

INSTITUTE OF DEVELOPMENT
MANAGEMENT [BOTSWANA,
LESOTHO AND SWAZILAND]
Pelegano village industries

Institute of Development Management

[BOTSWANA, LESOTHO
AND SWAZILAND]

PELEGANO
VILLAGE
INDUSTRIES

An evaluation of a
rural development project

**Botswana
Lesotho
Swaziland**

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for

The Inter Church Co-ordinat
for Development Projects I.C
Utrecht, Netherlands

October 1979



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I INTRODUCTION

This study was commissioned by the Inter Church Co-ordination for Development Projects I.C.C.O., Utrecht, Netherlands. Its principle aim is to assess the performance of Pelegano Village Industries (PVI) during the first phase of the project (Phase 1, June '75 - June '79). In addition it is hoped that the information generated by the study will be of use to others undertaking similar projects.

Sections II, III and IV of the study are background material. The reader thoroughly familiar with Botswana, with the obstacles facing the rural developer and with the history and organization of PVI can safely skip them. Section V sets out the criteria used in the evaluation to measure the performance of the project and is central to all that follows. Section VI attempts to analyse, in some detail, the various "industries" undertaken or planned by PVI. It is long and perhaps of marginal interest to those whose sole concern is the overall effectiveness of the project. There is however a wealth of valuable information in this section for anyone contemplating the promotion of industry in rural Africa. Section VII deals with the aggregate impact of PVI activity on the village in which it is located. The report, to this point, contains all the information available to the evaluator and, hopefully, will enable the reader to arrive at his own conclusions before being subjected to those of the author. These follow in Section VIII.

A study of this sort, by necessity relies on the hard work, good-will and co-operation of others. This one owes a special debt to Boniface Mokgethi, Secretary of the Gabane Village Development Committee who provided introductions to many residents of Gabane and to Mmamaleka Thobega of the Institute of Development Management who conducted many of the interviews, reported on the proceedings of meetings and furnished translations. Section III, in particular relies to a considerable extent on the research of others. The papers consulted, along with the authors are acknowledged in the appendix.

Needless to say none of what follows would be possible were it not for the frank and willing help given by the management and staff of PVI. This is as good a place as any to confess my admiration for this hard working and dedicated group. They are the front line soldiers in a particularly tough battle and like all front line soldiers must suffer advice and criticism from those safely positioned in the rear. For this indignity I apologise.

II RURAL BOTSWANA

Botswana is a semi-arid land the size of France situated on the central plateau of southern Africa. About four-fifths is classified as desert confining most of its 800,000 inhabitants to a strip of savannah, 100km wide by 700km long, in the south-east. Here the annual rainfall, although unreliable, averages 50cm. Through this strip runs a rail line and a parallel highway providing the principle link with the Republic of South Africa in the south and Zimbabwe-Rhodesia in the north. The three main urban centres Lobatse, Gaborone the capital, and Francistown are strung out along the rail. Virtually all manufacturing and commerce are conducted in these 3 towns and about 100,000 persons live in and around them. Another 40,000 are located in 4 mining towns; about 30,000 occupy freehold farms and, at present, some 40,000 men work outside the country, mainly in the gold mines of South Africa. The rest, close to three-quarters of the population, live in traditional villages spread throughout the countryside.

The people of Botswana have been described as "sedentary pastoralists"; that is they combine crop-farming (mainly sorghum but also maize, millet and squash) with livestock raising (mainly cattle but also goats and sheep). In order to retain some semblance of family life and engage in both types of activity the rural household usually maintains 3 separate dwelling places. The most important of these is the home in the village. It is normally occupied year round by the elderly members and young children. (The average village comprises about 80 households; the average household about 6 persons.) A second dwelling is located at the crop land allocated to the family. It can be as far as 20km from the village and is occupied off and on during the growing season (October through May) by those working the land. If the family owns a significant number of cattle a third dwelling is required at the cattle post situated in a grazing area often 2 or 3 days journey by foot from the village. Cattle posts are occupied year round by herd boys and visited frequently by the men of the family. This sedentary pastoralism is the way of life for most of the people of Botswana; its pattern changed little over the centuries. The economy subtended on it, however, has been subjected to some rude shocks.

In pre-colonial times the Tswana nation was all rural and comprised of isolated communities each a self-sufficient economic unit. Within each unit a degree of labour specialization obtained based, for the most part, on physical capability. Young boys herded; young girls scared birds from crops; adult men ploughed, hunted and butchered; women planted and harvested. Industries existed as well, often left to the elderly; carpentry, iron-work and tanning by men; potting, brewing leather and beadwork by women. There was little or no dependency on, or trade with other communities (iron was probably an exception); the larger tribal association serving a social rather than economic purpose. Barter and reciprocities (my labour now, for the use of your oxen at ploughing time) substituted for money; wealth was stored in the form of cattle. In the sense of personal possessions and a command over the services of others a few members of the community were rich and powerful; the majority poor and dependent. In an income sense the difference was small. As cattle had no income producing capacity the standard of living of rich and poor was much alike. All prospered when the weather was propitious; all suffered when it was not. The system, as described here, has often been seen as a co-operative or even a commune. Nothing could be farther from the truth. Within the community each family struggled on its own for a livelihood. The successful did not share their abundance but exchanged it for obligations. It was, none the less, an economic system which provided, if not handsomely, for all; in tune with the environment and in equilibrium. The advent of colonialism was to upset it.

Botswana was never, at any time, a colony but rather a protectorate; an arrangement between the Tswana chiefs, who feared Boer encroachment on their lands, and the British who wished to protect their rail link with colonies to the north. The protectorate status had the advantage of leaving, for the most part, the land in the hands of the Tswana people. Like a colony, however, the protectorate had to endure a good deal of foreign control over its affairs; unlike a colony it received little or no economic and social infrastructure. The main effect on the indigenous economy resulted from the granting, by the British, of monopolies to trading companies. These companies set out to exploit, as best

they could, a land not overly endowed (or so it seemed at the time) with resources. They were traders in the true sense. They exchanged their blankets, iron pots and tools for ivory, skins, grapple or whatever had value in the outside world. The products of the local potter and iron-worker could not compete with the wares of the trader and, to a large extent village industry disappeared. The trader also introduced money into the system causing a gradual breakdown of the old system of reciprocities. (The opening to Batswana of wage employment in the gold mines of the Transval occurred simultaneously, much exaggerating the breakdown). Nor were the traders the only intruders to upset the system. Along with the traders came the British Army and the missionaries and these two institutions combined, no doubt, to make life considerably duller than in the past. Out went exciting inter-tribal raids and a good deal of colourful ceremony. In came the monotony of peace and dull gray Calvinism. The chiefs too, during the protectorate inter-regnum, suffered considerable erosion of their powers. This resulted not so much from the imposition of British authority (the British apparently left the effective, fair and surprisingly democratic Tswana judicial and political system more or less intact) but rather through the advent of economic alternatives to chiefly subjugation. To the extent the chiefs authority diminished the ability of the community to act in concert declined. On the balance, however, colonial exploitation in Botswana did little violence to economic welfare. Income inequities, if anything, were lessened. The poor had increased access to revenue whereas the commodity in possession of the powerful - cattle - was in surplus supply to the south and north and had little or no trading value. The destruction of traditional industries, the diminished ability of the chiefs to mobilize resources and particularly the introduction of money did, however, convert a self-sufficient system into one that was vulnerable. The events which accompanied political independence were to damage it, perhaps beyond repair.

In 1966 Botswana became an independent nation and immediately set off on a course of economic and social development. The new government pre-empted not only the powers of the British administrators but most of those of the chiefs. It built infra-structure including a new capital, roads, electric power plants, public schools, hospitals, a civil service, a police force and,

recently, an army. It cancelled the old trading monopolies and successfully encouraged the establishment of modern industry, both mining and manufacturing. The outcome of all these initiatives has been to create a separate cash-fuelled, dynamic formal sector and to deal successive blows to the already susceptible traditional one. The educated products of the mission schools were drawn out of the villages and into the civil service; the strong, energetic and ambitious left the plough for mine and factory; the authority of the chiefs was given to those without the prestige to exercise it; the rural trader became a rural retailer; rural folk were exposed to the slick products and promotion of modern industry and rural industry, non-cash transactions and self-reliance all but disappeared. The most profound effect of all however was in the distribution of rural incomes. Quite naturally the main thrust of infra-structural development was aimed at servicing the nation's principal resource at independence - the national herd of cattle; a tendency not slowed in the least by the election of the village elite - cattle owners all - to the new parliament. A large and modern abattoir was constructed to funnel beef to foreign markets; the initial agricultural effort aimed at improving the quality of the stock; providing an efficient conduit to the abattoir and rationalizing grazing practices. The upshot was to convert rural wealth into rural income. The cattle owners prospered; the poor became destitute.

The extent to which the majority of rural folk have been by passed by economic development is evident from recent studies. In 1966 the per capita income (cash kind and imputed) of Botswana was about P140 (\$US 180; both figures in current terms) ranking it among the 20 poorest nations of the world. During the past 13 years this figure has tripled even while the population has increased by 50%. (The national herd still underpins the economy but mining - copper, nickle, coal and particularly diamonds - is fast becoming the chief generator of national income). The benefits of this remarkable economic advance have fallen, in the main, on two relatively small groups the cattle owners and the educated. The median per capita income in the rural areas (75% of the population) is currently about P90, evidently lower than it was in 1966. Forty thousand of the 72,000 households who live in small rural communities, 6,000 of the 13,000 who live in

large villages and virtually all of 600 refugee families exist in a condition defined by the Botswana government as below the poverty datum line; that is they do not have sufficient income to maintain minimal nutrition and comfort. As might be suspected most of these households own no cattle and their heads have little or no education. Particularly disadvantaged are the 27,000 rural households headed by women.

The future for most of the inhabitants of rural Botswana is bleak. There is little possibility that their lot will soon improve and a distinct possibility that it may deteriorate further. In 1979 drought has again returned to Botswana, after an unprecedented 10 years of good rainfall. Should it continue the 10% of rural income obtained from crops will be drastically reduced. If the government of South Africa denies Botswana access to mining employment there, a present threat, a good portion of the 12% of rural income now obtained from remittances would also disappear. Either event would spell disaster for many rural families; great hardship to practically all. There is clearly, a pressing need to find productive employment for these people.

III BARRIERS TO RURAL DEVELOPMENT

"The question of dissuading people from burying their relatives in their homes has been a controversial issue for a long time. Villagers felt that they could not "hide" their relatives in the bush where they would stay alone there. When they were asked to give way for developmental projects, they refused the idea of compensation and said they would not move from where they had buried their relatives.

Chief Linchwe has had to intervene about two years ago in this matter. Other Oodi residents who were prepared to erect tombs in the "bush" were reluctant to do so since they feared public scorn for having deviated from a long standing tradition. When the Chief addressed them, they said that one person from the royal family should set an example by dying first and be buried in the bush".

Botswana Daily News, May 5, 1977.

The Botswana Government has often been accused, and indeed often accuses itself, of neglecting the rural poor. This is unfair. The government has in the past, made and continues to make, extensive efforts to involve the rural population in the development process. It has established a network of participative political institutions from the ministerial level (Ministry of Local Government and Lands) down to the small villages (Village Development Committees) and furnishes the administrative staff needed to support the latter. It has implemented several wide-ranging rural development programs (Accelerated Rural Development Program, Village Area Development Program, Tribal Land Grazing Program etc.). It has built, schools, clinics, factory shells and roads; dug wells and latrines; supported consumer and producer co-operatives, agricultural products and village crafts marketing systems, and rural technical-skill training. The effort and expenditure have, in fact, been considerable and it is inaccurate to say that no one in the rural areas has benefited. Certainly those with a herd of cattle have gained and

apparently so has the average household in the large villages although perhaps not as much as one might expect. It is accurate to say that apart from the considerable, if difficult to quantify, benefit from water wells, schools and clinics, rural development programs and institutions have failed to improve the lot of most rural households, in particular those who reside in the small villages.

The reasons why the rural communities have remained in a virtual steady state while the urban areas advance at a rapid pace are neither complex nor mysterious. They are seldom spelled out though, perhaps because to do so is impolitic.

An obvious, but far from complete, explanation lies in the deficiencies of the material resources and infrastructure available to the village. With a few exceptions, the supply of water is not equal to the demand and the amount of fuel available is limited. What capital exists is usually tied up in cattle. Modern tools and equipment are scarce or completely absent. The typical small village is remote, transportation and communication difficult and slow. The distribution system, if it exists at all, consists of one or two inadequately stocked small general traders. Other services such as banking, accounting, legal, blacksmithing, building contracting and mechanical repair are usually so distant to be, for most practical purposes, unavailable. The only resources in reasonably plentiful supply are land, sunshine, wind, clay, sand, stone, grass, animal skins, draught power and people.

If the lack of material resources and infrastructure were the only deficiencies of the small village, time, training and infusions of capital would eventually solve the problem. The far more serious and intractable deficiencies lie in the human resource base. It is not possible to understand the difficulties faced by rural development projects such as PVI unless the nature and the extent of the problem are recognized.

The most serious human resource constraint in rural Botswana is the small size of the communities. The average is less than 500 and there are probably not more than 90 with populations greater than 1000. As well, at any given time a good proportion of the village will be absent, living at "the lands" tending

crops or at "the cattle post" tending livestock. The small size of these relatively isolated communities precludes the possibility of much labour specialization and presents the would be entrepreneur with too small a market for his venture. The "critical mass" necessary for ideas to be generated, gain currency and be converted into reality is lacking within the village. Illiteracy and distance block their infusion from elsewhere.

Another feature of the villages of this world is the tendency to suffer a continual haemorrhaging of their leadership and innovation potential. The Napoleons depart for Paris; the Newton's for Oxford. This phenomena is particularly evident in Botswana. The physically fit and energetic young men migrate to the mines of South Africa; lively (and lonely) young women seek jobs in urban shops, factories and homes; the academically adept move on to secondary schools, the best of these to the Polytechnic or University and end up, some in the private sector but most in the civil service. Through this continuing process the rural community is stripped of its brawn, brains and ambition. Those who leave are reluctant to return except for familial visits. There is little in the tedium of village life to appeal to those who have tasted the delights and excitement of town. The skills then, required for non-traditional forms of economic activity such as literacy (let alone English), numeracy (let alone accounting), typing, surveying, vehicle driving, mechanical, electrical and so on, are not likely to be found in villages. Individuals familiar with tools such as saws, levels, pulleys, wrenches and even money are likely to be rare. The typical Botswana village tends to be freighted with the very young, the elderly, the uneducated, the unadventurous and the physically handicapped. As the majority of villagers live below the poverty datum line as established by the Botswana government, many will, by definition, be suffering from malnutrition.

In addition to the weaknesses of the human resource base there are sociological factors at work which make economic development difficult if not improbable. Botswana village society is ritualistic and hierarchical. Initiative and command are considered to be the prerogative of the patriarchs and of the hereditary

leaders neither of whom have much to gain by change. For the remainder few will have had any experience with organising and directing the activities of others and most of the characteristics associated with this ability will have been discouraged from birth. The average villager placed in a position of authority is likely to be either uncomfortable and ineffective or, emulating the hierarchical model he is familiar with, more concerned with the perquisites of rank than the function of the job. Others who achieve, through their own exertion and thrift, a degree of material success are regarded with hostility. They are thought of as misers or worse - suspected of using the supernatural to obtain their ends. Strong social pressures are applied to bring them back into line. Customary ideas of what is men's work and what is women's are another inhibiting factor. Many of the tasks associated with industrial employment appear to fall into the women's work category and men are reluctant to become involved. For their part, women are already burdened with a plethora of domestic chores leaving little time or energy for additional activity. All in all there is little in the social climate of a small Tswana village to encourage enterprise.

Commercial and industrial initiatives in rural areas are further discouraged by obstacles thrown in the way by government. There has been, in Botswana, a tendency for legislation to race far ahead of economic reality. Local enterprise must contend with registration and incorporation procedures, licensing laws, audit requirements, mandatory pay-roll deductions, price controls, health and safety regulations and a minimum wage. The urban enterprise, more sophisticated and in closer touch with officialdom, can usually accommodate itself to these bureaucratic requirements. The untutored and isolated village entrepreneur is likely to find them insurmountable.

Finally, a village industry has the potential to destroy more than it creates. Infra-structure, such as electric power and transport, developed to serve the project can also serve to break down the natural barriers protecting the village economy from the urban. Local poultry producers may, for example, be put out of business by low-cost frozen imports. This effect is a particular hazard in Botswana where accessible markets are completely open to South African and Rhodesian competition. Another distinct possibility is that the most productive members of the village will be persuaded to abandon their present pursuits in favour

of the security and cash income provided by the project. The net result is no gain and perhaps a loss in total village output. An equally negative effect can occur if, as is likely, the project attracts, hires and trains the more ambitious and energetic segment of the community. The skills acquired provide these individuals with the ticket to urban employment they have been waiting for and the village becomes even more anaemic.

The difficulties and hazards faced by a village development project in Botswana are clearly formidable but there are some positive aspects. After all, 75% of the people still live in these communities and many individuals must have the potential to fuel and lead well conceived enterprises. The average Motswana too, when in good health and properly fed, can be very industrious. Women normally put in a work day which would exhaust their North American counterparts. Many men apparently regard ploughing a ten hectare field of hard packed soil as a pleasurable experience. Although short of the skills needed in modern technologies there is no shortage of the indigenous ones which have served the Tswana well for centuries. (Not the least of which is an encyclopaedic knowledge of the local flora and fauna.) The villages are peaceful and orderly communities with long and successful experience in participative decision making.

The village of Gabane, where PVI is located differs in one major respect from the general picture of rural Botswana described above. It is situated only 20km from the capital, Gaborone. Its proximity to urban jobs, secondary schools and a mine recruitment office has resulted in a much greater drain of prime manpower than is normal. There is also a sizeable group of workers who reside in Gabane but commute (by bicycle) each day to jobs in town. Unlike the typical villager the inhabitants of Gabane have been exposed to the products and marketing techniques of a consumer society; they are aware of the urban wage structure and are somewhat politicized. Cash transactions have almost completely replaced traditional barter and reciprocities. For deprived groups, (the untutored, the unskilled, the cattleless, the un-wed) nearness to town has not meant a better life. In Gabane the poor are not only poorer but proportionately more numerous than the norm.

It is apparent that difficulties connected with the human resource base are at least as severe in Gabane as anywhere in the land. This is not true however, of some of the other typical constraints in village development. Even by donkey cart, Gabane is only an hour away from all the services such as bank, railway, legal, government, industrial and office supply and the like which make urban enterprise easier than rural. Gaborone also offers relatively large and prosperous markets including 15,000 civil servants, 6,000 expatriates, government buying agencies and 3 modern hotels. PVI enterprises which overly depend on these services and markets are not likely to be replicable in other Botswana villages.

IV PELEGANO VILLAGE INDUSTRIES

Pelegano⁺ Village Industries was conceived and founded in 1974 at Serowe, Botswana by Frank W. Taylor, an expatriate and former technical advisor to the Serowe Brigade Trust. In February 1975 the operation was moved to its present location, in Gabane, 450km to the south. The intents and purposes of PVI are set out in the following excerpts from its 1977/78 annual report.

"The Objective of PVI is to initiate an integrated community uplift programme, based on rural industries, and embraces:

- A. Research, Development and Promotion of village Industries which are based on the following principles;
 - i. Utilization of traditional skills and other local resources,
 - ii. Simple technology,
 - iii. Low capital input,
 - iv. Labour intensive,
 - v. Replacement of imported products,
 - vi. Replicability.
- B. Provision of Training Facilities for such village industries.
- C. Provision of Management, Production and Marketing assistance until the entrepreneurs involved feel confident enough to be independent and/or form co-operatives.
- D. Arranging access to Funds to assist those who otherwise would not have sufficient to become involved in a village industry."

"PVI's main thrust is towards helping the poorest families in the rural areas. Special emphasis is given to family centered industrial activity much of which can be undertaken at home, allowing all generations to participate; and taking into account the traditional mobility of people between village, agricultural lands and the cattle posts. PVI is establishing a variety of village industries to demonstrate that opportunities for economic advancement are available in a village context.

⁺Pelegano is a Tswana word which describes the way mothers carry babies on their back. Used as an adjective it means "in support of one another".

In short PVI provides finance, technology, management and training at a local level, in labour intensive activities, directed at local markets, to the end that mass rural poverty may be reduced."

"Principles and Policies include;

- A. Planning against the background of Botswana's National Objectives, Rapid Economic Growth, Social Justice, Economic Independence, and Sustained Development;
- B. Maximum labour intensity by refraining from the introduction of expensive capital equipment;
- C. Stimulation of local, individual and community participation in designing, planning and implementing projects, to encourage self-reliance;
- E. Providing employment in a village industry as a training ground to future industrial managers and entrepreneurs;
- F. Assisting in the search for technology and design appropriate to the rural poor;
- G. Conservation of scarce resources (e.g. wood and water), and utilization of nature's gifts (e.g. rain, wind and solar energy);
- H. Planning for a Central Sales Outlet, to consolidate Marketing, and provide training in this all important aspect of business and industry;
- I. Budgeting to be free, as far as possible from reliance on recurrent financial support, and therefore involved in those businesses where an overall net profit can be expected;

- J. Restricting activities (apart from Marketing) in the first place to Gabane, but expanding later into the surrounding villages;
- K. Encouraging Interaction and Interdependence between PVI, Central Government Ministries, District and Village Development Committees and sister Institutions;
- L. Initiating Pilot Projects to assess viability and cultural acceptance, before launching a full scale programme."

Although it is nowhere mentioned in its principles and policies, PVI has a very evident Christian, almost Albigensian, overtone. Workers sing hymns on the job and many stay on in the evening to attend a Bible session. It is not clear how this has come about. Certainly Frank Taylor and his wife have a strong, although apparently non-sectarian, personal commitment to Christianity. This is also true of the Goulds. (Gould is the Company Secretary and de facto second in command.) Perhaps some of this has rubbed off on all. It is also likely that, consciously or unconsciously, Taylor and Gould, when hiring, favour the enthusiastic Christian, if given a choice, and these in turn proselytize other employees. Whatever the explanation the Christian orientation is very real and, as a result, PVI is different, in interesting ways, from similar projects.

PVI was incorporated in July 1976 as a company limited by guarantee; that is the guarantors are ultimately responsible for company debts. The charter prohibits the payment of dividends and any profits must be used to promote company objectives. The guarantors elect directors who, in turn, appoint the managing director and senior staff. At present there are 10 directors, all residents of the village or immediate area and all but the managing director - Frank Taylor, are citizens of Botswana. The secretary to the Board of Directors, David Gould, is, like Taylor, both resident and expatriate.

Although the expatriate component of the Board is small this is not true of the staff. Currently (August 1979) it includes, in addition to Taylor and Gould, 2 British and 2 American volunteers acting in administrative or supervisory positions; 2 white South African refugees, 2 young North Americans helping out; and 1 British agricultural advisor who works in Gaborone but resides at PVI and assists the company in his spare time. Both Mrs. Taylor and Mrs. Gould also play a very active and important role. Although 5 Batswana supervisors hold down responsible jobs at PVI there is little doubt that the driving force, direction and management of the company is provided almost entirely by ex-patriates.

Starting in 1975 with 6 hectares of undeveloped tribal land PVI has doubled its land holdings and grown into a pleasantly untidy hive of work shops, store houses, offices, chicken coops, orchards, gardens and homes. At mid 1979 its net worth is P150,000 (\$US 200,000) and annual revenue from sales is running at P100,000. About 40 Batswana are regularly employed at the site and another 40 are employed elsewhere on piecework or commission sales. Exclusive of ex-patriate salaries, PVI currently provides Gabane households with a total of P2,500 monthly in the form of wages, commissions and payments for piecework. This income is being generated at present by fifteen agriculture and industrial pursuits all of which are described in Section VI. A modest profit is made by about half of these operations and combined revenues come close to covering operating costs. These costs however do not include any charge for depreciation, or for the ex-patriate management.

Capital funding for PVI activities now totals P152,000 and has been donated by a wide variety of agencies and private persons. The largest contribution (in excess of P50,000) has been made by ICCO. Donor agencies also provide salary support for key expatriate staff.

V PERFORMANCE CRITERIA

It is clear from its published statements that PVI is pursuing two quite different objectives;

1. - to innovate viable industries 'appropriate to the rural poor ... to the end that mass rural poverty may be reduced!
2. - to "uplift" Gabane by an integrated ...programme based on rural industries!

The means by which both objectives are to be achieved are the same - the development of rural industries. The two objectives however are mutually independent. It is very possible to be successful in innovating rural industries while at the same time failing to uplift the village - and vice-versa. Both objectives then must be kept in mind when assessing PVI's performance .

In the evaluation that follows an attempt is made first, to determine the degree of success achieved at innovating viable rural industries. The procedure adopted is fairly straight forward. It is assumed that a successful village industry is one that -

- is economically viable i.e. it generates sufficient income to provide a return on investment equal to or exceeding the going rate.

- is technically and managerially viable i.e. its successful operation is within the technical and managerial competence of the local labour force.

- provides a net increase in employment i.e. it does not displace more jobs than it creates

- provides secure work places.

It is further assumed that, in the PVI case, an industry is more successful.

- the greater its replicability throughout rural Botswana.

- the lower its job generation cost.

- the more it benefits the poor rather than the already well-to-do.

- the more it tends to increase incomes of those not participating directly in it.

In Section VI each of the industrial activities which PVI has initiated, or plans to initiate, is briefly analyzed and measured against this set of criteria.

In Section VII an attempt is made to determine the degree to which Gabane village has been "uplifted" by the PVI programme. This is a little more treacherous undertaking. The word "uplift" is both imprecise and loaded with value judgements. What might be seen as "uplift" by one might be considered "deterioration" by another. It is well to spell out the performance criteria employed here as well.

The PVI programme has been considered to be successful to the extent it has;

- increased the average income of villagers,
- reduced income inequities.
- improved the environment,
- made life for the average villager more intrinsically rewarding,
- had a catalytic effect on other village development,
- ensured the permanence of these benefits.

Section VII is essentially a search for evidence that some or all of the above have occurred. It relies, for the most part, on the opinion of others.

VI ANALYSIS OF ACTIVITIES

In the less than five years that PVI has been operating it has initiated 31 distinct projects. Of these 5 have been abandoned as unworkable, 15 are presently operating, 6 are well underway but not yet producing and 5 are still in the planning stage. In this section each of the 31 is described and its suitability as a rural enterprise measured against the criteria set out in the previous section.

PROJECTS ABANDONED

An organization attempting to establish rural industries under such difficult circumstances as PVI is bound to have failures. As much, perhaps more, can be learned from the projects that didn't work out as from those deemed successful.

1. Tannery:

A tannery to produce commercial grade leather from local skins (cow, goat, sheep) was the original project conceived by PVI. Funds were donated (P6,000 from ICCO) but, after P600 had been expended, the project was dropped. The reason given was that "times and economics had changed since a tannery was proposed". The decision was undoubtedly wise. A similar project, which began a short while later, at a large village to the north, has not been a success. From the beginning it has been beset by technical and financial problems and an insufficiency in the supply of raw skins, despite the fact that its planning, design, construction and operation have been supervised by highly qualified expatriates. The jump from the traditional tanning of individual skins to a larger scale modern process involving chemicals, effluent disposal, financial and marketing problems is well beyond the technical and managerial competence to be found in rural Botswana.

2. Village Workshop:

The original concept here is an attractive one. A workshop, complete with simple tools, benches, supplies and available advice, was set up. Individuals from the village were invited to use the facilities to produce or make repairs to items for themselves. A small fee was to be charged for the use of tools and supplies

provided at cost. At the same time PVI personnel could use the facilities to turn out items required for other projects. The project, as originally conceived, was abandoned, simply because few villagers turned up. The project has since evolved into fairly large metal workshop and wood working operation both of which are described further on in this section.

The reasons for the lack of demand are not clear. One expatriate suggests that villagers were inhibited by the presence of a white supervisor and, had the workshop been operated by a Motswana, it might have attracted more clientele. He feels that the villagers, unfamiliar with the tools available were reluctant to expose their ignorance in front of a foreigner. Another thinks the scheme was not sufficiently promoted. If they are correct it is a pity that the project, was abandoned before making a determined effort to make it a success. The "village workshop" would seem a close to ideal rural industry.

3. Soapstone Carving:

Soapstone, a soft and easily sculpted rock, was obtained by PVI from a small quarry in Kanye, 70km to the south. An expatriate volunteer trained 4 men to carve small figures and pendants which were then sold to a retailers in Gaborone and South Africa. This industry ran for 8 months but ceased when the expatriate volunteer left for home. The 4 carvers were offered other employment at PVI. Two reasons are given by PVI for the demise of this industry. The raw material contained too many flaws; the low quality of the carvings made them difficult to market against similar but more sophisticated carvings made elsewhere.

Considered as a craft industry, soapstone carving would seem to meet most of the criteria of a good rural enterprise, subject to the problems associated with crafts. Soapstone carving, however is not so much a craft as an art form. As such its viability depends almost wholly on the skill and originality of the artist. If an individual with exceptional talent is discovered in a village, provision of the materials and promotional support needed is worthwhile. To attempt to create art in the absence of an artist is a questionable endeavour.

4. Mats and Corn Husk Flowers:

An attempt was made to establish a cottage-craft industry producing dinner place mats and imitation flowers from corn husks. The project was abandoned when the mats and flowers proved to be unsaleable, perhaps because more attractive and better quality ones were available from Swaziland. Although it is quite possible to originate a craft industry (See 8) the nature of crafts requires that they be unique and identifiable with their area of origin if they are to be successfully marketed.

5. Day Care Centre:

The history of the Day Care Centre is both interesting and revealing. The project appears to have been initiated by 3 female Batswana, all employees of PVI. The project was discussed at a PVI staff meeting and the women were encouraged to proceed on their own. The women took the matter to the Village Development Committee who was sufficiently enthusiastic to provide the required building space. It was agreed that 2 meals a day would be provided, Monday through Friday; 2 teachers hired at P25 per month; and the fee per child, per month would be P2.50. Seventeen children were enrolled. Before the end of the first month of operation it became apparent to the 3 initiators that the fee was too low. Parents were advised that fees would be increased to P3.50. Several withdrew their children and the project collapsed.

As a rural enterprise a Day Care Centre, without substantial subsidy, is an unlikely candidate for viability. As a service to the community however it has three redeeming features. It provides rural children with the advantages of pre-school training; it gives them a nourishing diet; it enables the target poverty group (women who head households) to seek wage employment.

Subsidies are available for such projects. A successful kindergarten at Ramotswana, 30km away has a Dutch volunteer on the staff; is supplied with play equipment and teaching materials by a donor and provided with food by the World Food Program. With similar assistance the Gabane project, which started and failed in "The Year of the Child", might well have been a

success and its initiators encouraged to pursue more projects on their own.

PROJECTS PRESENTLY OPERATING:

6. PVI Broiler Producing and Processing:

This project is referred to, in the 2nd Annual Report, as PVI's "major operation". It is the major operation only in a turn-over sense, accounting for more sales than all other activities combined. In a value-added sense it would appear to rank about third. The operation involves purchasing day-old chicks from the RSA which are flown to Gaborone and trucked to Gabane. The chicks are placed in deep litter pens at the PVI site where they are fed on poultry food, also imported from the RSA. When they reach market weight about two thirds are sold live. The remainder are slaughtered, plucked and eviscerated in a small on-site plant. About one third of this output is chilled in 2 small butane fueled refrigerators. The operation processes about 2,300 chickens a month, about half of which have been raised on-site and half by "Back Yard Producers" (see below). Almost all of the out put is trucked to, and marketed, in Gaborone by 6 vendors, working on commission.

The broiler operation has created new jobs (10 PVI employees and 6 vendors) at a fairly low job generation cost (about P500 per job). In addition it services 7 Gabane producers with chicks, feed, processing and marketing, and supplies another 5 non-local producers with chicks and feed. It fails however, to satisfy other criteria for a successful rural industry.

- (a) It is not economically viable now and is likely to become less so over time. Although on paper the operation appears to cover costs, no depreciation, rent, interest or management fee is charged against it. A large scale poultry producer/-processor in the RSA, (Rainbow Chicken Farms Pty Ltd., Hammersdale, Natal) lands frozen chicken in Gaborone at P1.14 per kilo vs. P1.45 for PVI and the disadvantage will increase with rising fuel costs. Although PVI uses 4 times as much labour to produce a chicken as the large scale operation it also uses one third more capital.
- (b) It is heavily dependent on expatriate staff for management and the prospects for localizing such

a complex operation seem remote.

- (c) It relies almost entirely on the large market in Gaborone. Its replicability in all but a few Botswana villages is nil.

7. Back-Yard Broiler Units:

Eight households in Gabane, and one in nearby Mogoditshane, were selected to raise chickens at home. Of the eight, six were representative of the poorest families. An investment of P400 was required of each participating family for the necessary buildings, equipment and working capital. Loans to cover this outlay were arranged with a commercial bank by PVI. In addition to providing the initial training and help with construction, PVI sells to the producers chicks and feed at cost, keeps their records and buys up the output they are unable to sell themselves. The average output, per producer, per month, is about 120 chickens on which they realize earnings of P20. to P45. from which P10 is deducted at present in order to retire the loans. Apparently most producers consume 2 or 3 of their own chickens a month which effectively increases their income by another P5 (and provides the families involved with badly needed protein.) This project would appear to satisfy all of the criteria for a good rural industry with a few important qualifications. The producers are dependent on PVI for supplies of chicks, feed, and to a considerable degree, the disposal of their output. PVI in turn, is dependent on its proximity to Gaborone for its supplies and market. To convert this project into a truly viable and replicable rural industry would require (a) at least one of the producers to learn to incubate chicks (b) that local sources of feed (forage or grown) be developed. (c) that the chickens be marketed live.⁺

8. Corn Husk Dolls:

PVI has trained about 25 women to make small decorative African dolls from dried corn husks. The dolls are produced at home and sold to PVI. PVI in turn sorts, packs and re-sells them. Although a few are sold in Botswana most are exported to clients in

⁺Poultry, raised in confinement and sold live, is preferred in rural areas for sanitary reasons and because of lack of refrigeration. More value is also obtained from the live chicken as all but the feathers is usually consumed.

the RSA. Twelve households (including those of two men who carve miniature kikas and pots from wood to go along with the dolls) have averaged P35 a month income from the project and one person is employed at PVI to supervise the operation.

This project to date has been remarkably successful and comes close to being an ideal rural industry. The job generation cost is almost nil; the value added almost 100%; the work is done at home, at times most convenient to the worker and the workers are from the most needy group. It is also within the technical and managerial competence of the villagers provided the buying and export functions are done by others. (Institutions, other than PVI exist, e.g. Botswanacraft, which could handle this end.) It does have two negative aspects. (a) It is not replicable. There is room for only one corn husk doll industry. (b) Like all crafts dependent on the export market, demand is unpredictable, fickle and vulnerable to imitators.

9. Gourd Engraving:

Utilizing, for raw material, two varieties of locally grown gourds this project provides 8 households with a monthly income of close to P25 each. The industry is similar to, and has all the virtues of, the Corn Husk Doll one. Unfortunately, it also has the same two defects.

10. Gathering:

PVI has found markets for a number of indigenous flora and fauna. At present these include camel thorn branches and bleached sticks both marketed to RSA florists; insect specimens for collections; and a dried flower (resurrection plant) for which there is a large demand in Germany. PVI acts as the middle-man in all this, finding the market, notifying the local population of the demand (and sometimes organizing gathering expeditions), buying, sorting, packing and shipping the output.

As a method of getting cash income into the hands of the rural poor this project is hard to beat. It also scores high when measured against most of the other

criteria. One weakness is the indispensable role as market locator, honest broker and exporter being played by PVI; another the dependence on distant and unreliable markets. (The ideal gathering enterprise would be one that provided the raw material for an on-going local industry, e.g. roots for a piggery.) None-the-less the gathering industry appears to be fast becoming PVI's most successful endeavour⁺ with the possibilities far from exhausted.

11. Diamond Mesh Fence:

Employing two ingenious hand operated machines, produced by the Rural Industries Promotion Unit at Kanye, coils of steel wire are converted to steel fencing. This is the sort of rural industry which looks attractive because the machinery is low cost, hand-powered and uncomplicated. These 3 attributes do not necessarily add up to economic viability. They definitely do not in this case. The value added is very low. (It appears to be about 15% but this is probably wholly accounted for by the wholesale functions being performed.) There is virtually no transfer cost advantage to protect this industry from urban competitors, i.e. the freight charge for the fence is the same as for the wire. Demand is confined to about 2 months of the year. Finally there is no market preference for the hand turned product which would enable it to command a higher price. The operation also gives an illusion of labour intensity because the machinery cost is low (P150 for one; P250 for the other.) The rural location however, requires a large investment in material stocks relative to output. The investment in this case, to generate 2 jobs, appears to be about P5,000. The Diamond Mesh Fence operation is a classic example of an "appropriate technology" being quite inappropriate.

12. Cement Block Production:

This industry has provided a steady income of P50 per month for 2 PVI workers since it commenced operation in 1976. It has also generated a return-on-investment for PVI of close to 60%. The process is simple, employing only hand moulds and basic tools. (Although sand is carted to the site by a PVI tractor and wagon, there is no reason why this could not be done by donkey cart.) The capital investment required is small

⁺During September/October 1979 "gathering" at PVI involved over 350 people, some earning as much as P20 per week.

(about P800 including working capital). The value added is high (60%) and there is considerable transfer cost advantage (about 80% of the weight of the finished product is a local resource, sand). The PVI operation has no difficulty competing with manufacturers in Gaborone, only 18km away. The project is eminently replicable (the average village would have even more transfer cost protection) in locations where a continuing, if modest, amount of building construction is anticipated. Indeed there seems no particular reason why this industry should not be sold out to the two workers and moved off the PVI site.

13. The Construction Team:

PVI, from time to time, undertakes simple building contracts. These are handled in a unique and interesting way. In effect PVI acts as the prime contractor then sub-contracts out the labour to its "construction team". The team is headed up by a Motswana supervisor and the members drawn from other PVI projects. The size of the team varies with the size of the construction job but is usually in the neighbourhood of 8 men. A fixed sum is established by PVI for the total work to be done. The team, usually with PVI management help, then decides how much each member of the team will receive for his portion of the work. No penalty clauses are attached to these contracts but there is often a lump sum bonus given to the team for work completed in less than a set time period. At the end of the contract the team members re-assume wage employment at their old jobs.

This scheme accomplishes 3 purposes. It provides an incentive for efficient work, assures that costs will stay within budget (or quotation), and develops the managerial skills of the supervisor. Although a fairly active role is played by PVI management in this process, e.g. buying the materials, surveying and checking work done, more and more responsibility is being taken over by the supervisor as he gains experience. Most of the construction done to date has been for PVI itself but several non-PVI projects have been successfully completed.

This industry and the approach used by PVI is well worthwhile. It enables individuals to acquire marketable skills and gain experience, while at the same time

enjoying a steady and reliable income. It also puts much of the money spent on PVI and other building projects into the village economy. It is not however, a replicable village industry except in PVI type situations.

14. The Carpentry Workshop:

This project, and the one which immediately follows (15. Metal Workshop) have evolved from the unsuccessful village workshop project. Up until very recently (July 1979) the Carpentry Workshop confined itself to custom work, almost all of it for other PVI projects. Such things as house and office furniture, cupboards, shelving and work-benches were turned out as the need arose. Three unskilled workers are employed in this operation working under the supervision of an expatriate volunteer. The shop is equipped with the usual hand wood-working tools but also contains an electric-powered circular saw, band saw, sander and drill. The electricity for the power tools is generated by a diesel-powered unit on the site.

In July 1979, the carpentry workshop commenced production of coffins, their first attempt at non-custom manufacturing. One employee was trained in this. No power tools are used in the process and, in a short time he was working on his own, producing 3 to 4 coffins a week. From the day it began this small industry has been a success. The coffins are sold for P48 (plain) and P68 (fancy), half the price of the equivalent item obtained in Gaborone. Virtually all the output has been absorbed by the local rural market. On all counts the coffin manufacturing aspect of the carpentry workshop measures up to the criteria established for a good rural industry. It is economically viable. It is within the technical and managerial competence of the rural entrepreneur. It creates new and secure employment. The job generation cost is low, perhaps only P300. The employment created is secure and does not displace other workers. It benefits the community at large, particularly the poorest, by providing a necessary commodity at lower cost. Finally it is probably replicable in 50 or more rural locations in Botswana.

The carpentry workshop as a whole represents an

investment of about P9,000. It has, no doubt, been a useful and necessary adjunct to PVI . Up until very recently it does not seem to have been used very imaginatively in the pursuit of the PVI industry innovation goal. When it was, the pay-off was high.

15. The Metal Workshop:

Like the carpentry workshop this project has evolved from the original concept of a Village Workshop. Although it occupies quite a large space (190 m²) and is relatively well equipped (arc welder, forge, lathe, drill press, grinder and a good selection of hand tools) the total investment is only about P12,000. Four unskilled workers are employed in the shop and, although no formal training is provided, presumably they are acquiring skills in the same apprenticeship fashion as the wood-workers. The metal workshop is performing four quite distinct roles at PVI and each warrants treatment as an entity.

Like the wood workshop the metal one is part of the infrastructure necessary to support a complex like PVI. Such things as plumbing, pipe fitting, sheet metal work, roof-trusses and vehicle repair are done at considerable saving in time and money. As valuable as this support service is to PVI it has no particular relevance in a rural industry context.

The workshop also plays the role of the village blacksmith⁺ repairing ploughs, bicycles, cooking-pots, paraffin stoves and the like. This activity can be viewed as a rural industry, and a very useful one at that. The utility created by the repair of a broken item can be equal to the utility created by the manufacture of the original good. As PVI does not treat this aspect of the metal workshop as a separate entity its economic, and perhaps technical, viability is unknown. On all other counts it would seem to have high potential as a village industry. A very worthwhile exercise for PVI would be to detach, at least for record keeping purposes, the blacksmith function and determine the answers to such questions as: What is the basic equipment and materials stock needed? What is the annual demand for such services? What sort of training is required to run a one man blacksmith operation? This information could be the first step to establishing a very valuable and very replicable rural industry.

⁺Blacksmith is used here to describe a person engaged in custom metal fabrication and repair.

The workshop, as well, manufactures items for sale both on a custom and semi-production-line basis. Such items as roof-trusses, burglar bars, tool-boxes, donkey carts and farm wagons have been turned out.

Although the market for trusses, bars and boxes is urban (or derives from the construction industry) there is a strong demand for carts and wagons in rural areas. Unfortunately the ability to meet this demand is limited by the supply of wheels and axles from wrecked or abandoned motor vehicles. In the absence of a regular supply of these components there is no basis here for a replicable rural industry except perhaps as an adjunct to a blacksmith operation. There are other possibilities, lightning rods and bicycle-operated grain mills for example, but in general production line metal manufacturing would seem better located in an urban area.

The other function carried out by the metal operation comes under the rubric of research and development. PVI has, in the past developed a 14:1 soil to cement igloo, a hand operated shallow well drilling rig, evidently was responsible for the design of the "diamond mesh fence" machine and is currently working on wind mills and solar energy. As attractive as technical research and development is it is questionable whether it is a suitable activity for PVI. There is a long list of handsomely staffed and lavishly financed organizations around the world presently engaged in the research and development of technologies appropriate to developing countries. Keeping tabs on their efforts and attempting to identify those things appropriate to rural Botswana is well worthwhile. The urge to dabble in this already crowded field should be suppressed. If indulged in at all it should be directed towards the more prosaic, such as developing a method of repairing cast iron cooking pots that does not require an acetylene torch and an arc welder.

16. Fruit Preserving:

An initial attempt was made in early 1979 to make jelly from the fruit of the native marula tree. Glass jars, tops and cardboard packing cases were obtained from the RSA. A quantity of the fruit was gathered from the surrounding area and jelly made over open wood fires. The result was tasty but failed, for the most part, to gel properly. In some respects this industry has

characteristics of a good rural enterprise. It is limited however to areas where a surplus, over local needs, of wild fruit exists. Marketing, outside the local area, of preserves would likely be too complex for a genuine rural industry.

17. Accommodation:

Under a variety of arrangements, advantageous to PVI, expatriates working elsewhere, have been allowed to reside at the PVI complex. At present two such arrangements exist and a third is under negotiation. The "industry" has a number of benefits for PVI. It is (depending on the arrangement) a source of steady revenue. It finances (once again, depending on the arrangement) future staff or rental accommodation at almost no cost to PVI. It provides work for the PVI construction, cement block and carpentry industries. The services and skills of the people accommodated are, to a considerable extent, and at no cost, available to PVI. (One of the present residents is a livestock expert, the other an engineer). They are also a source of contact with officialdom, industry and commerce.

The presence of these people also has benefits to the community. It injects additional income into the village economy. It provides some additional employment. These people also can make a direct contribution to village development, e.g. one PVI resident is a board member of a local self-help project. Their ideas, knowledge, skills, interests, ethics and life-style can, in a very innocuous way, help breakdown village parochialism. It could be argued that whether these people are a benefit or a disbenefit to the village depends very much on the individuals involved. There is however, a self-selection process at work here (unlike the tourist industry) which tends to ensure the former. That is, a person who chooses to reside in the village (rather than an expatriate commune in Gaborone) does so because he prefers village life, relates well to villagers and wants to make a contribution.

If kept within limits this industry is a good one. The opportunities for replication are also fairly good. The source of candidates for village accommodation is by no means limited to Gaborone. At any given time there are numerous technicians, scholars and artists dispersed about the country, many of whom might well prefer

village life to town.

18. Transport:

This activity is engaged in by PVI but not considered as an industry. The company owns three 2½ ton trucks, two pick-ups, a closed delivery van and a tractor which are used to haul PVI products and materials into and out of Gabane and to and from work-sites. Transport contracting has already proven to be a viable industry for a few rural entrepreneurs in Botswana but little is known about its economics. Were PVI to treat this activity as a project, solicit haulage contracts from local traders and farmers, perhaps add a donkey cart or two to their fleet, much could be learned about this industry from their careful record keeping. Reliable information about break-even points, economic loads, petrol vs diesel vs draught animals and costs per tonne-kilometre would make it possible to determine when, and under what circumstances, transport contracting is a viable rural industry.

19. Cinema:

A small industry is being conducted unnoticed, right under the noses of PVI management. An employee, along with a young friend from the village, from time to time obtain a film from a rental agency in Gaborone; borrow a projector and a portable generator from PVI. They show the film in a hall in Gabane and charge an admission fee of 15 thebe. PVI goes along, more or less cheerfully, with this arrangement and, at least to date, have not asked to be paid for the use of their equipment. It is interesting to see how this enterprise measures up against the criteria used for establishing the worth of the recognized industries.

The two young men have demonstrated the technical and managerial viability of movie shows. Their enterprise has created a small but net increase in employment. It has as well, benefitted the poor, providing entertainment in the village at a price they can afford. The question of its economic viability is not so easily answered. The success of the Gabane enterprise depends very much on free access to PVI equipment. A self contained operation would probably have to show a film to 400 people a week, at 15 thebe per head, in order to be worthwhile. Except for a few large villages this

would be possible only if the entrepreneur worked a circuit of several villages and a fairly high proportion of the villagers attended the show. Whether there would be sufficient demand for English language films by villagers, most of whom do not speak English, is a moot question, although there is evidence that musicals and westerns, James Bond and Bruce Lee, transcend the language barrier. Replicability is another uncertainty but, as most villages have a school or hall where films can be shown and many have bus service connecting them to towns where films can be obtained, the chances are good.

One other question needs an answer. Is bringing entertainment (films, discos, plays, puppet shows, music, poetry or whatever) something that can be legitimately considered a development activity? The answer is yes! Entertainment and excitement is something rare in rural areas and this lack may play no small part in the steady emigration to town.

Projects Underway:

Projects underway but not yet in production and those still in the planning stages have no history to underpin a critique. Consequently the brief analyses that follow are even more heavily freighted with opinion than those that preceded. None-the-less they do provide some indication of the direction PVI is taking.

20. Bakery:

At the time PVI was attempting to establish itself in Gabane the villagers asked for a bakery. Although PVI was not exactly sure what they had in mind it was promised them. As luck would have it, a short while afterwards a bakery in Rustenburg, RSA was being dismantled and the oven offered to PVI as a gift. It was accepted and transported to Gabane and the bakery project was underway. It is still underway. The donated oven is a two-story steam one with a one shift capacity of 2,000 loaves. It has been rebuilt at the PVI site and a substantial building constructed to house it and provide the work-area for storing, mixing and wrapping. About P4,000 has been spent on this project to date and another P2,000 needed to equip

oven with the fittings required and outfit the bakery.

The PVI bakery fails to meet any of the established criteria. Its chances of economic viability are slim as it would depend on already well supplied Gaborone for a market (the two retailers in Gabane and one in Mogoditshane together sell less than 200 loaves a day) Were it to succeed it would do so at the expense of the 3 bakeries in Gaborone displacing workers employed there. It is technically and managerially complex and quite beyond the present capability of any non-expatriate to be found in rural Botswana let alone Gabane. To the extent it would employ two or three unskilled workers it would benefit the poor of Gabane. The output, of a bakery however, is the food of the well-to-do. As a rural industry it has no potential for replication.

Whereas a small, one woman operation may have stood a good chance of success the "white elephant" constructed was doomed from the start. PVI should swallow its pride and abandon this project.

21. Grain Mill:

The milling project, when complete, will consist of a diesel operated sorghum decorticator coupled to a hammer mill and a building to house the machinery and provide work and storage space. The building is presently under construction and, if all goes well, the mill will be in production by the time the next grain crop is ready for harvest in early 1980. The mill will have a large-bag capability to grind the surplus production of local farmers for use in the bakery and for commercial distribution. As the capacity of this aspect of the mill is in excess of foreseeable local production it is planned to supplement feed stocks with grain grown elsewhere. The mill will also have a small-bag capability to service individuals who bring in a small amount of grain for their own consumption. The total investment, exclusive of working capital will run about P8,000 half of which represents the cost of the building.

The concept lying behind this project is hard to fault. The mill will encourage local farmers to produce a surplus by providing a handy means of converting it to cash. It will enable PVI to produce some of the inputs

required for its poultry operation and the bakery. The small-bag operation will relieve women of the tiring and time-consuming process of pounding grain by kika and motshe (the traditional mortar and pestle) releasing them for more productive and rewarding work.

The grain mill project is similar, in many respects, to the bakery one. The equipment is a donation and PVI is providing the structure. The market for the output is, at present, adequately supplied by commercial mills. Botswana itself has 2 large mills, one in the south and one in the north both of whom supplement locally grown grain by imports. In addition the Botswana Agricultural Marketing Board operates a decorticated sorghum mill.

Given that the PVI bakery is not likely to get off the ground; that the outside market is tight and that, unlike its competitors, the PVI mill will be sited off-rail; the prospects for economic viability seem poor. Although the manufacturing side of the operation evidently is within the technical capability of local labour, the managerial aspects, particularly financial and marketing, are likely beyond reach. The job generation cost is high and the possibility of displacing employment elsewhere in Botswana cannot be dismissed.

The encouragement of local farmers to produce over and above their subsistence needs could have been accomplished, just as well, by providing a depot to grade, bag, buy, store and sell their crop. The custom grinding for household consumption could have been accomplished just as well by a small pedal-operated mill (Tropical Products Institute; Rural Technology Guide 5; 1979) at a capital cost of less than P100.

22. Horn Workshop:

The Botswana Meat Commission at Lobatse, 95km by road from Gabane, slaughters and processes over 200,000 cattle annually. The cow horns are sold to European and Asian manufacturers who convert them into a variety of items from knife handles to spoons. The PVI horn workshop intends to purchase horns from the BMC and perform the first step in the manufacturing process. The useable parts of the horn will be sliced off in strips and flattened; split and

otherwise defective strips will be discarded or made into trinkets and the rest packed and shipped to Europe. The economic advantage which results from this step being done in Botswana is two-fold. The shipping cost is greatly reduced and the relatively unskilled first step is performed at low Botswana wage rates. An agreement to buy up the planned output of the workshop has already been made with a British firm.

This industry would seem to have great potential. The investment required is low and both the employment and profit opportunities are high. It is technically fairly simple. As there are no obvious economies of scale and the total market evidently substantial there are prospects for replication. As a rural enterprise it does however, have one defect. The natural location for the industry is Lobatse. Shipping costs - Lobatse to village, and to a lesser extent - village to Lobatse, on the way to Europe, are an expense which a Lobatse location would avoid. In PVI's case this added expense could be fairly stiff. Gabane, and for that matter all villages, are very awkward places to arrange export shipments. These two factors make the horn workshop vulnerable to a better located competitor.

23. Vegetable Garden and Vineyard:

Vegetable growing in Botswana faces three major difficulties. The sunlight tends to be so intense that non-cereal crops tend to wilt and die. There is insufficient rainfall. The rain when it does come, comes in such quantity and with such force that it washes away or flattens young plants. Suspending a heavy nylon net on poles over the vegetable plot is a method which has proven successful in overcoming the sunlight and heavy rain problem. It is however quite expensive, PVI hopes to accomplish the same thing at less expense and at the same time provide additional revenue, by sheltering the growing plants with grapevines. The garden is to be irrigated by a simple low-cost seep-hose arrangement requiring minimal attention.

If the PVI experiment works out it is the intention to persuade a number of villagers to replicate the plot on their own land irrigating with rain water accumulated and stored in haffirs. The vegetables, surplus to their own needs, would be marketed on much the same basis as with the back-yard broiler units.

The project represents a very small investment on the part of PVI and, if successful, would have a good potential for replicability throughout rural Botswana. Attempts in the past by others to establish vegetable plots in Botswana villages have not met with much success. (One notable exception concludes this section.) Perhaps the added incentive of grapes combined with ease of irrigation will make the PVI system a more attractive proposition.

The commercial potential of vegetable growing in villages lies within the village economy - even for villages, like Gabane, located close to town. Transportation costs and stiff competition from large scale RSA producers make wider distribution impractical. None-the-less, should this project succeed the benefits to the village would be considerable - not so much from the added income as from the better diet made available.

24. Citrus Orchard:

Deciduous and citrus fruits, particularly peaches and oranges, are very popular in Botswana and large quantities are imported each year from the RSA. With the exception of a few freehold farms in the north-east, where the output is marketed through a South African producers co-operative, commercial citrus growing is virtually non-existent in Botswana. The reasons for this are various but lack of sufficient and timely rainfall is certainly an important one. PVI hopes to overcome this particular problem, in the experimental orchard planted this year, by the adoption of a technique proven successful in Israel. The trees have been planted in widely spaced, mulched depressions. The soil between the depressions has an underlay of plastic sheet which serves both to shed the rain into the depressions and to prevent weed growth. The effect is to quadruple the amount of rain water available to each tree. The experimental orchard consists of 60 trees and represents a capital investment of about P200. If it proves successful PVI hopes to interest a few local farmers in commercial fruit growing.

This is a worthwhile experiment which has taken up only a small amount of PVI staff time and capital. It

is however, given problems other than inadequate rainfall, difficult to picture as a rural industry operated by an individual entrepreneur. There is a relatively large amount of capital required of the farmer. There is a 4 year wait between investment and pay-off. There is a fairly high risk of crop failure. Communal lands would have to be obtained for a non-traditional purpose and fenced off. If done on a large scale, marketing would be complex. As an industry an orchard would seem better suited to village co-operative effort than to private enterprise. Another possibility is simply to encourage individuals to plant a few trees in their own yards for their own consumption.

25. Shallow Well Drilling Unit:

By almost universal agreement the most pressing problem in rural Botswana is lack of water. With characteristic panache PVI has undertaken to rectify this deficiency. Their complete and future intentions in this regard are set out in detail in a recent project memorandum (The Rural Water Supplies Development Unit of PVI; May 1979). The first project in this wide ranging plan, to develop a shallow-well drilling capability (maximum 30 metres depth), is well underway. The following is an encapsulated account of this project to date.

A South African engineering graduate residing at PVI, after a brief investigation concluded that shallow-well drilling with hand-powered equipment was a feasible proposition in Botswana (R.H.MacNamara; "A Report on Preliminary Investigations of the Rural Water Supplies Development Unit of PVI", February 1979). Work was begun, in the PVI metal workshop, to construct a lever-operated percussion type drilling rig of original design. A recent graduate in geology was recruited through the U.S. Peace Corps, to head up the project. His first task was to finish building the rig and to get it operating. Although several design problems had to be overcome the drill was completed in May of this year and a test hole begun on PVI property. After drilling a few metres rock was encountered which the drill was unable to penetrate. The rig was moved to a spot a few kilometres west of Gabane, and a new hole started. After a few days of drilling a message was received from the Rural Industries Innovation Centre in

Kanye, 120km away by road, requesting that the drill be brought there to try and clear a borehole. (A borehole is the most common method of obtaining water in rural Botswana as there is a fairly reliable source of water lying 600 to 1,000 metres under the Kgalagadi sands. These wells are drilled by powered turbo-bit rigs and the water brought to the surface by diesel driven pumps. The minimum cost for a complete installation is about P10,000 and the pumps require frequent maintenance.) The PVI rig was moved to Kanye and set up over the clogged well. In short order the obstruction was cleared.

On his return to PVI the geologist stopped off at the Geological Survey Department in Lobatse to ask some questions. What is the incidence of rock in the Botswana sub-soil? In what areas of the country can water be found at depths of 30 metres or less? How can one determine the "high probability of success" sites within these areas? The answers to all 3 questions were discouraging. It is extremely unlikely that a 30 metre well can be sunk anywhere in eastern Botswana without striking a good sized rock. There are only 3 areas in the country where a water-table of 30 metres or less occurs. One is in the extreme north-east. Another is a small rift running along the Kolobeng River near Gabane. The other in sparsely populated and remote Ngamiland. The geologist concluded that the shallow-well rig had little future drilling wells but had considerable potential clearing boreholes.

This conclusion seems unduly pessimistic. It is hard to believe that the possibilities for shallow-wells are quite so limited as the Geological survey people implied. Many villages and lands areas have traditionally obtained water in the dry season, by digging "seep wells" in the beds of dried up rivers. Even in the present drought year many are still obtaining water at depths of less than 10 metres. (These open wells are dangerous and often contaminated.) The rock problem can probably be overcome by design changes in the present rig. It also seems likely that the villagers could provide sound advice as to where water can be found. In any event "trial and error" is standard procedure in water-well drilling the world over. Of greater concern than the technical problems so far encountered in the shallow-well drilling experiment is the question of its suitability as a small scale

enterprise. Drilling the well and finding water is only the first and perhaps most technically and managerially viable part of the process. Plastic well casing must then be sunk, a well-head built and a pump installed before the well is useable. The questions of financing, risk and training which this project raises make it seem a much more suitable undertaking for the Ministry of Mineral Resources and Water Affairs than for a rural entrepreneur. This also seems an obvious conclusion in the case of borehole clearing. A Borehole Maintenance Unit already exists in the Ministry. If percussion drilling is the best method of clearing clogged boreholes then surely this unit should be equipped with one. It seems unlikely that a local entrepreneur replete with a hand operated drill and ox-cart has much of a role to play here either.

Projects in the Planning Stage:

26. Wood Lot:

Eucalyptus trees provide two important commodities in rural Botswana; roof-poles and fence posts. At present these are imported in large quantities from the RSA and from Zimbabwe-Rhodesia. Eucalyptus however grows quite well in the inhabited parts of Botswana. Provided it is protected from farm animals and receives a little extra water in the first year after planting, it normally reaches commercial size in five years. The plan for the PVI wood lot project is to obtain 5 hectares of tribal land; fence it, and plant 800 trees a year for 5 years. In the 6th year, and for every year thereafter, 800 trees would be harvested and 800 planted. The investment required is P1,000 per year to a total of P5,000. Unfortunately the project has not advanced beyond the planning stage as PVI's initial application for land was turned down by the village.

In almost every respect a wood lot, such as the one planned by PVI, is an excellent rural project. It is, without doubt, economically viable, particularly if the wood-lot size is geared to local demand. Even in the event demand for poles and posts falls short of the annual off-take the excess could be sold as fuel and still provide a reasonable return. There is nothing to suggest that the project is beyond the technological and managerial capability of the rural work-force. It

has good potential for replication and creates new, if not many, permanent work places. Although the cost per job created appears high most of the expenditure is for local labour.

As a rural industry it does have some problems attached to it which, like the fruit orchard project, make it unsuitable as an entrepreneurial venture. Communal land must be obtained for a non-traditional purpose. It requires a relatively large investment for one individual and there is a long gap between pay-out and pay-off. As a project it would seem more suited to village co-operative ownership with perhaps the annual right to crop sold to an entrepreneur. He in turn, could cut, prepare, creosote and sell the finished product.

27. Piggery:

The Ministry of Agriculture has, for sometime, been promoting pig production with limited success. This PVI project is aimed at assisting the government effort and is planned to operate along the same lines as the "back-yard" broiler one. PVI would carry the breeding stock, build a demonstration unit, provide training, advice and simple veterinary services. Individual households would borrow from a commercial bank sufficient funds to finance the construction of facilities to house 8 pigs. They would buy from PVI 6 week old piglets and raise them to maturity. PVI intends to stock and sell food supplements and when necessary transport and market the pigs.

As a back-yard operation pig raising presents some technical and managerial problems not unlike chicken raising. With adequate training and some care in selecting participants of the scheme these may not prove to be serious obstacles. The economic viability of the small piggeries however is open to question. Although the capital investment is reasonable, around P600, this sum represents a year's wage for most employed Batswana and perhaps is more than a poor man should risk. And pig raising is risky. Its profitability rests on the slippery margin between the cost of feed and the price of pork, Disease and extreme heat are also hazards either of which, over-night, could wipe out the investor.

Marketing also presents a problem. When the plan was originally conceived the intent was to sell all of the output to the Botswana Meat Commission who had announced that they would shortly be adding pig slaughter and packing facilities to their plant. This addition has been indefinitely postponed and as things stand now the pigs would have to be sold to small butcheries in Gaborone. Pork is not yet popular with the local market and would depend almost entirely on the expatriate population. (Agrinews, August 1979).

In the meantime the PVI project has been delayed as the local authorities have thus far, turned down the application for the additional land required. Given the question marks about this project it might be wise to shelve it until the Ministry of Agriculture has proved it out and the BMC established slaughter and packing facilities. While waiting these developments a very worthwhile endeavour for PVI would be to check out the possibility of using local forage for pig feed and to take an inventory of this resource. Local wild roots and fruit form the staple diet of the indigenous bushmen. This food source grows in profusion in many areas. Should it prove to be a feasible and reliable source of fodder the economics of this project, its employment possibilities and its potential for replication would all be greatly enhanced.

28. Rabbits:

There is likely a good market for rabbit meat throughout most of Botswana. Although it is not normally for sale in the butcheries of Gaborone it is sold in Francistown where it commands a price (P2.50 per kilo, June 1979) as high as good cuts of beef and pork. Wild rabbits are hunted by young boys armed with sling-shots throughout the rural areas and the meat is considered a delicacy by their families (Hoyt Alverson; "Mind in the Heart of Darkness" Yale University Press; 1978). The skins too would also be marketable locally or to the tannery at Pilane.

In its rabbit project PVI plans to adopt the same approach taken for the chicken and pig raising with one important exception. Like the other two projects it is intended primarily as a back yard operation involving a number of households. PVI would supply the design of the production units; train participants;

arrange for bank loans; stock and sell feed and buy, process and sell surplus production. In the case of rabbits however, PVI will sell only the original breeding stock. It will not be necessary to supply the young rabbits to be raised, rabbits being quite capable of handling this part of the operation.

As a rural project rabbit raising would seem to be better matched to the criteria, previously set out, than any of the alternative forms of agriculture undertaken or contemplated by PVI thus far. There is little doubt as to its technical and managerial feasibility as similar back-yard operations have proved very successful in Malawi. In Ghana, where large scale units have been promoted it is estimated that 5,000,000 rabbits are eaten annually. Its economic viability is not quite so clear as there is some question as to the price rural dwellers would be willing to pay for a commodity normally regarded as a free (if somewhat rare) good. The chances for economic viability would rise dramatically (along with a corresponding drop in dependency on PVI) if local flora suitable for feed can be identified. The capital investment required of the farmer, particularly if local forage is used, is minimal - probably less than P100. The risk involved is low as the kinks have been worked out of the operation by others (Tropical Products Institute Guide 108, June 1977) and disease problems are not significant. Forage gathering and skin production open up opportunities for multiple employment and the jobs created will not displace present work-places. The work involved is not arduous and quite within the capability of the poverty target groups - women, the elderly, the young. Even the ecology could benefit if rabbit production displaces, to some extent, goats and sheep. Should the domestic breed escape it is highly unlikely they would survive to become a problem (as in Tonga and elsewhere) given the large and efficient predator population in Botswana. The industry, if geared to local markets, is also eminently replicable.

PVI first announced plans for rabbit production in 1977 but, presumably due to pre-occupation with other activities, has yet to make a start. It is a project that deserves top priority.

29. Honey Production:

Bee-keeping experience in Botswana is rather limited but the evidence that does exist suggests that substantial yields of honey can be obtained from even the driest regions. PVI plans for apiculture, at least in the initial stages, call for all facilities to be based on the PVI site. They include 2 bee-houses each with 3 hives and a fully equipped processing room. The intent is to harvest, process, jar and label the output, and market it in Gaborone.

From a total investment of P2,250 an annual profit of P1,850 is anticipated. If this remarkable return-on-investment is even close there is little doubt that honey production is, from an economic standpoint, a very viable rural industry. The technical and managerial problems are, as yet, unknown. A similar project however has already been started at Molepolole, 65km away and before long this information should be available. PVI should hold off on their own project (as seems their intent) until the companion project proves out.

This is a difficult project to assess. It would create little permanent employment (bees excepted) and calls for a relatively high investment - yet the returns are evidently very favourable. Although there would be little local market for the output (at current retail prices), it is easily transportable, even by bicycle, to town markets. Should the town markets become saturated the South African Customs Union market is open for export. If the PVI information is correct this is certainly a project which should be pursued and the details, as to how it can be organized as a replicable village industry, worked out.

30. Hot Dinners:

Like the day care centre the idea for this project appears to have originated with some female employees at PVI. Their plan is to set up simple cooking facilities (fire, grill, pots and utensils) on the PVI site, near the main road, and serve hot dinners during the noon-hour work break. The primary market would be the 80 odd employees of PVI but they also hope to attract some custom from the village.

This is a project which should be encouraged for a number of reasons, provided its economic viability is first checked out; i.e. how many employees would be willing to pay the required price? This small business would be a good entrepreneurial training exercise. It would provide employees with a meal likely more nutritious and tasty than their regular fare. It would discourage the prevalent local practice of eating on the job and save the time wasted by employees preparing their own individual meals. It offers a problem-free outlet for PVI produce. The capital investment is small and employment for one or two women is provided.

31. Kumakwane Community Vegetable Garden:

The Kumakwane vegetable garden is not, strictly speaking, a PVI enterprise, but rather a Kumakwane Village one. The total PVI investment consists of 4 fence posts, 2 loads of chicken manure and some time spent by one of its expatriate supervisors. Without the PVI input, however, it is safe to say this remarkably successful project would never have got off the ground. The story is worth telling in some detail.

It began in early 1978 when a resident of Kumakwane, a village 15 km west of Gabane, contacted PVI and said that some women wanted to start a vegetable garden. He had given some of his land for the purpose but unfortunately neither he nor the women knew anything about growing vegetables. Would PVI give them some assistance? PVI, at the time, had no one on staff with the necessary experience but were expecting such a person later on in the year. They agreed to help and, to show good faith, dispatched a couple of men who measured off a 200m² plot and sank a fence post in each corner. That done they retired from the scene and the project awaited the arrival of the new man.

Late in 1978 the agricultural expert arrived and, along with other duties, was given the Kumakwane assignment. On looking over the plot he was rather discouraged to find it consisted of poor quality, water logged soil, infested with cooch grass. (Kumakwane is, in most ways, much more a typical Botswana village than is Gabane. It is close to average size, about 100 households, and is far enough removed from Gaborone to make commuting impossible and shopping there a

rare event. In one respect, however, it is quite atypical. It is located in one of the few areas where the water table is very close to the surface and obtainable in quantity all the year round.) Hoping to solve the drainage problem the volunteer returned with the PVI tractor and segmented the plot into metre wide strips using a borrowed furrowing tool. He then got together with the 12 women who initiated the project, assigned to each a plot 1 metre wide by 16 long and announced that he would build the fence while they hoed out the cooch grass and dug a well. They told him to get workers from PVI to clear out the grass and dig the well. He refused. After much argument the women proceeded to prepare the plots and he proceeded to construct an electric fence.

When the plots were finally prepared and the well dug the volunteer produced two loads of chicken manure from PVI and some seed donated by the Botswana Christian Council. On the basis that they were popular, nutritious and relatively problem free he had selected swiss chard, cabbage, carrots and beetroot. The women were happy with these but also wanted tomatoes. He explained that tomatoes were too difficult to grow. The women objected. Tomatoes were their favourite vegetable. He was adamant, no tomatoes. The women finally gave in. He showed them how to dig in the manure and plant seed beds. When the seedlings were up and ready for transplanting he told them to get more manure from cattle kraals. They told him to get more manure from PVI. He refused. The women got manure. They were shown how to transplant the seedlings and how much and how often to water. Soon there were 12 healthy gardens.

Unfortunately this first attempt ended in disaster. Goats got into the garden one night and wiped out the crop. The fault was the electric fence. Although it worked perfectly well, the women were in the habit of leaning steel pitchforks and spades on the wire; a procedure, which in very short order, drained the batteries. No amount of pleading discouraged the practice. After the crop wipe-out the volunteer conceded defeat and told the women they would have to build a fence of thorn branches. They refused. He had said he would build the fence so it was up to him to do it. He refused. This

time it was the women who were adamant. Either he built the fence or they would abandon the project. The volunteer finally gave in. He would pay them to build the fence. The women agreed. Then, much to his surprise one lady turned and addressed the others. "This is our garden, not his. So the fence should be our fence and not his". After some discussion the women decided to build the fence for nothing and the volunteer decided to treat himself to a bowl of beer at the nearby mawapa.

The next crop was a success. Everything grew and the goats were held at bay. Most of the vegetables were consumed by the plot owners but some of the output was sold to other villagers. Although the volunteer played no part in the marketing he was rather interested to see the system that developed. Every now and then a child would appear at the garden clutching a few thebe and approach one of the plot owners. The plot owner would check out the coins then peel off from a growing cabbage the number of leaves she thought appropriate.

Before the next crop was planted 6 more women had joined the group and, surprising in Botswana, 2 men. The fence was pushed back and reconstructed doubling the size of the original plot. The old hands showed the newcomers how to prepare the beds and sold them seedlings. In all this activity the volunteer, now occupied with a PVI plot 200 metres or so away, was merely an observer.

In early October the writer, accompanied by the volunteer went out to see the community garden. The fence had again been pushed back and rebuilt quadrupalling the original area and about 20 new plots are being prepared. We looked over the original garden. Chard, carrots, cabbage and beetroot are growing in profusion - but that is not all. The volunteer is quite mystified. He doesn't even know where the seed came from. In every plot there is a bed of tomatoes and they are doing beautifully.

Of all the projects in which PVI has so far become involved the Kumakwane Community Vegetable Garden is the only proven success if "independent rural industries" is the goal. It is worth noting some of its special characteristics: The initiative came not from

PVI but from the individuals who were to be the participants; the PVI volunteer rather than build in a dependence on PVI purposefully set about to make the project independent; from the beginning the participants were discouraged from thinking of it as a PVI project; the PVI input was kept to a bare minimum - no more than was absolutely necessary.

It would be rash to conclude, on the basis of one project that the formula for successful rural industries has been discovered. There may well be some unusual circumstances. Certainly the women involved do not fit the picture painted in Section III. The volunteer, Peter Millington, also seems rather exceptional. That he took more pride in the unexpected tomato crop than in any other aspect of the project says much about him. Even so the Kumakwane community vegetable garden has provided, among other things, food for thought.

VII VILLAGE UPLIFT.

Exact information on the economic situation existing in Gabane before the arrival of PVI is not available. It is known however, that conditions differed, in two important respects, from the typical Botswana village. Gabane had a proportionately larger segment of impoverished households and the income inequality between rich and poor was greater and more clearly defined. The reasons for these two abnormalities were various. Chief among them was the close proximity of Gabane to Gaborone; another the general small and poor condition of Gabane crop lands. The figures which follow are at best a very rough approximation of the "then and now" Gabane income picture. Though lacking in precision the exercise gives some indication of the economic impact PVI has had on the village.

In 1975 about 110 of Gabane's 330 households (the average household consisting of 6 persons) could be classified, by Botswana standards, as well-to-do. These were made up of families who had some source of cash income. Either a member held a job in Gaborone and commuted (about 25); or was employed by government as a teacher; nurse, tribal affairs officer etc. (about 35); or received regular remittances from a member employed elsewhere (about 25); or was privately employed (about 5), or had a sufficiently large herd of livestock to enjoy a reasonable income from the off-take (about 20). The average annual income of the well-to-do households was roughly P1,000 (cash, kind and imputed) with about 60% of it cash. The remaining 220 households had virtually no source of cash income and were dependent on crop farming, gathering and the generosity of others for their livelihood. The average annual income of these families was in the neighbourhood of P400 - or P65 per person, an amount insufficient to provide even an adequate diet let alone other basic needs.

In the 4 years since PVI was established in Gabane the situation of the low income group has changed - and changed dramatically. At the time of writing (June 1979) the annual PVI payroll is running at P30,000. (exclusive of expatriate salaries). Almost all of this money is finding its way into the most disadvantaged households effectively raising the average annual income of this group from P400 to about P540. Although

not all of the 220 households have been beneficiaries of PVI employment, the number on the payroll, currently around 80, is deceptive. Throughout the year, depending on the activity, various people in various numbers are employed and it is probably safe to say that more than half the disadvantaged households have received direct benefit from PVI so far this year. It is important to remember as well that the benefit received is in the form of cash. Non-cash income, (shelter, food, fuel) enables a family to subsist. Cash enables it to break-out of a subsistence existence by providing the where-withal for school fees and uniforms, tools, transport and draught power. In short, PVI has, in the space of 4 years managed to raise the overall income level of Gabane by 15%; the cash income by close to 30% and dramatically reduced the gap between rich and poor. It is a major accomplishment and one not lost on PVI employees. As one expressed it, "Taylor has ploughed and we have reaped".

It is of course quite possible that the pay cheques and output of PVI do not represent a corresponding increase in village output and income; that one form of production, say cement blocks, has been substituted for another like sorghum - with no net gain to the village economy. Forty odd PVI employees were probed to see if this negative effect was occurring. The answers, a few of which are recorded here, were gratifying. "PVI lets us go to the lands and, when they are far away, transports us there." "When the rains come I go to the lands and my job here waits for me." "Last year I stayed at the lands much longer than I said I would but Taylor wasn't angry." There is even some indication that because of their employment at PVI, families are producing more on the land than they otherwise would be. "PVI fixed my plough for me". "I had (rented?) oxen last year to plough."

As no employee admitted to neglect of his land it would appear that PVI generated income represents a complete and net gain to the welfare of the community. A cynic might observe however, that more than twice the income effect would have been achieved had the total investment in PVI simply been doled out to the villagers. This is a matter for later attention. In the meantime let us look for more evidence of uplift.

It is possible for a project, such as PVI, to have effects difficult to quantify but perhaps even more important than income ones. In an attempt to find out if PVI's presence was benefitting Gabane in other ways a number of questions were put to both employees and others. When employees were asked if they enjoyed working at PVI all, without exception, indicated they did, "We sing a lot!" "The work I am doing is interesting". "When I get up in the morning I am happy because I have somewhere to go and something to do!" were typical responses. When asked if they had any complaints most were hard pressed to think of one. Those that were offered may say more about rural Batswana than about PVI. "PVI taught me how to drive a tractor. I got my drivers license. When I drive the tractor out to get sand they expect me to help the labourers load it. Don't they know I'm a tractor driver and not a labourer?" The one most frequently voiced was "I have learned tolay bricks/hammer nails/-decorate gourds/plant fruit trees....at PVI but they won't give me a certificate because they are afraid I will leave and get a job in town". (NB. Certificates, diplomas and degrees have become the determinants of rank in town with all the finality of birthright in the village. In neither location is performance held in high regard.) Even more encouraging than the enthusiasm of the plaudits and the lack of substance to the complaints was the response to the question; "What would you do if you lost your job at PVI?" Many felt that they now had sufficient skill to get a job elsewhere. Two men replied that they would return to the mines in South Africa. Several women thought they could now earn money in Gaborone.

Quite clearly PVI in the eyes of its employees is far from being a "dark, satanic mill", and has made a bigger contribution to their lives than just income. Amongst Gabane residents who are non-employees PVI received mixed reviews. The positive responses came from several quarters. A female health administrator was particularly enthusiastic. Several of her remarks are worth mentioning. "PVI has brought change to the village ... made people more aware of their culture and their abilities ... helped in community programs ... worked with us (health clinic) in many ways!" The owner of one of the two shops in Gabane was equally positive; "PVI has given illiterate people jobs and taught them skills. ...It has taught the village

many useful things. ... we like Taylor because he employs our children and not outsiders. That way our children stay with us".

No unemployed villager was discovered who would turn down a job at PVI if offered. There is evidence that the PVI example has made people aware of the opportunities for enterprise and several are thinking of starting some form of self employment. Other evidence of this catalytic effect have been previously noted - the day care centre, the hot dinner, the cinema and the Kumakwane projects. At a recent board meeting of another more-or-less dormant village development project the recurrent theme was "If PVI can do it so can we!" Most of the villagers it appears hold PVI in high esteem and for many it has been a source of inspiration.

PVI however is not without its detractors. They tend to belong to two groups. One is small but perhaps important to future PVI efforts to create self-employment; the back-yard chicken ranchers. These individuals are dissatisfied with their arrangement with PVI and none can make head or tail of PVI's method of reckoning their account. Several are convinced they are being cheated. The other disgruntled group could be classified as "the establishment" - those men who historically have held the power, wealth and influence in Gabane. This clique is extremely negative about PVI and their opposition poses a real threat to PVI's existence. The following is a translation of some of the remarks voiced at a recent meeting of the chiefs kgotla (September 25, 1979) following an application by PVI for additional tribal lands "Taylor is a man only interested in getting land". "Taylor wants to replace the chief and run the village himself". "Taylor is in Gabane only to make money. He is even selling our own soil to us". (This is a reference to a recent offer of PVI's to help a "beautify the village" campaign. PVI carted clay in from the countryside for people to patch up their homes and charged a few thebe a load, not so much to defray costs but to discourage those who weren't serious) "Taylor has too many projects going at the same time. He should concentrate on one at a time. He should first give us the bakery he promised. Then he should move on to the tannery project. When we get those then we will talk about land". "Taylor is

destroying our resources by digging up bushes by the root. Soon we won't have any thorns to build fences." (This is a reference to an intermittent gathering activity at PVI - "camel thorn branches" - which are sold to florists in South Africa. The chances of PVI making much of a dint on the thorn population of Botswana are rather slim.) It is interesting to note that all 3 women attending the kgotla consistently came to PVI's defence, whereas all men who spoke voiced complaints.

Apparently the hostility of the male establishment has only recently surfaced. Taylor who attended the meeting, appeared both surprised and hurt. He should have been neither. The establishment is the one segment of the village who has little to gain from an expanding PVI. As PVI's influence and ability to provide employment grows the establishments influence and ability to confer favour declines. As more and more of the village poor become wage earners it is less and less easy to get a servant girl to work for a couple of bowls of porridge a day, or a man to herd cattle for the usufruct. Thus the village establishment feels threatened by the erosion of both their position in the community and their ability to command the services of others. And it is only natural that they should.

Much can be made of this confrontation with the village patriarchy. The rural sociologist would be quick to point out that PVI has been caught in embarrassments of its own manufacture. The present difficulties are a result of their failure to indulge in meaningful consultation and participation with the people of the village. And of course, the sociologist is right. This is the way to avoid obstruction. It is not so clear that it is also the way to get things done. In any event every economic advance is usually accompanied by a certain amount of unhappiness on the part of those who received no benefit. The discontent among the privileged of Gabane is compelling evidence that PVI has brought about economic change and it is the poor who have benefitted.

There is little doubt then that PVI has, to a considerable degree, achieved its "village uplift" objective. Unfortunately the achievement is marred by a serious flaw. As things stand to-day virtually none of the economic activity which underpins the uplift would survive the departure of the expatriate management.

VIII C O N C L U S I O N S

From the preceding study of PVI a number of fairly clear conclusions emerge. The comments which follow are an attempt to draw them together and place them in perspective.

The most positive and perhaps distinctive characteristic of PVI is its vitality. From the beginning it has energetically sought out opportunities for rural enterprise initiating, on the average, a new activity every three months. None of these have been designed simply to make work or to please some constituency. The intent in each case has been to create employment for the community and to turn a profit. Another positive characteristic is optimism. PVI has never allowed itself to be deterred by anticipated difficulties or fears of failure. Consequently many of its activities are ambitious, imaginative and original. This combination of energy and optimism has resulted in rapid growth for PVI both in the scope of its activities and in the number of work places provided for the villagers. It has also resulted in some problems.

Certainly energy and optimism are virtues in a rural development organization but PVI appears to have these attributes in such excess as to be a fault. New projects have come at such a rapid rate that the organization has been unable to properly digest them and many of the older ones are floundering or half completed. The problem is compounded by the haste in which many of the new projects have been started. In some cases too little thought has been given either to their feasibility or the their appropriateness to PVI objectives. The number and diversity of activities has grown to such proportions that the PVI management team of two (Taylor and Gould) is over-extended. They now have more projects on the go than they can properly direct and control. They are involved in more technologies than they can properly master. Their reach has exceeded their grasp by an uncomfortable margin.

The headlong accumulation of projects at PVI may stem more from its funding problems than from the megalomania of its management. It has never enjoyed assured underwriting for the overall project but has had to seek, from a variety of donors, capital support for each activity it wished to undertake. The natural

tendency in this situation is to select projects on the basis of their likely appeal to the donor and then to estimate the most optimistic (minimal) amount of capital needed to launch them. Under the circumstances it is not surprising if marginally viable and under-capitalized projects crop up rather frequently. This in turn requires PVI to seek other, hopefully instantly profitable, projects to shore up the ones in trouble. And so the projects and problems grow.

Although the wisdom of its project policy is questionable the care with which PVI expends funds on projects is beyond reproach. Good, solid attractive buildings have been constructed for much less than commercial cost. An elaborate bakery has been built for P4,000. A sophisticated orchard for less than P1,000. All in all the ability of PVI to get a lot from a little is quite remarkable and the reasons are several. There is no doubt that the top management is careful with money, spending little or nothing on frills. Low cost, at least to PVI, volunteer expertise is employed whenever and where ever possible. Imaginative use is made of local natural resources. There is an insistence on a good days work for a days pay. Another important reason is the meticulous accounting practiced by PVI, a feature unusual in enterprise development organizations. The accounting information available to the management of PVI allows them to be cost conscious - and they are. Through careful use of its financial resources PVI has achieved a fairly low cost-per-job generated. The total investment to date, inclusive of expatriate salaries, is approximately P200,000. The number of jobs generated, exclusive of expatriate ones, fluctuates around 80, for a cost-per-job of P2,500. This compares favourably with a cost of P6,000 in the Botswana Enterprise Development Unit; P4,000 in the Botswana small formal manufacturing sector, and P11,000 in the large formal sector. It should be pointed out however that a number of PVI jobs derive from the construction of its own facilities and that the income from a PVI job is about half that of the others cited. The real cost of a full time work-place at PVI is probably very close to that in the small formal sector.

Despite the obvious benefit of careful record-keeping the purposes to which it is put at PVI are rather limited. From an accounting point of view PVI is treated as an institution rather than a group of small industries. The primary purpose of the system is to

keep track of disbursements and, to a lesser degree, control costs. Although the direct costs (labour and materials) are known for each activity the applicable indirect costs are not. No account is taken of depreciation, rent, the cost of working capital and administrative expense consumed by individual industries. Thus the real viability of the various projects is not known. Nor can anyone say how many tonnes of flour the hammer-mill must produce and sell in order to break-even or what is the real cost per foot to drill a well by the PVI method. This is the sort of information needed in the search for alternative forms of rural employment. PVI has the capability to generate it - but doesn't. PVI accounting also falls down when it comes to providing information that can be understood by contract and piece workers; consequently many of them are unable to comprehend their statements, and many of them think they are being cheated. It is no secret that the numerical ability of rural Batswana is, to put it mildly, limited. By the same token some understanding of the concept of income, cost and profit is a necessity if an individual is to successfully operate even the simplest enterprise. A real challenge and a worthwhile endeavour for PVI would be to devise ways of presenting accounting information so that it is understandable to the average villager.

If PVI accounting is careful and systematic but not as effective as it might be the reverse could be said of the general management. Although not too careful and systematic it is effective. The style is a bit old fashioned; somewhat authoritarian and paternalistic; very down-to-earth and practical. PVI is not managed from behind a desk with charts, statistics, appraisal forms and other trappings of the modern manager. Taylor, when he is at PVI, and Gould when Taylor is absent, are out where the action is keeping an eye on things, checking, correcting, showing how and encouraging the workers. The result is that PVI employees, at least by prevailing standards, are industrious and seldom idle. They are also happy at their jobs and willing to admit it. The creation of a pleasant and productive work atmosphere is a noteworthy PVI accomplishment.

Although the workers are happy the same cannot be said of most of the supervisors, whether expatriate or Batswana. The fault may lie more with the supervisors

than with the management. Volunteers, by nature, are likely to be an independent lot who don't take kindly to authoritarian and paternalistic management. Batswana, on the other hand, are not comfortable with responsibility. In consequence the support staff at PVI is not particularly effective.

PVI states, as one of its objectives, the training of "...Batswana in technical and managerial skills for the operation of rural industries" (PVI Project Memorandum, September 1977) but there is little evidence of any formal attempt to do so. Indeed it is hard to see how the PVI expatriates, none of whom are fluent in Setswana, can impart concepts of management to employees who only understand Setswana.

Some attempt is made at PVI in participative management but it is largely cosmetic. Staff meetings are regularly held, suggestions noted and for the most part ignored. Although the Board of Directors, apart from the Managing Director, is made up of local Batswana, it takes no real part in the direction of the company. The members have been picked by the management more for their eminence than an abiding interest in, or understanding of, PVI affairs. Both of these strategies may be in error. The advantage they provide is freedom of executive action; the disadvantage is lack of co-operation from those whose co-operation is needed.

There is little evidence that PVI, encourages the formation of independent enterprises. Many of the projects currently underway or planned are so managerially complex as to preclude any possibility of being run by rural entrepreneurs. When an industry, eminently viable on all counts, is created, e.g. coffin making, no attempt is made to help it become self-sufficient; nor is much assistance given to someone who wants to establish an off-site operation, e.g. day care centre. The direction PVI has, and is taking, is towards the creation of an industrial conglomerate very much dependent on expatriate expertise. The "independent rural industries" objective seems to have been forgotten. A lone exception is the Kumakwane vegetable garden. The universal response, of both staff and employees, when asked, "What would remain of PVI if the expatriate staff left to-morrow?" was succinctly expressed by a supervisor "Only the buildings!"

If PVI has made little progress towards the creation of self-employment the same cannot be said of its other goal, to "uplift" Gabane Village. Here it has had considerable success. The employment generated by PVI has given a dramatic boost to the village economy, increasing total cash income by as much as 30%. This added income has gone, almost without exception, to the most disadvantaged segment, effectively reducing income disparities. The increase too, is a net one, having been accomplished without any impairment of customary village production. There is also an indication that the project has had a catalytic effect, encouraging some to try their hand at enterprise, others from leaving the village to seek employment elsewhere. Many, too, have acquired marketable skills and along with them a new confidence. People are no longer sitting around - "batla go jesiwa jaaka dikoko" - waiting to be fed like chickens. The village has come alive.

This "uplift" of the village has been a major achievement and, to some extent, PVI has become a victim of its own success. The traditional hold over the poor by the rich and powerful has been loosened. The centre of gravity in the village has shifted away from the chiefs kgotla towards "Taylor's place". The consequences of this disruption to the traditional hierarchy are just now beginning to be felt. A power struggle is shaping up between the village establishment and PVI - and PVI could easily be the loser.

It is rather easy to blame PVI for this predicament - to conclude that, had they engaged only in activities approved and supported by the village, the present situation would never have arisen. This could be true. Yet, had PVI allowed the village establishment to dictate its directions, would the poor of Gabane have been the beneficiaries? It is worth noting that the call from the kgotla is for a bakery and a tannery - but it is the rich who can buy bread and it is the rich whose animals have the skins that need tanning. Perhaps it is more productive to speculate what might have happened had PVI been as diligent in pursuing the "independent industries" goal as in pursuing the "village uplift" one. Had PVI concentrated on creating small enterprises and spun them off when they were able to sustain themselves it would never have reached its present monolithic proportions. The PVI profile would have remained too low to have attracted

resentment. The revolution would have been a quiet and durable one.

The several conclusions reached here do not add up to a judgement of Pelegano Village Industries. They do, however, suggest that the time has come for PVI to re-examine some of its strategies, its goals and perhaps even its basic tenets. More concretely they point up the need for retrenchment; for an improvement in relations with the traditional village leadership; for a better funding arrangement, and most important for a need to build into the program some provision for the permanence of its benefits. There is nothing in the conclusions to suggest that support for the program should be withdrawn. Those who have helped PVI in the past have been well served for much has been accomplished with their generosity; there is every reason to think that even more will be accomplished in the future.

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