

**REVIEW AND EVALUATION OF
ZAMBIA RAILWAYS PROCUREMENT SYSTEM**

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December 21, 1987

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Dear Sir

REVIEW AND EVALUATION OF ZAMBIA RAILWAYS PROCUREMENT SYSTEM

We refer to your Contract No. P0611-88-0052 dated December 4, 1987 and have pleasure in submitting our report. Recommendations have been made only in those areas which directly affect the procurement of USAID financed spare parts.

We wish to express our appreciation to the Managing Director and all senior management staff of Zambia Railways with whom we came into contact, for the excellent co-operation extended to us at all times whilst we were undertaking this review and evaluation.

Yours faithfully

Ric Harmon

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Seminars were held on organizing (Feb. 87) and research (Sept. 87) and in conjunction with SATUCC regional seminars were held in Lesotho comparative labor legislation, Malawi-comparative labor economics and Botswana - safety and health. AALC invited COSATU and NACTU to send participants to all these seminars. In most cases COSATU did not attend citing passport difficulties. NACTU sent participants to all but one of the seminars.

Arnold Zak was contacted to prepare a report on Development Assistance for the South African Labor Sector in South Africa: A Strategy. The report, based on two trips to South Africa in 1986, was submitted in May 1987. The report portrayed a rapidly changing labor situation with rivalries amongst union groups which could threaten black African labor unity and thus the effectiveness of the movement. The report noted: COSATU's (formed in 1985) unwillingness to accept AALC assistance; AALC's support to independent unions as having the appearance of supporting splinter movements; the difficulty of implementing any strategy given the fluidity of the situation; and agreement that programs, priorities and requests should come from the trade unions, but until the major actors are willing to cooperate in the AID effort it is pointless to "fabricate some sort of program strategies". While the report was not developed into a USAID adopted strategy, AID and AALC discussed AID's desire for a more balanced program of support which would build constructive relationships and neutralize the appearance of supporting any one faction of the movement or divisive elements within the movement.

During the reporting period AALC started to adjust its activities to emphasize joint project activities (e.g. Union to Union, A. Philip Randolph Institute) which accounted for almost half of its expenditures over the reporting period. During the previous reporting period (10/1/86 - 3/31/87), only 6% of AALC expenditures were for joint projects. In August AALC provided A.I.D. with a list of proposed Union to Union activities and AALC actions which are geared toward building a constructive relationship with COSATU.

The AALC annual report and budget submission for FY87 were submitted and a PACD extension to September 30, 1987 was approved in order to provide sufficient time for A.I.D. review of the proposal. Given the lack of project-specific detail in the AALC reports, the review resulted in: the signing of a \$800,000/six month grant modification on 9/27/87 (as opposed to \$1.5 million/one year); a set of proposed reporting requirements to be agreed to by AALC; suggestions for AALC's 1988 proposal; and a proposed project timetable for a new submittal and review of AALC's program by Jan. 1988. The \$800,000 grant modification targetted in-country implementation and joint project activities.

AALC submitted a \$500,000 legal assistance proposal which was not approved due to questions about AALC's ability to develop a program without in-country presence, lack of detail and because USAID/SA is in the process of developing a broader legal assistance proposal. AALC was advised that up to \$100,000 of its 1988 proposal could be proposed for legal assistance oriented toward funding appropriate union cases. USAID/SA will consult with AALC on the development of USAID/SA's legal assistance program.

Problems Encountered in Achieving Project Outputs

Lack of project specific detail in AALC reporting provide A.I.D. with insufficient knowledge about what activities are being supported with A.I.D.'s grant funds. The strategy for dealing with this problem was the development of proposed reporting requirements to be agreed to in Oct. 1987 which provide guidelines for the level of specificity sought by A.I.D.

COSATU continues to refuse direct assistance from AALC. Increasing Union to Union activities which provide assistance to COSATU affiliates and continuing AALC overtures to COSATU are the proposed means of trying to address this problem. However, Union to Union activities may prove difficult to accelerate due to the lack of manpower in the international divisions of U.S. unions.

<u>Major Actions Planned next 180 Days:</u>	<u>Action Agents:</u>
1. Agreement on reporting guidelines. Oct 87	AALC, AID/W
2. AALC proposal and AID criteria for FY88 funding. Nov 87	AALC, AID/W, USAID/SA
3. Review of AALC proposal for 1988 funding. Dec 87	AID/W, USAID/SA
4. New Grant Agreement. Jan 88	AALC, AID/W

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1. PROJECT EVALUATION SUMMARY (PES) PART II

Summary

The USAID financed locomotive rehabilitation project was to commence overhauling locomotives in December 1987 with two locomotives being overhauled every month from January 1988. However, due to delays by suppliers in shipping all parts required, the project is not expected to commence until March 1988.

Evaluation Methodology

The evaluation was required for the following purposes :

- (a) to assess the progress of the project to date, including the arrangements and facilities available at Zambia Railways to handle a project of such magnitude.
- (b) to determine that any problems arising could be recognised and resolved at an early stage in the project and the necessary modifications made for the second phase procurement and future activity.

External factors

The major external factor that has affected the project so far is the delay by suppliers in meeting the delivery dates resulting in the project being behind schedule by almost four months.

Inputs

- (a) The number of stores staff and the stores space available are inadequate. Zambia Railways have identified these problems and are taking corrective action.
- (b) As mentioned under External Factors above, the delays by suppliers in meeting delivery dates has deferred the originally scheduled commencement date for locomotive rehabilitation.

Outputs

Due to delays in procuring parts the rehabilitation programme has not yet commenced. Measures have been taken to ensure that the project delay is minimised.

Purpose

To improve the capacity and efficiency of Zambia Railways by rehabilitating 17 locomotives.

N.B. The evaluation focused on procedures with respect to the first US\$7 million spare parts procurement. These spares will be used to rehabilitate 17 locomotives, while total funding of US\$10 million will rehabilitate approximately 25 locomotives.

Beneficiaries

The people of the Republic of Zambia and the Southern Africa Region will be the beneficiaries from the project. The purpose of the project is to rehabilitate 25 locomotives of Zambia Railways which will ease the transport problems faced by the passengers and improve the movement of goods within Zambia and the Region.

Unplanned effects

With the exception of delays in deliveries by three suppliers, the project has not had any unplanned effects at this time.

Lessons learned

Our evaluation of the project and discussions with management have highlighted areas which need to be reviewed and areas where preventive action could be taken in future projects. Zambia Railways have been very receptive to our suggestions and have indicated willingness to correct areas where weaknesses have been highlighted. In general, project implementation could probably have been improved by regular prompt monitoring of the status of orders, improved communication with suppliers and between various departments at Zambia Railways, and strict adherence to the control systems already in place.

Special comments or remarks

Not pertinent at this time.

Goal/Sub goal

To reach the project goal of rehabilitating locomotives, the following sub-goals must be achieved efficiently:-
ordering spare parts, tracking of shipments, receiving consignments, accounting for materials received and issued to workshop, and follow up on short shipments/losses. This evaluation relates to Zambia Railways progress in achieving these sub-goals.

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2. EXECUTIVE SUMMARY

This report presents the findings and recommendations resulting from our review and evaluation of the procurement system of Zambia Railways. The review was conducted from 7 December 1987 to 17 December 1987.

Findings:

1. Zambia Railways currently produces two different print outs of the orders placed. Each of the print outs indicated a different total amount of orders placed.
2. Zambia Railways have had difficulties in monitoring shipments as the suppliers do not always inform them immediately goods have been shipped.
3. Material received vouchers are not raised at the time of inspecting and receiving goods at the stores ward.
4. The personnel do not adhere to the Zambia Railways system of daily spot checks of spare part stocks. Such spot checks are rather erratic and when carried out are done by the custodian of the stocks.
5. Zambia Railways procurement system does not make a provision for adequate supervision and checking to ensure that the daily spot checks of spare parts are actually carried out.

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6. Error listings were not being prepared each time invoices were processed on the personal computer. (This has now commenced from 7 December 1987)
7. Spare parts order status arrival accounting report does not indicate all invoices already processed in respect of each spare part ordered when total quantity ordered is supplied and invoiced partly on different invoices.
8. Inadequate number of staff available for opening, checking and placing in bins of USAID financed spare parts procured.
9. The monthly computer print out of stock transactions and balances does not serve any useful purpose to the stock control department. The print out is already obsolete at the time of printing as a result of effluxion of time.
10. Zambia Railways does not maintain adequate records of invoices approved and sent to USAID to effect payment to suppliers.

There is no record maintained of running totals of invoices approved for payment to each supplier.
11. Stores ward space allocated to USAID financed spare parts appears inadequate.
12. Computing facilities available are less responsive to growth in capacity.

13. There are no stringent guidelines for, or discipline among, computer operators. The operators have also had no formal training to enable them to understand the concept of data processing, information systems and project management.
14. Zambia Railways training centre provides a good forum for improving the ability of staff except that certain facilities are not available.
15. There is a need to improve communication between Zambia Railways and Zamcargo (the clearing agents).

Recommendations:

1. Zambia Railways to transfer all information relating to the procurement of USAID financed spare parts onto the personal computer. After ensuring that all information has been transferred they should then dispense with the main frame computer print-out.
2. The procurement system should be reviewed to include:
 - (i) Materials received vouchers to be raised at the time of inspection/receiving of goods.
 - (ii) Daily spot checks of stocks to be carried out by stores superintendent.

- (iii) Stores controller to check and supervise the daily spot checks, which must be evidenced in writing.
3. Error listings must be prepared by the workshop, each time an invoice is processed and corrections effected immediately.
 4. The personal computer program (order status/arrival accounting) to be ammended to facilitate the recording of all invoices relating to relevant spare parts partly invoiced.
 5. Adequate number of staff to be made available to improve the process of checking, inspecting and storing in bins of USAID financed spare parts.
 6. Adequate storage facilities to be made available for USAID financed spare parts.
 7. Zambia Railways to maintain running totals of invoices approved for payment to respective suppliers.
 8. The data processing system should be upgraded with an IBM - compatible micro with a higher capacity and able to run DBASE III plus and other modern software packages.
 9. The need for selected members of the Data Processing and user departments to train in the following areas:-
 - project management training
 - advanced programming
 - advanced systems analysis

10. Recruiting more experienced lecturers and obtaining improved training facilities and material.
11. Since Zamcargo experiences delays in receiving documents required for clearing goods, suppliers should send shipping documents and copies of invoices by courier service to Zamcargo.
12. Meetings should be held between USAID, Zambia Railways, Zamcargo and Lykes Shipping Lines (Shippers), to discuss ways of minimising delays in receiving and clearing of goods and improving communication between the parties.

3. THE OBJECTIVES OF THE EVALUATION

In accordance with your Contract No. P0611-88-0052 dated December 4, 1987 the objectives of the review are to provide:-

- an assessment of Zambia Railways performance in receiving, taking inventory of and storing spare parts in general and those financed by USAID in particular;
- an evaluation of the effectiveness of the procedures and controls for monitoring USAID - financed parts to ensure that they are used only for the rehabilitation of the 17 locomotives which have been identified by both USAID and Zambia Railways;
- an evaluation of the adequacy of operational and managerial control systems;
- making recommendations aimed at resolving impediments prior to the proposed future project funding of a second phase competitive procurement of US\$3 million to complete disbursements under the project. (Total project funding is US\$10 million)

4. TEAM COMPOSITION AND STUDY METHODS

The team comprised :-

- Mr A S Onion - Partner in Charge - who was responsible for strategic planning and overall control of the assignment.
- Mr C A Egan - Senior Manager - who was responsible for:-
- (i) Planning, controlling, supervising and reviewing the work of the field staff;
 - (ii) Leading discussions and liaising with USAID -Zambia officers and Zambia Railways management;
 - (iii) Preparation of the reports for submission to USAID - Zambia.
- Mr M Nabale - Consultant - who was responsible for MIS and CIS examination and evaluation.
- Mr N Tennekoon - Senior member of staff - who was responsible for manual systems review including systems - testing and physical checking.
- Mr G Chisinda - Trainee accountant - who assisted Mr Tennekoon in documentation, collation and analysis of information gathered.

We reviewed and evaluated Zambia Railways systems of control in respect of the procurement of spares inventory and more specifically:

- the tracking of shipments of the spares consignments;
- the accounting for the (arrival) receipt of the spares;
- approval of payments to suppliers of the spares; and
- inventory storage, issuance and documentation thereof.

We held discussions with the Chief Executive and the departmental heads in the purchasing, stores, data processing departments and workshops. These discussions focused on the objectives of the review and evaluation, and greater understanding of the Zambia Railways systems of control. We physically checked the pertinent elements of the system and

- observed Zambia Railways personnel performing their duties in the purchasing and stores departments and the workshop and Data Processing Centre;
- examined the documentation throughput of the entire system, i.e. material requisitions, purchase orders and details of items being procured, vouchers for materials receipts/material returned to stores, stores cards, stock control cards, material issue/return to supplier vouchers and computer print out of the stock transactions;
- assessed the adequacy and effectiveness of the co-ordination between the relevant functional departments e.g. the workshops and purchasing departments;

- observed the stores ward daily inventory checks and carried out sample checks ourselves.

We have determined the adequacy of the controls by sample-testing the system, i.e. tracing a small number of transactions through the system. The effectiveness of the co-ordination/communication system, especially between the clearing agents- ZAMCARGO and Zambia Railways and the suppliers, was ascertained.

The adequacy in design, timing and effectiveness of management reports, e.g. the computer print-out of stock transactions which takes two months to produce, was evaluated.

We ascertained the adequacy and effectiveness of

- the means of determining optimal order quantities or proper time of placing orders;
- coding system of the locomotive rehabilitation spares control records;
- daily checking of inventories;
- storage facilities earmarked for the USAID - financed spare parts.

The adequacy of staff in terms of training and experience to complete the required work accurately and in a timely manner, was reviewed and evaluated.

We assessed the effectiveness of Zambia Railways staff in carrying out a physical check of parts received to verify conformity to the specifications as detailed in the purchase orders, damages, losses and to follow up insurance claims.

We enquired into the USAID procedures which Zambia Railways is required to comply with prior to approval of vendor invoices for payments.

We critically examined the Computer Information System (CIS) and procurement system and determined any bottlenecks therein. Our Management Information System (MIS) and CIS expert:

- analysed the responsiveness of the system in relation to different volumes of input;
- evaluated the capability of various levels of staff in the CIS and user departments and
- evaluated the training acquired by the staff and ability to undertake further training.

5. RECOMMENDATIONS AND OBSERVATIONS ON THE
USAID FINANCED SPARE PARTS PROCUREMENT SYSTEM

5.1 ORDERING

Ordering system overview

Quotations were requested from US suppliers for spare parts and equipment to rehabilitate the locomotives. Quotations were evaluated initially for technical content and then commercial value. Orders were placed with six different suppliers based on the evaluation criteria and allocated a separate unique order numbering system.

Orders sent to a supplier are prepared by amending the original quotation lists by deleting items not selected to be placed with that supplier and entering the remaining parts ordered into the main frame computer system. By listing the parts ordered by supplier the system generates the total of all parts ordered.

5.1.1 Recommendation

The ordering schedule produced on the main frame computer should be dispensed with once all entries on the personal computer have been verified as to accuracy and validity. If, however, the two print outs are still to be used, regular reconciliations should be performed to ensure that the two documents agree in all respects.

Observation

- (a) A print out of all orders is prepared by the data processing department. The same information was input onto the personal computer at materials control in the workshop. The data input was, however, not verified for accuracy. Consequently, the data processing department print out shows total purchase orders to all the suppliers amounting to US\$6,542,868 whereas the personal computer print out shows an amount of US\$8,446,656.93 and the Memorandum to Board of Directors dated January 5, 1987, shows an amount of US\$6,598,023.84. This is a systems weakness. The total FOB value of actual purchase orders established is US\$6,542,904. (see Annexure I)
- (b) An item which was on the purchase order had not been input by the data processing department as a result of the non-clarity of the input copy. When this error was noted by the workshop data input operator, the data processing department was not informed to correct the error. This order was, however, recorded in the personal computer at the workshop. Although this is considered a systems weakness it is noted that the input operator is a new recruit who has not had any formal training on the computer. Such errors could be one of the reasons for differences noted in 5.1.1 (a) above.

5.1.2 Recommendations

In view of the large number of parts being ordered, all purchase orders should be processed on a computer prior to despatch to suppliers to ensure that the same spare part is not ordered from two suppliers by error.

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Observation

We noted that in two instances, out of a sample of two hundred and fifty, the same spare part had been ordered from two suppliers, one quoting the lowest price and the other with a much higher price. This represents 0.8% error rate and is not considered to be a widespread problem of double ordering. This is a systems weakness which management too had noted for corrective action on future projects.

5.1.3 Recommendation

A conscious effort must be made to document explanations for any decisions to place orders with suppliers whose quotations are not the lowest. Note: USAID regulations governing the procurement do not mandate awards to the lowest bidder so far as there is sufficient documented justification to do otherwise.

Observation

In an isolated instance spares had been ordered from a supplier with a higher unit price quotation without any written explanation to back up the decision. We noted, however, that the technical evaluation team had documented reasons for not accepting the lowest tender in all the other instances tested by us.

5.1.4 Recommendation

Greater effort must be made to monitor shipments and improve communications between buyer and seller.

observation

The final date for despatch of shipment was November 1, 1987. However, due to lack of communication, suppliers who could not complete delivery on time, were, on December 9, 1987, granted extensions upto January 31, 1988. This had delayed the commencement of the project by approximately four months. Had there been closer monitoring and communication, extensions could have been granted earlier, and this delay could have been minimised. We noted, however, that for one supplier, Zambia Railways had, on November 5, 1987, taken the first step by contacting the supplier to seek extension of the delivery period on behalf of that supplier. This reflected their enthusiasm to see the project through successfully.

5.1.5 Recommendation

Zambia Railways have had difficulties in monitoring shipments as suppliers do not always inform them immediately when goods have been shipped. Shipping documents have taken time to reach Zambia Railways. Zamcargo have also contributed to these problems by causing unnecessary delays in monitoring the location of spare parts and also by inadequate communication with Zambia Railways. Zambia Railways have communicated their dissatisfaction to Zamcargo, who have promised to improve the clearing process.

Unfortunately, Zambia Railways cannot dispense with the services of Zamcargo, since they are both parastatal organisations. Unofficially, parastatal organisations in Zambia are expected to use the services of Zamcargo, where such service is available rather than use that of private companies.

5.2 PAYMENTS TO SUPPLIERS

Payments - system overview

Invoices, once checked against the purchase orders by workshop materials control, are forwarded to the purchasing and stores department who authorise USAID to release payment to the supplier. Zambia Railways hold a 10% performance guarantee (which may be drawn upon) as a protection against default by the supplier

Prior to approving payments, the purchasing and stores department ensure that invoices are supported by Bills of Lading and SGS inspection Certificates. The SGS inspection certificate is a third party confirmation that spare parts invoiced are in accordance with specifications.

Purchasing and stores department authority to USAID for payment is by way of telex or letter which details the invoices authorised. Copies are retained on file for reference.

5.2.1 Recommendation

Evidence of invoices and amounts approved for payment should be maintained. A record of all invoices and amounts so approved should also be maintained to ensure that suppliers are not overpaid.

Observation

There is lack of evidence in most instances of the invoices approved by Zambia Railways to USAID for payment to suppliers. There was also no record of the invoices and amounts approved for payment. This is a systems problem as it does not state that such a record should be maintained. The purchasing and stores department manager acknowledged this and will ensure that such a record is maintained. (see Annexure II)

5.2.2 Recommendation

Zambia Railways should ensure that all suppliers forward SGS inspection reports which must be properly filed, as these are the only evidence available that the items detailed in the invoice are in accordance with specifications.

Observation

All suppliers were to forward SGS inspection reports along with the invoice, bill of lading and other shipping documents. This was to ensure that Zambia Railways approves for payment only those invoices which have been certified by a third party as having been shipped with the correct specifications. Only two suppliers out of six complied with the requirements. Even where these were received, there was no evidence that they had been checked to the invoices being approved for payment.

Note: SGS inspection is not required by USAID.

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5.3 RECEIVING OF GOODS

Receiving - Systems overview

Materials are mainly received in Dar-es-Salaam by the clearing agents Zamcargo and transported by rail to Zambia Railways stores at Kabwe.

The procedure followed by Zamcargo in clearing goods at Dar-es-Salaam port is:

1. Before the shipping vessel arrives at Dar-es-Salaam Zamcargo receives the invoices, and bill of lading. These documents are lodged with the National Shipping Corporation of Tanzania upon arrival of the vessel.
2. Authority for release of goods is then received from the Tanzanian Harbour Authority and the Tanzanian Customs Authority.
3. Wharfage and handling charges are paid by Zamcargo and recharged to Zambia Railways.
4. Once goods are released they are either put on Tazara rail wagons or taken to the Zamcargo warehouse to await loading. Zamcargo then prepares rail consignment notes and sends copies to Zambia Railways.

5. Goods are then sent to Kapiri-Mposhi where a log is made of the railway wagons and passed onto Zambia Railways for collection.
6. Zambia Railways then transports the goods in the same wagons to Kabwe.

Containers are opened in the presence of technical personnel by the storekeeper and after inspection as to part number, specification etc are received in a special storeroom which houses USAID financed spare parts. The special storeroom obviates any possible confusion or errors in issuing of the spare parts for the rehabilitation of the locomotives. Material received vouchers (MRVs) are raised as each item is taken into stock and bin cards recorded with the quantities received. MRVs are signed by technical personnel and storekeeper evidencing their inspection.

Invoices from suppliers are matched with the orders and MRVs and recorded.

5.3.1 Recommendation

Material received vouchers (MRVs) should be raised at the time of inspecting and receiving spare parts at the storeroom (ward). The MRVs should be signed by both the storekeeper and the technical person carrying out the inspection.

Observation

Material received vouchers (MRVs) are not raised at the time of inspecting and receiving spare parts at the storeroom. The system requires this to be done and the problem is considered one of attitude. However a systems weakness arises in that there is no check by any responsible official in the purchasing department to ensure that the MRVs are being raised at the stores.

5.3.2 Recommendation

- (a) Physical spot checks should be carried out daily for stocks

- (b) Spot checks should be carried out by a person independent of those working in the stores and evidenced in writing on the register. Such spot checks should be reviewed by the stocks controller and evidenced in writing.

Observation

Physical spot checks of stocks are not carried out daily at the stores as indicated in the Zambia Railways Procurement system. Physical spot checks, where undertaken are carried out by the storekeeper who is the custodian of the stocks. There is no evidence of spot checks even when carried out nor are spot checks records examined by any other official. The first weakness is one of attitude as the storekeeper knows it should be done.

The second and third weaknesses are systems weaknesses in that there are no requirements for the storekeeper to evidence his checks nor is his work reviewed by another. We have been informed by Zambia Railways officials that they propose to place stock controllers at each store who would carry out the physical stock checks. The work of the stock controller will be closely monitored by the purchasing and stores department.

5.3.3 Recommendation

Stores personnel in general and the stores superintendent in particular should be briefed as to their duties and responsibilities to ensure that they understand what is required of them.

Observation

The stores superintendent was responsible for ensuring that daily spot checks of stores are carried out. He, however, did not ensure that this is carried out. When an attempt was made in December 1987 to carry out daily checks it failed in the very first week because, in the absence of the storekeeper, no other person was assigned to carry out the spot checks. There is an attitude problem as far as the shortcomings of the stores superintendent is concerned in that he knew what was expected of him but did not carry out the responsibility. There is also a system problem in that the system should cater for checks to be made on the duties of the stores superintendent. However, as pointed out in 5.3.2 Zambia Railways is to appoint stock controllers to each store to monitor their activities. But the work of the stock controllers too must be monitored.

5.3.4 Recommendation

Error listings should be produced each time an invoice is processed on the personal computer. Corrections should then be made immediately after satisfactorily investigating the reason for the error.

Observation

Error listings were not produced each time an invoice was processed on the personal computer. An error listing was only produced on December 7, 1987 with errors running into many pages. Corrections had not been done at the time of our review. Workshop personnel have recently begun investigating reasons for the errors and corrections are being made. This is a systems weakness which Zambia Railways is aware of and steps are being taken to correct the situation.

5.3.5 Recommendation

The personal computer program should be amended to facilitate the reflection of all invoices relating to relevant spare parts invoiced.

Observation

The personal computer order status report does not indicate all invoices processed in respect of individual spare parts. When

a spare part is received on different consignments and accordingly more than one invoice is received by Zambia Railways, only the details of the last invoice is reflected on the print out. This is once again a systems weakness. Following discussions, we were informed that the program has now been rectified and future print outs will list all invoices and respective quantities received on each invoice with a total quantity received in respect of that spare part.

5.3.6 Recommendation

Staff should be allocated immediately to ensure that the opening, verifying and placing in bins of USAID financed spare parts are carried out without delay.

Observation

During visits to the USAID spares store we observed several unopened packages and no personnel present to perform the duties of opening, verifying and placing in bins. While acknowledging that they are short of staff Zambia Railways have detailed staff from other wards to assist in the USAID financed spare parts store after their normal turn of duty.

5.3.7 Recommendation

Immediate arrangements should be made to ensure that adequate storage facilities are available for USAID financed spare parts.

Observation

The store in which USAID financed spare parts are maintained appeared congested. Two unopened containers were in a bay in the workshop. There are several packages yet to be received. Thus the storing facilities are inadequate. Zambia Railways informed us that they can use some of the large containers they have received to store some of the parts.

5.4 ISSUE OF GOODS

Issues - System Overview

Issues from stores are made on a duly authorised material request from workshops. A material issues voucher is raised and parts handed over. Both the recipient of the parts and the storekeeper sign the material issues voucher.

When parts are received in the workshop they are allocated to the job for which they were required and are recorded on a work sheet.

The materials issue voucher which contains reference to the job allocation is processed by the data processing department which allocates the cost to each job.

5.4.1 Recommendation

All USAID financed spare parts drawn for the rehabilitation of a particular locomotive should be used on that locomotive. Any spare parts not used on a particular locomotive should be returned to stores using a stores returns voucher/document. This document does not currently exist and must be introduced into the system. Fresh requisitions should then be made before such spares are used on another locomotive. This will ensure that spares are charged to the correct locomotives.

Observation

Spares drawn from stores for a particular job can be used on another job or be lying unused on the workshop floor until subsequently needed. The material request however indicates the part for use on a particular job. The cost of the part is charged to the job referenced on the material requisition. This is a systems weakness as there is no requirement to return parts not used on a particular job.

5.4.2 Recommendation

Daily work sheets must be used for each locomotive rehabilitated under the USAID rehabilitation scheme. Daily work sheets must be signed by the respective technical personnel to indicate that all spare parts drawn for the particular job were in fact used on that job.

Observation

Daily work sheets are in use at workshops but are presently not signed by technical personnel to indicate that all spares drawn for a particular job were in fact used on that job. Cost of spares used on each job are monitored through the monthly computer print outs.

5.5 DATA PROCESSING

Data Processing overview

Orders placed were punched into the ME 29 mainframe computer and a listing produced. Subsequently an ICL Quatro microcomputer was introduced at the workshop. The mainframe order listing was utilised to record the order data on to the microcomputer. Suppliers invoices are processed and matched with the orders by the microcomputer. The programme includes the facility to also match material received vouchers with both orders and invoices.

5.5.1 Recommendation

There is evidence that the application system will grow and hence the need to have better computing facilities which are more responsive to growth. The computing facilities should be embedded in an infra structure to accommodate the system. The system should be upgraded with an IBM - compatible micro with a higher capacity and able to run DBASE III plus and other modern software packages.

Observation

The ICL Quatro microcomputer is limited as a single-user unit. Since the volume of data relating to orders and invoices is so enormous, the punching takes a very long time. The current system was written using DBASE II which has limitations compared

to DBASE III or DBASE III plus. The speed of the printer is also extremely slow and on average takes two hours to print a 20 page report.

5.5.2 Recommendation

Once an invoice has been completely processed, the corresponding records of orders/invoices with all relevant details should be transferred to an archives file. A proper recording system for all archived information should be maintained to facilitate ready access to relevant records when needed. A system of batching invoices in some sequence must be introduced to facilitate the investigation and corrections of errors. On entering the invoices a unique batch number for each batch should be introduced, entered and should be printed on the error listing. This will facilitate access to documents, should the need arise.

Observation

The current orders file is stored on hard-disk and as the system grows with an increase in the number of orders, the amount of storage on the disk will become inadequate.

After the invoices have been keyed-into the personal computer, they are returned to the workshop. No indication is made of any batching order in which the invoices were processed.

If there are mismatched items on invoices, a clerk is required to check through each mismatched item on an invoice manually to locate the corresponding purchase order. The exercise is extremely time consuming as, on average, it takes a clerk at least a month to correct 1500 mismatched items. In the meantime other orders and invoices are being keyed-into the personal computer thus creating a continuous problem of data inaccuracy.

5.5.3 Recommendation

Once a more responsive micro has been acquired, project management training should be introduced to enable both users and DP staff acquire knowledge on the importance of project management. Similarly a system should be devised that allows users to train and develop their own systems in the long term. The application programs currently running on the micro must be redeveloped using DBASE III plus. The users should go on a user appreciation course offered at Zambia Railways Training School.

Observation

Most of the errors are operator-generated. There are no stringent guidelines or discipline among operators. The operators have had no formal training to enable them to understand the concept of data processing, information systems and project management. At the moment this training is hands-on and adhoc. Similarly DBASE II places a lot of limitations in terms of advanced programming features.

MATERIAL MANAGEMENT ACCOUNTING SYSTEM

5.5.4 Recommendation

Once the new on-line accounting package has been thoroughly tested, it should be implemented without delay. Users as well as DP staff should go on a training program to know how to use the package.

Observation

The physical stock levels at any time are different to figures held on the computer file due to the nature of the current system as a batch system. Ordering of stock is done manually when various departments submit their requisitions. The stores ledger is produced once a month and hence any errors or mismatches that occur have to wait for a month before being processed again. Hence the stock levels held on the computer do not reflect the actual physical stock level. However, because the new accounting package is an on-line system, stock updates will be done at the source. On the new system each item will have an ordering point and quantity to facilitate automatic re-ordering of stocks.

CAPABILITY OF VARIOUS LEVELS OF STAFF

5.5.5 Recommendation

The current level of competence within the DP department is generally acceptable. However efforts should be made to recruit more systems analysts and experienced programmers. It will be appropriate to select a project team to undertake the assignment of redesigning the USAID financed spare parts procurement system on the microcomputer system. The team should have some background of inventory control systems.

Observation

The total establishment for the DP department is 92 although there are substantively 58 members of staff, a shortfall of 34. The staff have the competence of developing efficient systems but lack project management ability and advanced programming techniques.

5.5.6 Recommendation

Although the Jacksons System Development Methodology is in use, there is need to exploit the advanced features of the methodology. There is also need to expose various members of the DP department to the use of modern programming languages like DBASE III plus and spreadsheets. The exposure should incorporate advanced features of modern programming techniques. Some in-house formal training may be required for the programming staff. Neither Zambia Railways training school nor in-house staff have been exposed to the advanced features of the Jacksons methodology.

Observation

The program which handles the system was written by an inexperienced programmer who has had no formal training, he just acquired his knowledge through reading DBASE manuals. Although such languages can be self-taught, the level of exposure within Zambia Railways of using DBASE is inadequate to warrant informal training. The programmer concerned admits to lacking the skills required to adequately take advantage of the advanced features of the system.

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TRAINING

5.5.7 Recommendation

There is immediate need for selected members of DP and user departments to train appropriately in the following areas:-

- project management training
- advanced programming
- advanced systems analysis.

Before such training can take place, lecturers should also be trained in these advanced features. The Zambia Railways training school should acquire more microcomputers and introduce training applications like spreadsheets and database as part of the computing curriculum. Zambia Railways should establish some means of acquiring up to date literature and course materials either locally or abroad. Consideration should be given to the use of visual aides, overhead projectors, slides, video T.V. etc. The classrooms need refurbishing to generate an atmosphere conducive to training.

Observation

The Zambia Railways training centre provides a good vehicle for improving the ability of staff through training. The ability of staff to acquire further training is hampered by the lack of good, proper and adequate training facilities. There are no lecture materials available and coupled with the limited number of lecturers, the courses are run without relevant documentation.

5.5.8 Recommendation

Effort should be made to recruit more lecturers who are qualified and have the necessary experience. Once more micros have been acquired lecturers will have better control and supervision of students. The range of systems analysis and programming courses should be reviewed in line with current design methods. The programming students should thus carry out all their work at the training centre.

Observation

Students gain access to the mainframe through a DRS-20 system at the centre. The consequences of this being that only one student can interact with the machine at any time thus reducing the capacity of the lecturer in providing practical lessons. Alternatively students have to trek to the DP centre where there are a number of terminals normally used for development work. Firstly, normal development work is hampered not only by the use of terminals by the students but also by the constant need to ask experienced programmers for their time since the lecturers would be away at the training centre. There is also lack of supervision and guidance on the part of the lecturer due to the distance involved when students are at the DP Centre.

5.6 OTHER ASPECTS

- 5.6.1 As noted in our observations under 5.1.4 and 5.1.5 there has been a lack of co-ordination between the buyer, seller and clearing agent. It is our view that the buyer should be the interested party in monitoring and ensuring that goods are received for projects to commence on time.
- 5.6.2 Our observation in 5.3.1 indicates a lack of co-ordination between the ward and purchasing department which needs to be improved. Despite knowing that parts were being received, the purchasing department never followed up with the stores as to why no material received vouchers were being raised.
- 5.6.3 All stock cards maintained at stock control department, for Zambia Railways coded items, bear a re-order level and maximum quantity to be ordered. Thus orders are in most cases initiated by stock controllers. Our observation of the manner of updating stock cards from a print out, which is out dated at the time of issue and therefore does not reflect correct balances at any given point in time, seriously hampers the ordering and receiving procedure for spare parts, which are vital to the effective running of the organisation.
- Zambia Railways have recognised this fact, and presently plans are ahead to station stock controllers at stores and also to initiate re-ordering levels from information contained on stock cards maintained at the stores rather than those maintained centrally at head office.

6. GENERAL OBSERVATIONS

The following are our observations in the areas of ordering, receiving and processing of documents which, though not affecting the USAID financed spare parts procurement, are areas which we consider require attention by management.

- 6.1 The monthly computer print out, listing stock transactions and balances for a particular month, do not serve a useful purpose to user departments. This is because material received vouchers (MRVs) and material issue vouchers (MIVs), if not received in the Data Processing Department by the 4th of the following month, are not processed in that month. Many instances of MRVs and MIVs in excess of 50 each were noted as not being processed in the correct month.

We were also informed by the storekeeper that due to lack of staff and pressure of work he does not cross-check transactions on the print-out with the stock cards maintained at the store (bin cards).

We even noted that two issue vouchers raised in April 1987 had not been processed to date.

While agreeing to the above observations, management has informed us that they propose to use on-line systems with terminals at each of the stores to overcome this situation.

- 6.2 Following our observation in 6.1 above, until such time as the on-line system is implemented, stock control should not place reliance on the print out balances. Instead, stores controllers

should initiate the orders, since their records, which are manually maintained, are more upto date and accurate.

- 6.3 In general there are effective managerial and operational controls operating in Zambia Railways. Regular meetings are held to monitor progress of projects as well as constant feed-back reports/meetings.

ANNEXURE I

ORDERS PLACED

Supplier	(a)	(b)	(c)	(d)
	US\$	US\$	US\$	US\$
1. American Equipment Company	185,533	184,389	184,138	184,361
2. Kessler International Corporation	1,166,571	1,113,307	1,427,325	1,113,306
3. Myron Snyder Incorporated	346,223	345,643	354,723	345,644
4. Westinghouse Air Brake Division	445,217	445,084	444,215	445,076
5. Arbaco Engineering Company	218,762	218,763	218,763	218,763
6. General Electric Company	4,235,718	4,235,718	5,817,493	4,235,718
	<hr/>	<hr/>	<hr/>	<hr/>
	6,598,024	6,542,904	8,446,657	6,542,868
	<hr/>	<hr/>	<hr/>	<hr/>

(a) FOB - Value of orders approved by Tender Board

(b) FOB - Value of orders per Purchasing Department

(which agrees with actual purchase orders placed)

(c) FOB - Value of orders per Personal Computer

(d) FOB - Value of orders processed on the main frame

ANNEXURE II

AUTHORISATION OF INVOICES

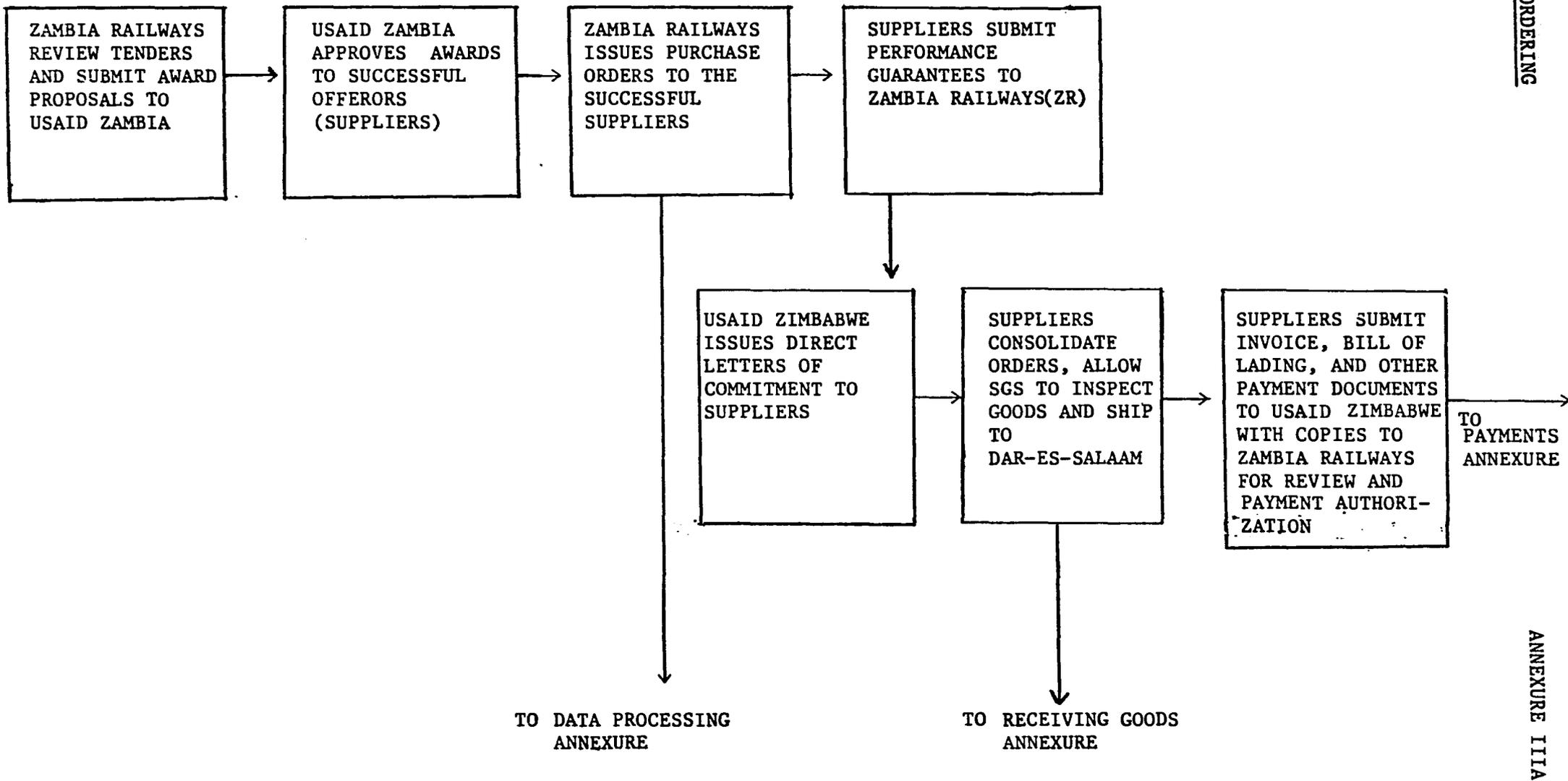
Supplier	Amount Invoiced	Evidence of payments Authorised	Payment approved by Zambia Railways and paid by USAID (Per USAID records)
	<u>CIF Value</u>	<u>CIF Value</u>	<u>USAID records)</u>
	US\$	US\$	US\$
1. American Equipment Company	189,386	-	189,396
2. Kessler International Corporation	1,070,320	319,131	1,070,313
3. Myron Snyder Incorporated	113,886	79,575	113,886
4. Westinghouse Air Brake Division	450,353	450,353	450,353
5. Arbaco Engineering Company	222,600	222,600	222,600
6. General Electric Company	4,157,721	791,382	4,102,329

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ANNEXURE III

PROCUREMENT SYSTEM FLOW CHART :

IIIA	ORDERING
IIIB	PAYMENTS TO SUPPLIERS
IIIC	RECEIVING OF GOODS
IIID	ISSUE OF GOODS
IIIE	DATA PROCESSING



ORDERING

ANNEXURE IIA

FROM ORDERING ANNEXURE

INVOICES ARE MATCHED BY WORKSHOP MATERIAL CONTROL STAFF AGAINST THE ORDER STATUS/ARRIVAL ACCOUNTING REPORT PRODUCED BY THE ICL QUATRO MICRO-COMPUTER

WORKSHOP MATERIAL CONTROL STAFF SEND CONFIRMATION THAT INVOICED PARTS MATCH ORDERS TO PURCHASING AND STORES DEPARTMENT

PURCHASING AND STORES DEPARTMENT CERTIFIES THAT INVOICES AGREE WITH ORDERS AND AUTHORISES PAYMENT VIA TELEX/LETTER TO USAID ZAMBIA

USAID ZAMBIA NOTIFIES USAID ZIMBABWE VIA TELEX OF ADMINISTRATIVE APPROVAL TO PAY SUPPLIERS SUBJECT TO REVIEW BY CERTIFYING OFFICER

INVOICED PARTS WHICH DO NOT CORRESPOND TO PURCHASE ORDERS ARE SORTED AND MATCHED WITH CORRECT ORDERS TO ALLOW ZAMBIA RAILWAYS TO AUTHORISE FOR PAYMENT

CLARIFICATION ON PART NUMBERS AND/OR SPECIFICATIONS IS REQUESTED FROM SUPPLIERS TO ENABLE MATCHING WITH PURCHASE ORDERS

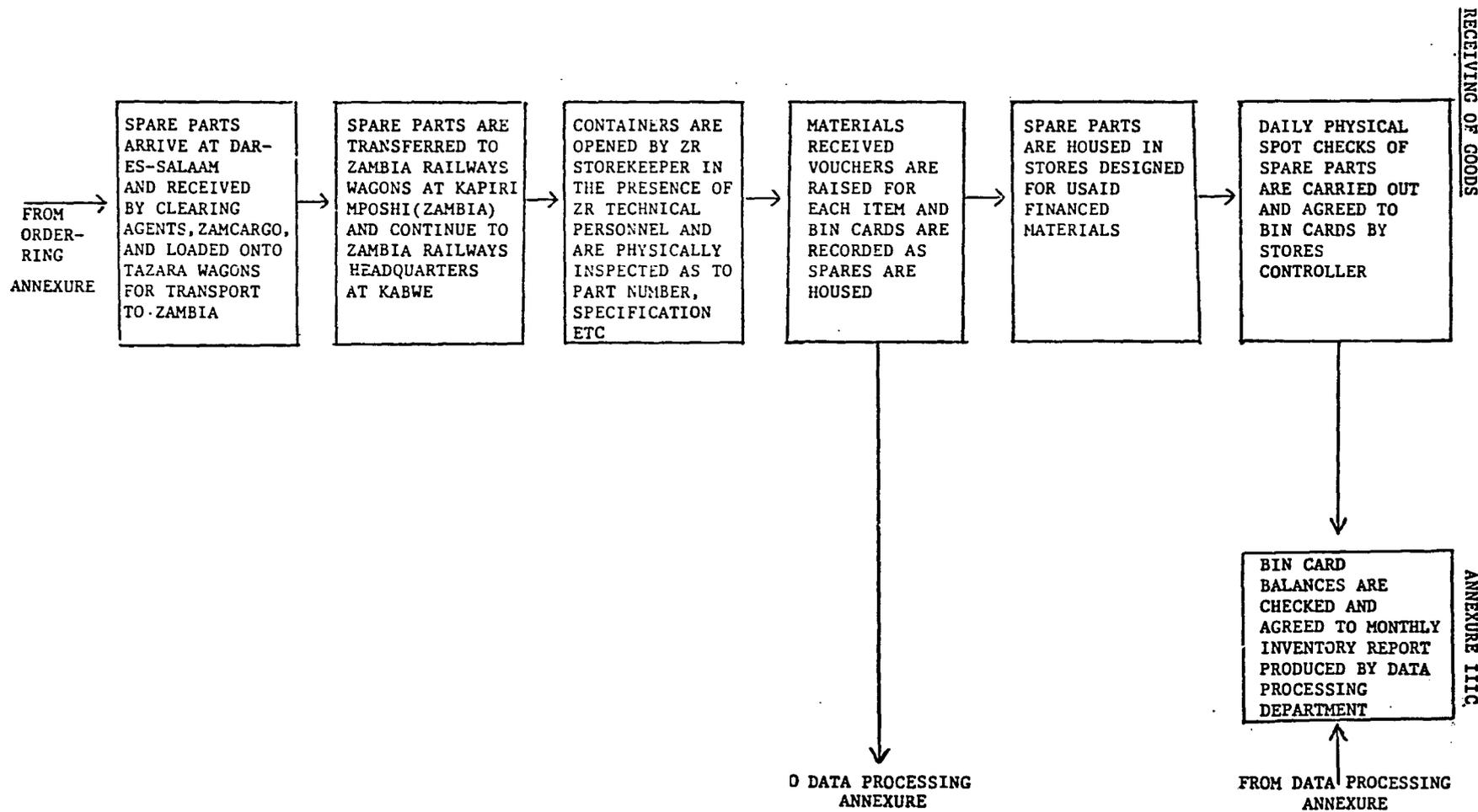
PURCHASING AND STORES DEPARTMENT MAINTAIN RECORD OF ALL INVOICES CERTIFIED FOR PAYMENT FOR EACH SUPPLIER

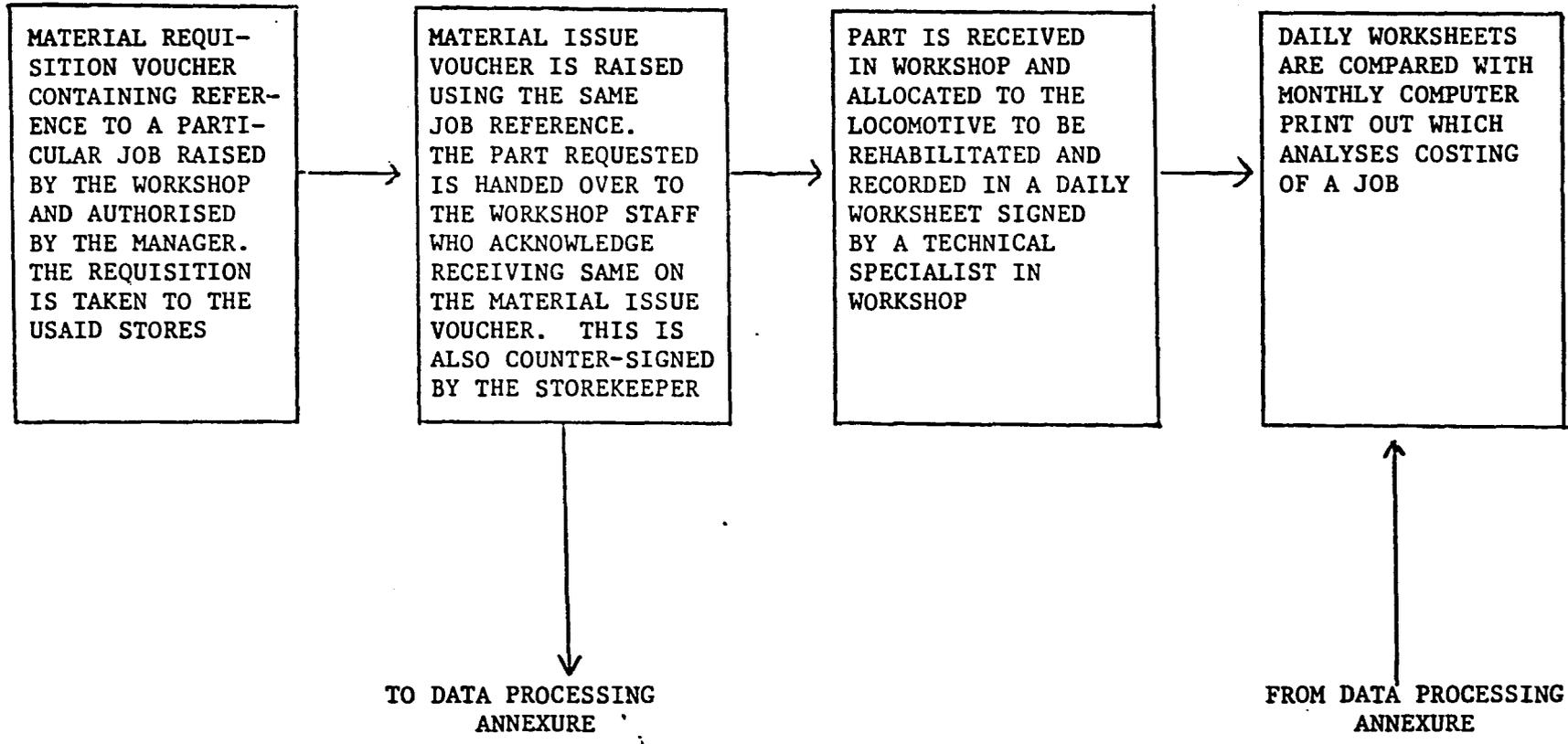
TO DATA PROCESSING ANNEXURE

PAYMENTS TO SUPPLIERS

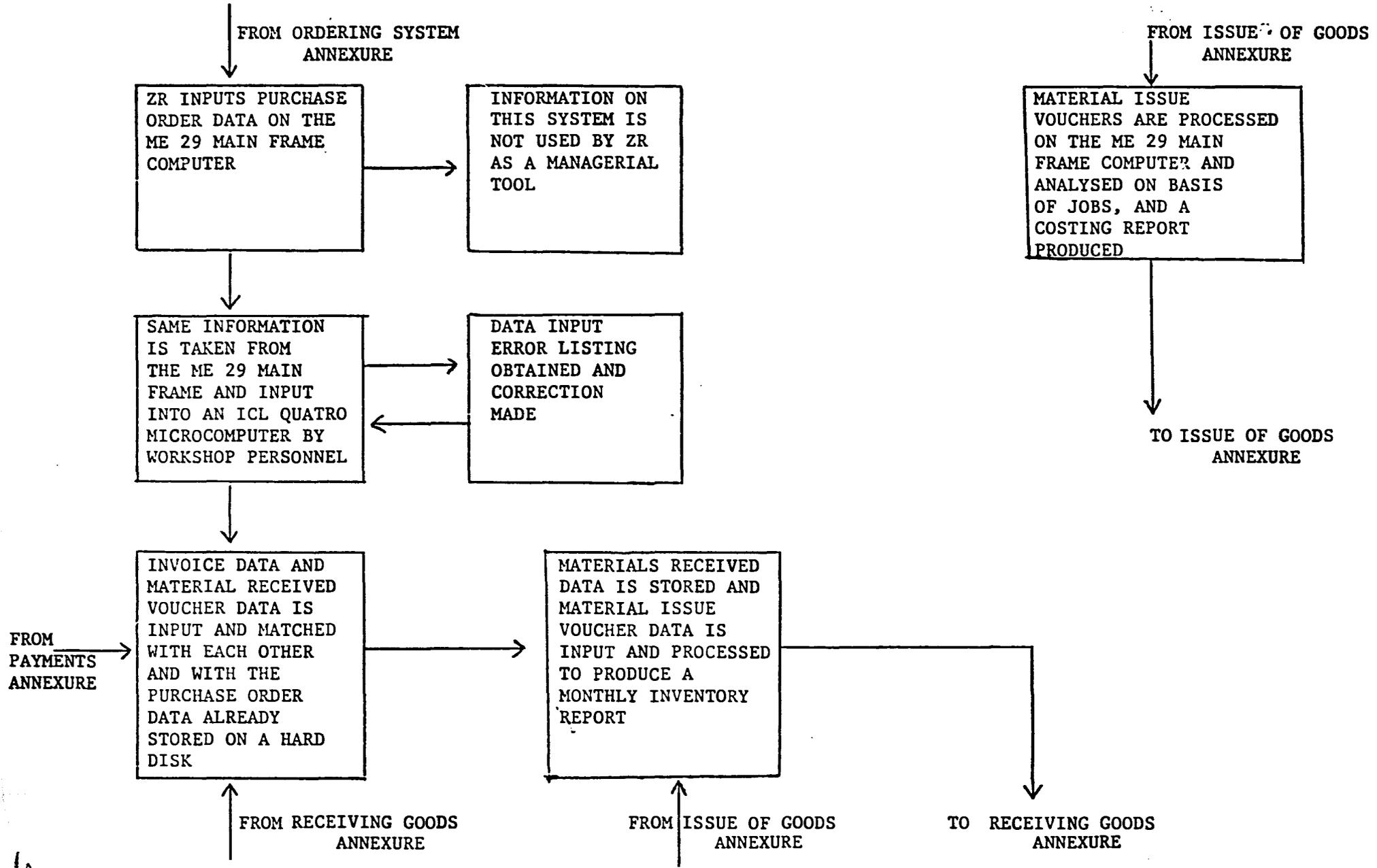
ANNEXURE 111B

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DATA PROCESSING

ANNEXURE IIE

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