

**NEPAL**

**Technical Assistance in preparation for  
Secondary Education Support Programme:  
Upgrading of Janak Educational Materials Centre management, and  
preparation of School Leaving Certificate security printing press**

Tony Ashe

29 September to 4 October 2002

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# 1 INTRODUCTION

## 1.1 Background

This assignment arose out of earlier work, supported by Danida, at Janak Education Materials Centre (JEMC), which involved installing new machinery and systems, during the implementation of BPEP II (1999 - 2004).

During the course of these earlier projects, it became obvious that JEMC would not be able to take maximum advantage of the investment, nor move forward to increase efficiency, until some extra training in basic management skills was provided. This was highlighted by the installation of a quality control system, a simple production control system, and a slightly simplified costing and estimating system. None of these systems have achieved the planned impact, because of the lack of basic management knowledge necessary to understand their primary importance.

This lack has its roots in the history of the formation of the Janak Education Materials Centre, which was formed, about 25 years ago to provide basic materials to support the introduction of universal primary education within the country. The present Sano Thimi site was developed, and machinery installed, with the assistance of aid from the USA. Although technical assistance was provided by the US in the original process of selection and installation of suitable machinery, there does not seem to have been the same amount of support provided in the development of management systems and structure to manage the venture. This structure, and its systems, was allowed to develop in its own way, and it has, under the circumstances, been remarkably successful.

However, the decision has now been taken that JEMC must come up to modern standards in both production facilities and management capabilities in order to ensure that MOES has an effective support base for future initiatives in primary and secondary education. The updating of production facilities is relatively simple – purchasing the required machinery is a matter of funding, based on easily-available advice from expatriate consultants with experience in printing techniques. To update management structures is much more complex. The obvious solution of recruiting candidates with the necessary skills from outside JEMC is made difficult by some local factors:

1. JEMC is the only printer within Nepal capable of producing large quantities of textbooks, and the small size of the rest of the printing industry within Nepal means that there is no pool of skilled printing managers available locally.
2. The relatively low salary scales available to Government organisations such as JEMC are insufficient to attract qualified candidates, even if they could be found.

It was suggested some time ago that one approach to this problem might be to recruit expatriate managers with the appropriate skills on a short-term basis. These staff would provide focus, and would devise and initiate the necessary changes, while at the same time training a management cadre who would ensure that the process continued. This solution was rejected by Danida, mainly because it was felt that it would be politically unacceptable, and also because it would be difficult to fund.

So, based on the recommendations made in previous reports, JEMC, MOES, and Danida have agreed to take more able staff from within JEMC, and to train them in the basic techniques necessary to manage a factory in such a way as to enable it to compete with similar organisations elsewhere. Once trained, they will devise, produce, and implement a fully fledged plan to bring JEMC up to a standard where the latter can compete with equivalent organisations. As a first step in this process, a study tour was arranged, involving visits to printers who meet the requisite standards of efficiency. The chosen destination for this tour was Singapore, because the printing industry there is famous for its efficiency, and has a large concentration of printers within a small geographical area; it is also relatively close to Nepal. This report is largely devoted to the documentation of the study tour, and its results.

A short description of the printers which were visited in Singapore will be found in Appendix B.

The purpose of the tour was to get an accurate picture of the range and levels of technology current in modern printing houses outside Nepal, and an idea of the skills and techniques required to manage them. To then use this knowledge, through a series of management workshops, to build a management structure at JEMC which will enable JEMC to compete on equal terms with comparable printing houses.

The information gathered on the tour formed a basis for discussion, the outcome of which will be long-term plan for complete re-design and reform of management systems at JEMC. It is the intention that the study tour members will form the core of a project team which will initiate, implement, and drive forward these reforms, with the advice and support of the consultant.

During the tour, each tour member concentrated on his own particular area; but the overall objective was to pull the varying strands together, finally to produce a robust and usable document, which could be used as the key source for the final long-term plan. It is stressed that the final outcome is to be a plan which will treat the situation at JEMC as a whole, rather than a piecemeal approach in which problems are dealt with separately. Further, it has been agreed by JEMC and Danida that the consultant's role is merely to act as supporter, guide, mentor, and facilitator – this plan is to be, and remain, the property and responsibility of the new JEMC management team. Clearly this initiative will stall, unless it is driven forward with real commitment by the team. The consultant can create an environment in which enthusiasm and commitment can flourish, but he cannot and should not take a project of this size forward alone.

A further objective of this management initiative is to examine the feasibility of producing School Leaving Certificate (SLC) examination papers at JEMC. Although this is one desired outcome of the upgrading process, it is subordinate to, and dependent upon, the successful implementation of the overall management plan. It does not therefore form part of the main report, but has been kept in mind during the current visit.

As a general point it should be noted that, in the past JEMC has been regarded as a separate and subsidiary issue, rather than one which has a direct effect on the BPEP programme. For future initiatives, the plan is to treat JEMC as a key component within the main stream of BPEP, and new reporting procedures are in hand to ensure that this happens.

## **1.2 Consultant's Terms of Reference**

The detailed Terms of Reference are documented in Appendix A

## **1.3 List of Abbreviations**

BPEP	Basic and Primary Education Programme
IBD	International Book Development Ltd
JEMC	Janak Education Materials Centre
PAT	Programme Advisory Team
SESP	Secondary Education Support Programme, Nepal
SLC	School Leaving Certificate

## **2 ACTIVITIES DURING THE CONSULTANCY**

### **2.1 General**

The visits to printers were arranged via the IBD office in London, who used a contact in Singapore to identify suitable companies, and make appointments for visits.

### **2.2 Delegates on the study tour**

The consultant and the PAT Office supplied a profile of the requirement for delegates, and JEMC supplied a suggested list of those meeting the requirements. Team meetings were held during the first week of the consultant's visit. At the first meeting, the consultant appraised the candidates – all of whom were found to be satisfactory:

Ram Chandra Silwal	Acting Production Director
Jagadish Prasad Gautam	Acting Director, Administration
Udhab Prasad Gautam	Manager, Marketing and Distribution
Balmukunda Khanal	Acting Director, Costing and Estimating
Jagat Bahadur Prajapati	Quality Control Officer, Binding Department
Krishna Prasad Ghimire	Production Operator, Printing Department

### **2.3 Action Plan (Week One)**

An Action Plan was produced for the actual study tour, and the rest of the week was spent talking through this. Specifically, the focus was on Strengths and Weaknesses of JEMC, and these were discussed as a group activity; demonstrating how the two lists interacted, and how some items on each list were, in fact, closely related. Certain areas were highlighted as being of particular importance.

Each delegate was then asked to produce his own list of questions and issues, specifically relating to his own area, but also any general points he might have – particularly with a view to focussing on key issues for addressing previously-identified weaknesses within JEMC. The team then discussed these lists, and where overlaps occurred, the issues concerned were allocated to specific individuals. It was felt that this would give maximum coverage of key issues.

The issues identified by the team as being of key importance are listed in Appendix C.

### **2.4 The Study Tour (Week Two)**

Due to the short notice at which the tour was organised, some of the printers which were considered for a visit were not available. However, this was not a crucial problem, as this allowed more detailed examination of the factories and procedures of the companies which were able to accommodate the tour. In the event, one visit per day was made and this permitted discussion within the group on the information gained.

The delegates were uniformly enthusiastic and were very focussed in their approach. It was particularly noticeable that the standard of, and fluency in, English improved markedly as the tour progressed.

All the printers visited were extremely helpful, answering questions in considerable detail, and with great courtesy. The only refusal we received was when one delegate asked to see their balance sheet.

As expected, the list of key issues altered and increased in size as the study week went on – although many of these issues turned out to be common. The key points noted are listed – see Appendix D.

## **2.5 The Management Workshop (Week Three)**

The workshop was arranged as a series of meetings, originally in the office provided for the consultant, but later in a larger hall, normally used for meetings. During these workshops, the consultant acted as mentor, helping with the process and occasionally offering guidance when necessary.

The first meeting took the form of a general de-briefing, at which the consultant asked for a three or four items from each delegate, which the delegate thought to be key to the success of the printers visited and which he felt merited the attention of the team. These were listed as single words or short sentences on large flip-charts. The issues were then discussed by the group, and this process identified contributory factors, such as cultural differences, and potential advantages which might be transferable to JEMC; as well as potential problems which might have to be overcome if the technique were transplanted to Nepal.

Having identified key issues and possible usable techniques, the team went on to during the rest of the workshops to work these up into an Action plan. The plan was divided into three time-frames; *immediate*, *medium-term*, and *long-term*. See Appendix E for the details.

It was agreed that the actions in the *immediate* category would be put in hand straight away and several of these were actually up and running before the consultant left on 4 October. The team has undertaken to complete the balance before the consultant's next visit (currently planned for December 2002).

Items in the *medium-term* category will be undertaken during and after the consultant's next visit, since many of these items may require the consultant's help or advice to achieve.

The main objective in the *long-term* category is the preparation of a five-year plan. This certainly will require input from the consultant – although most of the content of the plan will come from the team members. As detailed in Appendix E, some of the key issues lie within the control of JEMC management, some lie elsewhere, and may have a political dimension.

### **3 CONCLUSIONS**

#### **3.1 General**

The workshops and the study tour appear to have been a success. The consultant was particularly impressed with the enthusiasm which has followed the visit and the strong support and commitment which was evident during the management workshops. It really does seem that the team have used this opportunity to the full, and have now seen for themselves how much needs to be done to bring JEMC up to international standards, and how this may be achieved. As has already been documented many times, it is essential that the motive power to make the necessary changes should come from within the organisation.

#### **3.2 Key issues**

The most important immediate issues are:

- Changing attitudes within the plant
- Obtaining good raw materials
- Reducing waste levels
- Installing and maintaining good controls within the factory

These items are addressed in the *immediate* Action Points, see Appendix E (page13).



## 4 RECOMMENDATIONS

### 4.1 General

The carrying-out of the *immediate* Action Points should be considered as the first ‘milestone’ in the overall plan. It provides an instant measure of how seriously the project is taken by JEMC management. If these basic steps have not been carried out by the target date (i.e. the consultant’s next visit in early December 2002), then the long-term commitment necessary for the successful upgrading of the management is in doubt, and it may be necessary to re-think the overall strategy.

During the consultant’s next visit, it is expected that some of the *medium term* Action Points will also have been carried out, and the consultant will provide advice and support on achieving the rest of these points.

The main purpose of the next visit is to check progress in the Action Points arising from the study tour and workshops, but is also to discuss the plan to produce the SLC examination papers at JEMC. The Terms of Reference make it clear that this plan is dependent on JEMC being able to show progress in upgrading their management systems. A decision to go ahead with SLC paper production at Sano Thimi necessarily will involve a large investment by the donors and this investment can only be justified if it can clearly be demonstrated that JEMC has reached a standard of ability and efficiency which is at least comparable to equivalent organisations outside Nepal.

JEMC management are strongly recommended to follow up the very generous offer of operator training in Singapore. Not only would this training assist the transfer of technology which is part of the longer-term strategy, but it would also help in the process of reforming the culture and encouraging changes of attitude which are essential to the success of the long term plan.

The overall cost would be relatively low (flights and accommodation only), compared to the potential benefits to be gained; and if JEMC funded these costs itself, it would be a sound investment in its future, as well as an ideal opportunity to demonstrate the management’s commitment to the project as a whole.



**Terms of Reference**  
**for**  
**Technical Assistance in preparation for**  
**Secondary Education Support Programme, Nepal:**

**Upgrading of Janak Educational Materials Centre management, and  
preparation of School Leaving Certificate security printing press**

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Background

These Terms of Reference (TOR) are an integral part of the Interim Project to be undertaken during the period June 2002 – March 2003 in preparation for the Secondary Education Support Programme (SESP), planned to commence in the spring of 2003 to cover an expected first phase, which will end in 2008. The programme is described in detail in the SESP Core Document.

**Management at Janak Educational Materials Centre (JEMC):** This is a state-owned enterprise, which has the legal right to print all the formal education textbooks for government schools in Nepal. It is the only printing house in Nepal capable of producing the very large textbook print runs, and it has received Danish support to upgrade its printing equipment and to introduce modern management practices during the implementation of Basic and Primary Education Programme II (BPEP II), 1999 - 2004. The management practices were related with costing and estimating, production control and quality control, which are essential for cost effective textbook production. Although some progress has so far been made in this area, internalisation of modern management practises is necessary to support continued progress and sustain achieved efficiency and effectiveness. Consultancy support for this purpose is defined in these TOR.

**School Leaving Certificate (SLC) security printing:** A study was conducted towards the end of 2001 on the possibilities of manufacturing the SLC exam papers in Nepal, and initial recommendations were made by the international consultant. As part of those recommendations it was stressed that the establishment of the SLC printing unit should only be supported provided a number of strict conditions with respect to the issue of security were met. For any future support for the printing of SLC exam papers to be successful in enabling the MOES to produce the exam papers in Nepal in an efficient and effective manner, the ground has to be prepared. For this to happen, JEMC needs to demonstrate concrete progress in terms of modernising its management systems and upgrading its management skills. JEMC management upgrading, therefore, is considered a necessary precondition for JEMC taking on the additional responsibility of producing the SLC papers. In addition, the MOES has stated its intention to revise the design and layout of the SLC papers. A final decision on this will be needed before equipment lists can be drawn up.

***Objectives***

The main objective is to contribute to ensuring that MOES will have an effective and well functioning printing capacity for primary and secondary education. This will be done by assisting in drawing up a comprehensive management-upgrading plan for JEMC and by linking the establishing of the SLC examination printing capacity to this upgrading:

- To identify the changes required to take place prior to the provision of the printing 'hardware';
- To identify the benchmarks for monitoring the changes in the organisation and management of JEMC (assuming it continues to be the most suitable location);

- To finalise a plan for the establishment of a capacity for printing SLC exam papers in Nepal and for improving this capacity as well as the efficiency in the production of educational materials;
- To help draft a Memorandum of Understanding to be agreed between Danida and HMG concerning the assistance to JEMC within the areas of JEMC upgrading and SLC security printing.

#### Outcomes

- A full-fledged plan for capacity building and management restructuring, equipment installation and ready-for-operation plans at JEMC (provided JEMC is eventually chosen as the location for installing the equipment). This should be based upon a clear vision of JEMC's status, purpose, role, and the principles involved.
- A draft Memorandum of Understanding (MoU) to be signed by the MOES, JEMC and the Danish Embassy in Kathmandu as the basis for the support in the context of SESP. The MoU will stipulate the actions to be undertaken by each party, and it will cover both the JEMC upgrading and the SLC printing support.
- Plans for the implementation of organisation and management reforms in preparation for the secure printing technologies. These will include necessary management decisions, training of personnel, rationalisation of purchasing, production and distribution processes, reduction in overhead cost (manpower etc).
- Identified needs for management training, and the related training plans.
- Specified and costed plans for possible equipment and other requirements for security printing.

#### *Main activities*

1. Preparation of an outline with objectives for a long-term (5-year) plan for the development of modern management structure and capacities at JEMC. The aim of this plan is to develop a management structure, which is comparable to that in private sector printing houses. The management at JEMC has limited understanding of the concept of how a modern printing house is functioning. To improve the understanding, a 5-day study tour to modern printing houses in the region for a small number of senior managers at JEMC will be initiated.
2. Implementation of a seminar at JEMC to discuss and agree to the above outline will be a main activity. Further, the seminar will finalise preparations for the regional study tour including selection of the JEMC managers as recommended in previous consultancy reports. It will also provide an opportunity to choose a suitable candidate to act as lead on the support for JEMC under SESP. The person chosen to lead will be the main contact for the international consultant during this consultancy. The objectives of the tour will be for the JEMC management to gain experiences within the various functions of a modern printing house by:
  - Allowing the participants to compare and contrast management styles and structures
  - Highlighting the current shortcomings in management practices at JEMC, and establishing benchmarks and a model for good practices
  - Gathering experience and collecting information within all aspects of management activities. The gained knowledge will be used as the basis for the long-term plan. The information will be compiled by the participants (with guidance from the international consultant). Each participant will within his/her area contribute to a study tour report to be presented to the rest of the participants at a debriefing session in Kathmandu shortly after the completion of the study tour.

3. Utilisation of the information gathered on the study tour will assist in, and facilitate, the process of developing a long-term plan for the re-design and reform of management systems at JEMC. This will be achieved through a management workshop, in which the JEMC management will play the active role, as the driving force behind the management reforms must be the JEMC management itself. The international consultant's role will be that of a facilitator and an adviser. The plan would need to be the product of JEMC's own management team, and the plan would need to have full commitment and ownership in JEMC at every level.
4. Following the development of the long-term plan, the consultant will assist with the design and facilitate the implementation of a revised plan for the management structure of JEMC. This assistance will include support in drawing up management training programmes and human resource development plans, and other support as required. The management training will be a part of the MOES Human Resource Development Plan.
5. Preparation of a management training plan and a long-term implementation schedule with costing for upgrading of JEMC. The implementation and funding of this plan is to be decided later. This training will aim to develop the skills necessary to identify key management issues and provide the techniques to resolve those issues. If possible, suitable training will be found locally. If this is not possible, suitably qualified consultants can be brought in on a short-term basis to provide in-country training. These options will be considered, and possibly decided, during the course of the consultancy.
6. Implementation of a seminar in Nepal to discuss the plan to produce the SLC examination papers at JEMC. This discussion will identify the key issues and establish solutions to them. Particular emphasis will be on the main issue of security. The result of the seminar should be a comprehensive plan for supporting MOES in establishing SLC printing facilities under SESP. The final decisions from MOES on the design and layout of the SLC exam papers need to be available in writing before the SLC support can be initiated.
7. Following this seminar, a timetable will be prepared, and the resources required to successfully implement the SLC printing plan will be identified. The resources required are expected to include the following:
  - Material resources – in the form of premises, alterations to existing buildings etc.
  - Machinery and equipment
  - Human resources, including training etc.
  - Systems, including computer systems etc.

### ***Method of work***

The consultant will cooperate with and consult representatives from MOES and its Department of Education (DOE) and, in particular, JEMC. Others will include Curriculum Development Centre (CDC), Examination Council, Primary Publishing Cell, and Secondary Publishing Unit.

The preparation of the restructuring plan and pre-tender documents will be prepared as far as possible in Nepal, and in close collaboration with all stakeholders.

A jointly developed work plan with benchmarks will need to be prepared to form the basis of the consultancy.

Aspects of human resource development will be addressed whenever relevant, and synergy with other interim project activities will be ensured.

The office of the Programme Advisory Team (PAT) will provide programmatic and logistics support for the consultancy.

### **Reporting**

Each mission to Nepal will be concluded by a debriefing session with the relevant HMG and other stakeholders, PAT and the Danish Embassy as required. One day prior to the debriefing meeting, the consultant will provide the participants with a draft **Debriefing Note**. Within one week of the debriefing meeting, the consultant will revise the debriefing note and return it for distribution.

The Debriefing Note will form the basis for preparation of draft **Technical Reports(s)** to be submitted to TSA, Danida, in Copenhagen within two weeks of the conclusion of the consultancy. The consultant will finalise the report(s) within two weeks of receipt of comments.

**List of factories and organisations visited in Singapore**

**Tien Wah Press**

A large multi-national (now owned by Dai Nippon Corporation). A long-established and successful company – the oldest printer in Singapore.

Products include 4-colour illustrated books, children's picture books, board books (produced in Johor Bahru), and speciality books such as pop-up and cut-out books and printed boxes. Much of their output is premium-quality cased books, but they also print and bind paperbacks. Printing is sheet-fed, with a mixture of 2, 4, 5, and 8 colour presses.

Tien Wah employs 800 staff, and produces approximately 4,500,000 books per month – most of which are for export.

**Print and Media Association, Singapore**

This is the trade association of printers and publishers in Singapore. Not all printers belong to PMAS, but most of the large organisations do. They organise exhibitions and training, and provide help and advice with marketing and exporting.

**KHL Printing Co Pte Ltd**

This is the largest privately-owned printer in Singapore.

Equipped with large colour web-fed presses, it specialises in newspapers and magazines, but also has some sheet-fed capacity, and produces cased and paperback books. The newspapers are produced for local markets, but the magazines and books are mostly for export.

It began with 8 employees, and now employs 350 people. Annual turnover is approximately 70 million Singapore dollars (US\$39 million).

**Southeast Printers Pte Ltd**

In many ways the most interesting visit of the tour.

Southeast Printers is a very small operation, with 3 small sheet-fed printing presses, and only 15 employees; but manages to export to USA and Europe. The firm was started 20 years ago. It still retains its original presses, and most of its original employees. The delegates were particularly struck by the cheerful and busy atmosphere, and the clever way that Southeast makes maximum use of its scant resources.

**Times Printers Pte Ltd**

Another large multi-national, with a large plant, equipped with both web and sheet-fed presses. Produces cased and paperback books, mostly for export; together with Asian editions of international magazines and newspapers.

Times employs 360 staff, and has an annual turnover of 80 million Singapore dollars (approximately US\$44.5 million).



**Key Issues identified by the JEMC team in the management workshops in Week One.**

**STRENGTHS**

Totally united  
Largest printer in Nepal  
Monopoly on textbooks etc. – get Government business  
13 printing presses, sufficient binding capacity etc.  
Regular auditing (gives confidence to customers and security to staff)  
Not a profit-making organisation (but does actually make a profit)  
Large flexible site  
Good environment  
All Government organisations will print with JEMC  
Sufficient manpower  
Adequate storage  
Good infrastructure  
Nepal is a very large market for printing

**WEAKNESSES**

Limited trained manpower  
Limited finance  
Poor raw materials (particularly paper)  
Procurement process is lengthy  
Long delivery process (for materials)  
Old machines  
Inadequate Quality Control Mechanisms  
Production Control not effective  
Lack of mechanisation in distribution process  
Environment inside press room  
Not smart management  
We work hard, instead of smart  
Not good use of available storage space  
Inadequate transport available for delivery of finished goods



**List of key points noted during the tour**

All the organisations visited specialised in export markets

Careful monitoring and controlling of costs was universally regarded as a fundamental requirement of managing the business

Effective management and control of waste was seen as an important contribution to efficiency and profit

Every employee was clear as to the aims and objectives of the organisation; and shared those objectives

Every member of staff was aware of his or her responsibility to the organisation and to colleagues

Fringe benefits available to staff varied between organisations, but were attractive in all cases

Good quality raw materials were easily available from a wide range of suppliers at competitive prices, and suppliers accepted responsibility for quality control

In all cases, the technology employed was appropriate to the needs of the organisation; in some companies the technology was 'cutting edge', in some it was more traditional, but it was always what was needed

In every organisation, the customers requirements were regarded as paramount; Production Control and customer service worked together to ensure that customers were kept informed at all times

Quality control was considered essential, and was carefully monitored by all staff at every level

Shift breaks, lunch, staff absences etc. were arranged so as to minimise down-time

Staff were well trained, well led, well briefed on company policy, and highly motivated

The Government of Singapore has adopted a policy of encouraging business, with helpful legislation and the supply of excellent facilities

Trades unions were encouraged, but the emphasis is on co-operation for mutual benefit

Work patterns were arranged so as to obtain maximum use of all machinery



## Action Points from the Management Workshops held in Week Three

### Immediate

#### GENERAL

The single most notable thing about the visit to Singapore was the sense of a shared vision which was found in every single printer visited. In each case, the overall objectives of the organisation had been communicated to every employee, were clear to every employee, and were shared by every employee.

#### MATERIALS

Good raw materials are essential, if we are to make the improvements which are necessary. It is probable that neither of the two paper mills in Nepal are capable of supplying paper of a high quality; but if their paper were to be supplied in a better condition, many of the present printing problems would disappear, and printing output would certainly be increased.

At present, materials are obtained under a tender system; under which the successful tenderer wins the contract to supply goods for one year.

#### *Action Points*

**Mr Ram Chandra Silwal** is already negotiating with the mills concerned to improve the condition of the paper when it is delivered. This is to continue, with the objective of having paper delivered bulk packed on pallets, so that it may be used, as delivered, without processing by JEMC. If necessary, JEMC will make a contribution to the cost of the pallets. The supplier should be responsible for the quality of the materials supplied – they should be checked before they leave the supplier's premises. JEMC should only have to carry out random checks.

The tender system is to be changed to a shorter time period – perhaps a month. This will discourage suppliers from their present tendency to deliver sub-standard materials once a year's contract has been obtained. A shorter period will encourage competition between suppliers, keep quality up, and help to stabilise prices. **Mr Jagadish Prasad Gautam** is to initiate the shorter tender process and make sure that quality is emphasised as a key factor in placing the order.

#### CONTROLS WITHIN THE FACTORY

The key area here is the costing and estimating system, which was installed some two years ago. This is not being fully used. Although the process is understood, there are still some final adjustments to be made. It was noticeable that all the printers visited regarded monitoring and controlling their costs as a key activity.

Production planning and control. Planning is carried out as part of the normal process; but control is not so well done. If there is a problem at a particular stage of production, then it is essential that the problem is identified, and corrective action taken, before the next process begins. In order to do this, it is necessary constantly to monitor progress within the factory.

Work flow through the factory. Machines have been installed over a period, so they have been put where there was space to accommodate them, rather than where optimum workflow would dictate.

Waste levels. These are exceptionally high. A contributory factor is the poor delivery condition of paper and board; but production quantities are not controlled as well as they should be, and this leads to the production of materials which cannot subsequently be used.

### ***Action Points***

As a matter of high priority, the costing and estimating system needs to be made fully operational as soon as possible. The 'old' system does not provide a means of controlling costs. **Mr Balmukunda Khanal** will work with **Mr Padmananda Shrestha** to carry out the necessary checking and updating of the cost base, to enable the new system to be fully installed. Additionally, the current daily dockets may need to be re-designed and simplified, in order to speed up the process of obtaining actual costs. A further factor to be considered is the possibility of making computers available to the costing and estimating department, as the current manual process is rather cumbersome.

If necessary, the consultant will spend some time on this during the next visit (planned for December 2002).

Production control is another high priority issue. This will be helped by the improvement in presentation of materials, and a concentration on producing the correct quantities – thus reducing waste materials and wasted effort. It will be the responsibility of the production departments to control production. The main responsibility will be with the supervisors within the production departments. The production control boards, installed in an earlier initiative, and until now not fully used, have now been updated and are in daily use. **Mr Ram Chandra Silwal**, helped by **Mr Krishna Prasad Ghimire**, have introduced this system and will ensure that the process continues.

Workflow through the factory may not be an issue which can be addressed immediately. However, if further new machinery is to be installed, this will provide an opportunity to lay out the factory for optimum workflow, moving old machinery at the same time as the new machines are put in place. The consultant will work with **Mr Ram Chandra Silwal** to devise a new floor plan, as soon as the new arrangements are confirmed.

There is already an initiative to reduce waste levels. **Mr Ram Chandra Silwal** has made clear to all the operators that they are to produce the quantities specified on the job tickets as exactly as possible. In addition, the processing of work in progress throughout the plant has been improved, reducing the amount of material spoilt through careless handling. These initiatives are to continue. Simple posters will be designed and placed at suitable places within the plant, making the point that all spoilage reduces the amount of publications available for sale to the customer; and that reduction of spoilage and waste is everyone's responsibility.

### **GOOD WORKING PRACTICES**

It is not possible to air condition the factory; but the working environment can be made more pleasant, safer, and more efficient, if it is kept clean. There is still a tendency to throw waste on the floor, rather than to remove it immediately.

Procedures for organising work through the factory can be improved which will allow easier monitoring of job progress and better control of costs.

Communications are to be improved at all levels, and two-way communication is to be encouraged. At present there is insufficient communication between staff, and this makes it difficult to obtain the sort of commitment which is necessary if we are to achieve our long-term objectives.

Quality Control has already been installed at JEMC, but this needs to be brought up to the levels normally found in equivalent organisations outside Nepal.

### ***Action Points***

There has already been considerable progress in making working spaces clean and tidy. This process is to continue. **Mr Ram Chandra Silwal** is organising tubs on wheels to take waste materials. These tubs will be removed and emptied at regular intervals. Additionally, all staff will be encouraged to take responsibility for ensuring that their own environment is kept as clean and tidy as possible.

**Mr Ram Chandra Silwal** and **Mr Jagadish Prasad Gautam** will check the job tickets for clarity and ease of use, and arrange for them to be modified if necessary. It is essential that every operative is fully aware of exactly what is required to produce the correct quantity and quality needed.

Regular (daily) meetings are to be introduced, at supervisor level, to help in monitoring progress and identifying and dealing with problems. These will be brief, and will focus on production matters.

In addition, more informal meetings, between operatives, supervisors, and managers, will be instituted; based on the idea of *Quality Circles*. These meetings will encourage the exchange of ideas, discussion of problems, and suggestions for improvements; and they also will help to foster a sense of involvement on the part of the operatives. **Mr Ram Chandra Silwal** will introduce both these meetings as soon as possible.

Quality Control systems already exist, based on operatives signing off their own work. **Mr Ram Chandra Silwal** has now appointed two full-time Quality Control operatives, who will check work in progress on a random basis. This is an addition to the system already in place.

*All these initiatives are to be completed, or at least begun, by the time the consultant returns to Kathmandu in December.*

### **Medium Term**

#### **PRODUCTION ISSUES**

There is an urgent need to get every member of staff to take responsibility for his/her actions. In particular, the operatives need to be aware of the need for commitment and an acknowledgement that more can be achieved if all work together. Staff at all the printers visited were dedicated to achieving maximum efficiency, because they recognise that this ultimately benefits them all.

This will more easily be achieved if better communications can be fostered between all levels (see also Immediate points).

Training, for all grades, needs to be put onto a more structured footing. There is a need for general managerial, as well as technical, training.

It was noted that very little time is lost or wasted within Singapore plants. Shift breaks and temporary absences are managed so as to have a minimum effect on output levels.

Staff of Singapore printers work no harder than those at JEMC. They do work 'smarter', and therefore get better results for the same amount of effort. In every case they get the maximum return from the smallest resources. This is even more important where resources are scarce.

### ***Action Points***

The process of getting everyone to accept responsibility will be a slow one. The plan is to begin with the supervisors, and then, using the improved communications mentioned elsewhere, gradually to introduce the idea

down the line to operator level. This initiative will be part of a general attempt to increase rapport between the managers, the supervisors, and the operatives. Techniques to be used include an increase in social activities such as sports and entertainments, the introduction of a suggestion scheme, and in general trying to break down some of the barriers which currently exist between the various grades. **Mr Ram Chandra Silwal** will take overall responsibility for this initiative, but will be assisted by the rest of the project team.

A training plan is to be drawn up. This will cover all grades. **Mr Kiran Pant** is investigating general management training available at colleges within Kathmandu. Additionally, there is an offer of short courses of operator training from our new contacts in Singapore; **Mr Ram Chandra Silwal** is looking at how this can best be used, although it will be, of course, subject to the funding for air fares and accommodation being made available. On the job training already exists, and this will be looked at, to see if improvements can be made. It is felt that training in Singapore, in addition to the obvious benefit in giving access to new technology; would give a strong incentive in recruiting and holding on to suitable staff if it can be arranged. An important part of the training initiative is to make sure that operatives are capable of running more than one machine – so as to give more flexibility of labour.

**Mr Ram Chandra Silwal** will ensure that teams of operatives do not all take their breaks at the same time, and that temporary absences are covered by other team members.

Smart working is largely a matter of leadership, intelligence, attitude, and commitment. If these are sensibly employed, and if the rest of the initiatives documented here can be introduced, then smart working will follow. All employees are to be actively encouraged to make the best possible use of all resources available. The suggestion scheme should aid this objective; but members of the project team have a particular responsibility to give a lead in this.

## **SALES AND MARKETING ISSUES**

All the printers visited were aware of, driven by, and totally committed to, the needs of their customers. In every case, they were in constant contact with their customer, and responded instantly to changes and modifications requested by the customer. This was aided and supported by excellent communications within the factory, which allowed them to know exactly where every job was at any given time. These excellent communications also allowed changes to be made immediately, because the effect on other jobs and production flows could be calculated and accommodated.

The advance of technology has permitted Singapore printers access to markets which previously were unavailable. However, they have resisted the temptation to follow technology simply for the sake of it. In every case, the technology employed was appropriate for the task.

Every department of a Singapore printer is regarded as important to the running of the business. Each part has its place, but when making decisions the management treat the organisation as a whole.

Marketing initiatives should be geared to operating capacity. At present, JEMC is running close to capacity, and it would be difficult to take on further work.

### ***Action Points***

To a large extent, customer service is a matter of attitude. However, this issue must be addressed if JEMC is to face outside competition with any hope of success. The current situation arises from the fact that JEMC has only one customer, and does not, to any great extent, market itself in the conventional sense. Increased market awareness is an urgent necessity. One suggestion from the team was that of producing text books for private boarding schools, and additionally, using the schools themselves to market the product more widely, by offering commission or discount for the purpose. **Mr Udhav Prasad Gautam** will pursue this excellent idea. In the course of pursuing this, **Mr Gautam** will also look at the general formation of the marketing department, and suggest where changes and improvements may be made. It is certain that a Customer Service Department will have to be formed, if customers in the private sector are to be sought and serviced. The rest of the team will

support him in this. The improvements in production planning and control, and in communications, suggested elsewhere, will contribute towards this initiative.

Producing printing for the private sector generally is an issue which needs urgent attention. Additional capacity will become available as improved raw materials etc. increase output levels. There is also the possibility of subcontracting to outside capacity. If new machinery is installed for the production of SLC examination papers, this too will give additional capacity. New markets have to be identified and approached to make use of the new capacity created. Unless this is done now, the opportunity will be lost.

The project team should give thought now to how the marketing function can be improved to pursue and penetrate new markets. This is too large an issue to be left to one or two individuals, and support from all levels will be necessary. Sponsorship from a senior level will be invaluable.

The acquisition of technology is not something which can be easily achieved at JEMC – the scarcity of resources prevents it. However, the concept of *appropriate* technology will be kept in mind whenever a new purchase is suggested; and as mentioned elsewhere, attention is to be paid to the concept of making best use of existing resources.

Treating the organisation as a whole is not a concept which has been much thought about until now. Again, this is a matter of attitude, and it is expected that the project team, with their newly-acquired knowledge of the modern printing industry, will take the lead in this important initiative.

*Some of the above initiatives will have been started by the time the consultant returns in December 2002. A timescale for completion will be agreed at that time.*

## **Long Term Objectives**

### **GENERAL**

To prepare a five-year plan for the development of modern management structure and capacities at JEMC, which will enable it to compete with private sector printing companies within Nepal, and equivalent organisations elsewhere. To put this plan into operation, and to ensure that the changes made are carried through. To continue to seek and make further improvements.

### **KEY ISSUES**

An essential ingredient in this plan is a clear, well-communicated, shared vision for JEMC. Before this can be done, certain factors, already covered in the 'immediate' and 'medium term' documents, will have to be in place; or at least be seen to be in progress

Certain issues lie directly with JEMC's management (with some outside support):

- The availability of well-trained operators
- The availability of well-trained managers
- A sense of dedication and commitment among the whole of the staff
- An ability to compete, on level terms, with equivalent organisations elsewhere
- The ability to monitor and control costs in a timely and effective manner

Other issues lie mainly elsewhere:

The provision of a business-friendly environment

An appropriate labour system

A larger degree of autonomy in managing the business

A well-educated population, from which a skilled workforce can be recruited

Free and fair access to suitable Government contracts

*These longer term issues will be the subject of further discussion during the consultant's next visit, at which time many of the issues will have become much clearer.*

**NEPAL**

**Technical Assistance in preparation for  
Secondary Education Support Programme:  
Upgrading of Janak Educational Materials Centre management and  
School Leaving Certificate security printing press preparations  
(2<sup>nd</sup> mission)**

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8-21 December 2002

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## 1 INTRODUCTION

The consultant visited Nepal from 8<sup>th</sup> to 21<sup>st</sup> December 2002 in order to work with the Janak Education Materials Centre (JEMC). This assignment arose out of earlier work, supported by Danida, at Janak Education Materials Centre, which concerned upgrading JEMC, during the implementation of BPEP II (1999-2004). The management structure at JEMC is being overhauled and upgraded as necessary to a point where JEMC can compete with an equivalent organisation outside Nepal.

### *Objectives*

The main objective is to contribute to ensuring that MOES will have an effective and well functioning printing capacity for primary and secondary education. This will be done by assisting in drawing up a comprehensive management-upgrading plan for JEMC and by linking the establishing of the SLC examination printing capacity to this upgrading:

- To identify the changes required to take place prior to the provision of the printing 'hardware';
- To identify the benchmarks for monitoring the changes in the organisation and management of JEMC (assuming it continues to be the most suitable location);
- To finalise a plan for the establishment of a capacity for printing SLC exam papers in Nepal and for improving this capacity as well as the efficiency in the production of educational materials;
- To help draft a Memorandum of Understanding to be agreed between Danida and HMG concerning the assistance to JEMC within the areas of JEMC upgrading and SLC security printing.

### *Expected Outcomes*

- A full-fledged plan for capacity building and management restructuring, equipment installation and ready-for-operation plans at JEMC (provided JEMC is eventually chosen as the location for installing the equipment). This should be based upon a clear vision of JEMC's status, purpose, role, and the principles involved.
- A draft Memorandum of Understanding (MoU) to be signed by the MOES, JEMC and the Danish Embassy in Kathmandu as the basis for the support in the context of SESP. The MoU will stipulate the actions to be undertaken by each party, and it will cover both the JEMC upgrading and the SLC printing support.
- Plans for the implementation of organisation and management reforms in preparation for the secure printing technologies. These will include necessary management decisions, training of personnel, rationalisation of purchasing, production and distribution processes, reduction in overhead cost (manpower etc).
- Identified needs for management training, and the related training plans.
- Specified and costed plans for possible equipment and other requirements for security printing.

During previous visits the necessary management reforms have been outlined and agreed, and the necessary training requirements have been discussed. Production planning, quality control, and a costing and estimating system have all been designed and installed. The last visit by the consultant included a study tour to Singapore, to compare and contrast management styles and production techniques, with a view to incorporating suitable improvements into the JEMC re-organisation plan. Following the study tour, management workshops were held, at which the information gathered on the study tour was used to make a plan for the re-organisation and reform of the management systems and structure at JEMC.

The main objective of this particular assignment is to monitor the progress made with the plan, and to give general assistance and support to the project team working on the re-organisation programme. An additional objective is to evaluate the additional resources which would be necessary to accommodate the production of the School Leaving Certificate (SLC) examination papers at JEMC.

The consultant's next visit, due early in 2003, will be the last of this contract. Its objective will be to pull together information on the overall progress made so far, evaluate progress on the plan, and identify what, if anything, needs to be done to finalise the plan at that stage. The report from that visit is to provide the information which

will form the basis of the draft Memorandum of Understanding (MoU) referred to above; which will be written and signed by the MOES, JEMC, and the Danish Embassy in Kathmandu.

The above objectives and outcomes are taken from the Terms of Reference, a full copy of which will be found in Appendix A (page 12).

### **List of Abbreviations**

BPEP Basic and Primary Education Programme  
HMG His Majesty's Government of Nepal  
IBD International Book Development Ltd  
JEMC Janak Education Materials Centre  
MOES Ministry of Education and Sport  
PAT Programme Advisory Team  
SESP Secondary Education Support Programme, Nepal  
SLC School Leaving Certificate

## **2 ACTIVITIES DURING THE CONSULTANCY**

### **2.1 Follow-up on JEMC management re-structuring**

The following headings are based on issues identified as key during the study tour and management workshops.

#### 2.1.1 Improvement of raw materials

The Acting Production Director has held several meetings with representatives from both Bhrikuti and Everest Paper Mills. One outcome of these meetings is that contracts to supply paper now cover only short periods (about 2 months). There has also been constructive discussion regarding the quality of the paper being supplied. Paper quality is better as a result of these meetings, and this has enabled press output and printing standards to improve. Methods of delivery are still under discussion, but these too will be improved, with better packing and the use of palletisation leading to further gains in output. A representative from the Bhrikuti mill visited JEMC while the consultant was there. It is clear that he has understood what is needed, and is supporting JEMC in their effort to improve quality. It is the case, however, that the quality presently being supplied probably is the best that can be produced with Bhrikuti's present machinery. Once the delivery problems are eliminated, the limits of improvement will have been reached as far as local supply of paper is concerned. As matters currently stand, future production of durable textbooks will inevitably involve importing paper from outside Nepal. The consultant plans to visit both the Nepali paper mills when a suitable opportunity arises during the visit in January 2003.

#### 2.1.2 Controls within the JEMC factory

The consultant had several meetings with members of the costing and estimating department, who reported good progress in the installation of the costing and estimating system. Wage rates and material costs have altered since the scheme began, and the consultant was encouraged to find that the team had already begun to calculate the new cost rates. Cost records appear to be properly kept. At present these are recorded manually, which is very time-consuming. There is still some hesitation about using the new system, and the consultant spent some time working through sample estimates with the team, and answering queries on the costing and cost recording aspects, to improve understanding and promote familiarity. Recording of actual costs remains problematical, the manual system in use is time consuming and permits inaccuracies. The key to the new costing and estimating system is the comparison of budgeted with actual cost. Using simple spreadsheets on inexpensive computers would speed up and simplify the entire process.

Communications throughout the factory have improved markedly, and production planning is now routinely carried out. The production planning boards, installed some time ago, are now in regular use. Additionally, frequent meetings are now held between operators, supervision and managers to monitor progress. This enables corrective responses to be made at an early stage, and limits the need for expensive last minute action in the final stages of production. The improvements in sharing of information have also led to better control of production, including quantities produced.

Waste levels are falling. The improvement in paper quality has played a large part in this, but the new level of communication between shop floor, supervision, and management has also made a large contribution. Production is now better controlled, and this reduces the amount of materials being produced which cannot subsequently be used. The overall figure being quoted by JEMC is a reduction from 14% to 8%. Since 14% is a very conservative estimate of the previous levels of waste, it is difficult to know exactly how much actual improvement has been made, but the situation certainly is better.

Workflow through the factory requires a serious review and cannot properly be addressed without moving several major items, such as presses. However, the general clearing-up which has taken place has improved the flow of work considerably, by allowing freer passage of work in progress between processes. This has contributed to the general improvement in output.

### 2.1.3 Good working practices

Floors throughout the production areas are clean and tidy and gangways are all clear. The factory is in the course of being painted and looks much brighter. One member of the team on each machine is now responsible for cleanliness – the machines and their immediate areas are now clean and clear of rubbish. There is much less standing about, the atmosphere is much more busy, and printing machine speeds are noticeably higher (up by 20 – 30% from those noted on the consultant's last visit). Over-manning has been reduced, and better use is being made of existing staff.

In addition to the existing Quality Control system, under which operators sign off their own work, there are now two independent Quality Control operatives, one each in the printing and binding sections, who randomly inspect work throughout the production area. They report directly to the Acting Production Director and have the authority to deal directly with the operators. Any problems which cannot be dealt with in this way are referred back to the Acting Production Director.

Supervision and staff meet regularly, and, in addition to keeping staff informed on general matters, this improved line of communication has been used to pass down the requirement for standards of cleanliness and tidiness to be maintained. As a result, rubbish is picked up, and waste is no longer just thrown on the floor. These meetings have also provided a channel for staff to feed back suggestions and reactions, and to identify and discuss problems. Apparently the staff like the new regime and respond favourably to it. Certainly there is an air of purpose within the factory which has been lacking in the past.

Supervisors have begun to accept responsibility for their areas in terms of housekeeping and quality. This responsibility is gradually being passed down to operator level. Every member of staff, at all levels, are aware of the new initiative and its objectives.

Food and rest breaks, etc., are now controlled so that production is not stopped to accommodate them. A designated member of staff now sits outside the main factory door, and keeps a register of people moving in and out together with a note of the reason for the movement.

Simple messages, in Nepali, emphasising the need for cleanliness and reduction of waste, are now posted on the walls throughout the factory.

General management training is being arranged in collaboration with Tribhuvan University. JEMC staff are arranging the details. Training should begin very shortly.

No action has been taken on the generous offer of free operator training which was made during the study tour to Singapore.

### 2.1.4 Sales and marketing issues

There are promises of more printing work from Government departments. However, little actual work has been received so far.

The excellent suggestion that the team should look into the production of textbooks for private schools does not appear to have been followed up. Nor do there appear to have been many changes and improvement to the marketing department. The point was made during the management workshops that Sales and Marketing are areas which are crucial to the future of JEMC. It is disappointing that this key issue appears to have lost impetus. Failure to take this part of the plan forward puts the whole plan at risk.

## **2.2 Establishing the printing of examination papers at JEMC**

### 2.2.1 Provision of suitable accommodation for the proposed Examination Printing Unit

As has been documented in previous reports (December 2001), the most important single issue in the printing of examination papers in Nepal (and by extension at JEMC), is that of security. A large factor in the provision of security is the extent to which the integrity of the site can be assured.

Bearing in mind that both the raw materials needed for production of the papers, and the complete papers themselves, will have to be securely stored on site until production and dispatch are complete, the area needed for this operation is quite large. After considerable discussion, the area currently occupied by the now obsolete letterpress printing department is being proposed as the best site for the production of examination papers. As presently offered, the area covers approximately 300 square metres of production and storage facility, with access to 3-phase electricity and running water. A further 150 square metres of office accommodation is attached to the production area and can easily be added if required. The latter would be suitable for conversion into living accommodation for examination unit staff.

This area has several advantages:

- It is quite separate from the existing production areas
- Although attached to the administration and office block, it is easily separated off from them and access will be simple to control
- The required security measures should be relatively cheap to install
- The area itself is large, and may be divided off into production and storage facilities
- The area is easily extended, should more space be required
- Part of the area is suitable for the provision of residential accommodation, should this be required
- There is existing access to 3-phase electricity
- The floors are suitable for the installation of heavy machinery
- There is wide and easy access to the outside, for the delivery of raw materials and the despatch of completed work
- The Office of the Controller of Examinations is on the site virtually next door

### 2.2.2 Provision of suitable machinery for the production of examination papers

From a technical point of view, much of the machinery currently in use at JEMC is suitable for the production of examination papers and would probably be capable of coping with estimated demand for at least the next two years. However, the over-riding consideration has to be security, and this means that the area used for producing examination papers must be completely separate from the area used for the normal output of the factory. In order to preserve security, the examination paper production area will have to have its own dedicated origination, printing and binding facilities, even if these duplicate some of the existing plant and machinery.

Furthermore, the need for absolute security dictates that relying upon a single machine is inherently too risky, because of the possibility of breakdown. Every machine in the examination production area will therefore have to be duplicated, in order to ensure the continuation of production, should any machine fail. Quite apart from the time lost in repairing the machine, allowing access to technicians from outside the plant during the production of examination papers could seriously compromise security.

The tables in Appendix B (page 15) show the numbers of papers produced for the current year (2002), together with the quantities required for next year and the following four years, assuming that the current rate of increase in demand (approximately 20% per year for the past two years) continues. Since it is not certain that this rate of increase will, in fact, continue, five years is regarded as the maximum practical timescale for this exercise. The machinery needs listed in section 3.2.2 on page 9 have been calculated to fulfill these needs for at least five years; and it is safe to assume that the machinery specified probably would cope with expected demand for six or seven years – although the margin of safety would clearly be smaller.

From the tables in Appendix B, it can be seen that the six compulsory subjects form a large proportion of the materials to be produced, having the largest numbers of pages and the highest quantities. The quickest method of printing and binding these papers is to group them together as 32 page formes (i.e. 16 printed pages on each side of the sheet at one pass through the machine) for printing, and to then cut the printed sheets down to individual papers for folding and binding. Folding machines are available with a facility for applying glue during the folding process. This would result in a bound 8 or 12 page booklet, which would only require trimming to make it ready for dispatch.

Several of the optional, and extra optional, subjects would also suit this process, because their quantities are quite high. The most efficient method of producing the remaining papers, which are smaller in extent and lower in quantity, would be to print them as 4 pages at one pass on a small high speed press which has a short (maximum 5 minute) change-over time.

The tables show the relative production times between the two methods. Most of the papers fall very clearly into one category or the other (the lowest number of 'hours to print' represents the optimum production method). For some subjects the difference is not significant; these could be produced either way, giving a useful element of flexibility. This flexibility could be an important factor in the event of future variations in either the extent or the quantity.

### 3 CONCLUSIONS AND RECOMMENDATIONS

#### 3.1 Follow-up on management re-structuring

In the consultant's last report, the point was made that a clear, well-communicated, and above all, shared vision for JEMC was an essential ingredient for the success of the overall plan.

The most important immediate issues in communicating this vision were identified as:

- Changing attitudes within the plant
- Obtaining good raw materials
- Reducing waste levels
- Installing and maintaining good controls within the factory

and these formed the basis for the immediate and medium term parts of the plan.

##### 3.1.1 JEMC management

The re-forming and re-organisation of JEMC's management structure is now well in hand. Most of the 'immediate' and 'medium term' issues identified in the plan have been implemented. This is a tribute to the hard work and dedication of the whole team involved in the project. The improvement in raw materials and reduction of waste has made an immediate and obvious difference to the flow of work through the factory. Improved communications have enabled every staff member to be aware of the organisation's goals and to take an active role in their achievement. The production areas are now much more pleasant working environments, and the operators seem not only to appreciate the difference, but are playing their part by keeping the work areas clean and tidy.

It has been very heartening to see the progress which has been made, particularly over the last few months, when the results of all the hard work have really begun to be evident. The general impression, on several walks around the production areas, is that overall attitudes have improved greatly. There is an air of purpose which previously was lacking, and it is clear that staff are now much more aware of what is required of them. The consultant pointed the way forward, but would like to pay tribute to the enormous amount of work done by JEMC management in general, and Mr Ram Chandra Silwal and the rest of the management re-structuring team in particular – upon whom much of the burden has fallen. It is a very difficult thing to move away from familiar ways and to make changes on the scale which has been required here. The team has risen to the challenge magnificently, and it has been an enormous pleasure to work alongside them, and to share in their achievement.

There is no doubt that JEMC is closer now to the desired shared vision than ever before. This process should not stop because one of the goals is in sight. The process is and has to be continuous, and there is much still to be done. A general management course is being planned with Tribhuvan University, which will help the new generation of managers better to understand and manage the process of change.

During recent assignments, it has become obvious that, although over-manning has been reduced throughout the production areas, it is at least as bad within the administration departments.

##### ***Recommendation***

*It is recommended that the training in general management should be commenced as soon as possible, in order to facilitate the change process. The consultant will visit Tribhuvan University during the next visit to Nepal (January 2003), to make sure that the course content is relevant and suited to JEMC's needs.*

*It is also recommended that a complete evaluation of roles and responsibilities should be undertaken throughout the administrative and office departments. This presents an ideal opportunity to weed out the excess, in the form of the less able, and to encourage those who make a real contribution to the running of the organisation. The consultant recommends that this exercise should be undertaken immediately, with a view to completion by the end*

of February. It is probable that the evaluation process, at least in the early stages, will need consultant support – which can commence on the consultant's next visit (January 2003).

### 3.1.2 Continuing assistance to JEMC

JEMC will continue to need considerable help and support for the foreseeable future, in order to take forward the process of changing and reforming their management structure. The managers have accepted and understood the need for change, and they have begun to make the moves necessary to achieve change, but they will require guidance and advice if they are to compete with equivalent organisations outside the country. This will, of course, be a continuous and ongoing process and represents only one more stage in the progress towards modernisation.

#### **Recommendation**

*This help and support does not need to be continuous. The consultant recommends one or two week-long visits at intervals of about two months. In between visits, support and advice can be sought and given via e-mail.*

### 3.1.3 Operator training

Reference was made in a previous report (October 2002) to the very generous offer of free operator training made by the Print and Media Association, Singapore. This offer was made in a spirit of enthusiasm during the study tour, and it would be a pity to lose such a chance by allowing this enthusiasm to cool. Not only is this an opportunity to get hands-on training on up-to-date equipment at an extremely low cost, but it would give motivation to the staff concerned, and provide a strong incentive to others to participate. This is an opportunity to gain valuable experience and knowledge of modern printing techniques. The skills and technology it will bring form an essential part of the plan to make JEMC competitive within the modern global economy.

#### **Recommendation**

*It is strongly recommended that JEMC management should take advantage of this offer as soon as possible. The investment required by JEMC would be very modest when set against the value of the potential benefits. Contact should be made with the Print and Media Association within the next few weeks, to begin the process.*

*Since better-trained operatives will be more productive, it is also recommended that this training should be combined with a determined effort further to reduce the serious over-manning which still exists within the factory.*

### 3.1.4 Establishment of a marketing department

Identifying, researching, and entering new markets was an important point which came out of the management workshops held following the return from the study tour. Marketing is a key component of the overall plan, and the delay in taking decisive action on it is a matter for deep concern. To continue to rely almost solely on Government contracts, particularly in the present economic climate, is an unacceptably risky strategy.

#### **Recommendation**

*It is recommended that the formation of an effective marketing department, including a customer service team, should be commenced immediately. The marketing department should be combined with the new estimating and costing function to direct and support a determined sales effort.*

*The consultant can give advice and help with this part of the plan, but the motivation and the will to make it happen have to come from within the organisation.*

*It is recommended that responsibility for this vital activity is assigned at a very senior level to ensure that it gets the required attention and support it must have in order to play its part in the overall plan.*

### 3.1.5 JEMC development plan

Many of the longer term issues are dependent on the implementation of those in the shorter term and will automatically be addressed as the overall plan progresses. Some of the longer term issues have already been identified as outside the control of JEMC and will be resolved only by changes and improvements in national infrastructure. The important thing here is to concentrate on the issues at JEMC, so as to be ready to take advantage of the changes in national conditions as soon as they happen.

#### ***Recommendation***

*It is recommended that the consultant monitors overall progress on all the above issues during his next visit, and the result will form part of the final report. Recommendations in the final report will provide some of the text for the Memorandum of Understanding, to be produced jointly by Danida, JEMC, and MOES (see Appendix A, Terms of reference, Outcomes).*

## **3.2 Printing of examination papers at JEMC**

### 3.2.1 Security

Security has already been identified as the most important consideration in the printing of examination papers at JEMC. As has already been emphasised, absolute security is difficult to achieve. Security would certainly be increased if the examination unit was sealed off from the rest of the factory for the duration of the examination production process. The suggestion has been made that part of the examination unit should consist of living accommodation for the staff, who would be confined to the unit until production was complete. Provision of accommodation, including sleeping quarters, kitchens, washing facilities, and basic medical facilities for at least 40 staff (including some from the Office of the Controller of Examinations), will add considerably to the complexity, size, and cost of the installation. It should be borne in mind that the examination unit must be completely self-sufficient in both machinery and staff if security is to be maintained. This would, of course also include supervision, and service staff, such as cleaners and cooks etc. Some duplication and overlapping of responsibilities will be necessary, in order to cope with possible emergencies, such as sickness or enforced absence.

#### ***Recommendation***

*It is recommended that the old letterpress department be converted into an examination production unit. It is also recommended that the unit be made into a completely enclosed environment, with accommodation for all staff. Provision for accommodation must allow for an increase in staffing levels.*

### 3.2.2 Machinery

The shorter the period of activity, the easier it will be to maintain security. Speed of production has therefore been a prime factor in the selection of machinery. If the machinery specified is installed and efficiently managed, the production time for SLC papers at the 2003 level would be approximately 20 days. To this must be added the time for enveloping (although production within Nepal would permit a considerable overlap), but the overall time would still be considerably shorter than the 45 days taken under the current system.

Simplification of the production process will contribute towards increasing speed, and the proposed method of achieving this is to group the subject papers together for printing and binding; those papers with long extents and large quantities would be printed together as formes of 32 pages on a large format press (approximately 720 x 1020mm), while the smaller papers with lower quantities would be printed as single 4pp formes on a small format high speed press (approximately 460 x 340mm). *See also item 3.2.3 about paper sizes.*

Using the figures from the 2002 (current) table in Appendix B, if the two types of press were to be used in the optimum way (i.e. taking the press with the lowest number of hours to print for each subject), the total number of printing hours would be 1.46 hours for the 4 page press, and 199 hours for the 32 page press. At first sight this may suggest that the smaller press is unnecessary; but putting all the papers onto the 32 page press would add 13

hours to the total production time. There are several subjects which would take only a little longer on the smaller press, and where the overall printing time is similar on both machines, the cost of printing on the larger machine will be considerably higher – because of the higher hourly cost rate (at least 4 times that of the smaller machine). Subsidiary costs, such as printing plates and set-up costs will also be higher for the larger press. Additionally, the processing costs of downstream operations, such as trimming and folding will be increased if small extents and small quantities are produced in multiples on large sheets, which then have to be cut down to their component parts. These factors, together with the added flexibility of having two completely separate means of printing, make a good case for the purchase of the smaller press.

Printing is the critical process. The binding operations can commence as soon as the first examination papers are off the printing press, and the specified folding machines are easily capable of coping with the quantities involved. There is also the fact that the binding would be considerably simplified – in most cases this involves only folding, numbering, and trimming to size.

The effect of producing examination papers on a small web-offset press with a format of 660 x 451mm was also examined. Use of such a press would reduce printing times dramatically, and it certainly would cope with projected demand for the foreseeable future. However, because of the need for total reliability, two machines would have to be purchased, and the cost of these machines would be very much higher than the cost of the 32 page perfecter press and small format presses which are being proposed.

However, as has already been pointed out, estimating future demand for examination papers is extremely difficult, and the installation of a small web press could be reconsidered at the proposed future review.

#### **Recommendation**

*The machinery recommended for the proposed examination unit is listed in Appendix C. Every item of machinery is duplicated, and this, combined with the provision of two different kinds of press, will give reasonable insurance against breakdown or failure. More machines would increase this protection, but not to a level which would justify the extra cost. In any case the output capabilities of the machinery specified gives a good margin of safety.*

*It is recommended that a formal meeting should be held at the end of each examination production period between JEMC, the consultant, a representative from the Office of the Controller of Examinations, MOES and Danida. This meeting would review the overall situation, monitor compliance with the plan, and deal with any deviation or problems.*

#### **3.2.3 Page size of examination papers**

The current page size of examination papers is 220 x 140mm. Altering the size to 210 x 148mm (A5) would allow the use of smaller imagesetters, printing presses and folders, offering significant savings in the capital outlay involved in equipping the examination unit. This change of size would also simplify the buying of paper, if this had to be sourced outside Nepal.

#### **Recommendation**

*It is recommended that the size of the examination papers should be changed to A5 (210 x 148mm).*

#### **3.2.4 Paper**

An essential element in the successful printing of examination papers at JEMC is the quality of the paper used. Not only must the paper be of a quality which permits fast and continuous production, but the physical condition upon delivery must be such that it can be used immediately, without any further preparation being necessary.

#### **Recommendation**

*It is recommended that discussions should be held with both Nepali paper mills on the provision of paper for examination papers. For security reasons, these discussions may have to await HMG's decision on whether to go ahead with the project.*

*It is recommended that storage facilities within the examination unit should be equipped with proper racking for the storage of paper and other raw materials.*

*It is also recommended that alternative sources of suitable paper should be explored – since the paper would be bought, and delivered, at one time, it is likely that substantial discounts could be negotiated. The question of import taxes, etc., should be raised with HMG at the same time.*

### 3.2.5 Timescale

The decision on whether or not to go ahead with printing examination papers in Nepal rests with HMG, and, more specifically, with the MOES. It is now unlikely that the new unit could be commissioned in time to produce the 2003 SLC papers. A possible timescale for the project is shown in Appendix D (page 19). This timescale represents the time, in weeks, from the decision to proceed being taken. In practice, some activities will overlap. The physical alterations to the existing buildings have not been included in the timescale. They can commence at any time following the decision to go ahead and are not time-critical – except that they must be completed by week 29 at the latest.

#### ***Recommendation***

*It is recommended that all parties concerned should be urged to come to a decision very quickly – and, in any case, no later than the end of February 2003. Although the estimated timescale of 33 weeks is realistic, it covers only the physical activities of setting up the unit at JEMC; it makes no provision for the procedural and managerial changes which may be necessary in other organisations.*

## Appendix A

### Terms of Reference for Technical Assistance in preparation for Secondary Education Support Programme, Nepal:

#### **Upgrading of Janak Educational Materials Centre management, and preparation of School Leaving Certificate security printing press**

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##### Background

These Terms of Reference (TOR) are an integral part of the Interim Project to be undertaken during the period June 2002 – March 2003 in preparation for the Secondary Education Support Programme (SESP), planned to commence in the spring of 2003 to cover an expected first phase, which will end in 2008. The programme is described in detail in the SESP Core Document.

**Management at Janak Educational Materials Centre (JEMC):** This is a state-owned enterprise, which has the legal right to print all the formal education textbooks for government schools in Nepal. It is the only printing house in Nepal capable of producing the very large textbook print runs, and it has received Danish support to upgrade its printing equipment and to introduce modern management practices during the implementation of Basic and Primary Education Programme II (BPEP II), 1999 - 2004. The management practices were related with costing and estimating, production control and quality control, which are essential for cost effective textbook production. Although some progress has so far been made in this area, internalisation of modern management practises is necessary to support continued progress and sustain achieved efficiency and effectiveness. Consultancy support for this purpose is defined in these TOR.

**School Leaving Certificate (SLC) security printing:** A study was conducted towards the end of 2001 on the possibilities of manufacturing the SLC exam papers in Nepal, and initial recommendations were made by the international consultant. As part of those recommendations it was stressed that the establishment of the SLC printing unit should only be supported provided a number of strict conditions with respect to the issue of security were met. For any future support for the printing of SLC exam papers to be successful in enabling the MOES to produce the exam papers in Nepal in an efficient and effective manner, the ground has to be prepared. For this to happen, JEMC needs to demonstrate concrete progress in terms of modernising its management systems and upgrading its management skills. JEMC management upgrading, therefore, is considered a necessary precondition for JEMC taking on the additional responsibility of producing the SLC papers. In addition, the MOES has stated its intention to revise the design and layout of the SLC papers. A final decision on this will be needed before equipment lists can be drawn up.

##### *Objectives*

The main objective is to contribute to ensuring that MOES will have an effective and well functioning printing capacity for primary and secondary education. This will be done by assisting in drawing up a comprehensive management-upgrading plan for JEMC and by linking the establishing of the SLC examination printing capacity to this upgrading:

- To identify the changes required to take place prior to the provision of the printing 'hardware';
- To identify the benchmarks for monitoring the changes in the organisation and management of JEMC (assuming it continues to be the most suitable location);
- To finalise a plan for the establishment of a capacity for printing SLC exam papers in Nepal and for improving this capacity as well as the efficiency in the production of educational materials;
- To help draft a Memorandum of Understanding to be agreed between Danida and HMG concerning the assistance to JEMC within the areas of JEMC upgrading and SLC security printing.

## Outcomes

- A full-fledged plan for capacity building and management restructuring, equipment installation and ready-for-operation plans at JEMC (provided JEMC is eventually chosen as the location for installing the equipment). This should be based upon a clear vision of JEMC's status, purpose, role, and the principles involved.
- A draft Memorandum of Understanding (MoU) to be signed by the MOES, JEMC and the Danish Embassy in Kathmandu as the basis for the support in the context of SESP. The MoU will stipulate the actions to be undertaken by each party, and it will cover both the JEMC upgrading and the SLC printing support.
- Plans for the implementation of organisation and management reforms in preparation for the secure printing technologies. These will include necessary management decisions, training of personnel, rationalisation of purchasing, production and distribution processes, reduction in overhead cost (manpower etc).
- Identified needs for management training, and the related training plans.
- Specified and costed plans for possible equipment and other requirements for security printing.

## Main activities

8. Preparation of an outline with objectives for a long-term (5-year) plan for the development of modern management structure and capacities at JEMC. The aim of this plan is to develop a management structure, which is comparable to that in private sector printing houses. The management at JEMC has limited understanding of the concept of how a modern printing house is functioning. To improve the understanding, a 5-day study tour to modern printing houses in the region for a small number of senior managers at JEMC will be initiated.
9. Implementation of a seminar at JEMC to discuss and agree to the above outline will be a main activity. Further, the seminar will finalise preparations for the regional study tour including selection of the JEMC managers as recommended in previous consultancy reports. It will also provide an opportunity to choose a suitable candidate to act as lead on the support for JEMC under SESP. The person chosen to lead will be the main contact for the international consultant during this consultancy. The objectives of the tour will be for the JEMC management to gain experiences within the various functions of a modern printing house by:
  - Allowing the participants to compare and contrast management styles and structures
  - Highlighting the current shortcomings in management practices at JEMC, and establishing benchmarks and a model for good practices
  - Gathering experience and collecting information within all aspects of management activities. The gained knowledge will be used as the basis for the long-term plan. The information will be compiled by the participants (with guidance from the international consultant). Each participant will within his/her area contribute to a study tour report to be presented to the rest of the participants at a debriefing session in Kathmandu shortly after the completion of the study tour.
10. Utilisation of the information gathered on the study tour will assist in, and facilitate, the process of developing a long-term plan for the re-design and reform of management systems at JEMC. This will be achieved through a management workshop, in which the JEMC management will play the active role, as the driving force behind the management reforms must be the JEMC management itself. The international consultant's role will be that of a facilitator and an adviser. The plan would need to be the product of JEMC's own management team, and the plan would need to have full commitment and ownership in JEMC at every level.
11. *Following the development of the long-term plan, the consultant will assist with the design and facilitate the implementation of a revised plan for the management structure of JEMC. This assistance will include support in drawing up management training programmes and human resource development plans, and other support as required. The management training will be a part of the MOES Human Resource Development Plan.*
12. Preparation of a management training plan and a long-term implementation schedule with costing for upgrading of JEMC. The implementation and funding of this plan is to be decided later. This training will aim to develop the skills necessary to identify key management issues and provide the techniques to resolve those

issues. If possible, suitable training will be found locally. If this is not possible, suitably qualified consultants can be brought in on a short-term basis to provide in-country training. These options will be considered, and possibly decided, during the course of the consultancy.

13. *Implementation of a seminar in Nepal to discuss the plan to produce the SLC examination papers at JEMC. This discussion will identify the key issues and establish solutions to them. Particular emphasis will be on the main issue of security. The result of the seminar should be a comprehensive plan for supporting MOES in establishing SLC printing facilities under SESP. The final decisions from MOES on the design and layout of the SLC exam papers need to be available in writing before the SLC support can be initiated.*

14. *Following this seminar, a timetable will be prepared, and the resources required to successfully implement the SLC printing plan will be identified. The resources required are expected to include the following:*

- *Material resources – in the form of premises, alterations to existing buildings etc.*
- *Machinery and equipment*
- *Human resources, including training etc.*
- *Systems, including computer systems etc.*

### **Method of work**

The consultant will cooperate with and consult representatives from MOES and its Department of Education (DOE) and, in particular, JEMC. Others will include Curriculum Development Centre (CDC), Examination Council, Primary Publishing Cell, and Secondary Publishing Unit.

The preparation of the restructuring plan and pre-tender documents will be prepared as far as possible in Nepal, and in close collaboration with all stakeholders.

A jointly developed work plan with benchmarks will need to be prepared to form the basis of the consultancy.

Aspects of human resource development will be addressed whenever relevant, and synergy with other interim project activities will be ensured.

The office of the Programme Advisory Team (PAT) will provide programmatic and logistics support for the consultancy.

### **Reporting**

Each mission to Nepal will be concluded by a debriefing session with the relevant HMG and other stakeholders, PAT and the Danish Embassy as required. One day prior to the debriefing meeting, the consultant will provide the participants with a draft **Debriefing Note**. Within one week of the debriefing meeting, the consultant will revise the debriefing note and return it for distribution.

The Debriefing Note will form the basis for preparation of draft **Technical Report(s)** to be submitted to TSA, Danida, in Copenhagen within two weeks of the conclusion of the consultancy. The consultant will finalise the report(s) within two weeks of receipt of comments.

## Appendix B

**2002 (current)**

	2002	No. of pages		Impressions	hours	Impressions	hours	no. of
		QUANTITY	actual	produced	if printed as	to	if printed as	
SUBJECT			as	perfected 32pp	print	one sided 4pp	print	pallets
<b>a) Compulsory subjects</b>								
Nepali	433,750	7	8	108,438	27.50	1,735,000	216.88	4
Social Studies	433,750	8	8	108,438	27.50	1,735,000	216.88	4
Population and Health	433,750	3	4	54,219	14.00	867,500	108.44	2
English	433,750	6	8	108,438	27.50	1,735,000	216.88	4
Mathematics	433,750	9	12	162,656	41.00	2,602,500	325.31	5
Science	433,750	6	8	108,438	27.50	1,735,000	216.88	4
				650,625	165	8,675,000	1,301	
<b>b) Optional subjects</b>								
Agricultural Education	41,000	5	6	7,688	2.00	123,000	15.38	1
Office Managment & Accounts	150,500	3	4	18,813	5.00	301,000	37.63	1
Education	162,000	3	4	20,250	5.50	324,000	40.50	1
Extra Mathematics	116,100	6	8	29,025	7.50	464,400	58.05	1
Home Science	3,910	3	4	489	0.50	7,820	0.98	1
Cane & Bamboo	45	2	4	6	0.50	90	0.01	1
Computer Science	7,900	6	8	1,975	0.50	31,600	3.95	1
Sanskrit Grammar	650	2	2	41	0.50	650	0.08	1
Sanskrit Literature	1,120	3	4	140	0.50	2,240	0.28	1
Economics	260,520	4	4	32,565	8.50	521,040	65.13	1
Geography	30,620	4	4	3,828	1.00	61,240	7.66	1
History	27,100	4	4	3,388	1.00	54,200	6.78	1
Health & Physical Education	67,600	4	4	8,450	2.50	135,200	16.90	1
Sanskrit Astronomy	165	3	4	21	0.50	330	0.04	1
				126,676	36	2,026,810	253	
<b>b) Extra Optional subjects</b>								
Auditing	125	3	4	16	0.50	250	0.031	1
Urdu Language	35	2	2	2	0.50	35	0.004	1
Hindi Language	50	2	4	6	0.50	100	0.013	1
Maithili Language	360	2	4	45	0.50	720	0.090	1
Nepali Language	142	3	4	18	0.50	284	0.036	1
Karm Kanda	243	3	4	30	0.50	486	0.061	1
Industrial Education	670	3	4	84	0.50	1,340	0.168	1
Needlework	100	3	4	13	0.50	200	0.025	1
Aayurved	80	2	2	5	0.50	80	0.010	1
Sociology	65	2	2	4	0.50	65	0.008	1
Ethics (Nitishastra)	11	2	2	1	0.50	11	0.001	1
Civic Science	180	2	2	11	0.50	180	0.023	1
Newari	345	2	2	22	0.50	345	0.043	1
English	1,680	3	4	210	0.50	3,360	0.420	1
Journalism	20	2	2	1	0.50	20	0.003	1
Environmental Science	105	3	4	13	0.50	210	0.026	1
Justice	22	2	2	1	0.50	22	0.003	1
Population Education	140	3	4	18	0.50	280	0.035	1
Music & Dance	96	3	4	12	0.50	192	0.024	1
Painting	36	3	4	5	0.50	72	0.009	1
Logic (Tarka Sangraha)	60	3	4	8	0.50	120	0.015	1
Tibetan	6	3	4	1	0.50	12	0.002	1
				524	11	8,384	1	
	3,476,301		184	777,825	212	10,710,194	1,556	59
NB Quantity is taken as (number of registered students, plus previous year's fails, plus those exempted) + 10%								

2003

2003	SUBJECT	No. of pages		Impressions	hours	Impressions	hours	Approx. no. of pallets	
		actual	produced as	if printed as perfected 32pp	to print	if printed as one sided 4pp	to print		
<b>a) Compulsory subjects</b>									
	Nepali	520,500	7	8	130,125	33.00	2,082,000	260.25	4
	Social Studies	520,500	8	8	130,125	33.00	2,082,000	260.25	4
	Population and Health	520,500	3	4	65,063	16.50	1,041,000	130.13	2
	English	520,500	6	8	130,125	33.00	2,082,000	260.25	4
	Mathematics	520,500	9	12	195,188	49.00	3,123,000	390.38	6
	Science	520,500	6	8	130,125	33.00	2,082,000	260.25	4
					780,750	198	12,492,000	1,562	
<b>b) Optional subjects</b>									
	Agricultural Education	49,200	5	6	9,225	2.50	147,600	18.45	1
	Office Management & Accounts	180,600	3	4	22,575	6.00	361,200	45.15	1
	Education	194,400	3	4	24,300	6.50	388,800	48.60	1
	Extra Mathematics	139,320	6	8	34,830	9.00	557,280	69.66	2
	Home Science	4,692	3	4	587	0.50	9,384	1.17	1
	Cane & Bamboo	54	2	4	7	0.50	108	0.01	1
	Computer Science	9,480	6	8	2,370	1.00	37,920	4.74	1
	Sanskrit Grammar	780	2	2	49	0.50	780	0.10	1
	Sanskrit Literature	1,344	3	4	168	0.50	2,688	0.34	1
	Economics	312,624	4	4	39,078	10.00	625,248	78.16	2
	Geography	36,744	4	4	4,593	1.50	73,488	9.19	1
	History	32,520	4	4	4,065	1.50	65,040	8.13	1
	Health & Physical Education	81,120	4	4	10,140	3.00	162,240	20.28	1
	Sanskrit Astronomy	198	3	4	25	0.50	396	0.05	1
					152,011	44	2,432,172	304	
<b>b) Extra Optional subjects</b>									
	Auditing	150	3	4	19	0.50	300	0.038	1
	Urdu Language	35	2	2	2	0.50	35	0.004	1
	Hindi Language	60	2	4	8	0.50	120	0.015	1
	Maithili Language	432	2	4	54	0.50	864	0.108	1
	Nepali Language	170	3	4	21	0.50	341	0.043	1
	Karm Kanda	292	3	4	36	0.50	583	0.073	1
	Industrial Education	804	3	4	101	0.50	1,608	0.201	1
	Needlework	120	3	4	15	0.50	240	0.030	1
	Ayurved	96	2	2	6	0.50	96	0.012	1
	Sociology	78	2	2	5	0.50	78	0.010	1
	Ethics (Nitishastra)	13	2	2	1	0.50	13	0.002	1
	Civic Science	216	2	2	14	0.50	216	0.027	1
	Newari	414	2	2	26	0.50	414	0.052	1
	English	2,016	3	4	252	0.50	4,032	0.504	1
	Journalism	24	2	2	2	0.50	24	0.003	1
	Environmental Science	126	3	4	16	0.50	252	0.032	1
	Justice	26	2	2	2	0.50	26	0.003	1
	Population Education	168	3	4	21	0.50	336	0.042	1
	Music & Dance	115	3	4	14	0.50	230	0.029	1
	Painting	43	3	4	5	0.50	86	0.011	1
	Logic (Tarka Sangraha)	72	3	4	9	0.50	144	0.018	1
	Tibetan	7	3	4	1	0.50	14	0.002	1
					628	11	10,054	1	
		4,171,554		184	933,389	252	14,934,226	1,867	62
NB Quantity is taken as (number of registered students, plus previous year's fails, plus those exempted) + 10%					933,389				

## 2004

SUBJECT	2004 QUANTITY	No. of pages		Impressions	hours	Impressions	hours	Approx. no. of pallets	
		actual	as produced	if printed as perfectd 32pp	to print	if printed as one sided 4pp	to print		
<b>a) Compulsory subjects</b>									
Nepali	624,600	7	8	156,150	39.50	2,498,400	312.30	5	
Social Studies	624,600	8	8	156,150	39.50	2,498,400	312.30	5	
Population and Health	624,600	3	4	78,075	20.00	1,249,200	156.15	3	
English	624,600	6	8	156,150	39.50	2,498,400	312.30	5	
Mathematics	624,600	9	12	234,225	59.00	3,747,600	468.45	8	
Science	624,600	6	8	156,150	39.50	2,498,400	312.30	5	
				936,900	237	14,990,400	1,874		
<b>b) Optional subjects</b>									
Agricultural Education	59,040	5	6	11,070	3.00	177,120	22.14	1	
Office Managment & Accounts	150,500	3	4	18,813	5.00	301,000	37.63	1	
Education	233,280	3	4	29,160	7.50	466,560	58.32	1	
Extra Mathematics	167,184	6	8	41,796	10.50	668,736	83.59	2	
Home Science	5,630	3	4	704	0.50	11,261	1.41	1	
Cane & Bamboo	65	2	4	8	0.50	130	0.02	1	
Computer Science	11,376	6	8	2,844	1.00	45,504	5.69	1	
Sanskrit Grammar	936	2	2	59	0.50	936	0.12	1	
Sanskrit Literature	1,613	3	4	202	0.50	3,226	0.40	1	
Economics	375,149	4	4	46,894	12.00	750,298	93.79	2	
Geography	44,093	4	4	5,512	1.50	88,186	11.02	1	
History	39,024	4	4	4,878	1.50	78,048	9.76	1	
Health & Physical Education	97,344	4	4	12,168	3.50	194,688	24.34	1	
Sanskrit Astronomy	238	3	4	30	0.50	475	0.06	1	
				174,135	48	2,786,166	348		
<b>b) Extra Optional subjects</b>									
Auditing	180	3	4	23	0.50	360	0.045	1	
Urdu Language	35	2	2	2	0.50	35	0.004	1	
Hindi Language	72	2	4	9	0.50	144	0.018	1	
Maithili Language	518	2	4	65	0.50	1,037	0.130	1	
Nepali Language	204	3	4	26	0.50	409	0.051	1	
Karm Kanda	350	3	4	44	0.50	700	0.087	1	
Industrial Education	965	3	4	121	0.50	1,930	0.241	1	
Needlework	144	3	4	18	0.50	288	0.036	1	
Aayurbed	115	2	2	7	0.50	115	0.014	1	
Sociology	94	2	2	6	0.50	94	0.012	1	
Ethics (Nitishastra)	16	2	2	1	0.50	16	0.002	1	
Civic Science	259	2	2	16	0.50	259	0.032	1	
Newari	497	2	2	31	0.50	497	0.062	1	
English	2,419	3	4	302	0.50	4,838	0.605	1	
Journalism	29	2	2	2	0.50	29	0.004	1	
Environmental Science	151	3	4	19	0.50	302	0.038	1	
Justice	32	2	2	2	0.50	32	0.004	1	
Population Education	202	3	4	25	0.50	403	0.050	1	
Music & Dance	138	3	4	17	0.50	276	0.035	1	
Painting	52	3	4	6	0.50	104	0.013	1	
Logic (Tarka Sangraha)	86	3	4	11	0.50	173	0.022	1	
Tibetan	9	3	4	1	0.50	17	0.002	1	
				754	11	12,058	2		
	4,939,638		184	1,111,789	296	17,788,624	2,224	69	
NB Quantity is taken as (number of registered students, plus previous year's fails, plus those exempted) + 10%									

## 2005

SUBJECT	2005 QUANTITY	No. of pages		Impressions	hours	Impressions	hours	Approx. no. of pallets
		actual	as	if printed as perfected 32pp	to print	if printed as one sided 4pp	to print	
<b>a) Compulsory subjects</b>								
Nepali	749,520	7	8	187,380	47.00	2,998,080	374.76	6
Social Studies	749,520	8	8	187,380	47.00	2,998,080	374.76	6
Population and Health	749,520	3	4	93,690	23.50	1,499,040	187.38	3
English	749,520	6	8	187,380	47.00	2,998,080	374.76	6
Mathematics	749,520	9	12	281,070	70.50	4,497,120	562.14	9
Science	749,520	6	8	187,380	47.00	2,998,080	374.76	6
				1,124,280	282	17,988,480	2,249	
<b>b) Optional subjects</b>								
Agricultural Education	70,848	5	6	13,284	3.50	212,544	26.57	1
Office Management & Accounts	150,500	3	4	18,813	5.00	301,000	37.63	1
Education	279,936	3	4	34,992	9.00	559,872	69.98	2
Extra Mathematics	200,621	6	8	50,155	13.00	802,483	100.31	2
Home Science	6,756	3	4	845	0.50	13,513	1.69	1
Cane & Bamboo	78	2	4	10	0.50	156	0.02	1
Computer Science	13,651	6	8	3,413	1.00	54,605	6.83	1
Sanskrit Grammar	1,123	2	2	70	0.50	1,123	0.14	1
Sanskrit Literature	1,935	3	4	242	0.50	3,871	0.48	1
Economics	450,179	4	4	56,272	14.50	900,357	112.54	2
Geography	52,911	4	4	6,614	2.00	105,823	13.23	1
History	46,829	4	4	5,854	1.50	93,658	11.71	1
Health & Physical Education	116,813	4	4	14,602	4.00	233,626	29.20	1
Sanskrit Astronomy	285	3	4	36	0.50	570	0.07	1
				205,200	56	3,283,200	410	
<b>b) Extra Optional subjects</b>								
Auditing	216	3	4	27	0.50	432	0.054	1
Urdu Language	35	2	2	2	0.50	35	0.004	1
Hindi Language	86	2	4	11	0.50	173	0.022	1
Maithili Language	622	2	4	78	0.50	1,244	0.156	1
Nepali Language	245	3	4	31	0.50	491	0.061	1
Karm Kanda	420	3	4	52	0.50	840	0.105	1
Industrial Education	1,158	3	4	145	0.50	2,316	0.289	1
Needlework	173	3	4	22	0.50	346	0.043	1
Aayurved	138	2	2	9	0.50	138	0.017	1
Sociology	112	2	2	7	0.50	112	0.014	1
Ethics (Nitishastra)	19	2	2	1	0.50	19	0.002	1
Civic Science	311	2	2	19	0.50	311	0.039	1
Newari	596	2	2	37	0.50	596	0.075	1
English	2,903	3	4	363	0.50	5,806	0.726	1
Journalism	35	2	2	2	0.50	35	0.004	1
Environmental Science	181	3	4	23	0.50	363	0.045	1
Justice	38	2	2	2	0.50	38	0.005	1
Population Education	242	3	4	30	0.50	484	0.060	1
Music & Dance	166	3	4	21	0.50	332	0.041	1
Painting	62	3	4	8	0.50	124	0.016	1
Logic (Tarka Sangraha)	104	3	4	13	0.50	207	0.026	1
Tibetan	10	3	4	1	0.50	21	0.003	1
				904	11	14,462	2	
	5,897,459		184	1,330,384	349	21,286,142	2,661	75
NB Quantity is taken as (number of registered students, plus previous year's fails, plus those exempted) + 10%								

2006

SUBJECT	2006 QUANTITY	No. of pages		Impressions	hours	Impressions	hours	Approx. no. of pallets
		actual	produced as	if printed as perfected 32pp	to print	if printed as one sided 4pp	to print	
<b>a) Compulsory subjects</b>								
Nepali	899,424	7	8	224,856	56.50	3,597,696	449.71	7
Social Studies	899,424	8	8	224,856	56.50	3,597,696	449.71	7
Population and Health	899,424	3	4	112,428	28.50	1,798,848	224.86	4
English	899,424	6	8	224,856	56.50	3,597,696	449.71	7
Mathematics	899,424	9	12	337,284	84.50	5,396,544	674.57	11
Science	899,424	6	8	224,856	56.50	3,597,696	449.71	7
				1,349,136	339	21,586,176	2,698	
<b>b) Optional subjects</b>								
Agricultural Education	85,018	5	6	15,941	4.00	255,053	31.88	1
Office Managment & Accounts	180,600	3	4	22,575	6.00	361,200	45.15	1
Education	335,923	3	4	41,990	10.50	671,846	83.98	2
Extra Mathematics	240,745	6	8	60,186	15.50	962,980	120.37	2
Home Science	8,108	3	4	1,013	0.50	16,216	2.03	1
Cane & Bamboo	93	2	4	12	0.50	187	0.02	1
Computer Science	16,381	6	8	4,095	1.50	65,526	8.19	1
Sanskrit Grammar	1,348	2	2	84	0.50	1,348	0.17	1
Sanskrit Literature	2,322	3	4	290	0.50	4,645	0.58	1
Economics	540,214	4	4	67,527	17.00	1,080,429	135.05	3
Geography	63,494	4	4	7,937	2.00	126,987	15.87	1
History	56,195	4	4	7,024	2.00	112,389	14.05	1
Health & Physical Education	140,175	4	4	17,522	4.50	280,351	35.04	1
Sanskrit Astronomy	342	3	4	43	0.50	684	0.09	1
				246,240	66	3,939,840	492	
<b>b) Extra Optional subjects</b>								
Auditing	259	3	4	32	0.50	518	0.065	1
Urdu Language	42	2	2	3	0.50	42	0.005	1
Hindi Language	104	2	4	13	0.50	207	0.026	1
Maithili Language	746	2	4	93	0.50	1,493	0.187	1
Nepali Language	294	3	4	37	0.50	589	0.074	1
Karm Kanda	504	3	4	63	0.50	1,008	0.126	1
Industrial Education	1,389	3	4	174	0.50	2,779	0.347	1
Needlework	207	3	4	26	0.50	415	0.052	1
Aayurved	166	2	2	10	0.50	166	0.021	1
Sociology	135	2	2	8	0.50	135	0.017	1
Ethics (Nitishastra)	23	2	2	1	0.50	23	0.003	1
Civic Science	373	2	2	23	0.50	373	0.047	1
Newari	715	2	2	45	0.50	715	0.089	1
English	3,484	3	4	435	0.50	6,967	0.871	1
Journalism	41	2	2	3	0.50	41	0.005	1
Environmental Science	218	3	4	27	0.50	435	0.054	1
Justice	46	2	2	3	0.50	46	0.006	1
Population Education	290	3	4	36	0.50	581	0.073	1
Music & Dance	199	3	4	25	0.50	398	0.050	1
Painting	75	3	4	9	0.50	149	0.019	1
Logic (Tarka Sangraha)	124	3	4	16	0.50	249	0.031	1
Tibetan	12	3	4	2	0.50	25	0.003	1
				1,085	11	17,354	2	
	7,076,950		184	1,596,461	416	25,543,370	3,193	83
NB Quantity is taken as (number of registered students, plus previous year's fails, plus those exempted) + 10%								

## Appendix C

### Proposed machinery for the production of examination papers at JEMC

<b>PRE-PRESS</b>	2 x Apple Power Macs - G4-350 (together with suitable software) 2 x imagesetters (polyester/paper plates)
<b>PRINTING</b>	2 x perfecter presses 720 x 1020mm 2 x small high-speed presses 460 x 340mm
<b>FOLDING</b>	2 x folders (1280 x 900mm) with slitting and glueing attachments 2 x small folders (640 x 450mm)
<b>TRIMMING</b>	2 x programmatic guillotines (640 x 900mm)
<b>NUMBERING</b>	2 x high speed numbering devices

## Appendix D

### Timescale for examination paper production project

Discussion following decision to proceed	Week 1 Week 2
Write full specification for machinery	Week 3 Week 4
Identify prospective suppliers	Week 5
Put specifications out to tender	Week 6 Week 7
Receive bids	Week 10
Bid evaluation	Week 11 Week 12
Discussion and acceptance of bids	Week 13 Week 14
Write and issue contracts	Week 15 Week 16
Delivery and installation of machinery in new unit	Week 30 Week 31 Week 32
Check for compliance with specifications, and trials	Week 33 Week 34
Training and running-in	Week 35 Week 36 Week 37
Unit ready to commence production	Week 38

**NEPAL**

**Technical Assistance in preparation for  
Secondary Education Support Programme:  
Upgrading of Janak Educational Materials Centre management and  
School Leaving Certificate security printing press preparations  
(Final mission)**

Tony Ashe

19-25 January 2003

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# **1 INTRODUCTION**

The consultant visited Nepal from 18 to 25 January 2003 in order to work with the Janak Education Materials Centre (JEMC). This assignment arose out of earlier work, supported by Danida, at Janak Education Materials Centre, which concerned upgrading JEMC, during the implementation of BPEP II (1999-2004). The management structure at JEMC is being overhauled and upgraded as necessary to a point where JEMC can compete with an equivalent organisation outside Nepal.

## **1.1 Background**

This is the final visit of a series which began in December 1999. JEMC is the only printing house in Nepal capable of producing large quantities of school textbooks. As part of BPEP II the consultant has worked with the management of JEMC to upgrade its printing equipment and to introduce modern management practices.

The strategy followed over the series of visits has had two basic components:

- The improvement of technical and mechanical facilities within the JEMC factory
- The installation of management systems in the factory to improve information and control

The need for improved management systems had become apparent long before the consultant's first visit, but was highlighted during the installation of new equipment on the consultant's first assignment in December 1999. Development and installation of these systems has formed the main part of the activity during the life of the project. Detailed descriptions of the actual process of development and installation will be found in earlier reports by the consultant, but brief references are made in the section of this report which reviews overall progress since 1999.

Following this initial work, and in preparation for the Secondary Education Support Programme (SESP) which is planned to commence in the spring of 2003, DANIDA began an Interim Project, for which Terms of Reference were produced in June 2002. The detailed Terms of Reference will be found in Appendix C on page 13. The main objective of the Interim Project is to contribute to ensuring that the Ministry of Education and Sport (MOES) will have an effective and well-functioning printing capacity for primary and secondary education. An additional objective is a feasibility study into the setting up of a facility to produce the School Leaving Certificate (SLC) examination papers within Nepal

The achievement of these two objectives has been the main purpose of the current 3-visit contract. The expected outcome of these objectives is for JEMC's management to produce a fully fledged plan for capacity building and management restructuring within the organisation, together with a detailed description of the suggested facility for producing examination papers. A draft copy of this plan will be sent to the consultant before it is presented to DANIDA and MOES. The consultant will review the draft, and make suggestions and additions if these are necessary. The final draft will then be presented to DANIDA and MOES, for consideration by them, together with this report, with a view to applying for future funding from the donors for the continuation of the development of JEMC.

## **1.2 Purpose of the present visit**

The specific purposes of the consultant's January 2003 visit are:

1. To evaluate progress against the Terms of Reference referred to above

2. To provide help and support with any difficulties experienced in putting together a coherent plan of action
3. To review overall progress since 1999
4. To recommend ways of building on the progress made so far at JEMC

The content of this report, together with JEMC's plan, will form the basis of the draft Memorandum of Understanding (MoU) referred to in the Terms of Reference which will be written and signed by the MOES, JEMC, and the Danish Embassy in Kathmandu.

### **Acknowledgements**

The consultant would like to thank everyone at JEMC for their help and hospitality at all times. It has been a real pleasure to work alongside such a committed and cheerful group of people. The excellent results achieved so far are a fitting reward for the hard work and effort contributed by everyone concerned.

### **List of Abbreviations**

BPEP	Basic and Primary Education Programme
HMG	His Majesty's Government of Nepal
IBD	International Book Development Ltd
JEMC	Janak Education Materials Centre
MOES	Ministry of Education and Sport
PAT	Programme Advisory Team
PMAS	Print & Media Association, Singapore
SESP	Secondary Education Support Programme, Nepal
SLC	School Leaving Certificate

## **2 THE JANUARY 2003 VISIT**

The December 2002 report by the consultant contained detailed descriptions of the follow-up to the management re-structuring which forms the main objective of the activities covered by the Terms of Reference. As noted in that report, the management reforms have been discussed and agreed during previous visits.

Prior to August 2002, the putting in place of the new management and control systems was dealt with by those in charge of the relevant departments at that time. This generation of managers is soon to retire, and the future of the strategy for implementation of the reforms now lies with the project team which was formed for the study tour to Singapore in September 2002. This team consists of staff from various departments across the organisation who are about to become the new senior managers. They have the intelligence and energy to appreciate the necessity for the reforms, and are in the process of acquiring the necessary authority to continue the implementation. The consultant's efforts and the proposed management training are being concentrated on this group. This project team are the people who have produced the JEMC plan, and they are the ones who are actually carrying out the reforms, and who will then take the process forward.

Most of the week-long visit was spent with members of the project team, either individually or as a group, discussing various aspects of the management reforms.

One of the most important activities during the visit was a management workshop for the project team, held on the afternoon of 22<sup>nd</sup> January. This workshop followed up the issues which were identified during the Singapore study tour, and which have formed the basis for the management restructuring project. A further topic was the proposed security printing unit, which was discussed in considerable detail. The opportunity was also taken to get the project team's views on the progress made since 1999, and to discuss what could be done to build upon the progress made so far.

The objective of this workshop was to produce an outline for the JEMC plan which is to be submitted to DANIDA and the MOES by the end of February 2003. Notes of the meeting were kept by the consultant, and documented for use by the team in the production of the plan.

Individual follow-up meetings were held with the costing, finance, marketing, and production departments, to review progress on the implementation of the new control systems, and to give advice on dealing with possible difficulties. In fact there were few difficulties, all minor, mostly arising out of interpretation of instructions within the various manuals. All were resolved satisfactorily.

The greatest problem for the project team is the actual production of the plan, because none of the team members has experience in producing this sort of document. The management workshop, referred to above, provided an outline for the plan. In addition, the consultant gave notes made during the workshop to the team, as a basis for a suggested framework for the document.

### **2.1 The printing of examination papers at JEMC**

This objective was set during 2001.

The consultancy visits made to JEMC in September and December 2002 established the practicality of producing examination papers at JEMC. Working with the JEMC management, the consultant has found suitable accommodation for the proposed security printing unit within the JEMC site at Sano Thimi, and details of this accommodation, together with an account of the proposed security measures to be taken, the procedures to be followed, and the internal structure of the security printing unit, will be published in the plan presently being produced by JEMC.

A draft list of machinery for the production of examination papers appeared in the consultant's report of December 2002. Following discussion during the workshop held during this visit, a slightly revised list has been drawn up, together with approximate prices (see Appendix A on page 14). An outline timescale for the implementation of the examination paper printing project will be found in Appendix B on page 15.

## **2.2 Notes on the last three visits**

The activities of the last three visits made by the consultant (September-October 2002, December 2002, and the present visit) were concentrated on the objectives laid down in the June 2002 Terms of Reference. The details of these visits are in the consultant's reports already published, but the following general notes may be useful.

These objectives had required outcomes, and the way they were to be achieved was specified in the Terms of Reference under the heading of '*Main activities*'. There were seven main activities and the way these requirements were fulfilled is shown below. The core activity, on which all the others were founded, was a study tour to printing factories in Singapore in September 2002.

### **2.2.1 The study tour**

This was a 5-day study tour, and had the primary objective of improving the JEMC management's understanding of the functioning of modern printing houses. The delegates for the tour were chosen from senior staff from relevant departments who were about to move up into senior managerial positions.

The tour gave the delegates an opportunity to:

- compare and contrast management styles and structures
- highlight the current shortcomings in management practices at JEMC
- establish benchmarks and models for good practices
- gather information and experience of all aspects of management activities
- acquire technical information

Each delegate concentrated primarily on the departments closest to their own particular area of interest, but also made notes of more general aspects – which were then discussed by the group as a whole.

### **2.2.2 Management workshops and seminars**

A series of management workshops and seminars were held during the week prior to the actual tour. The purpose of these workshops was to establish the key issues facing JEMC, based on an analysis of the strengths and weaknesses of the organisation as it then stood. The issues identified by this analysis were then used as a list on which each delegate based their own research. General discussions were held during the tour, with individual delegates encouraged to point out items of particular interest.

Management workshops were also held during the week following the tour. At these workshops each delegate presented their individual report and the information gained and techniques observed were then combined into an overall report on the tour.

Further management workshops were held during the consultant's visits in December 2002 and January 2003. At these workshops the ideas and information from the earlier workshops were gradually refined into an overall strategy for JEMC.

### 2.2.3 Development of a long-term plan for the re-design and reform of management systems at JEMC

The overall strategy developed in the management workshops was then used as the basis for a long-term plan for the re-design and reform of management systems at JEMC. The plan includes details of training for both operatives and managers, together with strategies for keeping up with advances in technology.

This plan is in the process of being finalised at the time of writing, and will be presented to MOES and DANIDA before the end of February.

### 2.2.4 The production of the School Leaving Certificate examination papers at JEMC

This issue has been discussed with JEMC management at individual level, and has also been the focus of debate during recent management workshops. As a result of the work done jointly by the consultant and JEMC managers, accommodation for the security printing unit has been found, and a list of suitable machinery has been drawn up. Considerable thought has been given to security, and strategies for achieving security. Details of the proposals relating to examination production, including the issue of security, are contained within the JEMC plan currently being produced.

### 2.2.5 Consultant involvement in the achievement of objectives

The consultant's aim has been to act as a facilitator and adviser, encouraging JEMC staff to achieve objectives through and by their own efforts, rather than prescribing particular courses of action. All the success achieved over the past four years is the result of co-operation and teamwork between the consultant and JEMC management – neither party could have achieved the result on their own.

### **3 OVERALL PROGRESS SINCE 1999**

The following points are general outlines of the activities undertaken from 1999 to the present, together with comments on progress and future developments (these comments are in italic). Detailed descriptions of the activities will be found in previous reports by the consultant (December 1999, March-April 2000, August-September 2000, November-December 2000, November-December 2001, and December 2002), and these points also form the basis of the plan which is to be submitted by JEMC.

#### **3.1 Machinery installations**

One of the consultant's first activities was a survey of the JEMC factory in December 1999, which resulted in the installation of the machinery for the production of durable textbooks in March 2000.

*This was extremely successful, and the books produced were of a good standard and durable. However the installation highlighted the already-recognised need for fundamental improvements to the management structure, and radical changes to the control systems throughout the factory.*

#### **3.2 Improvement of management controls within the JEMC factory**

##### 3.2.1 Installation of improved Production Control system (March-April 2000)

Existing production control systems were rudimentary, and were without the preciseness necessary to ensure efficient production and timely delivery. There was a lack of understanding of the need to monitor and control every step of the process, with little discussion of, or attention to, progress through the factory. A calculation was made of the total time the process would need, and the resulting starting and completion dates were the only milestones applied.

Corrective action was left until the final stages of production, by which time it was obvious that the final date could not be met. Not surprisingly, this resulted in late deliveries and increased production costs.

*Because of the lack of understanding of the basic mechanism of production control, the consultant felt it would be inappropriate to install a sophisticated computer-based system. Instead, some additional elements were added to the existing manual system under the consultant's guidance. These took the form of wall boards divided up according to the various production processes against a time scale, with channels into which cards representing the time needed for the different stages of the job are inserted by the supervision of the production departments to show the estimated dates for each process. Daily discussions between management and supervision of production departments give feedback on progress, and the information is used to update the boards throughout the factory.*

*These boards serve four purposes. Firstly, they communicate job information and expectations on performance to all the production staff and machine operators; secondly, they provide a clear focus for discussion on progress; thirdly, they give an early warning of potential problems and show exactly what effect a delay in the early stages will have on the final delivery date; and fourthly, they show the results that proposed corrective action may have on other jobs.*

##### 3.2.2 Installation of improved Costing and Estimating system (March-April 2000)

The original system in use at JEMC was very basic, and not very accurate. It did not permit the comparison of budgeted against actual cost until the end of the financial year, which meant that corrective action could not be taken until the beginning of the next financial year – resulting in frequent unanticipated losses. Although the system itself was simple in operation, estimating using the system was quite complex, and it was not certain that all costs were included.

*The new system is based on the British Printing Industries Federation costing and estimating system in common use in the UK - slightly simplified for use in Nepal. This system collects every cost within the business and ensures that all direct costs are allocated to the appropriate cost centre, and that a fair share of the overhead costs, etc, is apportioned to each cost centre. By this means, all costs are 'recovered'.*

*Not only is this system considerably more accurate than the old one, but it permits constant comparison between budgeted and actual cost throughout the financial period - which allows immediate corrective action to be taken. Because every cost is included in every calculation, the effect of changing processes can be seen instantly.*

*At present the new scheme is being run alongside the old one. This will allow the new system to be tested and fine-tuned, and the staff to acquire experience on the system, without danger of losing control. It is planned that the new system will go 'live' within the next six months, at which point the old system will be completely phased out.*

### 3.2.3 Improvement in communications throughout the factory (ongoing since 1999)

Prior to the consultant's involvement, the only regular channel of communication was a daily management meeting at which directors and managers discussed general matters. These meetings were unstructured and lacking in focus - largely because the lack of information and control systems meant that real issues were rarely discovered until too late in the process for united and effective action.

Management information continues to be collected by means of forms, timesheets, written reports, etc., and tends to be neither accurate nor timely. Although a computerised Management Information System (MIS) has been discussed in the past, it was always rejected on grounds of complexity and cost.

*The meetings are now much more focussed, and concentrate on discussion of production and management issues. In addition, frequent meetings have been introduced between operators, supervision, and managers which monitor progress, discuss problems, and permit an exchange of ideas. These activities have resulted in considerable improvements in efficiency and timely delivery. The staff now feel much more involved in the running of the factory, and are therefore much more committed to constant improvement. Additionally, the staff provide feedback and information, which aids in efficient management of the factory.*

*During the latest visit, the consultant was shown a new computer MIS network. At present this is only connected to Finance, Stores, Marketing/Distribution, and Human Resources. Some new hardware has been bought locally, and the software is also locally-sourced. The system works quite well, but is a little slow due to insufficient server power. Within the next few months the network is to be extended to include Costing/Estimating and the gathering of management information from the factory. This will overcome the problem of slow information collection for the new Costing and Estimating system, as well as improving controls within the factory generally.*

*It is encouraging that the decision to install this system was taken independently, and that all the costs have been borne by JEMC. This installation is an excellent example of the new attitudes now found*

*within the management, and is a good indication of the sort of commitment which may be expected in the future.*

#### 3.2.4 The lowering of waste levels throughout the factory (ongoing since 1999)

At the time of the consultant's first visit, the waste levels throughout the factory were extremely high. The quality of raw materials was low, but the problem was made worse by the casual way in which the raw materials, and work in progress, was handled throughout, and between, the production areas. Supervision and operators were indifferent to the waste of resources in producing goods which would not be saleable, and took no responsibility for, or interest in, reducing waste.

*With the consultant's encouragement and help, the following strategies have gradually been introduced:*

- *A general understanding of the effects of high waste levels on costs*
- *An improvement in the quality of raw materials (see item 3.2.5 below)*
- *Improved communications between managers, supervision, and staff (including simple posters emphasising the need for cleanliness and the reduction of waste throughout the factory)*
- *Better control procedures for the issue of materials*

*As a result, waste levels have fallen considerably (see item 3.2.5 below). All these activities will continue to be pursued, and further improvements will be sought.*

#### 3.2.5 The improvement of raw materials (ongoing since 1999)

At the start of this project, a very high proportion of raw materials were rejected at the point of use (but only after time had been wasted in trying to use them), and this caused further problems and loss of time while the rejected materials were removed and more materials (which also often proved to be faulty) were delivered to the production centre concerned. Contracts to supply paper were issued on an annual basis, which meant that the suppliers felt free to lower quality after securing a contract.

*Considerable time has been spent in discussion with representatives from both Brikhuti and Everest Paper mills. Several actions have resulted from these meetings:*

- *Contracts to supply paper are now issued on a short-term basis (6 – 8 weeks, or purchased for a particular title), this discourages complacency in suppliers*
- *The way the paper is delivered (a source of much of the problem) has been improved*
- *The quality of the paper supplied has improved markedly*

*The Brikhuti Mill has recently sought technical help from abroad, and as a result has introduced an even better quality of paper - which should further improve output speeds and the quality of the finished books.*

*Because paper quality has been improved, the consumption of paper and cover board (down by 1.8%), ink (down by 13.9%), printing plates (down by 4.7%), and blankets (down by 39.5%), have all fallen in 2001/2002 compared to 1999/2000, with consequent savings in cost.*

#### 3.2.6 The introduction of good working practices (ongoing since 1999)

The consultant's very first report (December 1999) mentioned the poor standard of housekeeping within the production areas. It was common for machines to be idle for long periods while waste materials were removed from round about them.

The floors were piled ankle deep in paper and rubbish, and waste would just be thrown on the floor. Gangways were blocked with rubbish and badly stacked pallets of work in progress which were in such a poor state that they clearly could never be used. Waste would not be removed until it had all but made access to a particular area impossible. All this was an obstacle to efficient production and a serious hazard from the point of view of health and safety.

Every production department was unclean and untidy, appearing uniformly dark and dirty. This resulted in low morale and slapdash work.

Over-manning was widespread, with large numbers of under-used staff crowding the factory floor. Most machines had crews of at least twice the size needed to run them.

Rest and food breaks were taken randomly, machines were stopped while entire crews disappeared (despite the over-manning). Supervisors appeared to take no responsibility for their areas, or for the quality of the work produced. There was little or no attempt to inform or consult supervision, much less operators, on production or general matters.

Quality control was regarded as an exclusively management matter, and sub-standard work would often be passed through the entire process, only to be discovered at the final stage - too late to rectify with any hope of keeping the delivery date.

*The consultant has worked over the period with management and supervision to improve the situation.*

*The factory has now been transformed. Floors have been cleared of rubbish and cleaned, all the gangways and machine surrounds are now clear. Walls and ceilings throughout the factory have now been cleaned and painted, and the whole area now looks clean and bright. Baskets have been provided for waste, and these are emptied regularly. Rubbish is no longer routinely thrown on the floor. Staff and supervision accept responsibility for their own areas, and ensure that they are kept up to the expected standard.*

*There are noticeably fewer people standing around, and staff appear to be happier. The atmosphere is much busier, and machine speeds are up by 20 - 30% from previous levels.*

*There is still an element of over-manning; but clearer definition of roles and allocation of individual and group responsibilities has improved the use of existing staff, so that more actual work is done by the same number of people.*

*Rest, food, and shift breaks are now properly organised, these periods are staggered so that only part of the crew leaves the machine at any given time. Regular meetings between managers, supervision, and staff have begun the process of persuading every level to take responsibility for their own work and environment. This has also resulted in feedback from operators, which has further helped improve efficiency and output.*

*A Quality Control system has been introduced, with operators signing off their own work for passing on to the next stage of production. In addition, there is now an independent Quality Control operative in both the printing and binding departments whose job is to carry out random inspections while work is proceeding. These operatives have the authority to order faulty work to be re-done.*

### 3.2.7 Operator training (October 2002)

There are few formal facilities for printing operator training within Nepal. This is because the printing industry forms one tiny component of an industrial sector which is itself relatively small. When JEMC was founded, operator training in the US was provided by the then donors as part of the aid package. Since that time, JEMC has trained its own operators on-site, following the original principles. This has worked reasonably well from a purely technical point of view, but it has encouraged a particular way of working. It has also preserved some old-fashioned attitudes. Both these factors are no longer appropriate in an organisation which seeks to be competitive in a modern environment.

*Reference has been made in the consultant's last two reports (October 2002, December 2002) to the generous offer of free operator training, made by the Print & Media Association, Singapore (PMAS). JEMC have now made the decision to follow this up. Mr Udhab Gautam (a member of the project team) will write a letter to PMAS within the next week or so, requesting details of training being offered, together with a rough estimate of the cost of accommodation, etc. The high cost of air fares and accommodation dictate that some financial assistance will be needed to help meet the cost, and a grant towards this will be sought via the DoE.*

*A further suggestion is to set up an 'exchange' system via PMAS, whereby JEMC staff would be sent to Singapore, but PMAS would also send Singaporean staff to Kathmandu, to train JEMC staff on site.*

*Operator training in Singapore will bring several benefits. Not only will the technical training be of the very highest standards, but it will be based on the very latest equipment and technology. Additionally, the operators being trained in Singapore will be exposed to Singaporean values and attitudes. Since the general attitude of the workforce in Singapore is very positive, this will reinforce and support the efforts being made to introduce similar attitudes within JEMC.*

### **3.3 Management training**

Although most of the directors and managers at JEMC are educated to degree level, general management training is lacking. Much more benefit is gained from management workshops and discussions when the participants have a sufficient knowledge of the basics of management science.

It was noticeable that most managers and supervisors in Singapore factories have had a general management education. This enables them to understand new ideas and techniques more readily, and to use these to advantage in the day-to-day management of their organisations.

*The College of Management at Kathmandu University offers general management courses, and is prepared to tailor them to JEMC's specific needs. Mr Kiran Pant (a local management consultant, engaged and paid for by JEMC) is arranging the details with the head of the College of Management, and the training will commence by mid February.*

*PMAS in Singapore run management courses for their own members, and did offer these to JEMC during discussions on the study tour. The letter to PMAS referred to in 2.2 above will also ask for details of the management courses on offer, and what the likely costs would be.*

*As in the case of the operator training, the value lies not only in the training itself, but in the techniques and attitudes which will be imported when the trainees return to Kathmandu.*

### **3.4 Marketing (1999 to the present)**

From the beginning of consultant's work with JEMC, the lack of an effective marketing department, complete with all the ancillary activities which support it, has caused concern. To depend solely upon Government business is understandable in an organisation which was set up by, and on behalf of, Government; but this dependence brings a vulnerability which could be fatal in times of austerity and Government cut-backs in spending. Not only is the Government likely to cut back on its publishing programme without any warning (and after the books have been produced), but payment terms are often extremely unfavourable – it is not unusual for JEMC to wait several months for payment of their invoices.

A further consequence of single-market trading is the complacency it encourages within the organisation. In this situation, little sustained effort is needed to secure orders, so little effort is made. This lack of effort becomes a habit, and a professional marketing department, which would be essential in a more competitive market, is not formed. What is formed instead is a department which is called 'Marketing', but in practice merely records and processes orders. As a result, when market conditions alter, the necessary skills are not available, and the consequences can be serious.

*One of the key items which was identified during the study tour to Singapore in September 2002 was the very different attitude to marketing found in Singapore. At the management workshops which followed the tour, the project team agreed that JEMC needed to examine its marketing, and to devise a strategy for widening its markets. The logical step, building on an area where JEMC has considerable experience, was to find a wider market for existing, or slightly modified, products. There is a considerable number of private schools in and around Kathmandu. Research showed that most of these schools buy their textbooks from India. The team suggested that JEMC could supply textbooks to private schools at a competitive price.*

*The JEMC marketing department, supported by the Publications department, made contact with several schools, and preliminary prices have been issued – which appear to be competitive. The schools have agreed, in principle, to buy textbooks from JEMC. A meeting with the trade organisation of the private schools has been arranged for week commencing 10 February at JEMC's Sano Thimi factory. This meeting will be attended by the heads of most of the private schools, and details of prices, deliveries, etc, will be agreed.*

*The books to be supplied to the private schools are derivatives, or translations, of existing JEMC textbooks. All the necessary work of translation etc. has been undertaken at and by JEMC. This is extremely encouraging, and should lead to profitable orders from this sector. An additional benefit is that the private schools have ready funding, and are able to pay for their goods on a commercial (i.e. prompt) basis.*

*If this initiative is successful, the profits from this market represent a first step towards giving JEMC some financial independence. Such independence would allow them to fund some investment in plant and machinery for themselves*

*A further JEMC-originated initiative is the proposed development of an E-Commerce site, for selling books directly to customers. This proposal is still in the planning stage, but some preliminary work has been done, including the investigation of hardware and software to enable the proposed site to function. Details of this proposal will be included in the plan which is to be submitted by JEMC as the next stage of this project. The development of this initiative is an encouraging sign that the hard work and effort of the last four years are now showing real results.*

## 4 CONCLUSIONS AND RECOMMENDATIONS

### 4.1 Setting up a Sales and Marketing Department

Although sales and marketing now have a much higher profile within JEMC, and there has been a determined effort to find new markets (see Section 3.4), the marketing department has not been significantly changed from the original. Customer Service is an essential part of running any organisation. Finding new customers is important, but once customers are found, keeping them costs less than finding new ones. A dedicated Customer Service department, with specific staff allocated to specific customers, familiar with their customers' needs and work patterns, and able to act on the customer's behalf within the JEMC factory, would be a powerful marketing tool.

JEMC proposes to set up a small Research and Development (R&D) department - to keep up with technology and markets inside and outside Nepal. This would keep the management informed of new developments, and help them plan strategies. As part of this initiative it is planned to ask PMAS in Singapore to put JEMC on the mailing list for their newsletters – which would help them in keeping up with advances in technology.

At present, JEMC are very much product-led – they produce certain products, and seek markets for those products. If the future is to be assured, it will be necessary to change the emphasis towards identifying possible markets, and producing products for those markets.

#### ***Recommendation***

*It is strongly recommended that a proper Sales and Marketing department should be set up within JEMC.*

*This department would include a trained Sales team, and a Customer Service unit, both of which would work together to identify appropriate markets, find customers within those markets, work with the customers to identify and satisfy the customers' needs, and provide a complete service to the customer – such that there would be no reason for a customer to look elsewhere for their requirements.*

*A small R&D section would be part of this unit, with a brief to research new markets and products, keep abreast of technical changes, and provide senior management with up-to-date information on developments in markets and technology on a regular basis.*

*Over a period, this will enable JEMC to change to a more market-led approach. The key to successful manufacturing is to manufacture what customers want. The 'engine' of any successful company is its marketing department, which finds out what customers want and translates these requirements into products which can be profitably produced.*

*Marketing training will form a part of the general management training which has already been mentioned, and will emphasise the importance of the marketing function. However, specialised training in marketing is almost certainly available either within Nepal or India. It is recommended that such training should be found and implemented as soon as possible, in order to keep up the momentum of the process of change.*

*Setting-up of the department will require the direct support of management at a very senior level, and it is recommended that firm commitment to providing this support should be made a condition for future assistance.*

### 4.2 Final implementation of the Costing and Estimating system

The full and final implementation of the system is in hand, and should be completed within the next few months. Because the system is complex, there are bound to be last-minute queries to be answered, and adjustments to be made. Comparing the budget costs against actual costs, and adjusting the cost rates to reflect the results is particularly difficult, and the staff concerned may need assistance with some of the process.

**Recommendation**

*It is recommended that the final implementation should be monitored, and that consultant support should be available for the final stages of the implementation.*

**4.3 Building on the progress so far achieved in JEMC**

Progress, although slow at times, has been very satisfactory. Almost all the original objectives have been met, and the last few months in particular have brought a clear improvement in working practices, attitudes, and commitment at every level throughout JEMC.

Having achieved the objectives, and established a strong foundation, it now remains to build on that foundation to ensure that progress continues in such a way as to provide MOES with the required capacity for the production of printed materials in connection with their initiatives in primary and secondary education.

Nepal is a small country, dwarfed by its near neighbours, and poor in natural resources. The printing industry within Nepal is still in its infancy, and there are few opportunities for JEMC to share experiences and problems with fellow manufacturers in the way that similar organisations in developing countries outside Nepal are able to do.

Additionally, JEMC is, effectively, a Government-owned organisation, and therefore faces constraints which do not exist in the private sector.

The JEMC management are in the process of submitting a five-year plan which will set out their strategies for the future. The JEMC plan incorporates most of the points outlined in this report. A core part of that plan is the establishment of a firm and permanent relationship with the Print and Media Association of Singapore.

It should be stressed that the overhaul and reform of the business is a continuous process. The cycle of constant research, improvement, monitoring results has to be a permanent management objective, if the business is to flourish. This process will need outside support.

**Recommendation**

*In view of the progress made, particularly over the last few months, and in order to reap maximum benefit from the investment made so far, it is recommended that continued consultant support, in the form of regular short visits, and providing advice via e-mail, should be offered for at least the next two years. This will not only provide the direct assistance which will be needed to ensure that the modernisation programme continues, but also will give access to wider sources of information on changing technology and general management issues which are essential to the overall process, and which are unlikely to be available within the country.*

PROPOSED TIMETABLE FOR CONSULTANT VISITS			
	PERIOD		
April	2003	2004	5 days
August	2003	2004	5 days
December	2003	2004	5 days

*It is further recommended that all possible assistance should be given to encourage the establishment of a relationship with the Print and Media Association of Singapore. If a relationship of this sort can be set up, it will provide an invaluable source of knowledge and information which will do much to leapfrog the wide technology gap which currently exists between JEMC's present position and the position which all parties would like it to occupy in the future.*

## Appendix A

**Proposed machinery for the production of examination papers at JEMC, together with approximate prices in \$US.**

<b>Price</b>		<b>Total</b>	
<b>\$US</b>		<b>in</b>	
<b>PRE-PRESS</b>	2 x Apple Power Macs - G4-350 (together with suitable software)	8,000.00	
	2 x imagesetters (for polyester/paper plates)	50,000.00	
<b>PRINTING</b>	2 x perfector presses capable of printing a sheet size of at least 640 x 900mm	900,000.00	
	2 x small high-speed presses capable of printing a sheet size	200,000.00	of at le
<b>FOLDING</b>	2 x folders capable of folding a sheet size of at least	260,000.00	640 x 9
	2 x small folders capable of folding a sheet size of at least 450 x 640mm	140,000.00	
<b>TRIMMING</b>	2 x programmatic guillotines with a bed size of at least 640 x 900mm	15,000.00	
<b>NUMBERING</b>	2 x high speed numbering devices	12,000.00	
<hr style="width: 10%; margin-left: 0;"/>		1,585,000.00	

## Appendix B

### Timescale for examination paper production project

Discussion following decision to proceed	Week 1 Week 2
Write full specification for machinery	Week 3 Week 4
Identify prospective suppliers	Week 5
Put specifications out to tender	Week 6 Week 7
Receive bids	Week 10
Bid evaluation	Week 11 Week 12
Discussion and acceptance of bids	Week 13 Week 14
Write and issue contracts	Week 15 Week 16
Delivery and installation of machinery in new unit	Week 30 Week 31 Week 32
Check for compliance with specifications, and trials	Week 33 Week 34
Training and running-in	Week 35 Week 36 Week 37
Unit ready to commence production	Week 38

## Appendix C

### Terms of Reference for Technical Assistance in preparation for Secondary Education Support Programme, Nepal:

#### **Upgrading of Janak Educational Materials Centre management, and preparation of School Leaving Certificate security printing press**

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##### Background

These Terms of Reference (TOR) are an integral part of the Interim Project to be undertaken during the period June 2002 – March 2003 in preparation for the Secondary Education Support Programme (SESP), planned to commence in the spring of 2003 to cover an expected first phase, which will end in 2008. The programme is described in detail in the SESP Core Document.

**Management at Janak Educational Materials Centre (JEMC):** This is a state-owned enterprise, which has the legal right to print all the formal education textbooks for government schools in Nepal. It is the only printing house in Nepal capable of producing the very large textbook print runs, and it has received Danish support to upgrade its printing equipment and to introduce modern management practices during the implementation of Basic and Primary Education Programme II (BPEP II), 1999 - 2004. The management practices were related with costing and estimating, production control and quality control, which are essential for cost effective textbook production. Although some progress has so far been made in this area, internalisation of modern management practises is necessary to support continued progress and sustain achieved efficiency and effectiveness. Consultancy support for this purpose is defined in these TOR.

**School Leaving Certificate (SLC) security printing:** A study was conducted towards the end of 2001 on the possibilities of manufacturing the SLC exam papers in Nepal, and initial recommendations were made by the international consultant. As part of those recommendations it was stressed that the establishment of the SLC printing unit should only be supported provided a number of strict conditions with respect to the issue of security were met. For any future support for the printing of SLC exam papers to be successful in enabling the MOES to produce the exam papers in Nepal in an efficient and effective manner, the ground has to be prepared. For this to happen, JEMC needs to demonstrate concrete progress in terms of modernising its management systems and upgrading its management skills. JEMC management upgrading, therefore, is considered a necessary precondition for JEMC taking on the additional responsibility of producing the SLC papers. In addition, the MOES has stated its intention to revise the design and layout of the SLC papers. A final decision on this will be needed before equipment lists can be drawn up.

##### *Objectives*

The main objective is to contribute to ensuring that MOES will have an effective and well functioning printing capacity for primary and secondary education. This will be done by assisting in drawing up a comprehensive management-upgrading plan for JEMC and by linking the establishing of the SLC examination printing capacity to this upgrading:

- To identify the changes required to take place prior to the provision of the printing ‘hardware’;
- To identify the benchmarks for monitoring the changes in the organisation and management of JEMC (assuming it continues to be the most suitable location);
- To finalise a plan for the establishment of a capacity for printing SLC exam papers in Nepal and for improving this capacity as well as the efficiency in the production of educational materials;

- To help draft a Memorandum of Understanding to be agreed between Danida and HMG concerning the assistance to JEMC within the areas of JEMC upgrading and SLC security printing.

#### Outcomes

- A full-fledged plan for capacity building and management restructuring, equipment installation and ready-for-operation plans at JEMC (provided JEMC is eventually chosen as the location for installing the equipment). This should be based upon a clear vision of JEMC's status, purpose, role, and the principles involved.
- A draft Memorandum of Understanding (MoU) to be signed by the MOES, JEMC and the Danish Embassy in Kathmandu as the basis for the support in the context of SESP. The MoU will stipulate the actions to be undertaken by each party, and it will cover both the JEMC upgrading and the SLC printing support.
- Plans for the implementation of organisation and management reforms in preparation for the secure printing technologies. These will include necessary management decisions, training of personnel, rationalisation of purchasing, production and distribution processes, reduction in overhead cost (manpower etc).
- Identified needs for management training, and the related training plans.
- Specified and costed plans for possible equipment and other requirements for security printing.

#### *Main activities*

15. Preparation of an outline with objectives for a long-term (5-year) plan for the development of modern management structure and capacities at JEMC. The aim of this plan is to develop a management structure, which is comparable to that in private sector printing houses. The management at JEMC has limited understanding of the concept of how a modern printing house is functioning. To improve the understanding, a 5-day study tour to modern printing houses in the region for a small number of senior managers at JEMC will be initiated.
16. Implementation of a seminar at JEMC to discuss and agree to the above outline will be a main activity. Further, the seminar will finalise preparations for the regional study tour including selection of the JEMC managers as recommended in previous consultancy reports. It will also provide an opportunity to choose a suitable candidate to act as lead on the support for JEMC under SESP. The person chosen to lead will be the main contact for the international consultant during this consultancy. The objectives of the tour will be for the JEMC management to gain experiences within the various functions of a modern printing house by:
  - Allowing the participants to compare and contrast management styles and structures
  - Highlighting the current shortcomings in management practices at JEMC, and establishing benchmarks and a model for good practices
  - Gathering experience and collecting information within all aspects of management activities. The gained knowledge will be used as the basis for the long-term plan. The information will be compiled by the participants (with guidance from the international consultant). Each participant will within his/her area contribute to a study tour report to be presented to the rest of the participants at a debriefing session in Kathmandu shortly after the completion of the study tour.
17. Utilisation of the information gathered on the study tour will assist in, and facilitate, the process of developing a long-term plan for the re-design and reform of management systems at JEMC. This will be achieved through a management workshop, in which the JEMC management will play the active role, as the driving force behind the management reforms must be the JEMC

management itself. The international consultant's role will be that of a facilitator and an adviser. The plan would need to be the product of JEMC's own management team, and the plan would need to have full commitment and ownership in JEMC at every level.

18. *Following the development of the long-term plan, the consultant will assist with the design and facilitate the implementation of a revised plan for the management structure of JEMC. This assistance will include support in drawing up management training programmes and human resource development plans, and other support as required. The management training will be a part of the MOES Human Resource Development Plan.*
19. Preparation of a management training plan and a long-term implementation schedule with costing for upgrading of JEMC. The implementation and funding of this plan is to be decided later. This training will aim to develop the skills necessary to identify key management issues and provide the techniques to resolve those issues. If possible, suitable training will be found locally. If this is not possible, suitably qualified consultants can be brought in on a short-term basis to provide in-country training. These options will be considered, and possibly decided, during the course of the consultancy.
20. *Implementation of a seminar in Nepal to discuss the plan to produce the SLC examination papers at JEMC. This discussion will identify the key issues and establish solutions to them. Particular emphasis will be on the main issue of security. The result of the seminar should be a comprehensive plan for supporting MOES in establishing SLC printing facilities under SESP. The final decisions from MOES on the design and layout of the SLC exam papers need to be available in writing before the SLC support can be initiated.*
21. *Following this seminar, a timetable will be prepared, and the resources required to successfully implement the SLC printing plan will be identified. The resources required are expected to include the following:*
  - *Material resources – in the form of premises, alterations to existing buildings etc.*
  - *Machinery and equipment*
  - *Human resources, including training etc.*
  - *Systems, including computer systems etc.*

### ***Method of work***

The consultant will cooperate with and consult representatives from MOES and its Department of Education (DOE) and, in particular, JEMC. Others will include Curriculum Development Centre (CDC), Examination Council, Primary Publishing Cell, and Secondary Publishing Unit.

The preparation of the restructuring plan and pre-tender documents will be prepared as far as possible in Nepal, and in close collaboration with all stakeholders.

A jointly developed work plan with benchmarks will need to be prepared to form the basis of the consultancy.

Aspects of human resource development will be addressed whenever relevant, and synergy with other interim project activities will be ensured.

The office of the Programme Advisory Team (PAT) will provide programmatic and logistics support for the consultancy.

### **Reporting**

Each mission to Nepal will be concluded by a debriefing session with the relevant HMG and other stakeholders, PAT and the Danish Embassy as required. One day prior to the debriefing meeting, the consultant will provide the participants with a draft **Debriefing Note**. Within one week of the debriefing meeting, the consultant will revise the debriefing note and return it for distribution.

The Debriefing Note will form the basis for preparation of draft **Technical Report(s)** to be submitted to TSA, Danida, in Copenhagen within two weeks of the conclusion of the consultancy. The consultant will finalise the report(s) within two weeks of receipt of comments.