ORGANIZATIONAL INNOVATION IN ZIMBABWE: THE VIABILITY OF SUSTAINABLE CHANGE[1]

Anne Caroline Posthuma

1 INTRODUCTION

Issues concerning the changing organization of production and the structure of manufacturing enterprises have stimulated heated debate in the leading industrialized nations throughout the 1980s. Only more recently, however, has a limited but rapidly-growing body of literature begun to emerge concerning the adoption of new organizational techniques in developing country firms.[2] Thus far, the theoretical debate and case studies have included selected Latin American and Asian countries, focusing particularly upon the less industrialized economies of these regions. Few studies, however, have examined the diffusion of organizational change in African countries or within less industrialized developing countries. Our understanding of the impact and policy implications of organizational change in developing countries, therefore, is being shaped at this early stage by studies which tend to highlight the relatively more advanced industrial nations in the Third World.

This article addresses this gap in the literature by presenting research findings from Zimbabwe concerning the adoption of new organizational techniques, based upon the Japanese model, in a sample of six manufacturing enterprises.[3] This article examines two basic propositions. First, whether organizational change offers a cost-effective means for firms in developing countries to improve their efficiency and productivity by restructuring production practices and patterns of human resource utilization, rather than relying upon investments in capital equipment. A study of the rise of Japanese competitiveness in the automobile industry, for example, reveals that transformations in the organization of production and administration preceded large-scale investments in automated capital equipment (Cusumano 1985 and Womack, Jones and Roos 1990). Therefore, this research was undertaken in Zimbabwe to explore whether organizational change could offer developing country firms a less capital-intensive and less foreign exchange-intensive route to increased productivity and competitiveness. In addition to lowering financial barriers to entry, organizational reform may help firms by reducing the indirect costs associated with poor productivity, poor product quality, waste and scrap. Nevertheless, this study has found that where machinery is very outdated, investments to upgrade capital equipment may be required simultaneously with changing organizational practices.

Second, this article explores the extent to which organizational change not only comprises a set of techniques, but also involves changed relations of power within the firm and a greater reliance upon human resources through changed work practices. Research findings suggest that unless attention is given to these social as well as technical aspects, a programme of organizational reform will be limited in both its impact and its sustainability.[4]

The potential offered by organizational change is particularly relevant for most developing countries at this point in time, as they experience acute foreign exchange problems, exacerbated by economic structural adjustment programmes imposed by the international lending agencies. Domestic industries face increased competition through liberalization of the

[1] The author gratefully acknowledges financial support provided by the Institute for New Technologies (INTECH) of the United Nations University, for this research project conducted jointly with Raphael Kaplinsky.

[2] For example, Mody *et al.* (1991), Hoffman and Kaplinsky (1992) and Posthuma (1991) among many others.

[3] For a fuller presentation of these research results, see Kaplinsky and Posthuma (forthcoming). All six companies were selected because they had contracted a team of local management consultants to introduce the Kawasaki Production System (KPS), on license from Japan, into the productive area of the firm. The KPS system is a collection of organizational techniques which includes most of the features commonly associated with the Japanese model of production organization, such as: just-in-time inventory reduction; quality at source; operator verification of quality; preventative maintenance; quality control circles; and, single-unit flow.

[4] A similar argument was made within a much larger debate by work at the Tavistock Institute. For a more recent perspective upon this debate, see Matthews 1991.

economy. Unemployment is rising and firms risk further decline and eventual closure without a programme which enables them to upgrade and become more productive and cost-efficient.

These research findings respond to the conditions currently surrounding developing countries by lending a perspective on organizational change in a geographical region which has not been examined heretofore. Second, the Japanese company which licensed the Kawasaki Production System (KPS - see Note 3) to a Zimbabwean consultancy firm believed that it is impossible to adopt these organizational techniques in the African context. This research provides the opportunity to test this view. Finally, despite the inevitable difficulties involved, it is important to consider whether the findings presented in this article and others in this Bulletin indicate that organizational change offers some cost-effective methods to upgrade industrial activities in developing countries.

This article discusses research findings regarding the primary impacts of organizational reform in Zimbabwe upon three basic pillars of production: capital equipment, production workers and management. Each of these three areas is treated in a separate section below. The final section discusses the principal conclusions drawn from the findings presented.

2 PRODUCTION EQUIPMENT AND ORGANIZATIONAL CHANGE

A principal hypothesis of this research, as mentioned above, was that organizational change could offer developing countries a more capital-efficient and less foreign exchange demanding approach for upgrading their manufacturing operations, by reducing the need to invest in capital equipment, at least in the short- to medium- term. The research findings in Zimbabwe offer some support for this hypothesis.

Organizational change in the firms examined included restructuring the layout of existing equipment and of employees' work practices in order to create a more rational and efficient work flow. Technical and production staff were encouraged to build devices using in-house materials, which would enhance these new operations. For example, one company built chutes to connect a set of machines which had been restructured into a manufacturing cell. As this was a metal-working firm, these devices were built in-house with no additional cost of materials.

Another metal-working company used scrap steel to build a set of 'kanban trolleys' which were designed to transport a fixed quantity of parts to the welding bays for assembly.[5] Aside from their low cost, these trolleys were specially designed by a company draughtsman who understood the KPS concepts and who tailored them to meet the company's specific needs. In another case, quick die change-over was achieved by a redesign of die supports. This enabled the die to slide in and out more quickly, greatly reduced the amount of adjustment required and, together with the use of a trolley to help die removal and installation, eliminated heavy lifting and moving by workers.

An extremely simple method was found to improve the quality of the welding operations on a cart frame. A jig was built (using in-house materials) which standardized the shape of the cart frame and brought welding work off the floor where it was subject to damage, irregular shaping and poor quality welding. Furthermore, the jig was built at a height which was more comfortable and convenient for production workers.

These in-house solutions not only enhanced the operation of installed machinery, but also reinforced new work practices. For example, the kanban trolley described above was built to hold a fixed quantity of parts, thereby setting a ceiling on work-in-progress and keeping operations close to a single-unit flow. Furthermore, these solutions resulted from drawing upon the creativity of in-house workers. An important lesson emerges from these simple examples: incremental change lays the foundation for continuous improvement. In turn, continuous improvement is not only a technical issue but also requires the involvement and participation of employees at all levels of the organization. We will return to this issue later in the discussion of production workers and management.

Some of these solutions described above may appear excessively simple, especially when considering the

[5] For a brief definition of kanban, see the Appendix to the Introduction to this Bulletin.

industrialized or newly-industrialized countries. However, conditions in second-tier developing countries involve rudimentary aspects which are particularly well-suited to improvement through organizational restructuring and creative design solutions, rather than searching for a technological answer.

Nevertheless, the full diffusion of organizational change ran up against some technological constraints. The capital stock in Zimbabwean industry is of an old vintage (World Bank 1987) and most of Zimbabwe's manufacturing machinery and equipment needs are imported.[6] Two principal problems related to the use of outdated equipment were cited by technical staff in the course of this research. First, difficulties obtaining spare parts involved tool room staff in reproducing replacement parts. Second, worn-out machinery breaks down more frequently, creating bottle-necks for the production line and reduced product quality, while increasing the time which production workers spend standing idle and maintenance staff spend on repairs. Nevertheless, the selective replacement or upgrading of out-dated equipment also posed problems, creating islands of old and new practices co-existing side-by-side and shifting bottle-necks elsewhere on the shop floor.

The research findings confirmed the old age of installed capital equipment among firms in the research sample. The machinery installed in certain production areas in three of the firms in the sample had been purchased, on average, 20 years ago, and the oldest machine reportedly had been bought in 1947. Some of these machines were even older than this, as they were bought second-hand from South Africa.

Organizational change has a dual-edged impact upon installed capital equipment which is worth clarifying at this point. On the one hand, organizational change can improve the utilization of outdated equipment through such methods as eliminating buffer stocks which disguise inefficiencies, rationalizing the production flow and introducing a programme of preventive maintenance. On the other hand, by exposing areas of inefficiency which were previously hidden, organizational change also reveals where old capital stock cannot be revitalized. Therefore, whereas organizational reform does not necessarily demand new investments in capital equipment, the efficiencies arising from these new techniques may expose bottlenecks due to outdated equipment which were hidden previously behind inefficient practices and may point to areas where old equipment should be replaced.[7]

Preventive maintenance is an important method for improving the utilization of installed equipment and was particularly relevant in Zimbabwe, given the age of its capital stock. Firms depend upon high up-time of their machinery and preventive maintenance helps obtain this by reducing breakdown time. All the firms interviewed had introduced some form of preventive maintenance as part of the KPS system. Nevertheless, it remains to be examined how effective these firms will be in implementing a preventive maintenance programme.

Unfortunately, good time series data on improved machine utilization was not available, due to the short time which these preventive maintenance programmes had been in operation and the poor data collection methods used prior to the KPS programme. However, several findings are worth noting concerning the implementation of preventive maintenance programmes in these firms, which are summarized in Table 1. First of all, five out of six companies had developed more systematic methods of recording maintenance activities as they restructured. In some cases, the rationalization of maintenance activities involved reducing stocks of parts and/or more systematic ordering methods. Second, a rota system of regular machine maintenance and upkeep was introduced in the majority of firms.

In several cases, a plant history was drawn up detailing all machines and repair patterns. These data enabled maintenance staff to evaluate past performance, calculate costs and set targets for future improvement. Management in Firm C, for example, had always regarded the tool room as a loss-making operation because it provided poor in-plant maintenance. The tool room staff conducted maintenance for the productive areas of the company and also performed outside machining jobs for

[6] Virtually all investment projects require imported capital goods.

[7] Nevertheless, some companies continued to act in ways which were contradictory to the logic of new organizational practices. For example, one firm imported a high-quality automated machine which was more sophisticated than the company needed rather than replace other outdated machines which were producing poor quality and slowing production on the factory floor.

Table 1: Aspects of Preventive Maintenance Programmes

Firm Code	Systematic Record-Keeping Introduced	Rota for Machinery Upkeep	Worker Participation
Firm A	Yes	Yes	No
Firm B	Yes	Limited	Yes
Firm C	Yes	Yes	No
Firm D	Yes	Yes	No
Firm E	No	No	No
Firm F	Yes	Yes	Reduced

third parties in order to maintain high utilization rates of the expensive and more sophisticated equipment in the tool room. However, management never realized that the factory suffered high downtime (calculated at 60 per cent of effective productive time) because tool room staff could not maintain the company's own machines when they were working on outside orders. As a result, the company lost more money through downtime than was gained by conducting outside orders. New organizational procedures make such inefficient practices more transparent and help production staff visually locate bottlenecks by reducing stocks, demarcating work areas and using kanban trays (to limit the build-up of work-in-progress).

Following the introduction of preventive maintenance in Firm C, each maintenance staff member now cares for a designated area and each machine is checked weekly under a rota system. Maintenance staff are available for immediate breakdown repair and charge the company for these services. These restructured work practices improved maintenance effectiveness and management's perception of the maintenance role performed by the tool room. Now maintenance staff reportedly perform their work more conscientiously and management regards the tool room as a profit-making area.

Some authors consider preventive maintenance activities to be an area in which workers can become multi-skilled and participate more in new manufacturing methods. However, as Table 1 shows, workers in most Zimbabwean firms were not involved in conducting basic maintenance procedures. Only in Firm B were workers given more responsibility for external cleaning of the machine and their work area. Machine operators also drew designs of their machines, indicating where the machines were to be checked, adjusted and lubricated daily. In contrast, Firm F withdrew all basic upkeep which machine operators had performed previously and centralized maintenance activities in the tool room/maintenance department, thereby reducing workers' participation in the change process. When questioned regarding this decision, maintenance staff replied that workers did not know how to care properly for machines. Yet, staff did not consider providing basic training which would have enabled operators to care properly for machinery. As technical staff make most maintenance decisions, production workers do not question how change is conducted. Firm E did not succeed in introducing even rudimentary aspects of preventive maintenance.

A climate of mistrust existing between management and labour, as well as racist stereotyping, inhibits the process of passing responsibility down to production workers.[8] For example, the production manager at Firm E had bought tools for operators to conduct basic maintenance, yet kept them under lock and key in his office so workers would not steal them.

[8] The Zimbabwean government has enacted explicit policies to promote the Africanization of the technical and managerial echelons of companies. Now, 12 years after independence, black advancement has been achieved, but has been gradual and uneven. A strong racial division of labour persists, where nearly all the manual labour force is composed of black Africans and management is dominated by whites (Masoha 1991). For example, in all companies in the research sample, the Managing Director was white (while the corporate Managing Director of one corporation was a black political appointee). Black Zimbabweans had been appointed shop floor manager in two out of six firms, while the assistant shop floor manager was black in five out of six companies.

Hence, skill enhancement did not comprise part of the organizational change process in the majority of firms examined and any future provision of training to enable workers to conduct more operations was not contemplated.

3 HUMAN RESOURCES AND TRAINING

Some production workers regarded the impact of organizational change on their work positively. In part, these positive responses can be attributed to workers' reluctance to express their view with an outsider, despite assurances of confidentiality. Furthermore, some workers - predominantly black African males - found it odd to speak with a foreign white woman about their work. However, when contact was made with the union beforehand, union representatives as well as workers still expressed great interest in the restructuring methods as well as concern about their longer-term implications for the labour process and job stability.

Most responses by workers regarding organizational change addressed three principal issues. First, workers reported that their work was easier and lighter following organizational reform. While part of the reduced workload can be attributed to decreased market demand under the current recession, their observations have a basis in fact. A fundamental objective of KPS is to reduce all non value-added activities. Hence, eliminating unnecessary lifting and carrying also reduces heavy physical labour, Yet, by the same token, eliminating non value-added activities increases the likelihood of intensifying the pace of work.

Second, most workers expressed genuine interest in learning more about the new work practices. Many production workers could already outline the basic concepts of KPS restructuring, even after minimal training. Workers in several factories complained that volunteers who went on special KPS courses did not report what they had learned to their colleagues. Requests by some workers for more widespread and sustained training contrasted with remarks by several managers that workers were resistant to new work practices and were slow to learn. This confirms research in some other developing countries which shows that management and supervisors are more resistant to innovation than production workers (Posthuma forthcoming; Fleury and Humphrey 1992). This point is taken up in Section 4.

Finally, many workers expressed deep concern over potential dismissals arising from the restructuring of production, especially in a national context where changes in labour legislation linked with the economic structural adjustment programme (ESAP) are removing former employment stability protection. One worker commented: 'KPS is ESAP'. In other words, he saw both events as being linked in a process of increasing unemployment, declining real value of wages, inflation and rising costs of living. Other workers and union representatives shared this concern. Hence, while management saw organizational restructuring as a method of responding to increased economic pressures, workers feared that reorganization would be used to cut costs through reducing direct labour costs (i.e. reducing the size of the workforce).

Based upon discussions with workers and union representatives, a strong relationship was found between worker skill levels and their opinion of the restructuring of work practices. Semi skilled and unskilled workers tended to have either no strong opinion, or were positive about features of the new work practices, or were concerned about possible redundancies. In contrast, skilled workers tended to hold stronger views and were more circumspect about the KPS programme. It is the view of the author that their hesitation arises largely from the manner in which new work practices are being introduced. Furthermore, skilled workers were more likely to be unionized and more self-confident, and viewed management's intentions behind restructuring production in a political context. In Firm C, skilled workers requested remuneration for increased productivity and greater scope in suggesting changes to the structure of work within their manufacturing cell. Only when management rejected their requests did the issue become confrontational; these workers were suspended from work and eventually decided to leave the company.

Workers' education levels were also examined. On average, workers had a low level of formal education and few had taken additional vocational courses. Table 2 below presents data concerning the levels of formal education and training reported by workers in Firm A; these figures are comparable to data collected in the other factories in the firm sample. Limited formal education and training among direct production workers was not found to constrain the introduction of new work practices, nor did it pose limits to the participation of workers in the Quality

Task Forces - a type of quality control circle. However, the objective of new organizational techniques is to attain a system of continuous improvement within the firm. Therefore, in the long-term, a restructured firm which aspires to continuous improvement, rather than one-off change, is likely to rely upon further training of workers. These findings suggest that Zimbabwean workers generally acquire skills through experiential know-how and on-the-job training. The type of on-the-job training offered was found to be rudimentary and uneven. Most on-the-job training for production workers consisted of a 'sit next to Nellie' form of experiential learning and in-house courses were generally designed for managerial, technical and financial staff. Over the working life of these production workers in Firm A, 40 per cent had taken some type of additional course. In the majority of cases, the worker paid for these courses, rather than them being provided by the company.

A management consultant and Managing Director both shared the view that: 'The success of KPS relies upon the participation of workers'. Hence, management expected the involvement of workers in the new organizational system. Although this research showed that low formal education and training did not constrain the introduction of new work practices initially, in order for workers to meet these new expectations and participate, more attention must be given to strengthening workers' understanding and mastery of these new techniques. At the time of the research, however, training in new worker practices was extremely basic and workers' ability to take on new responsibilities was limited. Nevertheless, the theory of Japanese organizational techniques and new work practices clearly conflicted with many existing management attitudes and work practices among these Zimbabwean firms. Indeed, workers commented that the research interview was the first time their views of the new programme had been solicited.

Hence, a contradiction was found between the theory and the practice of organizational reform. On the one hand, worker participation was cited as fundamental; on the other hand, the scope for worker involvement, remuneration for productivity increases and training for workers was limited. In the view of the author, training and skill development must play an important role in the further diffusion of new organizational methods in developing countries, particularly for three reasons. First, training provides workers with an opportunity to gain skills suited to a new model of production organization. Second, courses can help to enhance existing skills or alter former work practices. Finally, courses would formally recognize the skills involved in tasks which workers either already perform (and which were gained through unrecognized experiential learning) or will certify them for new tasks they will perform. Formal certification and recognition of skills would help workers to receive fair wages for their ability and gain a better position in the domestic job market. Furthermore, certification would help firms to know what they are getting and to set standards for employment.

4 UPPER AND MIDDLE MANAGEMENT

The acute lack of skilled management and technical personnel in Zimbabwe is widely recognized (King

Table 2: Comparison of Educational Levels, Years of Employment and Additional Courses Taken by Production Workers in Firm A, Industrial Shelving Area

	Number of Workers	Average Years of Education	Average Years at Firm A	Average Number of Courses Taken
Total Workforce	25	6.5	14.3	0.4
Permanent	20	5.5	17.4	0.3
Casual	5	10.6	2.3	0.8
Workers In Quality Task Forces	14	6.6	17.5	0.2

1990; Bennel 1990). Its historical antecedents lie in a colonial and racialist government which restricted access for blacks to academic education and vocational training and withheld skilled jobs for whites. Given this white skills monopoly, the emigration of skilled white labour over the 1980s - especially in two waves at Independence and in the mid-eighties - drained the country of a large share of its skilled managers, machine operators, maintenance staff, apprentices and other technical personnel.

The shortage of skilled management and technical personnel has impacted upon the current manufacturing environment in Zimbabwe in two major ways. First, people at different levels of management do not have adequate skills to meet the abilities demanded by their post (Labat-Anderson 1990). Second, a high turn over rate of management and skilled personnel (supervisors and technicians) is common as these sought-after skilled workers change jobs in search of better wages and benefits (King 1990). Nevertheless, it must be noted that to a limited degree, the visible effect of racism in the workplace has begun to be partially rectified, as more blacks have been promoted on the basis of merit to take management and technical positions (Masoha 1991).

Organizational change requires participation of people at all levels of the firm, through programmes such as quality control circles, operator verification of quality, preventive maintenance and total quality management. The KPS system seeks to endogenize new work practices by implanting a three tier structure depicted in Figure 1, which acts as a communication feedback loop within the firm.

At the first level, the Quality Task Forces (QTFs) are composed of workers participating on a voluntary basis (rather than involving the entire direct labour force) to stimulate discussion and to generate new ideas. Depending upon the nature of a worker's suggestion, the idea is either implemented by the QTF team, often with the help of a supervisor, or is sent to the KPS Task Force for consideration. The KPS Task Force provides a forum for first and second level supervisors to give feedback on production operations, and suggest new ideas, and for the Production Manager to assign duties and oversee the progress of KPS. Finally, the KPS Steering Committee is an executive committee designed not only to oversee the progress of KPS, but to discuss financing of more expensive projects and to set long-term goals and objectives.

Figure 1: Structure of In-House Communication in Zimbabwean Companies Undergoing Organizational Change

KPS STEERING COMMITTEE
(Composed of upper-level management: Managing Director, Financial Director, Production Director and shop floor manager)

KPS TASK FORCE
(Composed of shop floor manager and first and second level supervisors)

QUALITY TASK FORCES
(Composed of volunteer production workers and first or second level supervisors - sometimes shop floor manager)

The successful operation of this communication feedback loop relies upon the participation of each link in the chain. Yet, the research findings indicate that these structures did not always survive and sustain themselves, due primarily to a lack of participation and guidance by management.

In five of the six firms, workers continued to meet regularly in the QTFs, generating suggestions for improvement. However, in the middle tier, the KPS Task Forces met irregularly in most companies. Even more surprising, in two-thirds of the firms, upper management were no longer meeting in the KPS Steering Committee. Hence, no feedback on ideas or monitoring of progress in organizational reform was conducted at the top of the communication structure. The extent to which new organizational practices contribute to sustainable improvement relies upon a committed and proactive attitude by upper management. Yet, these findings cast doubt upon upper management's commitment to the change process in the majority of firms and suggests that the top management in these companies expect that change will be achieved automatically or through the efforts of other members in the company.

The lack of participation by upper management also had a direct negative impact upon the morale of middle management. As depicted in Figure 1, shop floor management plays an important linking role between upper management and production workers. Although shop floor managers were given great

de facto responsibility for day-to-day operation of the restructuring programme, they reported feeling frustrated when upper management did not provide adequate resources to support the change process. This frustration among shop floor managers has disastrous consequences for the KPS programme. In some cases, the frustrations led to neglect of the programme, resulting in a levelling-off of improvement, or in some cases, a decline in indicators. For example, workers repeatedly indicated that the principal source of poor quality was a set of hopelessly outdated machines which broke down frequently. As corporate management would not release the funds to replace the machines, a supervisor in Firm F told workers in one QTF to stop meeting because he could not bear to receive the same suggestion repeatedly while he had no means to remedy the problem.

Two general types of behaviour were noted among shop floor managers in the research sample. One group of shop floor managers accepted the restructuring programme energetically and implemented its procedures as well as they understood them. Yet, these managers became demoralized if upper management was complacent and reluctant to finance new programmes. The second group of shop floor managers rejected the new programme soon after its implementation, often because their inadequate management skills were heightened by the generally weak instruction they had received in the new organizational skills. This latter group of managers inhibited progress, even where workers were initially receptive to the reorganization programme.

As already mentioned in this article, a successful programme of continuous improvement is not only a technical issue, but also relies upon the active participation and involvement of employees at all levels of the company. Given the inter-linked character of the three-tier communication structure which was introduced under KPS, the breakdown of management's participation in meetings threatened the effective operation and eventual survival of this feedback loop mechanism.

5 CONCLUSIONS

A key hypothesis of this research has been that organizational change provides a capital-efficient and forex-efficient method for developing country firms to reduce waste and increase their efficiency and productivity, while reducing the need to upgrade installed capital equipment. The research findings in Zimbabwe tended to support this hypothesis, as organizational restructuring utilized existing equipment and involved new investments in machinery only when necessary. Maintenance staff in several companies reported increased effective utilization of machinery by introducing preventive maintenance programmes. However, the impact of organizational change was limited by the outdated capital stock in some Zimbabwean enterprises, suggesting that in some cases organizational change must walk hand-in-hand with well-considered investments in new equipment in order to have more widespread impact.

Organizational reform comprises more than just a set of techniques - it involves widespread changes in work practices and power relations within the firm. This second agenda of social issues appeared to be more difficult to implement among firms in the research sample and threatened to undermine the impact of organizational change upon improving productivity and competitiveness. Production workers who were interviewed expressed concern about the employment impact of organizational change within the macroeconomic context of structural adjustment. Some workers were also interested in receiving more training in new work methods, rather than the basic introduction they had received.

The low average level of formal education reported among production workers did not appear to prevent the introduction of new organizational methods among the firms interviewed. However, given the increasing participation and involvement of workers which is required to attain a programme of continuous improvement, it is likely that firms will need to direct more attention toward providing training and skills development for workers.

Organizational reform which leads to continuous improvement requires the participation of people at all levels of the manufacturing enterprise. However, among most firms in the research sample, the participation of upper management was irregular. The three-tiered organizational structure introduced as part of the KPS change programme was not working in most firms. While groups of workers were found to be meeting regularly, meetings among middle management and particularly upper management groups had slowly tapered off.

This article argues that continuous improvement is not built upon one-off changes, but is constructed through gradual incremental change supported by communication and participation by all workers in a manufacturing organization. Consequently, these research findings indicate that both the technical and social elements of organizational reform must be introduced in order to obtain efficiency and competitiveness which is sustainable in the longterm through a system of continuous improvement.

REFERENCES

Bennell, P., 1990, 'Prospects for employment, skills demand and skills supply in Zimbabwe', Report prepared for the World Bank, May

Cusumano, M., 1985, **The Japanese Automobile Industry**, Boston: Harvard University Press

Fleury, A. and Humphrey, J., 1992, 'Recursos Humanos e a Difusão e Adaptação de Novos Métodos de Qualidade no Brasil' **Working Paper**, Brasília: IPEA, (a revised version of this Report will be forthcoming as an IDS Research Report in 1993)

Hoffman, K. and Kaplinsky, R., 1992, 'Transnational corporations and the transfer of new management practices to developing countries', Report prepared for the United National Centre on Transnational Corporations, October

Kaplinsky, R. and Posthuma, A., forthcoming, 'Organizational change in Zimbabwean manufacturing', Report prepared under a research grant from the United Nations University Technology Programme, Maastricht, Netherlands

King, K., 1990, 'In-service training in Zimbabwe: an analysis of relationships among education and training, industry and the state', **PHREE Background Paper Series** No. 90/27, Education and Employment Division, Population and Human Resources Department, Washington D.C.: The World Bank, March

Labat-Anderson Inc, 1990, 'Country training strategy and private sector training needs assessment: USAID/ Zimbabwe', Prepared under contract for USAID, Virginia

Masoha, S., 1991, **Black Managerial Advancement in a Sample of CZI Companies**, Harare: Confederation of Zimbabwe Industries

Matthews, J., 1991, **Tools of Change**, Sydney: Pluto

Mody, A., Suri, R., Sanders J. and van Zoest, D., 1991, 'International competition in the footwear industry: keeping pace with technological change', **Industry and Energy Department Working Paper, Industry Series Paper** No 51 Washington D.C.: The World Bank

Posthuma, A., 1991, 'Changing production practices and competitive strategies in the Brazilian auto components industry', Unpublished DPhil dissertation, IDS, University of Sussex

—, forthcoming, 'Japanese manufacturing practices in developing countries: a best practice model or basis for adaptation?', in T. Elger and C. Smith (eds), **Global Japanization? Transnational Transformation of the Labour Process**, London: Routledge

Womack, J., Jones, D. and Roos, D., 1990, **The Machine that Changed the World**, New York: Rawson Associates

World Bank, 1987, 'An industrial sector memorandum', **Report No. 6349-Zim**, Washington D.C.: IBRD