

AUTOMATIC DATA PROCESSING

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Soon New Zealand will have about 400 gauging stations where processed information in the form of mean discharges and/or run-off volumes is required on a routine basis.

Stage observations at these stations are done manually (at a few), by chart recorder, and in increasing numbers, with Fischer and Porter punched-tape recorders. Because manual chart take-off and data processing are laborious, a Dobbie McInnes pencil follower, which converts selected points on the trace of a chart into readings on computer cards, is being imported. Fischer and Porter tapes are translated on a standard translator and arrangements are being made to process all flow data on an Elliott 503 computer. Programmes have been written and are being tested.

Systematic operation is an essential feature of automatic data processing and a detailed schedule which outlines all features of the process is in use. This schedule is set out as a simple flow chart (see Fig.). The main items of the system are:

1. Collection of stage heights in the form of Fischer and Porter tapes, recorder charts or manual readings.
 2. Checking of Fischer and Porter tapes etc. and comparison with log books.
 3. Permanent storage of log books.
 4. Head Office checking and distribution to the various machines for computer preparation.
 5. Punching of heading cards for computer print-outs, parameter cards for computer instruction, time and stage correction etc.
 6. Conversion of data from Fischer and Porter tapes to computer cards.
 7. Conversion of charts.
 8. Punching of manual readings on paper tapes by flexowriter.
- From stages 5, 6, 7 and 8, the forms, tapes, chart etc. are sent back to districts while data are sent on to computer.
9. First computer programme: tabulation of stage data and drawing of hydrograph.

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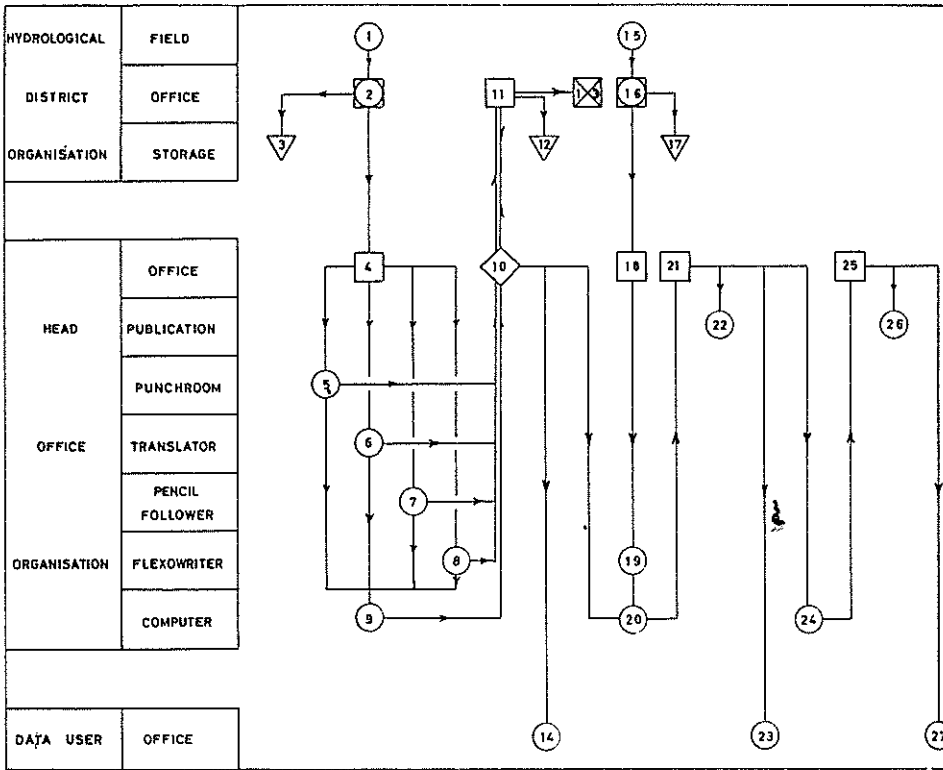


Fig. 1 — DATA PROCESSING, a simplified flow chart.

10. Returning of forms, tapes, charts etc. and forwarding of one tabulation and hydrograph to district.
11. Checking of hydrograph, and notification of correctness, or otherwise, to Head Office.
12. Storage of tapes, charts etc.
13. Destruction of incorrect forms, tabulations etc.
14. Tabulations of stage supplied to data users.

15. Collection of discharge measurements and sediment samples.
16. Calculation of measurements, analysis of sediment, compilation of rating curves, tables etc.
17. Storage of cards, laboratory forms etc.
18. Checking of rating curves, tables etc.
19. Compilation of data on paper tape.
20. Second computer programme: processing of streamflow data.
21. Checking of data, and its distribution.
22. Publication of streamflow data.
23. Streamflow data to data user.
24. Third computer programme: advanced data.
25. Checking of advanced data.
26. Publication of advanced data.
27. Advanced data to data user.

With the aid of this flow chart it is possible to:

- a. Maintain a check on the performance of the scheme and eliminate bottlenecks.
- b. Follow movements of individual pieces of information.
- c. Assess staff requirements.
- d. Design forms and registers to cover the movements.

Head Office checkpoints (at 4,18,21 and 25) make it possible to:

- a. Obtain an overall picture of the quality of work.
- b. Ensure a smooth flow of data.
- c. Give priority to urgent work.
- d. Direct the right work to the right party.

In order to simplify the preparation of computer cards in the punchroom (5) the District Offices are requested to supply this information on special forms which contain the 80 columns of a computer card and are filled in with the aid of a computer template. This template has six sets of instructions attached to it so that each instruction lines up with each column to be filled in. The completed form can be transcribed directly to computer cards by the punch machine operator.

ERRATUM

MEASUREMENT OF INTERCEPTION LOSS IN TEATREE
 by G. J. Blake, J. Hydrol. (N.Z.), Vol. 4 (2), page 87:
 For ". . . a 10.05-acre, sealed flat . . ." read ". . . a 0.002-acre
 sealed plot"