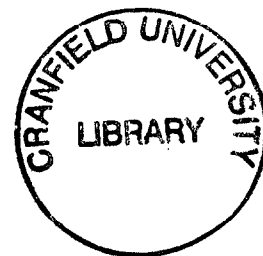




1403341826



**SWP 13/90 SUSTAINABILITY, SELF-SUFFICIENCY
AND MANAGEMENT SIMPLICITY**

**JOHN P GRIERSON
Research Student
Cranfield School of Management
Cranfield Institute of Technology
Cranfield, Bedford MK43 OAL
United Kingdom**

(Tel: 0234 751122)

Copyright: Grierson 1989

SUSTAINABILITY, SELF-SUFFICIENCY AND MANAGEMENT SIMPLICITY

An Assessment of the Butwal Technical Institute's (BTI) Approach to Cost-Covering Production Based Vocational Training

John P. GRIERSON

ABSTRACT

Few development projects are designed with the objective of being partially or wholly self-sufficient. Recent research finds these few to be often overly complex in design and hence difficult to manage. Projects and approaches that assume both fund raising and service delivery roles increase considerably the management challenge that is inherent, and increasingly recognized as critical, in development. Production based vocational training programmes typically accept this challenge, probably in some innocence, when they combine the production management task of revenue raising with the educational management task of training.

The pressure to accept this challenge stems from the high cost of vocational training, the pressing need for vocational and skills training and the recognized pedagogical soundness of production based vocational training. In practice, however, the results have been disappointing. This may be due in part to the management complexity of the cost covering production based model. The management demands of both revenue raising through production and delivering training may overwhelm the pedagogical soundness and economic desirability of the model.

Nepal's Butwal Technical Institute (BTI) offers a rare example of an institution that has proven itself successful over more than twenty years while using a cost-covering production based approach to vocational training. A novel approach characterized by management simplicity may be the key to BTI's success.

The Cost of Vocational Training

Vocational training is expensive. A Harvard Institute for International Development study of small enterprise promotion programmes categorized assistance programmes into six models. One of these, the "Training" model - programmes that "concentrate on providing jobs skills training for low income people" is characterized as "an expensive type of programme to operate" (Mann et al, 1989) Such programmes are fundamentally different from other development initiatives. Comparatively they require high investment per beneficiary (Tendler in Levitsky, Ed., 1989) and provide fewer social benefits to

the community (LaTowsky, 1989). A recent study conducted by the Cranfield School of Management for Britain's Overseas Development Administration (ODA) found US\$ 2,315 the average cost per trainee of a sample of thirty-three vocational training programmes (Grierson, 1988). Though the cost per trainee figure reported is from an unweighted sample from 18 countries it is thought useful as an indicator if for no other reason than that the literature generally fails to address the issue of specific unit costs. Most of the programmes surveyed were in Africa, Asia and the South Pacific; most were Non-Government Organization (NGO) based programmes targeted towards the small and micro sectors. Long term modern sector and high technology vocational training is thought to cost much more.

The programme assessed here, the Butwal Technical Institute, is a "Training" model programme according to Mann's definition, and one of the 33 programmes surveyed by the Cranfield/ODA study.

Vocational Training Costs in Context

The programmes surveyed for the ODA study were for the most part in developing countries (31 of 33). Most were training people at relatively simple levels of technology for employment and self-employment in the small and micro sectors. Characteristically the facilities were modest and the training short to medium term.

Even at this level of training the cost is substantial when considered in terms of the resources that the developing economies have available for training and the considerable and growing numbers of youth and others who need to be trained. Though the average cost per trainee determined by the ODA study, \$2135, is modest in international terms it is more than fourteen times the per capita

annual income of \$160 of poor countries such as Nepal or Bhutan (Luhan, 1987, Seibel in Levitsky, 1989). This "high cost of training" (along with a mismatch between offered and needed skills, urban bias, the oversight of new technology and external constraints) was cited as a principal constraint in a recent World Bank report investigating "skills training" support programmes (McLaughlin, 1989).

Developing countries particularly find that such costs are a considerable burden on limited national resources. The result is both limited facilities on offer and a degree of continued dependency on externally provided resources. The challenge thus posed is for developing countries to develop indigenous vocational training institutions and methodologies when they are faced with both a great need and the financial and management burden this need creates.

Many attempts have been made over the years to meet this challenge with training models and programme designs that enable training institutions themselves to reduce costs and to cover all or part of the cost of training.

A Variety of Approaches

Two problems frequently emerge, often simultaneously; the costs of training need to be met (and sustained) and the management challenge of meeting costs while remaining focussed on vocational training needs to be mastered. The latter often goes largely unrecognized as a principal constraint. Both are particularly significant in developing countries characterized by a dearth of funds and specialized management skills. Approaches to cost-covering production based training often tend to focus on the funding problem - meeting or at least reducing the costs.

Low cost traditional approaches to production based training pre-date all modern development agency sponsored efforts. Traditional apprenticeships are the classic approach to production based vocational training and probably account for the vast majority of all vocational/skills training (McLaughlin, 1979). In traditional apprenticeships production is dominant and the production facility - the business - is the classroom. Many programmes have co-opted this mechanism. In most cases the goal is low technology, low cost relevant training. The Refugee Enterprise Development Project (REDP) in Somalia used this mechanism to good effect offering training at a low *direct* cost of as little as \$50 per trainee per month (Grierson & LaTowsky, 1989). While achieving impressively low costs this mechanism is not, of itself, cost covering and is of necessity strongly production not training focussed in that the business itself is the training venue. Further, as the REDP discovered, the model tends to be "supervision intensive and hence requires a fairly high standard of programme management" (Grierson and LaTowsky, 1989). Typically, as the REDP demonstrated, the quest for a mechanism that covers or reduces costs often results in a model that demands high standards of management.

There is currently much interest in co-opting the self-help traditions of poor people and the dynamic potential of artisans, entrepreneurs and community organizations to provide skills training. This approach places great emphasis on self-financing often through fund raising, savings mobilization and other traditional self-reliance mechanisms. While offering some hope such efforts are limited in scale, level of technology and cultural appropriateness (King, 1987).

A recent Dutch study notes that the limitations of group and self-help approaches to development are often economic. As Verhagen pointed out in the Dutch (KIT/CEBEMO) study "the poor, while they remain poor, cannot afford to pay in full" for their own training (Verhagen, 1987). The poorer the

country and the target group the more limited the contribution of fees and similar self-help funding mechanisms. Can we reasonably expect a poor Nepali to pay fees equal to ten or fifteen times or more the per capita annual income in his country? High costs (and the inability of the recipients to meet these costs) remain a principal constraint.

Correspondingly the management problem, albeit of a different nature, is also significant particularly for governments and development agencies. Group approaches do not seem to be applicable where traditions of working with groups do not exist and are, in any case, difficult for government bureaucracies to coordinate with and support (King, 1987). Managing the mechanism needed to provide the funding and provide training often proves, to both donor and training institution, to be the stumbling block (Morss and Gow, Eds., 1985).

Over the years there have been many attempts to harness the potential of commercial enterprise to meet training costs. Such programmes usually sell goods or services with the intention of funding vocational training from the profits generated. Typically the goods or services offered are internally produced and directly related to the type and level of training on offer.

Perhaps the most common commercial approach to cost-covering vocational training is production based training. Normally this involves "production units" which provide the training venue for the trainees while generating profits from sales to cover training costs. In general, as the well known example of the Botswana Brigades amongst others has demonstrated, production based training has not performed according to expectations (van Rensburg, 1980).

Anecdotal evidence suggests that typically, in production based training, production takes increasing priority as the production units struggle with the

demands of commercial production. Often training is reduced to addressing the direct needs of the production units or in some cases eliminated entirely. Many production based vocational training programmes require significant levels of subsidy to cover operating losses and training expenses. There are few, if any, known cases of unsubsidized production based training institutions that cover all or even most of their costs while retaining their essential character as training institutions.

The relatively high level of costs is a factor as is the use of a basic design model that adds the burden of managing profit oriented production to training institutions that already face the considerable and very different challenge of managing vocational training. If, as is often the case, the need external subsidy then the already complex production-cum-training management matrix is made more complex yet by the need to manage the bureaucratic and financial aspects of the donor relationship. There is some evidence to suggest that the overall management requirement of such programmes is greater than these programmes can consistently meet (Morss and Gow, Eds., 1985).

This common model of production based vocational training requires considerable management skill to master the many aspects - marketing, finance, personnel and so on - of viable, competitive commercial enterprise. While there is some evidence to suggest that poorly selected production lines and other factors are also constraints the complexity of the management model may be a more fundamental problem.

A recent ILO assessment of four informal sector skills training programmes in Africa and South America found that:

"...the relative success of these programmes, and of many others, is far more affected by the quality of their management than the details of their operations".

The ILO report goes on to say that in training as in enterprise success "depends ultimately on good management" (Harper, 1987).

Production based training may be simple in concept but it has proven difficult in practice. This is due in part to the complexity of management that production based training typically requires.

The Management Burden of Pedagogical Soundness

Few projects seem to recognize both the importance of the management component and the degree to which conventional production based vocational training presents a specialized and demanding management challenge. Fewer projects still incorporate this recognition into programme design.

The problem is a significant one. Many authorities and studies over the years have referred to the efficiency and effectiveness of linking training and production (Gant, 1979, Grierson, 1988, Loose, 1988, et al). This well established recognition of the merits of functional context of production based training can be expected to result in an expanding array of production based vocational training programmes.

Thus there will be a growing need to find models of training that incorporate the effectiveness of production based training while requiring only the relative efficiency and simplicity of training focussed management. A greater challenge yet will be to develop models that include the capacity to generate revenue internally. These models will ideally offer reliable and simple methods of meeting training costs while requiring only relatively simple, training focussed, management.

The Butwal Technical Institute (BTI) offers an example of progress towards this elusive goal.

The BTI Model

Nepal's Butwal Technical Institute (BTI) has evolved a creative, simple and perhaps unique response to the management challenge of cost-covering production based training.

The BTI is associated with a number of production units. Most of these are independent private companies who are tenants on an "estate" owned and managed by BTI. BTI itself has no direct responsibility for the management of the companies ("production units") though it uses them as a principal training venue and currently (1987) covers 96% of it's costs from the various fees they pay.

The revenue producing part of BTI's management task is the relatively modest one of a landlord (with long term tenants) rather than the more demanding one of a production manager in a fluid and competitive commercial environment. As a result BTI has a secure funding base, a stable cash flow, and a simple, essentially training focussed management requirement. Overwhelmingly the

efforts and activities of BTI are directed to training. This training is for the most part in a commercially competitive productive environment that provides both relevant training and the revenue to cover training costs. Uniquely perhaps, virtually no "commercial" management responsibilities or financial burdens accrue to BTI as a result of the revenue producing "production based" relationship.

Serendipity Rather Than Plan

Though BTI is one of that minority of programmes that are intended to be internally revenue raising BTI was not originally designed to be cost covering based on the ownership and management of industrial property.

Though BTI's application of this method may be unique the concept of providing public services from income derived from property is not new. Sir Hugh Dalton, in his book on practical socialism, cites the interesting case of a small Canadian town that imposed no taxes and met all of its needs from property income (Dalton, 1985). There are no doubt many other examples of this methodology in practice but there is little evidence that it has been adopted by vocational training programmes..

BTI's use of the income property concept was not foreseen and is still to a degree unappreciated. The land allocated to BTI was of little perceived value when it was allocated by the Government of Nepal more than 26 years ago. Nonetheless the result is the long term "endowment", with non-cash assets, of a effective, respected and largely self-sustaining local training institution.

Using non-cash assets such as land as seed capital to support vocational training has particular application in countries or regions entering a period of industrial

development. Land, which may have little current value, often has considerable future potential particularly if located in areas of projected urban or industrial growth. The BTI model offers developing countries an opportunity to plan for the long term future without incurring long term financial obligations. Too often such opportunities are forfeit to the need to address current problems with all available assets.

The somewhat accidental evolution of the BTI model is not limited to the endowment of the land. Most of the tenant businesses used as training venues were originally affiliated production units of a type both common and unsuccessful in Africa and Asia. The separation of the production units, into private limited companies , appears to have been motivated by their best interests (and presumed potential) not that of the BTI.

The net effect of both land allocation and production unit segregation has, however, resulted in an administratively simple, training focussed, successful, largely self-supporting vocational training institute - and a replicable model. In it's current form BTI offers a effective low-cost model to developing countries who wish to support the establishment of vocational training institutions without recourse to the cash assets of the government, long-term recurrent expenditure obligations, external donor dependency, or debt.

A Closer Look at BTI

BTI was started in 1963 to help develop the light industrial sector of the town of Butwal and the surrounding area. Butwal is located in the Terai area of southern Nepal close to the Indian border. When BTI began Butwal was a modest transportation crossroads with very limited infrastructure, no industry and high

unemployment. A degree of credit is due to BTI for providing the economic stimulus and skilled workers that have helped develop the Butwal area.

BTI was started by, and is owned by, the United Missions to Nepal (UMN), a consortium of most of the Protestant missionary organizations in Nepal. UMN is a large organization fielding almost 400 expatriates in a variety of areas including education, health and industrial development. BTI is administered as a private vocational training institute; the graduates are awarded a government recognized qualification.

BTI was originally conceived as a production based training institute using a classic apprenticeship model with "production units" attached. The model remains essentially as originally conceived with the very important distinction that the original "production units" are now independent, though affiliated, private limited companies. Most companies used by BTI as training venues are owned, wholly or in part, by the UMN. There is a modest trend towards the use of non-UMN affiliated Nepali light industries. This trend will probably increase as the UMN affiliated companies absorb all the trainees they need and the bazaar based businesses increase their demand for BTI trainees.

BTI has trained 197 young men over a period of 24 years and has 92 currently in training. Training is provided in a variety of woodworking, metal working and construction related skills. The output is modest and has varied considerably over the years. BTI currently graduates about 20 qualified skilled workers per year. Virtually all (96%) BTI graduates find employment, often at the supervisory level. Seventeen percent of BTI graduates are self-employed (New Era, 1987).

The BTI training programme is a classic four year apprenticeship programme. The trainees receive theoretical and academic instruction in BTI classroom facilities and practical training on-the-job as apprentices in the affiliated companies. The trainees live in supervised housing; full board is provided for the duration of their training. BTI assumes virtual *in loco parentis* responsibility for them. BTI's cost per trainee must be seen in light of the considerable financial burden this represents.

BTI's training is not cheap. The BTI's current cost per trainee is \$2,536; more than the average of the ODA study sample and more than fifteen times the average annual income in Nepal. As Mann noted this high cost is characteristic of "training model" programmes. The fundamental distinction between BTI and most training model programmes is that BTI generates most of the funds needed to meet these costs. These costs are met from internally owned and managed assets. There is no burden on the government and little direct burden on donors.

As will be discussed below there are several levels of hidden subsidy which somewhat qualify the success of BTI. Ironically, even these subsidies are probably unnecessary if the full commercial potential of the owned assets were to be exploited. The potential certainly exists for BTI to be fully cost covering without subsidy simply by making more efficient use of existing owned assets.

A principal asset of BTI is the Nepali staff, most of whom have been with BTI for many years. Staff turnover appears to be modest. Though all BTI staff are Nepali this is somewhat misleading in that there are a number of expatriates assigned to the companies that host BTI trainees. Their presence is not directly related to the revenue BTI receives from the companies but they must be seen as

both a hidden subsidy and a hidden presence. The 100% "Nepalization" BTI claims is thus somewhat qualified.

A recent follow-up of BTI graduates found that 96% of all BTI graduates are employed or self-employed in fields related to the skills they acquired at BTI (New Era, 1987). BTI is deemed a success by the UMN, the Government of Nepal and the local business community. BTI was evaluated (by the author) in December, 1987. This evaluation confirmed that BTI is a success according to its terms of reference (Grierson, Jan., 1988). The Grierson evaluation specifically cited the simple management model used and the high standards of management demonstrated by the Nepali Director.

The success of BTI may be due partially to its approach. A recent report for the Ford Foundation identified four "common traits" of NGO programmes that "stand out" when compared with other NGO's involved in "livelihood, employment and income generation" (Tendler in Levitsky, 1989). The common traits Tendler cites are:

1. A narrow sector focus.
2. A narrow activity focus.
3. Links with powerful institutions.
4. An urban setting.

BTI shares all of these traits to a degree. BTI is very specifically focused on vocational training (in wood, metal and construction) for the light industrial employment sector in the Butwal area. Butwal itself is a small town but is certainly an "urban area" within the context of Nepal. BTI's parent agency, the UMN, would probably not wish to describe itself as "powerful" but it is certainly a significant institution by any standard.

BTI shares the common traits of successful programmes and has a management model which reflects most of these traits. The result is conspicuous success on a

modest scale in producing well training employable graduates with little donor or government dependency.

The Essence of the Model

However BTI's real success story, that of evolving a cost covering administratively simple production based training model, has for the most part gone unrecognized.

BTI has modest facilities and modest, largely internally generated, funding. Management is simple, direct and efficient. BTI owns very little industrial training equipment and no production facilities. BTI co-opts the facilities of the companies who accept their trainees. These companies pay BTI for the services - as productive workers - of the trainees. The significant component of the BTI model is that principal training facilities, normally a costly burden, are instead the principal source of revenue.

BTI was designed to be cost covering and for the most part achieves this objective. BTI's current budget is structured as follows:

BTI Sources of Revenue (1987)	
Rent from Properties:	43%
Fees from companies (for trainees):	33%
Loan interest:	20%
Grants:	4%
Total	100%

Source: Grierson, Jan., 1988.

BTI owns the land which hosts the UMN complex of companies. This land is the source of 43% of the current budget. In addition BTI receives 33% of its income from fees paid by the companies (for the most part UMN owned in whole or in part) for the services of BTI trainees. BTI earns interest from loans to companies. These loans are not directly related to acceptance of trainees but to date have been made to UMN companies only. Loan capital is from a variety of sources including earned income and grants.

Hidden Subsidies and Hidden Opportunities

Most of the companies that employ trainees receive donor support. In some cases this is considerable. This results in several levels of hidden subsidy to BTI. Primarily, it results in the costs of expatriate experts, who are active participants in the apprenticeship training, being allocated to the companies and met by external donors. Their presence is probably desirable and necessary if BTI is to avoid simply recycling the technology of the local bazaar. Secondly, donor subsidy to the companies provides some of the revenue that is understood will be paid to BTI as training fees. These fees are probably artificially inflated; certainly the UMN company managers think so (Grierson, Jan, 1988). In addition donor support allows, and in some cases encourages, sub-contracting between UMN companies and donors sometimes contract UMN companies directly for civil works and development projects.

All of these are balanced to a degree by the reverse subsidy BTI provides to the host companies. The rents BTI charges the host companies, BTI's single most important source of revenue, are clearly sub-economic (Grierson, Jan., 1988). The potential exists for BTI to charge competitive rentals for its highly desirable industrial land, reduce the training fees it charges the host companies and pay at

least part of the costs of the expert technical input needed to assure that BTI training continues to lead the market in the Butwal area.

The lowering of trainees fees would enhance the already significant attractiveness of BTI trainees to bazaar based non-UMN businesses (Grierson, Jan., 1988). Both BTI and the bazaar could benefit from the increased degree of interaction. At present none of the bazaar (i.e. Non-UMN) businesses are currently based on the BTI "estate" though many could be as could many future businesses that might be started by BTI graduates. There is clear potential for increased (and future) revenue simply by expanding the degree of commercial interaction between BTI and the bazaar.

Collectively, the available evidence strongly suggests that BTI has the potential to be cost covering at it's present level of operation within the economic conditions likely to prevail in the Butwal area in the foreseeable future.

Summary and Conclusions

Production based training approaches, that co-opt the "functional context" (Gant, 1979) of the market, are being increasingly recognized as efficient and effective (Grierson, March, 1988). High costs and management complexity are principal constraints limiting the potential of cost-covering production based vocational training (McLaughlin, 1989, Morss & Gow, 1985). Conventional approaches to cost covering production based vocational training demand very high standards of both commercial management and educational administration. However, as BTI demonstrates, cost covering production based training need not require direct involvement in the management of industrial production.

There is a great need to recognize existing successful models that utilize the management, market and capital resources readily available in developing countries.

The example of BTI has shown that revenue producing production based training need not require direct involvement in and management responsibility for commercial production. Further, BTI has demonstrated that local resources and staff can provide long term effective efficient vocational training. Local markets can provide the resources; local management can use these resources to provide effective vocational training.

The BTI model has particular relevance in developing countries. Though BTI had considerable donor support at the outset the principal resources of BTI are the land endowment, a locally provided non-cash asset, and the Nepali staff. Together they are the key to avoiding the much decried failure of sustainability that is increasingly being recognized as a failure of development (Morss and Gow, eds., 1985).

Sustainability in vocational training generally means at least the ability to meet recurrent expenditure obligations equal to approximately 17% (in the case of "polytechnics") of the investment outlay (Morss and Gow, eds., 1985). BTI has made good use of donor and government support to develop the capacity to meet it's recurrent expenditure obligations - and demonstrate it's sustainability.

The BTI model demonstrates how a poor country can offer much needed and relatively expensive training through a locally managed and financed institution. The BTI model offers donors as well as developing countries a positive alternative to the all-too-frequent dilemma of deciding between dependency or deterioration.

The BTI model offers special opportunities to those planning the long term training requirements of new cities such as Islamabad in Pakistan and Lilongwe in Malawi. In such cases planners can take the opportunity to allocate the critically necessary non-cash (land) resources before they are absorbed by the process of industrialization and settlement. Replication of the BTI model can, with foresight beforehand and well managed implementation, ensure the long term sustainability of cost-covering production based vocational training.

Select Bibliography

DALTON, H., Practical Socialism for Britain's English Workers and the Coming of the Welfare State, 1985, Garland.

GANT, G., Development Administration, 1979, The University of Wisconsin Press.

GRIERSON, J. and R. LaTowsky, "Local Entrepreneurs as Skills Trainers: An Effective Approach to Self-Reliance and Self-Employment", V2/1989, Development + Cooperation.

GRIERSON, J., "Vocational Training and Self-Employment: Lessons from the Field", March, 1988, ODA. (Unpublished)

GRIERSON, J., "An Evaluation of the Industrial Work of the United Missions to Nepal with Special Reference to the Butwal Technical Institute", Jan., 1988, UMN/Nepal. (Unpublished)

HARPER, M., Small Business in the Third World, 1984, John Wiley & Sons.

HARPER, M., "Training for the Informal Sector: Case Studies from Colombia, Malawi, Somalia and Sudan", Feb., 1987, ILO.

KING, K., "Training For the Urban Informal Sector in Developing countries: Issues for Practicioners", April, 1987, ILO.

LATOWSKY, Robert J., "Technical and Business Skills Training for Employment in Metropolitan Egypt: Challenge and Opportunity for CEOSS", June, 1989, CEOSS. (Unpublished)

LOOSE, G., Vocational Education in Transition: A Seven-Country Study of Curricula for Lifelong Vocational Training, 1988, UNESCO.

LUHAN, J., "Too Much Aid, Too Little Development: Nepal's Donor Dilemma", July/Aug, 1987, Development International.

MANN, Charles K., Merilee S. Grindle and Parker Shipton, Seeking Solutions: Framework and Cases for Small Enterprise Development Promotion, 1989, Kumarian Press.

MORSS, E., and D. Gow, Implementing Rural Development Projects: Lessons from AID and World Bank Experiences, 1985, Westview Press.

McLAUGHLIN, S., The Wayside Mechanic: An Analysis of Skill Acquisition in Ghana, 1979, Amherst, MA., CIE.

McLAUGHLIN, S., "Skill Training for the Informal Sector: Analyzing the Success and Limitations of Support Programs", World Bank PHREE/89/05, Feb, 1989.

NEW ERA, "An Evaluation of Butwal Technical Institute", 1987, New Era. (Unpublished)

SEIBEL, Hans Dieter, "Linking Informal and Formal Financial Institutions in Africa and Asia", in Jacob Levitsky, Ed., Microenterprises in Developing Countries, 1989, Intermediate Technology Publications.

TENDLER, Judith in Jacob Levitsky, Eds., Microenterprises in Developing Countries, 1989, Intermediate Technology Publications.

van RENSBURG, P., "Another Look at the Serowe Brigades", Prospects, V10, N4, 1980.

VERHAGEN, K., Self-Help Promotion: A Challenge for the NGO Community, 1987, CEBEMO/Royal Tropical Institute.

Summary CV: John P. GRIERSON

John Grierson is currently an Adviser to the Pak-Swiss Agricultural Light Engineering Programme (ALEP) in the Northwest Frontier Province of Pakistan. This article is based on his research done at the Cranfield School of Management for Britain's Overseas Development Administration (ODA) and on his evaluation of the BTI for the United Missions to Nepal (UMN).

Note to Publisher:

- 1) Text approx. 4500 words (excluding biblio & cv.).
- 2) Prepared on MS Word Ver. 4.0.
- 3) Disc with Jackie Bilton.

Version 2: 5.11.89