

The purpose of this note is to comment on the implications of the ACLMP for the profession in Papua New Guinea. All references are to the Design Document for the project.

## PAPER SEVEN

ACLMP is an acronym for the Australian Contribution to the Land Mobilisation Project (the LMP). The LMP is an aid project funded by the World Bank that has the goal of contributing "to economic growth through more productive use of land resources throughout the country, whilst promoting equity, employment, participation in economic development and social stability". (p.20) Its third program deals with land and resource information and development and it is this one that the ACLMP supports. The Governments of Papua New Guinea and of Australia, in conjunction with the World Bank, have agreed that the ACLMP should be funded jointly by the Government of Papua New Guinea and AIDAB (the Australian International Development Assistance Bureau). It concentrates its attention on the National Mapping Bureau (NMB). The contract for management of the project was awarded to W Pty. Ltd. and Landmark in conjunction with Cardno and Davies PNG and the PNG University of Technology.

### "SURVEYORS AND THE ACLMP"

The specific objectives for the ACLMP are

To support the development of land-related spatial products in PNG by:

1. Ensuring the provision of adequate accommodation for the NMB and for the Land Information Processing Centre (LIPC) through renovation or extension of existing buildings;
2. Supporting the development of an adequate homogeneous national spatial framework and an ongoing geodetic capability through:

strengthening and readjustment of the geodetic network, national height and geodetic datum;

**Professor SAM PEARSE - Consultant.**

the development of a national geodetic datum;

and

the development of a number of national geodetic data bases.

3. Supporting the development of land information system products through:

**PETER V. ENGLISH - Superintendent of Mapping.**

**Department of Lands and Physical Planning, PNG.**

the investigation of logical linkages among NMB, PNGGIS and PNGRIS;

the provision of a digital mapping facility;

the provision of integrated remote sensing and geographic information system (GIS) facilities; and

the development and implementation of a mapping work flow management and administration system.

The purpose of this note is to comment on the implications of the ACLMP for the profession in Papua New Guinea. All references are to the *Final Project Design Document* for the project.

ACLMP is an acronym for the Australian Contribution to the Land Mobilisation Project (the LMP). The LMP is an aid project funded by the World Bank that has the goal of contributing " - - - to economic growth through more productive use of land resources throughout the country, whilst promoting equity, employment, participation in economic development and social stability". (p.20) Its third program deals with land and resource information and development and it is this one that the ACLMP supports. The Governments of Papua New Guinea and of Australia, in conjunction with the World Bank, have agreed that the ACLMP should be funded jointly by the Government of Papua New Guinea and AIDAB (the Australian International Development Assistance Bureau). It concentrates its attention on the National Mapping Bureau (NMB). The contract for management of the project was awarded to Coffey MPW Pty. Ltd. and Landmarc in conjunction with Cardno and Davies PNG and the PNG University of Technology.

"The specific objectives for the ACLMP are :

To support the development of land related spatial products in PNG by:

- 1 Ensuring the provision of adequate accommodation for the NMB and for the Land Information Processing Centre (LIPC) through renovation or extension of existing buildings;
- 2 Supporting the development of an adequate homogeneous national spatial framework and an ongoing geodetic capability through:
  - . strengthening and readjustment of the geodetic network, national height and geodetic datum;
  - . the development of a national geoid model;
  - . the provision of geodetic facilities; and
  - . the development of a number of national geodetic data bases.
- 3 Supporting the development of mapping products and information system products through:
  - . the investigation of logical linkages among NMB, PNG LIS and PNG RIS;
  - . the provision of a digital mapping facility;
  - . the provision of integrated remote sensing and geographic information system (GIS) facilities; and
  - . the development and implementation of a mapping work flow management and administration system.

- 4 Supporting land related spatial product management through the development of a national register of mapping, remote sensing and digital data products; and
- 5 Supporting institutional strengthening and program sustainability through the provision of technical assistance, staff support and training". (pp. 20, 21)

There are seven main components: management, geodesy, map development and production, computer systems, capital works and project management. Their objectives are set out in Appendix 1. The third one includes revision of the 1:100,000 topographic map series by digital methods, which accounts for the long project design period of five years. Following a lengthy period of negotiations, the project was mobilised in late 1993. The first task has been to prepare a PID (project implementation document). It is based on the PDD but is prepared at the start of the project and takes account of any changes to the situation that have occurred since the design document was prepared.

The PDD for this project sets out a systematic approach to the introduction of new technology in mapping, providing equipment, expertise and training where necessary. Sixteen specialists will be involved; two from Papua New Guinea, the others from Australia. The periods of engagement range from a month to five years, but most are for a few months. They had to be selected for the submission that led to the award of the contract.

Are there opportunities for the private sector? The following table sets out a perception of the market for mapping products. Its size is shown as 10x. The table suggests that the growth of the market for mapping products will exceed the capacity of the Bureau to prepare them, despite being enhanced by the ACLMP. The relative shares of the market tabulated are no more than guesstimates and leave ample room for argument. However, that does not make invalid the argument that there will be opportunities for the private sector to enter the field.

Col. no.	1	2	3	4	5	6
	NMB staff	NMB objectives	Present NMB prod. capacity	Increase from technology leap	Total	Balance = private opportunity
	39	10x	2x	3x	5x	5x

The question is: how large is "x"? We do not know, partly because of limited productivity in the Bureau and the fact that the nature of spatial products is changing. However, we are aware that there is a demand for such products in digital form and the project is assisting the Bureau to prepare itself to produce them. The cost of the equipment involved is high and if a firm invests in it, it is likely to take several years to recoup the costs. It may be that for some time the Bureau will be the only place in Papua New Guinea equipped to provide a complete mapping service. Please note that the Bureau is prepared to hire its equipment at commercial rates when it is not required for its own purposes. To return to "x", it is noted above that the 1:100,000 map series is to be revised. There are 280 of these map sheets for Papua New Guinea, of which twelve are to be done by the Bureau and the others let out on contract. The two Governments are to share the cost of this work. Because the information is to be recorded digitally, there is a technological leap for most staff, involving both education and training. The Bureau is understaffed at present and subject to numbers increasing to the full establishment, we hope to call tenders for revision of the maps some time in 1995. That may prove too optimistic an aim, but the Bureau will work towards it. Before rubbing your hands in anticipation, be assured that the work will not be easy

and may require you to re-educate some of your staff and/or to employ people with new skills, for example in computing science, cartography (as distinct from drafting) or remote sensing and GIS.

You will appreciate that if the whole series is to be revised during the period of the project, the majority of the maps will be done during the last three years, ie, 1996 to 1998.

The geodetic component involves relating all geodetic surveys done to date in one network and the adoption of a spheroid for mapping purposes. No decision has been made to date, but it seems likely that the spheroid adopted will be similar to WGS 84. It will thus allow each surveyed point to be assigned its own unique coordinates. The geodetic component goes further; because of the large separation between the earth's surface and WGS 84 in Papua New Guinea, a geoidal model is to be computed, with which elevations above the sea level surface can be computed from GPS observations.

There are several questions that the profession might consider when thinking about the project's implications:

- 1 Is becoming more capital intensive the most appropriate way for the profession and the Bureau to develop? The answer is probably "yes", for clients appear to be moving away from paper maps towards digital formats;
- 2 The following implications appear to be important although it is not claimed that they are the only ones:
  - surveyors will have to become adept at computing on both the spheroid and geoid;
  - training is required in the new technologies and practitioners will have to provide for it in their charges;
  - some way will have to be found to gain access to the necessary equipment. I suspect that short term hiring of fixed as well as of movable items will become more common than at present; and
  - relatively small changes will be required in the educational courses as distinct from those connected with training, which are likely to increase in number.
  - surveyors will need a much better appreciation of cartography than they have at present.
- 3 Perhaps practitioners should consider the advantages of forming consortia so as to increase access to resources and put themselves in positions in which they can take on most types of work, possibly even digital mapping. Ambition and business acumen are important factors here, particularly if you regard wealth as more important than an easy life without hassles.

Over to you.

P. English,  
*Director of Mapping.*

S.H. Pearse,  
*Team Leader, ACLMP.*