understand this wave of enthusiasm, why there is such a rush for sugar, one must look at how production is organised in the associations.

According to AdX, most of the associations and some of the small private outgrowers are effectively leasing their land to the company. It has designed and paid for the initial infrastructural investment, provides inputs and technical advice and determines the calendar for all field operations. The associations recruit the number of workers needed for their area. These include a limited number of permanent jobs – supervisors and foremen –

stable contracted jobs; guards and irrigation workers; and short-term contracted workers for weeding and cleaning. All workers recruited by the association must go through the induction and contracting process of AdX, are paid by the company and receive equipment and uniforms from it. When there is no more to be done in their association, they may be hired to do work in neighbouring associations. They identify themselves as employees of the company, not of the association. The supervisors are usually the presidents of the associations, people with a certain political weight in their communities, who decide who gets a job and can determine whether a task has been adequately done, but the company technician is also an overseer. Cane-cutters are recruited by AdX, not by the associations and are deployed when the company decides it makes sense to harvest their area (in function of the maturity of the crop and available capacity of the mill). The company determines the sucrose content of the crop, subtracts the cost of inputs, labour and amortisation of the initial investment. The labour conditions are more or less the same as for the same job in an AdX field, although a supervisor's task may be more limited and there may be more latitude adjusting tasks or in extending work beyond that strictly needed.

So those who work in the sugar fields of the association do not necessarily include its members. In fact, most often they do not. Members are something like small landowners, living from their rents. One prosperous peasant, owner of a good plot of irrigable land, explained to us why he would like to get his land into sugar: 'With maize I have to weed twice and I'm never sure if I'll find a buyer at a good price; with sugar I do nothing and get paid'. Although AdX speaks of a period of learning after which the associations would organise their own production, most to whom we spoke thought of the system as enduring. Maguiguane, the earliest association, based in a cooperative group established by the Swiss Mission before independence and integrated in the cooperative project after independence, has a distinctive experience. It opted for sugar, but not for the management strategy of the other associations. It hires and pays its own workers, some of whom are members of the association. It is also concerned with building its own social fund and acquiring regular bank credit. There are some rough patches in its relations with AdX in regard to contract and payment but it is probably the best (or only) example of what is usually understood as a smallholder contractor association in the areas around AdX.

There have been contradictions in the formation of the associations. In the first round, as a strong incentive for participation, the government arranged for donor funding to cover the costs of infrastructural investment. This is no longer available, which means that the new associations pay higher discounts and so get less money for their sugar. Protests over this are ascribed to 'misunderstanding', but actually most complainants seem to understand the problem quite well; they simply think that they should get the same deal as the first group of associations.

There have also been conflicts within associations and between associations and communities that have to do with local politics of wealth and kinship. The model initially envisaged associations of small outgrowers each with eight to ten hectares, enough land



to be a viable small enterprise. There are some associations where plots correspond to previous land-holdings, but in most associations every household in the community has some claim to the land and thus to a share of the income. There are thus associations with 200 to 300 members, less than a hectare of land per household, no identification with a particular plot and a regular but tiny annual income. The association in Chehenisse began with a sizable plot for each member, but after complaints from those excluded from membership, local government intervened to divide the area in two. A similar process took place in 3 de Fevereiro where four adjoining associations were formed, each with its own president/supervisor. Their management salaries are thus top-heavy. The associations have fuelled the conversion of land from horticulture to sugar and increased the income of their members and those who work for them, but the scheme is not an alternative to direct estate production. Our initial concern was that smallholder contractors might not be able to provide the same level of labour protection that the large estates do. In practice they are the same, but indebtedness and consequent loss of land could become an issue for associations that are not protected by donor subsidies.

### ***Other private outgrowers***

In contrast to Maragra, Xinavane has contracted a very small number of private outgrowers, specialised commercial producers working outside associations. We spoke to one of them, Sr. Timana in Magude. He is a teacher from Manhiça Vila who began producing vegetables over twenty years ago. He offered his 30 hectares of irrigated land to AdX under a twelve year lease. The company planted his cane, installed the irrigation system, controls the pumps and sends workers to do the weeding and cutting of the cane. Like the associations he receives payment for the sugar after harvesting; production costs are subtracted from his income. He meanwhile continues raising cattle and has opened up another smaller vegetable plot. He expects to learn enough about cane-growing in the 12 years of the lease for him to take over management of production later, a possibility not envisioned by most of the associations. In the meantime, however, only Vamagogo is working with a labour-force independent of AdX.

### **Conclusions**

With its takeover of the Incomati sugar estates in Xinavane and its subsequent expansion into irrigated areas of Magude and Moamba districts, Tongaat Hulett has both rehabilitated infrastructures of irrigation and transport and modern techniques of production. This expansion has been based on sugar. Although Vamagogo, its largest outgrower, is raising cattle on that part of its land that currently will not grow sugar, AdX and most of its contractors only grow sugar, displacing the previous production of citrus in Magude and sometimes smallholder cultivation of irrigated maize, vegetables and fruit.

Continuous planting, cutting and processing of sugar cane across a good part of the agricultural year means that demand for labour is more stable than in many forms of agricultural production. AdX employs about 4 800 workers throughout the year on permanent contracts, 3 000 of whom are agricultural workers. There continues to be, however, demand for seasonal labour. AdX employs between 2 000 and 3 700 agricultural workers for seasonal tasks such as cane cutting and weeding. Most of the cane-cutters are recruited from elsewhere and lodged on the estate, whereas other agricultural workers come from nearby localities.

All AdX workers, seasonal and permanent, have a contract. This does not mean, however, that they work a fixed number of days per month; it only means that to work at AdX one must have a contract. In effect, in a time of great demand for jobs, the contract system has allowed AdX to internalise its reserve, assuring that those hired are usually experienced and assiduous (though workers allege that favouritism of supervisors and foremen still plays a role). Housing cane-cutters near the fields and providing transport from pickup points for local workers in periods of peak demand, also helps AdX to manage recruitment.

Almost all of the associations of outgrowers are in fact renting out their land. AdX organises both techniques of production and labour recruitment. In these associations, workers recruited by the association receive a contract (more often seasonal than permanent) from AdX and are paid by AdX. Vamagogo management has not attempted to stabilise employment for agricultural workers and has no plans to do so. The managing director told us that the seasonality of sugar production was not compatible with the stabilisation of the labour force.

The profitability of sugarcane production depends on maintaining the coordination of the agricultural rhythms of planting and harvesting of cane with the industrial pace of using cane-crushing capacity. Timely transport is critical in this regard. Any disturbance of the cutting or processing of cane thus poses an immediate threat to profits. Threats of strikes by cane-cutters are watched carefully by management (the director of human resources of AdX explained that his reluctance to let us interview workers was based on his worry that our questions might encourage worker protest). Members of associations also noted that discontent with AdX charges could lead them to protest by blockading roads.

Providing employment has been a major contribution of the expansion of sugar production, but this chapter has shown that technical modernisation of processes of production has not eliminated the need for seasonal recruitment of labour. Nor has it eliminated exposure to toxic chemicals or work accidents in fields and on the roads. Nor have there been major changes in the ways in which seasonal workers are lodged and recruited, though they come now from further away and, unlike the cane-cutters of the past, often have some secondary education. In the next chapter, we look at the implications of these changes and continuities for the well-being of workers and local communities.



## 4. The Differentiated Impact of the Expansion of Sugar Production on Well-being

### Introduction

In this chapter we look at the links between the organisation of sugar production in Xinavane and Magude and the well-being of agricultural workers and the surrounding communities. We consider four main areas of impact: (i) the relation between improved material well-being and growth of jobs and income, (ii) access to food and the trade-off between increased income from sugar and reduced access to valley land for rural livelihoods, (iii) the incidence of health conditions related to work in the cane-fields and (iv) the relation between sugar production and environmental health, particularly the quality of land, air and water. We have not attempted to measure impacts thus far. Nor have we attempted to predict future impacts. The latter will depend in great measure on the response of the various actors involved in governing sugar production in the Incomati Valley. Our objective here is to identify issues of governance that should be considered.

### The relation between improved material well-being and growth of jobs and income

Even critics of AdX in this area are reluctant to suggest that they would want to return to the period before Tongaat Hulett took over management of the Incomati Estate. All recognise the importance that increases in jobs have had for the revival of the local economy. Some have specifically mentioned the decline of violent crime as a positive result.

#### *Growth of numbers employed*

The employment figures for AdX (see Chapter 3, Graph 2) show steady growth in jobs for both men and women until 2007 when it stabilised between 8 000 and 10 000 workers, a large part of whom have permanent contracts. It is difficult to capture the importance of this growth in the comparative census data for its catchment area in Manhiça and Magude. The 1997 and 2007 censuses show some increase of permanent employment during the period of AdX's expansion. Table 6 compares the proportion of the working population 15 years and over employed by a private or public enterprise in the main catchment area for AdX in 1997 and 2007.

**Table 6: Wage labour in a private or public enterprise, 1997 and 2007**

Locality or Administrative Post	1997			2007		
	% of total	% of men	% of women	% of total	% of men	% of women
Xinavane	43.8	69.88	20.17	50.24	71.08	28.82
3 de Fevereiro	9.4	24.01	1.49	14.78	35.85	2.08
Ilha Josina Machel	6.38	17.69	1.1	17.2	39.58	3.96
Magude	14.82	30.47	4.07	15.16	25.71	5.73

(Source: RGP 1997 and 2007)

In 1997 the impact of the war was still being felt and the state was still the major owner of some enterprises. The sugar plantation was operating only in Xinavane; the area it now occupies in Magude was still in citrus plantations. In 2007 cane was not yet being cut in Magude, but people were employed in the repair and expansion of the irrigation network and field preparation and planting. As we would expect, the proportion of workers employed by large companies (including industrial as well as agricultural work) is much higher in the administrative post of Xinavane than in other recruitment areas. The census only registers one's principal employment, so the proportion of the male active population employed in enterprises appears much higher than that of women, who are hired mainly for seasonal tasks and are thus registered as independent small farmers. There is growth in the proportion employed in all of the administrative posts; growth is particularly substantial for men, except in Magude.

Table 7 shows the specific growth in agricultural wage employment between 1997 and 2007.

**Table 7: Wage employment in agriculture, 1997 and 2007**

Administrative post	1997			2007		
	% total	% male	% female	% total	% male	% female
Xinavane	10.38	28.47	5.65	9.65	26.55	5.27
3 de Fevereiro	4.80	14.70	1.02	4.15	14.21	1.04
Ilha Josina Machel	1.78	5.71	0.40	2.45	7.92	0.72
Magude	4.59	12.95	1.18	5.72	10.46	3.44

(Source: RGP 1997 and 2007)

The proportion of the population with regular wage employment in agriculture has declined slightly in Xinavane and 3 de Fevereiro, increasing only slightly in Magude and Ilha Josina. This apparent stagnation of agricultural wage-work is partially explained by the fact that the census does not register multiple jobs and thus does not capture seasonal employment well. The cane-cutters that come from other provinces for the six months of the harvesting campaign, for example, are not classified as part of the resident labour-force. Table 7 may also overestimate the marginality of women's participation in agricultural wage-labour.

The number of women aged 15 years and over in the four administrative posts that constitute the catchment area for AdX was 22 243 in 2007 (RGP). AdX that year registered a median number of 637 women permanent workers and 1 247 seasonal workers, which would mean that around 8% of women were employed by AdX at some point or another. This is still a low figure, particularly taking into account the gender ratios strongly skewed towards women, the high proportion of women headed households and the corresponding high dependence on purchased food in Manhiça district generally.

AdX's own figures on employment indicate that AdX has employed about the same number of workers since 2007 (See Graph 2, Chapter 3). The expansion into new areas has not led to continuing growth in jobs. Productivity increases linked to technological innovation have even reduced some agricultural jobs such as those of irrigation attendants fewer of whom are needed in the present computerised system of water control. It may be, however, that the relative decline in seasonal workers (See Graph 3, Chapter 3) means a higher number of days worked and thus higher wage-earnings for permanent workers. AdX also contracts out some parts of the production process such as construction and cane transport to service providers who also hire workers locally.

The demand for wage-employment, by women as well as men, is so great that there is general support and appreciation of AdX for relaunching production in Xinavane and for its expansion in Magude. The district secretary of the Frelimo party in Magude, for example, attributed the decline in banditry and cattle-theft that marked the district in the post-war period in part to increased jobs with the expansion of AdX. Overall, however, we should not expect that the conversion of large areas of the Incomati Valley to irrigated production will lead to steady increases in wage employment.

### ***Increased monetary income***

We can only give an approximate estimate of the amount of wage-income the estates channel into the local economy. AdX did not give us access to payroll data and we did not attempt to obtain it from Vamagogo, the only other large-scale employer. The information on the number of workers in each pay-band (See Chapter 3, Graph 4) does, however, give us a basis for some tentative conclusions about the flow of wage-income into the local economy.

For most of the agricultural workers, whether permanent or seasonal, employment provides at best a subsistence wage. Across the agricultural year between 72% and 87% of AdX workers earned salaries in Band A, i.e. they were earning a maximum of MTS 3 416 per month (AdX Monthly reports 2011/2012). Within the A band, the great majority of agricultural workers are in the category A1A that receives a maximum of MTS 2 554 per month. In the peak recruitment months of November through January around 80% of the seasonal agricultural workers were in the A1A band; the rest of the year about two-thirds were in the A1A band (Ibid).

Moreover, it is rare for unskilled workers to receive the maximum wage, even when they are classified as a permanent worker. As noted in Chapter 3 we saw on payslips from AdX and Vamagogo that both casual and permanent workers do not always manage to work the full number of days per month needed to obtain the maximum specified for their band and they sometimes work and are paid for only a half-task. For most seasonal agricultural workers, particularly those in the A1A band, household livelihoods cannot depend entirely on wage-labour. Their subsistence depends as well on their own food production or other forms of off-farm work.

As described in Chapter 3, the workers in most of the associations are managed by AdX; wages and work norms are similar. The members of the associations, who are formally leasing their land to AdX, receive a monthly income relative to their shares in the association, their sugar yields, and their costs. In the associations where a small number of members have a relatively large number of hectares, incomes have been high. This has been an incentive for other smallholders to ask AdX to take a lease on their land as well (e.g. in Ilha Josina). But it has also been a reason for those who once had rights to land within the area of the association to ask to become members. In 2009 some of the associations such as Maria da Luz Guebuza and Olhar de Esperanca in Magude each had 200 or more members (Jelsma et al. 2010) and membership has continued to increase. In these cases the income obtained is much less, leading to complaints about the deductions made by AdX. In these associations, the highest incomes are earned by the officers since they are usually also AdX permanent workers, occupying permanent supervisory positions.

### ***Differentiated impact of wages and income from sugar on livelihoods***

The impact of jobs and earnings on rural livelihoods is very diverse, reflecting not just differences in patterns of employment but also what resources different people have outside their jobs. Most of the cane cutters, for example, are young men, in their 20s and early 30s and most are migrants from other regions of Mozambique. Almost everyone is trying to save for something. The projects they are saving for are very different. NM, 20, from Vilanculos would like to begin building a house and he dreams of returning to school – he has finished 8th Grade. BN, 30 from Morrumbene has already worked five years in South Africa. He hopes to earn enough at Vamagogo to get another passport and return

to South Africa. JL from southern Zambezia has worked in construction in South Africa but he thinks of himself as a *machambeiro* (master-farmer). He is saving to invest in improving his farm and wants to keep his five children in school. IG, from Inharrime, just thinks about working out his contract and having some money to take back to his family, his farm and fishing canoe; work conditions are just too difficult to stay on at Vamagogo. AC, also from Inharrime, is doing his fifth contract, going back regularly to his farm; he needs money to build his house and to buy things for his family. EF 25 from Macuze in Zambezia has a family and a good farm producing manioc, rice and coconuts, but he cannot make any money from it. He came to Vamagogo out of desperation.

The impact of the associations on livelihoods is differentiated in ways that reflect both positions in the association and the resources already held. For N, the president/supervisor of one of the associations in 3 de Fevereiro, the regular salary gives him working capital to use in his other ventures. He has a brick-burning furnace where he employs both his own son and other kin, a vegetable farm where his wives and other local women work, a small lorry for both moving his goods and personal transport. The yearly return he gets from membership in the association is substantial because he had more land and influence going into the process. For H the payment she gets as a member is small, but it means that she keeps hold of a piece of irrigable land that she uses for household maize production; she doesn’t work for the association. L recently separated from her partner, came to stay with her mother in 3 de Fevereiro, hoping to get an office job with AdX. She had no connections for getting in but is hoping that the supervisor will be impressed by her assiduity and help her get a permanent factory job. As for the young widow, S, she would like more than the short-term contracts as a weeder, particularly since she no longer has any access to any irrigable land and the harvest has failed for shortage of rain and/or floods on her rainfed plot.

### ***Multiplier effects on trade and employment***

Given the prevalence of the subsistence wage, it is not surprising that the multiplier effects on local trade are somewhat limited. Shop-managers interviewed in Xinavane and Magude spoke of their ‘end of the month businesses’. When workers were paid they came to buy their monthly rations, and a few other consumer items. Shops competed with the street-traders who flocked into town with staples, beverages, used clothes and shoes, fruits and vegetables and a few expensive items like cell-phones, but disappeared from the streets by the second week of the month. Most of the shops had, however, substantial hardware and building materials sections. Their principal clients were the skilled workers and technicians, particularly those working in the factory.

In the rural areas where workers lived, there were also some spin-offs into local trade. Manhiça has long had an artisanal ceramics industry. There are now brick-burning furnaces scattered across the landscape (see photo, Appendix B); the operators are selling to local



clients as well as to builders in town. Brick houses are gradually driving out the older circular houses with reed walls. The furnace owners are often skilled or higher paid workers who employ family labour but also hire day labour locally. Some also have irrigated plots and use their regular wages as working capital in commercial agriculture, hiring day workers for horticultural production, much of their produce being sold in Maputo City.

Especially in the areas close to the hostels where migrant workers, particularly cane-cutters are lodged (e.g. Taninga, Timanguene), local residents set up stalls where they sell manufactured beer, cigarettes and locally distilled alcohol both to returning migrants and to plantation workers. Some women brew and sell local beers and there is petty trade in marijuana, used by some cane-cutters to keep up the pace and intensity of the work. The rice sold is mainly imported Thai rice; some of the maize meal comes from central and northern Mozambique but much of it is imported from South Africa. Our findings here may reflect repeated years of drought and poor harvests on the rain fed plots in the Xinavane area. In the sample employed by the recent MICS (Multiple Indicators Cluster) survey, a higher proportion of women described their principal job as trader or service-provider than as farmer (MICS 2009).

Our interviews with bank staff in the towns of Manhiça, Xinavane and Magude confirmed the limited multiplier impact of income from wage employment. Some field-workers have opened personal bank accounts and are enthusiastic about being paid by cheque as are the factory workers. They suggest that it protects them against unwarranted discounts from their salary. But loan applications come mainly from the higher paid skilled staff, usually for home construction or repair. One of the sugar outgrower associations in Magude has, however, taken out a loan from a micro-credit bank, using it to provide unsecured loans to some of its members.

## **Nutritional security: the trade-off between income from sugar and restricted access to irrigable land**

### ***Income from sugar as an essential input to food consumption for workers and their families***

The subsistence level of the wage and income earned from sugar refers to the real wage, what money can buy. In our informal survey of prices of staples in the shops and on the street in Xinavane and Magude, prices were approximately the same as in the city of Maputo. For staples such as maize these are about twice as high in southern Mozambique as in the rest of the country, reflecting both its higher level of urbanisation and the irregular yields associated with rain fed production in this semi-arid zone. Households in rural Maputo province as a whole are more dependent on the market for the food they consume than in any other province: only 20% comes from own production (UNWFP

2000: 60). The rest comes from purchases (62%), gifts and other transfers (14%) and casual labour (4%) (Ibid).

One should be cautious about these data. The survey was based on recall by rural household heads and was undertaken at the end of August or beginning of September when stocks from own production are likely to be exhausted. Staples are the main focus of the reported results, leaving aside vegetables and fruit that contribute to diet. The rural areas of Maputo province include areas that are now mixed residential suburbs of the greater urban conglomeration of Maputo City where family agriculture is marginal. Nevertheless, the importance of purchased foods in Maputo province seems clear.

We did not attempt to carry out a statistically representative household survey, but asked both plantation workers and women in households with no jobs or income from sugar about the food they ate in the previous week and how they obtained it. We interviewed households in July when stocks from the previous harvest are low. The agricultural year 2011–2012 had been poor for rainfed farmers; late torrential rains were followed by an extended period of drought. A small number of households were able to mix their own stocks of maize with purchased flour to make *nshima* but most depended on purchased staples. Some fished in the Incomati, but others bought dried fish and/or meat once or twice a week. They supplemented their basic stock of purchased staples in diverse ways. Some (including the cane-cutters) foraged for leafy vegetables in nearby fields and women and children did tasks for kin and neighbours in return for food. One household heavily dependent on remittances from a migrant worker in Cape Town, for example, was having a meal of fish-heads that the oldest daughter had received in return for helping a neighbour to clean the catch. Women who had worked for AdX but been refused a second contract told us they needed the work to feed their children and send them to school.

Emphasis on the subsistence level of the wage and income from sugar production for most rural households thus does not imply that income from plantation work is not important for rural households in the region. The district director of health in Manhiça told us that child nutrition had improved so much recently that they were thinking of stopping the school-feeding programmes. Given the central importance of nutrition for health, it is not surprising that so many people in Xinavane and Magude associated the revival of the local sugar industry with improved well-being.

### ***The importance of access to land in the Incomati Valley for rural livelihoods***

Yet despite clear dependence on purchased food and hence access to monetary income, it is noteworthy that over half of all people 15 years and over in the area of Xinavane were classified as self-employed workers in agriculture. As Table 8 shows, the proportion is much higher for women and is of course lower in the locality that includes Xinavane town.

**Table 8: Percentage of population 15 years and older working as independent producers without employees in agriculture**

Administrative Post	% of total	% of men	% of women
Xinavane	29.81	9.39	50.79
3 de Fevereiro	67.59	36.93	86.07
Ilha Josina Machel	66.29	37.48	83.33
Magude	48.34	27.77	66.73
Total	52.89	26.41	73.22

(Source: RGP 2007)

In relation to the neighbouring plantation, Maragra, which has title to less land in the valley than AdX and has thus depended more on outgrowers cultivating their own land, UNAC has appealed for safeguarding the food production of the small farmer. It urges them not to convert their irrigable land to sugar, but to recognise the importance of food self-sufficiency. It calls attention to the vulnerability of small farmers confronting the vagaries of international food commodity markets and sugar prices dependent on the preferential schemes of the European Union. The limited success of this appeal in the area of Xinavane is related to the diversity of patterns of access to and use of valley land.

The people we interviewed included many who had small rainfed plots and neither owned nor could hire the implements and oxen needed to plough land in the Incomati Valley. Others were members of associations that had kept small irrigated areas in reserve for cultivation of maize, cassava and vegetables, mainly for their own consumption. One president of an association had two large valley fields where he produced maize and vegetables for sale. We spoke to some who said that they had cultivated land left unworked by Incomati estates during the war, but had been expelled. We also spoke to farmers who were currently cultivating staples for own-consumption and vegetables as a cash-crop but who wanted to negotiate a leasing arrangement with AdX. They thought that sugar cane would give them a larger and more secure income.

There are differences between the Magude, Ilha Josina and the rest of the Xinavane area in land rights and their relation to AdX. In Magude, AdX has occupied land left uncultivated by the citrus estates during the war. Some small farmers had had rights of possession for this land under the terms of the Land Law and others had long-term rights as members of the Swiss Mission settlement (Gengenbach 2000). Ilha Josina was never occupied by the Incomati estates. The uncertain formal status of claims to the land historically controlled but not cultivated by the Incomati estates underlies the conflicts within associations and between associations and those who were not accepted as members in both Xinavane and Magude.

The consolidation of AdX land-holdings along the Incomati has implications for access to land and water for other aspects of rural livelihoods in the Xinavane area. In Magude, access to the river for watering cattle and dry-season grazing, has sometimes led to conflicts between AdX and cattle-owners. In 1981 only about 10% of households in Manhiça but 50% of households in Magude owned cattle. Herds were decimated during the war, but are recovering and are an important source of income as well as investment in Magude. 'Accidental' incursion of cattle into the cane-fields at night in Timanguene has made it necessary for the company to hire guards to protect the perimeter. Women make use of the flood plain to cut reeds that are woven into mats by men for sale. The river is fished both for subsistence and sale, with catch affected by chemical run-off from sugar production.<sup>8</sup>

## **The incidence of health conditions related to work in the cane-fields**

Irrigated sugar production does not necessarily lead to an increase in health problems, either for workers or for surrounding communities. In some cases, the way production is organised can actually lead to improvement in health conditions. There are, however, some health issues typically associated with sugar plantations that need to be considered. Our objective in this section is not to draw firm conclusions but, as explained in the introduction, to identify issues that merit the attention both of the management of the estates and those concerned with improving the well-being of workers and the communities in which they live.

### ***Managing malaria: the problem of reinfection***

Malaria prevention has three aspects: (i) eliminating the parasite from standing water; (ii) eliminating the mosquito vector; and (iii) reducing infection in the population (Packard 2007). The director of AdX, Rosario Cumbi, complained to us that many of the critics of the plantation inaccurately assumed that standing water in the irrigation system was one of the main reasons for the high incidence of malaria in the area of Xinavane. He pointed out that the efficient pumping system of AdX in fact kept the waters in the canals in movement, which should limit the breeding of both bilharzia and malaria vectors. Indeed the only place where we met concern with bilharzia among health authorities was outside the sugar production zone in Motaze, Magude, where young herders were said to contract it from bathing in stagnant pools. In relation to malaria, the AdX plantation also has a team of 23 workers carrying out a regular spraying programme for the workers' compounds and fields and participating three times a year with the spraying campaigns of the District Health Direction in Xinavane (Jorge Cuambe interview AdX). There are, however, problems of coordination of spraying programmes between AdX and district authorities in Magude.

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8 The use of insecticide treated mosquito nets for fishing contributes to water pollution.

For malaria, however, the question of prevention extends beyond the boundaries of the estates. Those who work in the cane-fields include migrant cane-cutters housed in hostels on the estates and those living locally in Xinavane, 3 de Fevereiro and Magude. The anopheles mosquito does not infect workers in the fields during the day but after dusk in their hostels, homes and communities.

Researchers attached to CISM in Vila Manhiça have done extensive research on the incidence of both infantile and adult malaria in one section of Manhiça district that includes part of the catchment area for AdX in the locality of 3 de Fevereiro. Mayor et al. (2007: 5) found that in the dry season almost half the adults were infected by *P. falciparum* and suggest on the basis of other studies that cumulative prevalence of adult parasite carriers over the year is probably close to 100%, due either to the chronic nature of the malaria infections or frequent reinfections. They also found that many of the infected adults did not present symptomatic high fevers; accumulated adult immunity restricts malaria to a sub-clinical course. They conclude that: 'A more sensitive definition of malaria in adults should be formulated, considering other symptoms such as diarrhoea, shivering and headache, combined with the presence of parasitaemia'. The cane-cutters we interviewed in Vamagogo, in fact complained more of these more general ailments, perhaps overlooked since they could result from sunstroke or exhaustion as well as sub-clinical malaria.

Reducing the frequency of reinfection in the broader area of recruitment is thus crucial to the prevention of malaria in the adult population of Manhiça in general and among sugar-workers in particular (and hence also for the productivity of labour). The current focus of prevention in Maputo province is exposure to the anopheles mosquito, through spraying and distribution of treated bed-nets. As noted above, there is communication and some collaboration of AdX in programmes in the immediate Xinavane area, though this is not institutionalised in the new areas opened in Magude. Vamagogo has no community programmes. This leaves two open fronts for prevention: (i) parasite and vector breeding in the drainage areas lying outside the boundaries of the estates; and (ii) the reduction of reinfection (and transmission) among the seasonally recruited cane-cutters who come each year from areas outside control programmes.

### ***Work-related accidents and chronic conditions***

Accidents in the fields are frequent, mainly minor, often the product of haste or fatigue and sometimes preventable: limbs slashed by the cane-knife or sliced by the sharp leaves of the cane-plants, snake-bite, sprains from moving equipment or heavy loads, burns, eye and skin irritations from chemicals. Cane-cutters complained particularly about chronic back pain and head-aches. Both AdX and Vamagogo recognise that agricultural workers need protective equipment. AdX provide different task-related protective uniforms to all its workers. Both companies have mandated breaks to allow workers to rest or eat. At field

level, however, management do not closely monitor use of protective equipment or rest routines. Their principal concern, like that of the workers, is finishing tasks rapidly, which sometimes leads to accidents, particularly for those with less stamina or less skill.

### ***Exhaustion, dehydration and hunger***

Managers at both estates are aware of the importance of workers' stamina since it is an aspect of labour productivity. Absenteeism and difficulty in completing tasks are reasons for not promoting field workers to permanent contracts. On the whole, however, the companies expect the workers to organise themselves the 'reproduction of their labour power'. The labour day begins when it is dark. Cane-cutters are transported by lorry to whichever field they are to harvest and the companies sends lorries to assembly points in some localities to pick up field-workers. Others arrive, however, on foot, sometimes walking for two hours before they even begin their task for the day, or by taxi (combi or pickup truck).

So field workers rise early. Women often leave before their children are even awake, sometimes eating left-overs from the day before, and sometimes not eating anything at all. Women do not bring their nursing babies to the fields. There is no safe place to leave them and the sharp cane-leaves would hurt them if they carried the children on their backs. Neither company provides a meal for agricultural workers, although Vamagogo gives an energy supplement – Morvit – to the cane-cutters. All AdX agricultural workers receive a two-litre plastic water bottle at their induction. They are supposed to bring their own drinking water to the fields from home or, in the case of the migrant cane-cutters from their hostels. In the hot seasons the company puts large containers of safe drinking water in the fields.

Labour regulations, recognised by both companies, require rest breaks. Workers with skilled jobs who are paid a monthly salary for a fixed number of hours of work usually take mandated breaks and generally bring food with them to eat. Those who are working on a task rate, like the cane-cutters and weeders, are reluctant to take the mandated break. They leave early for the fields, do not always have food to take with them and ration the water they carry from home. They are anxious to complete their task and leave, to be back at home to wash, prepare the main meal and to care for their children. Nonetheless, the women weeders do wait for each other because it is safer and more enjoyable for them to walk home together in groups.

### ***Irregular use of protective equipment***

Both AdX and Vamagogo issue the cane-cutters with protective equipment. The cutters wear the boots and trousers but often leave aside the goggles, gloves and smock, arguing that they interfere with their ability to swing the knife quickly and accurately. Speed is

important because their wage for the day depends on finishing an assigned task; they push each other to finish quickly and return to the hostel. The Vamagogo uniform is black but at AdX (as on other Tongaat Hulett plantations in southern Africa) the cane-cutters' uniform is white, rapidly soiled by the burnt cane, another reason given for not wearing it. Those who do hand-spraying have and generally use masks, gloves and boots. The workers, many of them local women, who weed, clean fields after cutting and plant new cane, wear their smocks and boots if they have them.

### ***Prevention of road accidents***

A second kind of frequent work related accident is being hit by a vehicle on the roads, a problem for both AdX workers and neighbouring households. The density of traffic is particularly high in the early morning when AdX and Vamagogo lorries are hurrying to get their loads of cane to the factory for processing and when *chapas* (taxis) are taking workers to their jobs. In the winter months it is still dark then and hard to see things on the road. Some workers travel by bicycle. Some go on foot instead, walking along the side of the roads, as do children going to school or traders going to markets, or people going to the hospital in Xinavane. Because of the high incidence of accidents, a few years ago AdX started putting strips of fluorescent tape onto its uniforms. These are effective and the uniforms have made their way to many inhabitants of the region who do not work at AdX. Nonetheless, the speed of the careening lorries and *chapas* on the narrow roads continues to pose risks both to cyclists and pedestrians.

For minor accidents, Vamagogo has one staff member trained in first aid on call. AdX has a much larger capacity to respond to work accidents. There are first-aid providers in the cane-fields of AdX, workers who have other tasks as well.

### ***Sanitary conditions and spread of infectious disease***

Sanitary conditions expose sugar-workers to intestinal infections and parasites. There are no toilet facilities in the fields. We were told by both workers and managers that there is no cleaner or more private toilet than a place in the high-cane. This is not so convenient or safe for women. The high cane is a place where women are vulnerable to assault if they go alone. Hand-washing, if done, is in an irrigation channel or at the tap in a pumping station. Workers also sometimes take drinking water from pumping stations or even from irrigation canals.

Sanitary conditions in the hostels are another point of vulnerability. They have water, electricity, and latrines, but the density of habitation makes sanitation an issue. For a time AdX had contracted out hostel management, but after a wave of cholera cases, they brought it back into central management. The hostel in Vamagogo belonging to AdX was remodelled, windows were created and improved sanitation facilities were installed.

The Timanguene hostel is new, but cane-cutters complained to us about crowding, the intensity of the use of the latrines and maintenance problems. Workers are careful to bathe when they return from the fields to get rid of the dust, which they know contains chemicals and is irritating to the skin, and they put on clean clothes if they have them.

## ***Sexual health***

Both estates, AdX and Vamagogo, hire migrant cane-cutters who come on six-month contracts and live in hostels. Although some live in local communities and have established families, most of the others are single men or men whose wives have stayed at home, often in Zambezia, Tete or Sofala as well as in the neighbouring provinces of Gaza and Inhambane. Wives occasionally come to visit, sometimes to combine it with trade, but most men establish casual sexual relationships with local women whom they meet on the job or at stalls that sell alcohol and play music. In Tanninga, some of the younger women take the initiative at the end of the month when workers have just been paid and go down to meet men in the hostel.

### *HIV/AIDS*

In these casual sexual encounters, there is a very high risk of contracting STDs, and most gravely, HIV/AIDS. The direction of transmission goes both ways. Manhiça and Magude have long histories of emigration and both have a high incidence of HIV.

CISM has recently done a study of prevalence in its demographic surveillance area in Manhiça district (González et al. 2012). They found an overall prevalence rate of 39.9% for the population 18 years and over. For women the overall prevalence was higher, 43.1%. The table below, reproduced from their study, shows that prevalence is lower in the group from 18–27 years, although the rate for women is nonetheless very high. HIV/AIDS is a question of concern for plantation workers as for the population more generally in this area.

The current approach to HIV/AIDS in Mozambique continues to emphasise access to information about HIV/AIDS and condom distribution, but there is also broad provisioning of anti-retrovirals (ARVs) at health post level in highly affected areas, including Manhiça and Magude.

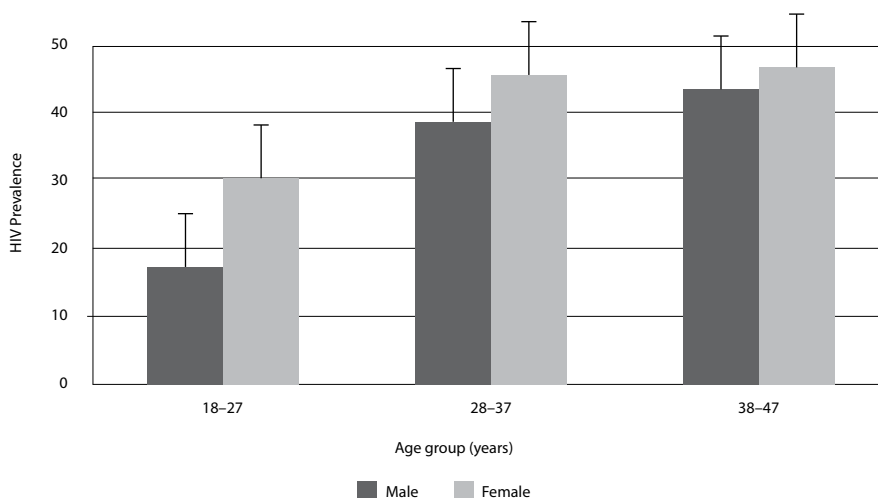
Vamagogo has no specific HIV/AIDS programme. The managing director told us that this was considered to be a private problem in which the company should not meddle.

AdX has an active HIV/AIDS prevention programme in Xinavane, linked to local health facilities and AIDS organisations. Its focus is informational not clinical, though it is involved in HIV testing and counselling and occasionally intervenes practically. In doing an informational session at the hostel in Timanguene, for example, the manager of the programme was told by the cane-cutters that they would like to use condoms but they



were not available locally. He knew that there was a long-term condom shortage in Manhiça and Magude and went to Maputo to get four large boxes to distribute. Women AdX workers in 3 de Fevereiro were buying condoms locally at MTS 10 each. Workers who test HIV positive are referred to the Xinavane Health Post (on the hospital grounds) for enrolment in an ARV programme.

**Graph 5: Gender- and age-specific HIV prevalence, CISM-DSS area, Manhiça 2010 (percentage)**



Source: González et al., 2012: 68).

### *Sexual violence and abuse of women and children*

A recent *Notícias* report<sup>9</sup> quoted Maria Adozinha de Almeida of the Associação das Mulheres Desfavorecidas na Indústria Açucareira (Association of Discriminated Women in the Sugar Industry) saying that there are very high rates of rape and abuse of women and children in the localities surrounding both sugar estates, Xinavane and Maragra. This issue emerged in our interviews with women workers; the cane-fields were described as dangerous places. We have previously mentioned various points of vulnerability for women in the organisation of work and lodging: the absence of toilet facilities other than the cane-fields themselves,

9 <http://noticiasmocambique.blogs.sapo.mz/2012/11/?page=2>, Segunda-feira, 19 de Novembro de 2012. <http://www.canalmoz.co.mz/1o-pagina/494-edicao-de-19-de-novembro-de-2012/23998-districto-de-manhica-regista-mais-de-mil-casos-de-violacao-de-mulheres-e-criancas.html> <http://noticiasmocambique.blogs.sapo.mz/93446.html>

long walks in the dark to work, use of drugs and alcohol and the loneliness of hostel life. Mrs de Almeida attributed the problem to presence of seasonal migrant workers, but the local police blamed the generalised sale and consumption of alcohol.

## **Environmental Health**

### ***Healthy air***

The inhabitants of Xinavane are used to living with cane-production and do not complain about the cloying smell of the smoke from the mill. Since cane-fields directly border areas of habitation in Xinavane, dry-season winds carry chemically loaded dust into communities provoking conjunctivitis and skin irritations. Aerial spraying of mature cane to stop further growth right before cutting sometimes misses its targets and harms other plants and small animals.

The burning of the cane is a cultivation practice with long-term environmental consequences. Fields are burned just before harvesting to facilitate cutting by clearing the fields of snakes and ticks and stripping the sharp leaves from the stalks (See photo, Appendix B). Burning also allows management to control the timing of optimal sugar content to correspond to the capacity of the mill. Both workers and managers are thus united around burning the cane. When the cane is burned, the wind lifts clouds of ash that rain debris across wide distances. There is substantial research in Brazil on the links between cane-burning and respiratory problems, particularly asthma attacks, in nearby areas (Arbex et al. 2007; Cançado et al. 2006; Nicolella & Belluzzo 2011).

### ***Soil fertility***

Though burning is associated with higher yields in the short-term, it leads to the exhaustion of the soil in the longer term (Davies 1998; Mahadevan 2009). There are also limits to how much fertilizer and insecticide soils can absorb without damage. Continuous cultivation across much of the 20<sup>th</sup> century in Xinavane is driving in part AdX's expansion into new areas. There are experimental crops that filter noxious chemicals from the soil but, according to the director of Vamagogo, there are limits to what they can achieve.

### ***Management of water resources***

Maputo province is an area of irregular and uncertain rainfall, unsuitable for rain fed cultivation of sugar cane. What makes it possible to grow sugar in Xinavane and Magude are the waters of the Incomati River. The high water demands of cane as a crop and the

continuing expansion of sugar and other irrigated crops throughout the Incomati Valley pose major regional questions of medium and long-term water availability for agricultural, industrial and private water consumption for Mozambique, South Africa and Swaziland (cf. Carmo Vaz and van der Zaag 2003, Lorentzen 2009). In the dry season, there are already periodic water shortages. Many of the boreholes sunk for community drinking use in the Magude area have been dry or yielded salty undrinkable water.

There are, however, also other water issues. The pollution of water for private consumption and the survival of fisheries in communities along the Incomati drainage area is an area of concern. Chemical runoff is very high given the dependence of current techniques of cane production on fertilizers, insecticide and herbicides (or growth inhibiting agents).

Flood control is also a water issue. The sugar estates rely on dikes to protect their cane-fields from flooding. Ogtrop et al. (2005) note, however, that in the past more natural systems of flood control around Magude – including flood plains, a silted up channel and a channel directing water in to Lake Chuali – slowed the movement of the water and attenuated flood peaks in the Lower Incomati, thus reducing the severity of downstream flooding. The Maragra dike also creates a backwater effect. In doing so it creates flooding problems in upstream communities (Ibid: 608). Authorities in Ilha Josina Machel have taken recent flooding to be a sign that there is no problem of water availability in the Incomati Valley. That is an inaccurate conclusion.

## Conclusion

AdX management are proud of its dynamising role in the area of Xinavane. Recovery and expansion of sugar-production has led to increased jobs not just for agricultural workers but also in the mill, construction and transport. It has improved rural roads and built schools and health posts in its area of operation. Yet if we consider the four areas of impact discussed in this chapter, there are strong reasons for questioning whether the expansion and consolidation of mono-cultural cane production in the Incomati Valley can continue to bring rapid improvements in well-being for workers and households in these rural communities.

### *The relation between improved material well-being and growth of jobs and income*

The number of jobs created with expansion appears to have stabilised at around 10 000. To be competitive, AdX will have to improve its labour productivity, so the number of jobs in core cane-production is not likely to increase. Although there are jobs linked to construction and transport, agro-industry has thus far spun off relatively few new jobs. Moreover most agricultural workers are concentrated in the lowest wage-band, where there continues to be seasonal variability in recruitment. Given the prices of consumer

goods, particularly food, their real wage is a subsistence wage, not one that allows them to invest to improve their livelihood base. That livelihood base is presently very vulnerable to any adverse international price movements not only for sugar or ethanol but also to price increases in cereals markets since a good deal of rice and maize meal consumed in this region is imported.

### ***The trade-off between increased income from sugar and reduced access to irrigable land for rural livelihoods***

Sugar production can employ only a small fraction of those looking for work in the Xinavane region. The wages earned are also sharply differentiated between skilled workers in upper letter bands and the majority of the agricultural labour force that is paid on a task basis, may not succeed in attaining a full quota of labour days per month, and often has a seasonal contract. Income in the smallholder associations is also highly differentiated. Income from sugar is thus only one component of a mix of livelihood activities that allow households to survive. Historically livelihoods in this area have depended on combining jobs in sugar with activities that have become increasingly precarious over time: migrant employment in the city of Maputo and particularly in South Africa, rain fed cultivation, fishing, reed-cutting, brick and pottery-making and trade. The more prosperous also had herds and access to irrigable valley plots for both their own food and cash-cropping of fruits and vegetables. Transformation of the Incomati Valley into an area of mono-cultural production of cane undercuts the basis for many of these livelihood activities without providing an alternative source of employment.

### ***The incidence of health conditions related to work in the cane-fields***

AdX and Vamagogo have modernised the irrigation infrastructure, mechanised many tasks and introduced chemical processes such as the use of herbicides to replace early weeding and aerial spraying of ripening agents. Yet in relation to people rather than machines, work and recruitment have not changed so much in sugar production.

Work routines imply a certain level of accident and error with implications both for the health of workers and the longer-term quality of air, water and soil. Cane-cutting, weeding of mature cane and new planting are done manually. Some protective equipment is provided, but workers do not always use it. Most agricultural work is paid on a task basis, encouraging workers to dispatch their task as quickly as possible. Overseers barrel along the roads, screaming at lorry drivers to speed up and to choose routes that will get their loads of cane to the mill as quickly as possible.

Despite the technical modernisation of production, recruitment and housing of workers follows to a great extent the patterns establish over a century ago. The cane-cutters,

mainly men and mostly from outside the district, come on six month-contracts and are housed in rudimentary hostels, with limited kinds of social connections to surrounding communities. Other agricultural workers, whether seasonal or permanent, live in outlying rural communities, many of them women, leave their homes when it is still dark and children not yet awake, to get to an AdX pickup-point or to go directly to the field, where they may or may not find a full day of work. For women both this journey and work itself can be perilous. The hostel system in Xinavane is not the only circuit of transmission of HIV in Manhiça and Magude but it is one.

### ***The relation between sugar production and environmental health, particularly the quality of land, air and water***

The quality of air, soil and water is compromised by current techniques of sugar production, in particular its chemical intensity, cane-burning and aerial spraying of ripening agents. These techniques are not specific to AdX. They are used by sugar estates throughout the world. Their effects on workers' health are exacerbated by human error and by workers' reluctance to use protective equipment. Better sanitation facilities, equipment suited to climate and ease of movement, easy availability of drinking water and less crowded living spaces for migrant workers would, however, be immediately possible and desirable for improving well-being. In the mid-term, for both workers and communities, cane-burning should give way to the same kind of more labour intensive techniques used for green seed-cane. In the long-term, the Incomati valley will not be able to sustain the current level of water use by commercial agriculture and particularly by sugar cane production.

AdX did not invent the present model of sugar production but in thinking about the continuing expansion of sugar one must recognise that it is based on patterns of residence, work and land-use that are not healthy for agrarian based livelihoods. The well-being of those who did not secure title to irrigable land in the post-war period or do not have stable sources of off-farm income is particularly vulnerable. Many of these are living in households headed by women, a very large group in this region. The high rates of adult mortality in Manhiça are not perhaps so hard to understand.

## 5. Regulating the Sugar Estates

One should not expect the relatively recent presence of Tongaat Hulett to immediately revitalise and transform this region. The objective of this report is not to point a finger at everything that is currently wrong with the expansion of sugar production in Xinavane and Magude. It is intended, however, to help those whose interventions will affect the directions of change to think about what the impact of expansion will be on the well-being of workers and rural communities. This chapter thus focuses on the way local actors currently approach the four aspects of well-being identified in Chapter 4 as being particularly affected by the expansion of sugar production:

- the growth of jobs and income;
- the trade-off between increased income from sugar and reduced access to irrigable land for rural livelihoods;
- sugar cane production and the incidence of disease;
- environmental resources, particularly the quality of land, air, and water, and the expansion of sugar production in the Incomati Valley; and

We discuss four main actors working locally on these issues: (i) the management of the sugar estates (Vamagogo and principally the more important AdX); (ii) the trade union SINTIA; (iii) local government; and (iv) civil society organisations.

### **Corporate approaches: securing land and increasing labour productivity**

AdX and Vamagogo have invested in more efficient irrigation systems and mechanised various parts of the production process but relations of production remain much as they were in the past. Many core tasks are still seasonal and done manually: planting, weeding high cane, cutting cane. All seasonal workers must now have a contract in order to work, but even for permanent workers that contract does not guarantee a set number of days of work per month. The migrant cane-cutters often come now from central Mozambique, speak fluent Portuguese and have attended secondary school, but they still come without their families and live in hostels for six months. Relations between management and agricultural workers, particularly the cane-cutters, are volatile. AdX management are aware that their profitability could easily be compromised by strikes. The director of human resources told us that one reason for not allowing us to talk with workers was his fear that we would inadvertently incite a strike with our questions. He saw mechanisation of the harvest, i.e. a further reduction in labour, not stabilisation of jobs and residence, as the alternative.

In some areas of southern Africa, sugar capital has spun-off the agricultural labour issues to be dealt with by outgrowers. Maragra, partially for want of land for expansion, has done this in southern Manhiça to a much greater extent than has AdX. Almost all the small outgrowers in Xinavane and Magude depend on workers contracted by AdX and fit their cropping and labour patterns to the priorities set by AdX. This model combined with the absorption of the former citrus estates has allowed AdX to obtain long-term leases to a large part of the irrigable large part of the Incomati Basin in Mozambique. Conversion of this land to bio-fuel production, particularly with mechanised harvesting would lead to further decrease in jobs.

Before beginning this research, we thought concern with labour productivity at AdX and Vamagogo might have led to a gap in health conditions, particularly health facilities, between the families of AdX workers and other households. Apart from the undoubted health advantages of regular household cash-income, that does not seem to be true. The company clinic is principally concerned with work accidents. AdX workers and their families depend, as do outlying communities, on the health posts of the national health system. Workers bring food and, for much of the year, drinkable water from home to the fields. The cane-fields themselves serve as latrines, whereas many households now have built them. The improvement of rural roads, necessary to allow timely delivery of cut-cane to the mill, has improved access to transport for all, but it has also exposed everyone to a greater risk of road accidents, a risk only slightly reduced by wide circulation of the AdX uniform jacket with phosphorescent strips among many not employed by the company.

### **Local government approaches: facilitation rather than governance**

Environmental impact assessments and monitoring are required under Mozambican law. A 2008 WWF (World Wildlife Fund) draft report notes that pre-viability assessments did take place for the expansion of the two sugar companies in Maputo province, Xinavane and Maragra, in 2006 and 2007. Many of the environmental issues discussed in this report were raised then: contamination of ground water due to use of agrochemicals in the process of sugar cane production; conflict between the various users of water along the Incomati basin; degradation of habitats, air pollution and contamination of soils due to poor management of solid waste, oil, lubricants and fuel used during the process of production. The weakness lies, however, in the importance given and capacity to monitor these problems at the local level.

Local government and Frelimo party structures in the area share a common orientation as far as the functioning of AdX is concerned. Officials mobilised influential residents to cede community land to AdX in return for subsidised integration into outgrower associations. Although government ownership in AdX has been reduced to 12%, district officials and party structures still play an important role in representing the interests of the AdX at a local level. In return, AdX has constructed some rural health posts and schools and built

or repaired roads. It assists local government both financially and operationally in some activities. It has lent equipment for rubbish pickup in the Xinavane town, for example, and at one point lent two ambulances to the hospital of Xinavane although it does not currently do so. It made donations to recent celebrations in Magude for the anniversaries of the founding of the Swiss mission and the death of Maguiguane. In this context, it is difficult for local government to exercise much control over what AdX does; it is a facilitator rather than a governor.

At the district level, concern for long-term issues of access to land and water and the quality of soils, water and air is theoretically the responsibility of the Department of Economic Activity. Staff presently have neither the information available, nor the administrative routines, nor the commitment necessary to raise such issues with a large enterprise like AdX. Nor does national government policy to promote food production seem to be an important concern.

Local government health staff have been more involved in inspections of the residential hostels since the cholera epidemic. In Xinavane they also work with AdX in coordinating anti-mosquito spraying, though this did not take place in Magude. District labour inspection officials based in Manhiça intervene in some worker complaints against AdX and have managed to place some unemployed skilled workers at AdX. The INSS, also based in Manhiça, is negotiating with Vamagogo to bring its workers into the scheme. INSS officials recognise that their procedures for sick leave exclude seasonal workers and those who work on a task basis but they have no strategy for addressing the problem.

The district representatives of the Ministry of Labour also make occasional visits to AdX to organise recruitment of registered unemployed and as part of mediation complaint procedures but they do not have a capacity for regular inspection of working conditions. Those workers who do file complaints are generally permanent factory workers.

### **Trade union approaches: mediator rather than worker representative**

SINTIA at the national level has connections with trade unions and labour organisations working on sugar connections across the region and is conversant with a wide range of employment questions. Union influence is minimal at Vamagogo (the general manager did not know the correct the name of the woman who was the union representative). At AdX, however, all workers become members of the unions when they are contracted; monthly dues (1% of the gross salary) are automatically discounted. The union office is within the AdX headquarters in Xinavane; officials and management have close relations. The union focuses principally on acting as an intermediary between management and workers, particularly those who have permanent jobs in the factory or in skilled labour or supervisory positions. It plays a role in the adjudication of disciplinary questions and worker complaints against management, particularly around salary issues.



The union has very little influence among seasonal workers (although they pay union dues). As media reports during the 2011 strike indicated, the cane-cutters had their own informal organisation independent of the union. The union has no strategy for extending its influence to seasonal workers nor is it particularly concerned with most of the health issues or environmental questions addressed in Chapter 4. Its main focus is on job security and wages. Since SINTIA also organises workers on the nearby Maragra estate it has the potential to be a powerful actor in shaping the way that sugar production develops.

## **Community Groups: Focus on jobs and income**

Two community radio groups have tried to support different constituencies in their negotiations with AdX. One, Gwevahne, raised land occupation issues and is now principally concerned with the complaints of association members around the level of income they are getting after AdX discounts. This is an issue raised by UNAC but they are not active in the Xinavane area. The second, Radio Comunitaria (Community Radio), is more concerned with the wages and living conditions of agricultural workers than with land occupation or outgrower income. They once campaigned around HIV/AIDS prevention – particularly warning against prostitution – but that is of less concern now that anti-retroviral treatment (ARV) is widely available. Among the representatives of the different formal church groups with whom we spoke in Xinavane, availability of jobs and wage-levels were the main issues raised in relation to AdX. They repeatedly mentioned the divergence of wages between Mozambican and foreign workers and the prevalence of short-term contracts. Their demands reflected the concerns of the permanent workers, living in the outskirts of Xinavane town, who belonged to their churches. Ministering to migrant workers was done through informal church services, often organised by an evangelical preacher who was himself an AdX worker. Their counsel emphasised solidarity and endurance.

We found no local community groups involved in personal or environmental health issues, nor national or provincial groups currently working in the Xinavane area.<sup>10</sup> To rely on civil society monitoring of AdX is not realistic.

## **The politics of well-being**

AdX is part of a multi-national company, Tongaat Hulett, with considerable economic importance in Mozambique and more broadly in the region. Local protests over wages and outgrower incomes can threaten the profitability of the company, but without linking

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<sup>10</sup> We undoubtedly missed some relevant groups. We did not hear, for example, about the Associação das Mulheres Desfavorecidas na Indústria Açucareira till after our research was finished.

such protests to provincial and national networks through organisations such as SINTIA or UNAC, it is difficult to have long-term impact on the way sugar production is organised. We encountered no local groups concerned with the other aspects of well-being raised in this report: access to irrigable land for other kinds of productive activities besides sugar; the health conditions of sugar-workers; and long-term environmental health, particularly reduced availability of water and pollution of air, water and land. Regulating these questions currently depends on the capacity and accountability of government, particularly on the local presence of the ministries of health and labour and district administration. Although health staff are very active at local level, their principal task is curative medicine and they have limited time for public health programmes of prevention and inspection. The Ministry of Labour focuses on expanding contributions to social security; it has no delegates at local level involved in monitoring issues of occupational health. Local administrators are aware of broad health and environmental issues, but they are also dependent on AdX for contributions to special expenditures. Influencing the impact of AdX on the well-being of workers and communities thus depends on linking local groups to national political institutions.



## 6. Conclusions: Cane production and well-being

With its takeover of the Incomati sugar estates in Xinavane and its subsequent expansion into irrigated areas of Magude and Moamba districts, Tongaat Hulett has both rehabilitated infrastructures of irrigation and transport and modernised techniques of production. This expansion has been based on sugar production. Though Vamagogo, the largest outgrower of AdX, is raising cattle on that part of its land unsuitable for sugar cane, AdX and most of its contractors only grow cane, displacing the previous production of citrus in Magude and sometimes smallholder cultivation of irrigated maize, vegetables and fruit.

Irrigated sugar cane production is new in Magude, but Manhiça has been a sugar producing district for a century. In Xinavane people are used to the ash that floats through the sky, to air that smells like molasses and to cane-loaded lorries that speed down narrow roads shared with pedestrians, cyclists and sometimes cattle. When they speak of AdX they often call it Incomati, not distinguishing between the colonial enterprise, the socialist state-farm and the present-day estate. Both Magude and Xinavane have a long history of male migration to South Africa, but now find it much harder to secure regular employment there. Both suffered severe dislocation and destruction during the years of the war. Both have a high incidence of malaria and HIV prevalence. The recovery and expansion of sugar production has taken place within a context of economic stagnation and in a period of livelihood crisis.

In our conversations with district officials in both Manhiça and Magude, we found that most people were pleased about the renewal and expansion of cane production, based mainly on its contributions to employment, income and infrastructural investment (irrigation and drainage systems, roads and health facilities). We also found that the people from farming households to whom we spoke were pleased that AdX gave them jobs and in some cases were trying to switch their irrigable land from food production to cane. This enthusiasm for conversion of land to sugar seemed to be greater, however, among those who were prosperous specialised commercial producers than among women who no longer had access to *nhaca* (humid) land to tide them over when rain fed crops failed.

The provision of jobs and income is an important part of the ways in which sugar production can affect rural well-being, but it is not the only way. The production process itself, the way that work is organised and the ways that land, water, and air are used also affect well-being. The purpose of this report has been to show what these connections are in the case of sugar cane production in the areas of influence of the Açucareira de Xinavane.

## **Providing jobs and income**

We found that providing employment has been a major contribution of the expansion of sugar production, but that technical modernisation of processes of production has not eliminated the need for seasonal recruitment of local labour concentrated in the lowest wage-band. For these workers, decent livelihoods still depend on combining seasonal labour with other sources of income and their own farming. We also found that the growth of the labour-force has been limited since 2009. It is unrealistic to expect AdX to continue to create new jobs. Thus far spinoffs into local industry and trade are limited.

We also found that the approach followed in developing smallholder associations has led to dramatic improvements in income for a relatively small number of households, but the level of subsidy initially offered cannot be sustained at an expanded scale. There are also conflicts between those, often influential local men, who became members of associations and households who also consider themselves to have rights to land that now has substantial infrastructural investment.

## **The relation between improved material well-being and growth of jobs and income**

The number of jobs created with expansion appears to have stabilised at around 10 000. To be competitive, AdX will have to improve its labour productivity, so the number of jobs in core cane-production should not increase. Although there are jobs linked to construction and transport, agro-industry has thus far spun off relatively few new jobs. Moreover most agricultural workers are concentrated in the lowest wage-band, where there continues to be seasonal variability in recruitment. Given the prices of consumer goods, particularly food, their real wage is a subsistence wage, not one that allows them to invest to improve their livelihood base. That livelihood base is presently very vulnerable to any adverse international price movements not only for sugar or ethanol but also to price increases in cereals markets since a good deal of rice and maize meal consumed in this region is imported.

## **The trade-off between increased income from sugar and reduced access to irrigable land for sustainable rural livelihoods**

Purchased food, including imported staples, constitutes a high proportion of the consumption of rural families in Maputo province. Sugar production can employ only a small fraction of those looking for work in the Xinavane region and wages earned are sharply differentiated between skilled workers and the vast majority of the agricultural labour force. Income in the smallholder associations is also highly differentiated. Income from sugar is thus only one component of a mix of livelihood activities that allow households

to survive. Transformation of the Incomati Valley into an area of mono-cultural production of cane undercuts the basis for many of these livelihood activities without providing an alternative source of employment.

## **The incidence of health conditions related to work in the cane-fields**

AdX and Vamagogo have modernised the irrigation infrastructure, mechanised many tasks and introduced chemical processes such as the use of herbicides to replace early weeding and aerial spraying of ripening agents. Yet technical modernisation has not eliminated exposure to toxic chemicals or work accidents in fields and on the roads. Nor have there been major changes in the ways in which seasonal workers are lodged and recruited, though many now come from further away and, unlike the cane-cutters of the past, often have some secondary education. Some protective equipment is provided, but workers do not always use it. Most agricultural work is paid on a task basis, encouraging workers to dispatch their task as quickly as possible.

Recruitment and housing of workers follows to a great extent the patterns established over a century ago. The cane-cutters, mainly men and mostly from outside the district, come on six month-contracts and are housed in rudimentary hostels, with limited kinds of social connections to surrounding communities. Other agricultural workers, whether seasonal or permanent, live in outlying rural communities, leave their homes when it is still dark and children not yet awake, to get to an AdX pickup-point or to go directly to the cane-fields.

## **The relation between sugar production and environmental health, particularly the quality of land, air and water**

The quality of air, soil and water is compromised by current techniques of sugar production, in particular its chemical intensity, cane-burning and aerial spraying of ripening agents. Their effects on workers’ health are exacerbated by human error and workers’ reluctance to use protective equipment. Better sanitation facilities, equipment suited to climate and ease of movement, easy availability of drinking water and less crowded living spaces for migrant workers would, however, be immediately possible and desirable for improving well-being. In the medium term, for both workers and communities, cane-burning should give way to the same kind of more labour intensive techniques used for seed-cane. In the long term, the Incomati Valley will not be able to sustain the current level of water use by commercial agriculture and particularly by sugar cane production.

AdX did not invent the present model of sugar production that consumes natural resources so freely, but in thinking about the continuing expansion of sugar one must recognise that it is based on ways of lodging, working and using land that are not healthy for agrarian

based livelihoods. The well-being of those who did not secure title to irrigable land in the post-war period or do not have stable sources of off-farm income is particularly vulnerable. Many of these are living in households headed by women, a very large group in this region. The high rates of adult mortality in Manhiça are not perhaps so hard to understand.

The long-term impact of expanded sugar production on well-being in the area of AdX is not yet decided. It will depend in part on price movements in international markets and changes in regional labour and commodity markets. It will also depend, however, on what is done through forms of governance and political action at the local level. AdX is part of a multi-national company, Tongaat Hulett, with considerable economic importance in Mozambique and more broadly in the region. Local protests over wages and outgrower incomes can threaten the profitability of the company but, without linking such protests to provincial and national networks through organisations such as SINTIA or UNAC, it is difficult to have long-term impact on the way sugar production is organised.

Presently there are few local groups working around the other aspects of well-being raised in this report: access to irrigable land for other kinds of productive activities besides sugar, the health conditions of sugar-workers, and long-term environmental health, particularly reduced availability of water and pollution of air, water and land. Regulating these questions currently depends on the capacity and accountability of government, particularly on the local presence of the ministries of health and labour and district administrations. Although health staff are very active at local level, their principal task is curative medicine and they have limited time for prevention and inspection. The Ministry of Labour focuses on expanding contributions to social security; it has no delegates at local level involved in monitoring issues of occupational health. Local administrators are aware of broad health and environmental issues, but they are also dependent on AdX for contributions to special expenditures. Influencing the impact of AdX on the well-being of workers and communities thus depends on linking local groups to national political institutions.

AdX management are proud of its dynamising role in the area of Xinavane. Recovery and expansion of sugar-production has led to increased jobs not just for agricultural workers but also in the mill, construction and transport. The company has improved rural roads and built schools and health posts in its area of operation. Yet if we consider the four areas of impact discussed in this chapter, there are strong reasons for questioning whether the continuing expansion and consolidation of mono-cultural sugar cane production in the Incomati Valley can continue to bring rapid and sustainable improvement in well-being for workers and households in these rural communities.

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# Appendices

## Appendix A: Interviews

Name of Interviewee	Occupation	Location of interview
Alexandre Munguambe	General Secretary of SINTIA	Maputo City
Luís Muchanga	Executive Director of UNAC	Maputo City
Luís Balate	Representative of KULIMA	Matola
Alberto Machava	Chief of the Migration Department, Provincial Direction of Labour	Machava - Sede
Artur Chindandale	Administrador of Manhiça District	Manhiça
Charfudin Sacoor	Demographer, CISM	Manhiça
Eusébio Macete	Director of CISM	Manhiça
Fausta Tembe	District director of Health Manhiça	Manhiça
Ildezina Honwana	Representative of INEFP, Distrito da Manhiça	Manhiça
Rebeca Mabuye	Representative of UNAC Manhiça	Manhiça
Sergio Samuje	Director of SDAE	Manhiça
Zefenias Macuacua	INSS	Manhiça
Fernando Pereira	Management, Inácio de Sousa Company	Palmeiras
Luís de Sousa	Management, Inácio de Sousa Company	Palmeiras
Horácio Chaluca	General Medicine Agent	Taninga
Pedro Luís	Locality Chief, Taninga	Taninga
Felisberto Guambe	Locality Chief, 3 de Fevereiro	3 de Fevereiro
Jaime Aquino	Director of Health Centre, 3 de Fevereiro	3 de Fevereiro
Salvador Mayecane	President of the Association Ngoine	3 de Fevereiro - Associação Ngoine
Mr Nkongolo	President of the Association Hoyo-Hoyo (Buna)	3 de Fevereiro - Associação Hoyo - Hoyo
Alexandre Moiane	Secretary of the central committee of SINTIA em Xinavane	Xinavane
George Cuamba	Assistant director of the department of Work Hygiene and Health, AdX	Xinavane

Name of Interviewee	Occupation	Location of interview
José Muchanga	Co-ordinator of Rádio Gwevhane	Xinavane
Musi Dlamini	Agricultural technician AdX	Xinavane
Pastor Chuhulume	Pastor of the United Methodist Church, Xinavane	Xinavane, Bairro 2004
Paulo Comocomo	Community Radio, Xinavane	Xinavane
Renato Ribeiro	Coordinator of the HIV/AIDS programme, AdX	Xinavane
Rob Weare	Director of Human Resources, Tongaat Hulett Moçambique	Xinavane
Rosário Cumbi	Director General of Tongaat Hulett Moçambique	Xinavane
Sancho Cumbi	Director of Projects, AdX	Xinavane
Saquina Adamo	Director of the Health Centre of Xinavane	Xinavane
Teresa Gulamo	Chief of the Administrative Post of Xinavane	Xinavane
Zito Machava	Administrative Manager of Human Resources, AdX	Xinavane
Domingos Jacinto	Member of Agricultural Cooperative Association Ntuanane	25 de Setembro, Xinavane
José Maposse	President of the Fiscal Council of the Associação Lhuvucane	25 de Setembro, Xinavane
Júlio Watima Cossa	President of the Association Zona Verde Vimbene	25 de Setembro, Xinavane
Luís Eugénio Numaio	Chief of Administrative Post 25 de Setembro	25 de Setembro, Xinavane
Júlio Jamo	Director of Human Resources Vamagogo	Vamagogo, Xinavane
Marc Gurrege	General Manager of Vamagogo	Vamagogo, Xinavane
Casimiro Cuambe	Chief of Administrative Post, Ilha Josina	Ilha Josina
Mr Edmundo	General Medicine Agent	Ilha Josina
Casimiro Machava	Locality Chief, Ndzongoene	Ndzongoene, Ilha Josina
Agapito Nhantumbo	First secretary of Frelimo Party	Magude, Sede
Ciro Novidade	Agronomic engineer at SDAE Magude	Magude, Sede
Eduardo Tembe	Director of SDAE, Magude	Magude, Sede
Hélio Manjate	District Director of Health, Women and Social Action, Magude	Magude, Sede
João Tsembane	Director of Planning and Infrastructure, Magude	Magude, Sede

Name of Interviewee	Occupation	Location of interview
José Gomate	District Director of Education, Youth and Technology	Magude, Sede
Lorinho Bonzo	Permanent Secretary District of Magude	Magude, Sede
Lúisa Nunes	Chief of Administrative Post Magude	Magude, Sede
Mr Tivane	Small private cane farmer	Magude, Sede
Francisco Cumbissane	Locality Chief, Maguiguane	Maguiguane, Magude
Sofia Kwakwa	President, Association of Macuvulane 1	Maguiguane, Magude
Alcino Massingue	Locality Chief, Mulelemanane	Mulelemanane, Magude
Mr Edy	Section chief AdX	Timanguene, Magude
Castigo Tivane	President of the Assembly, Olhar de Esperança	Matchabe, Magude
Mr Milagre	Locality Chief, Matchabe	Matchabe, Magude
Isabel Tembissa	Chief of Administrative Post Motaze	Motaze, Sede
Milagre Khau	Preventive Medicine Agent	Motaze, Sede
Lojas e Estabelecimentos Comerciais		
Raimundo Matsinhe	Shop owner Matsinhe Comercial	Xinavane
Mrs Teresa	Shop Manager Comercio e Serviços	Xinavane
Fina Muthuki	Market Vender, Magude	Magude, Sede
Mr Omar	Shop owner	Magude, Sede
Mr Sidique	Shop owner	Magude, Sede

## Appendix B: Fieldwork photos mentioned in text

### Huley's Rules



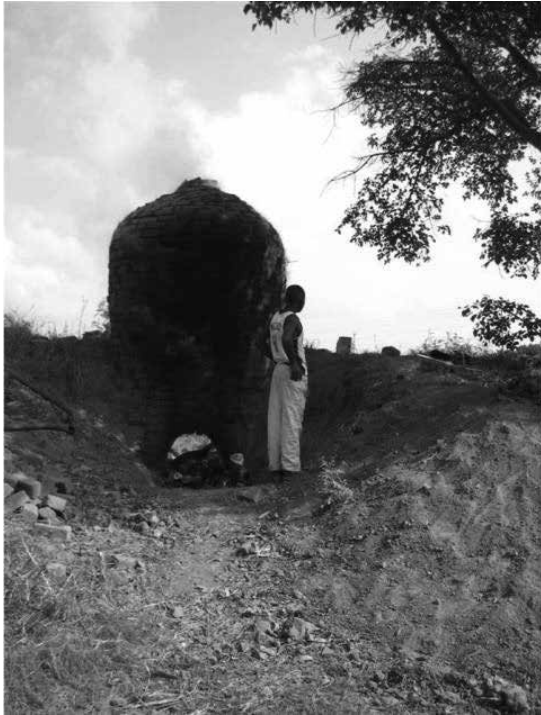
### Housing Conditions, Vamagogo







### Brick-burning oven



### Cane-burning







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