

The Kokoda Initiative – Subcatchment Mapping of Koiari Rural LLG Ward 18

Draft Final Report

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Plate 1. 'Tree house in British New Guinea'.
'Houses ... in the back country are built in trees and look like gigantic birds'-nests' (Elkington and Hardy 1970: 21).

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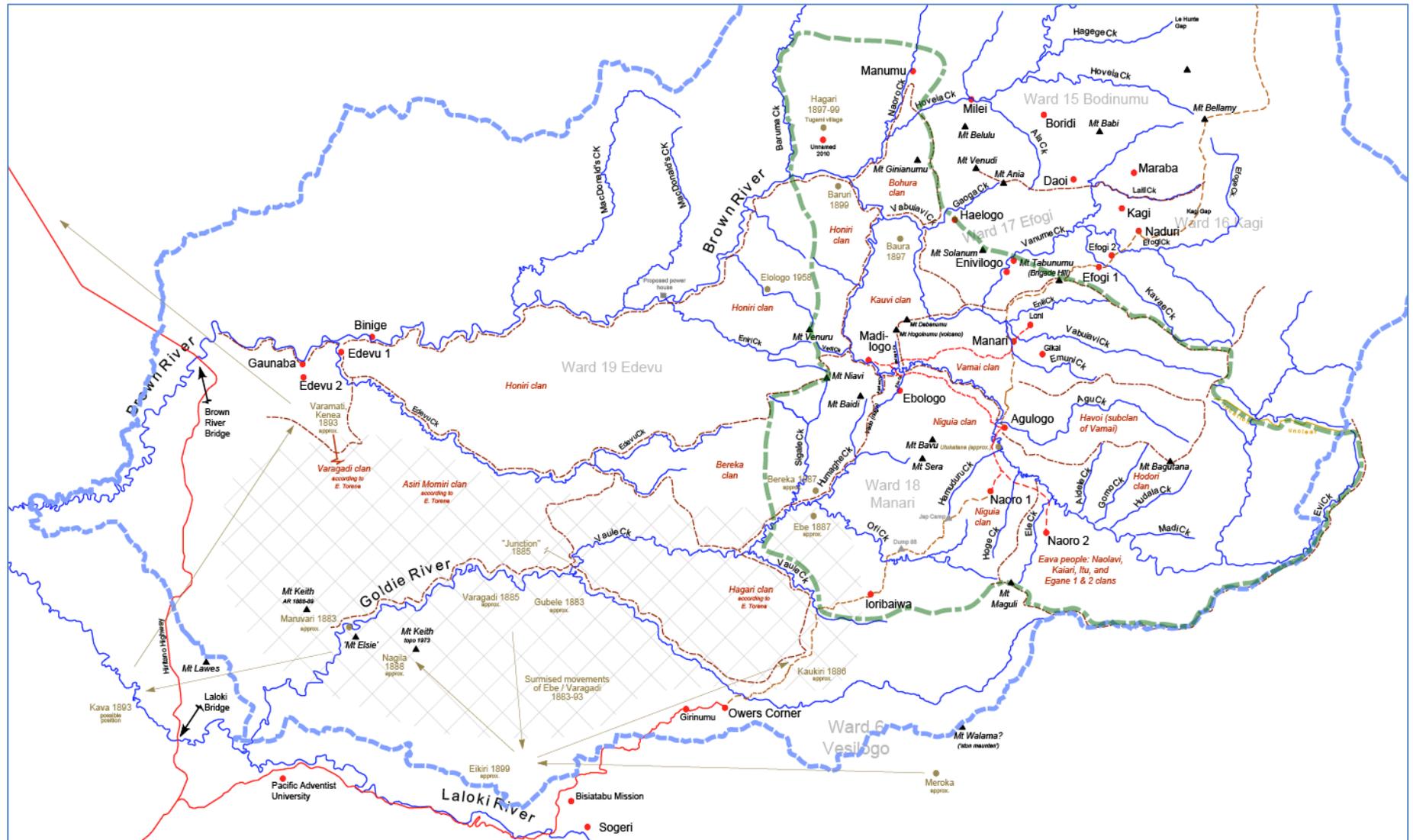
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Map 1. Naoro SubCatchment in relation to the Interim Protection Zone.

Notes: Naoro SubCatchment = dashed line in light green; extended to take in Loribaiwa (in Ward 18) and Hagari (group closely linked with Baruri and Baura at contact); IPZ = dashed line in light blue; see accompanying poster size map for full details.

TERMS AND ABBREVIATIONS

AoI	Area of Interest
ANU	Australian National University
APEC	Asia-Pacific Economic Cooperation – forum for 21 Pacific rim states with a secretariat in Singapore; PNG has been a member since 1993
APP	Australian Privacy Principles
CHW	Community Health Worker
CLRC	Constitutional and Law Reform Commission
DEC	Department of Environment and Conservation
DotE	Department of the Environment
FPIC	Free, Prior and Informed Consent
ILG	Incorporated Land Group (under the <i>Land Groups Incorporation Act 1974</i>)
IPZ	Interim Protection Zone
LMS	London Missionary Society
LLG	Local-Level Government
MPI	Multidimensional Poverty Index
KI	Kokoda Initiative
KDA	Kokoda Development Authority – predecessor of Kokoda Track Authority concerned with economic development
KDP	Kokoda Development Program – development projects component of the Kokoda Initiative, funded by Australian Aid
KTA	Kokoda Track Authority – PNG Special Purposes Authority
SDA	Seventh Day Adventist
SIL	Summer Institute of Linguistics
TOR	Terms of Reference

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HISTORICAL FIGURES MENTIONED IN THE TEXT

Europeans

D. Ballantine	Resident Magistrate in the administration of British New Guinea; brought the Sogeri area under government control in the 1890s; led patrols to the Hagari area to assist with the pioneering of the 'Yodda Road' in 1897 and 1899.
George Belford	A prospector who probably arrived in Papua in the Goldie River mining rush of 1878; may have travelled inland as far as the Naoro River in 1887; name is seen on Humaghe Creek ('Belford Creek') in Ward 18 (Map 5).
Dr Joseph A. Blayney	Government Medical Officer for British New Guinea, doubling as Resident Magistrate for the Central District, 1895-1901.
A.W. Butterworth	Commandant of the Armed Native Constabulary in British New Guinea, active ca. 1892-1901.
Rev. James Chalmers	Member of the London Missionary Society; travelled extensively in Papua during the 1880s and 1890s; killed at Goaribari in 1901 (Prendergast 1969).
H.O. Forbes	Engaged by the British Association for the Advancement of Science and the Royal Geographical Society to conduct exploration in British New Guinea (Gibbney 1972a).
Andrew Goldie	Arrived in Port Moresby in 1877 and found traces of gold, precipitating a gold rush to the 'the Goldie River' in 1878-79; opened a store at Hanuabada; died in 1891 (Gibbney 1972b).
Dennis Gleeson	A prospector familiar with the headwaters of the Goldie River who accompanied H.O. Forbes in 1887 (MacGregor 1899a: 2).
Alfred Haddon	Leader of the the <i>Cambridge Expedition to Torres Straits</i> in 1898; made a short trip to Port Moresby and the Taburi village of Atsiamakara, in the vicinity of Rouna or Depo, in June 1898; met Geve of Kagi, q.v., as he was brought in by Ballantine.
Frank Lawes	Son of Rev. William Lawes (Gibbney 1974) of the London Missionary Society; assisted on early inland patrols. He died in 1894 aged about 30.
Sir George Le Hunte	Lieut-Governor (1899-1903) of British New Guinea, succeeding MacGregor (Langmore 1986).
Sir William MacGregor	Administrator (1888-1893) and Lieut-Governor (1895-98) of British New Guinea; subsequently a colonial administrator in Africa and Canada, and an advisor to the British government on Pacific issues (Joyce 1974).
George Morrison	Sponsored by <i>The Argus</i> , a Melbourne newspaper, to attempt a crossing of British New Guinea from Port Moresby to Oro Bay; speared and evacuated to Cookstown http://en.wikipedia.org/wiki/George_Ernest_Morrison .
Sidney Ray	Pioneer linguist noted (i) as the first to point out the difference between Papuan (e.g. Koiari) and Melanesian (now called Austronesian, e.g. Motu) languages and (ii) for his contribution to the <i>Cambridge Expedition to Torres Straits</i> in 1898.

H.H. Stuart-Russell Government Surveyor; undertook a survey of the ‘Yodda Road’ via Brown River and the Mount Service Camp in 1899.

Papuans^{1,2}

Batia From Maraba; he was placed under temporary arrest at Kagi, accused of spearing a messenger from Tugami; he escaped his handcuffs but the men from this area were exonerated in any case, according to Stuart-Russell (1900: 44).

Daera Village Constable for Eaha (=Naoro 2) in 1898-99 (Blayney 1900: 70).

Gomara Dauri ‘Chief’ of Varagadi; Chalmers met him at Kaukari in 1886.

Geve ‘Chief’ of Kagi; alternatively spelled Geye, Geue, Gewe; first contacted by Ballantine in 1897; brought into Port Moresby in June 1898 where he was interviewed by Sidney Ray; ‘a noted warrior who a year previously would have been shot if he could have been caught, as he had more than once raided unoffending tribes’ (Haddon 1901: 239).

Goria Lived at Utukatana, a Wamai village on the Naoro River; Village Constable in 1898-99 and ‘carries a rifle’ (Blayney 1900: 70).

Gudoï ‘Chief’ of Baruri, contact period village on the west side of the Naoro River just downstream of the Brown-Naoro Junction.

Imiri Also known as ‘Imili, ‘Emiri’. The only historical figure identified as ‘Ebe’, he was used as an interpreter by patrols in the Mountain Koiari area. Relayed the first words written down in the Kagi language to Sidney Ray. Later associated with Uberi and appointed Village Constable at in 1898-99 who ‘carries a rifle’ (Blayney 1900: 70). Two court cases in which he was accused of taking part in raiding from Uberi in the 1900s, and acquitted, are discussed by Hubert Murray (1912: 229-232).

Kadavi ‘Chief of the village of Bohula’, i.e. Bohura (Baura) village, in 1896 (Haddon 1900: 282).

Maiana Village Constable for Baura and Hagari in 1898-99 (Blayney 1900: 70).

Poroko ‘Chief’ of Nagila; only mentioned by Chalmers from his 1885 trip up the Goldie (Chalmers 1887a: 113, 116).

Tau-uli From Seregina; he was accused of burning down a patrol store near the ‘Le Hunte Gap’ (para 136) in 1899.

¹ The *Annual Reports* make frequent use of the term ‘chief’. Given the nature of leadership in this area, discussed by Burton and digim’Rina in an earlier report (2010: Chapter 4), a better term would be ‘head man’. Certain rights and the authority to speak for land may be inherited, but the office of ‘chief’, a political position, is absent.

² At present none of these individuals fit into our genealogies, with the possible exception of the Hagari leader, Torua.

Torua	‘Chief’ of Tugami, the principal Hagari village. Possibly the father of Tovana TOLUA of Elologo, born in 1918 according to the 1958 Elologo Tax-Census Sheets (para 171).
Utume	‘Chief’ of Monoa, an unlocated village on the north side of Hoveia Creek in 1899; he ruled ‘over an extensive district, and is a man of considerable force of character and pluck’ (Ballantine 1900: 44).

Pacific Islanders, Manila-men etc

Lario Ismedina	From Manila; frequently assisted on patrols, e.g. Ballantine’s to the Gap in 1899 (Ballantine 1900).
Peter Lifu	Peter Lifu was from Lifou (https://en.wikipedia.org/wiki/Lifou) in the Loyalty Islands, one of many men from Lifou, Maré and Ouvéa who began taking up opportunities outside their islands in the 1860s and 1870s, notably in Torres Strait; he had a ‘plantation station’ at Bomana (Haddon 1901: 239); he frequently travelled inland for bird collectors and probably for bird-of-paradise hunting and had a camp at Mount Service at around the time of contact there in 1897.
Jimmy Malay	Jimmy Malay, 1853-1923, also known as James Peter Solien, was an Indonesian trader who settled and married two sisters at Tatana in the 1870s, where many descendants live today. He was used by the government from time to time on various assignments (M. Goddard pers comm.). MacGregor described him as ‘long resident at Port Moresby, a man of integrity and of remarkable ability and courage’ (1899b: 2)

LINGUISTIC NOTE

The Mountain Koiari language has a sound intermediate between English K and H.

The village name Kagi was probably first heard as ‘Hagi’:

‘The proper name of [the] tribe is Kagi, but some white men call it Agi’ (Stuart-Russell 1900: 44).

A similar confusion is seen in the clan currently spelled Honiri. On Ballantine’s 1899 map this is shown as ‘Koniri’ (Map 12).

MOUNTAIN KOIARI TIMELINE – WITH SPECIAL REFERENCE TO WARD 18

1 Jul 1871	Rev. Samuel MacFarlane and Rarotongan followers of the London Missionary Society arrive on Darnley Island to begin the evangelisation of Papua; celebrated as a public holiday in Torres Strait each year as the ‘Coming of the Light’.
1874	Rev. William Lawes of the London Missionary Society establishes first mission station at Port Moresby.
1877	Rev. James Chalmers of the London Missionary Society arrives in Port Moresby.
1878	Rush by ‘three or four score of prospectors’ (i.e. 60-80) to the Laloki, Goldie and Brown Rivers (MacGregor 1899b: 1). ³
1879	Chalmers explored ‘mountainous country along the course of and between the Goldie and Laloki Rivers’.
1881	London Missionary Society opens a station at Sogeri.
1883	Laloki-Sogeri area mapped by W.E. Armit (Armit 1899).
Jul/Aug 1883	George Morrison speared by Varagadi people, led by Gomara Dauri, at ‘The Junction’, or confluence of Vaule Creek and Goldie River (<i>The Argus</i> 5 September 1883; MacGregor 1899b: 1).
Dec 1883	Chalmers tried to contact the Varagadi people to make peace with them; Varagadi had moved to Eikiri (Sogeri). ⁴
6 Nov 1884	Proclamation of British New Guinea.
1885	J. Douglas appointed Special Commissioner for British New Guinea.
Apr 1886	H.O. Forbes and Rev. Chalmers embark on a failed expedition into the Owen Stanley Range starting from Sogeri; turned back at Kaukari; first meeting with Gomara Dauri of the Varagadi in person.
Oct 1887	Forbes 2 nd expedition from Sogeri, down the Naoro River to Mt Ginianumu.
1887	George Belford crossed from Sogeri to ‘Eaha’ on the Naoro River, went beyond Mt Ginianumu, but left no report (Murray 1912: 272).
4 Sep 1888	J. Douglas replaced; Sir William MacGregor sworn in as Administrator of British New Guinea.
1889	MacGregor climbed and named Mt Victoria.
1891	Varagadi attacked and killed two of the inhabitants of Koro-Muhuni village, near the junction of the Goldie and Laloki Rivers.
1893	Varagadi attack and destroy Kava village on the Laloki River, killing 13; driven away across Vanapa River by police patrol.
1894-95	MacGregor on leave.
1895	MacGregor’s 2 nd spell in British New Guinea, now as Lieut-Governor.
Sep-Dec 1896	Hagari and Baura raid Varagadi settlements on the Vanapa River, killing 24.
Jan 1897	Police Commandant Butterworth patrols to Mt Service (Hagari) to attempt arrests of those who raided the Varagadi.

³ The Brown River was named, so it is said, after a miner called Peter Brown who fell in and drowned around 1878 (Murray 1912: 271).

⁴ In *Pioneering in New Guinea*, Chalmers has the years mixed up (1887: Chapter 4). He says George Morrison came to Port Moresby with the Argus Expedition in 1884, but the *Argus* reports, including a description of Chalmers’ own trip to locate the Varagadi, are clear that the events took place in 1883.

May-Jun 1897	400 Australian miners arrived in Port Moresby to prospect inland, mostly on the Vanapa River (Blayney 1898: 52).
Aug 1897	Key patrol by MacGregor and Resident Magistrate D. Ballantine to Naoro, Wamai and Hagari to find a new track from the Brown River across the 'Gap' to the Mambare and Yodda goldfields.
Sep-Oct 1897	MacGregor leads relief patrol to Upper Vanapa River to rescue prospectors attacked by Goromani people; climbs Mt Scratchley, 3820m.
1898	Visit of Geve, 'chief' of Kagi to Port Moresby; linguist Sidney Ray collects a few words of the Kagi language from him, via Imiri.
Sep 1898	End of MacGregor's term of office.
Apr-May 1899	Government Surveyor, H. H. Stuart-Russell, surveys the 'Yodda Road' from Brown River to the Yodda gold field; Patrol Officer D. Ballantine travels to Ward 18 'for the purpose of conciliating the Hagari tribe of Mount Service'.
1901	Chalmers killed at Goaribari.
1904	Papuan police commence escorting the mail in pairs between Sogeri and Kokoda.
1908	Septimus Carr and Benny Tavodi establish Seventh Day Adventist base at Bisiatabu, Sogeri.
1908-10	Annual Reports say 'severe dysentery' in the 'main range': death rate unknown.
1913	Missionaries Carr, Lawson and Tavodi visit inland villages establishing Seventh Day Adventism among the Mountain Koiari.
1922	First Koiari boarders attend SDA mission school at Bisiatabu.
1924-27	SDA missionary William Lock and family reside at Efogi.
1925	Sabbath School opened at Efogi.
21 Jul 1942	Japanese landing on the north coast of Papua.
9 Aug 1942	Japanese advance from Isurava.
6 Sep 1943	Japanese flanking assault on Brigade Hill on northeastern edge of Ward 18.
16 Sep 1943	Japanese advance came to an end at Ioribaiwa, the furthest point reached in the Kokoda Campaign (<i>The Argus</i> 7 Nov 1942).
22 Sep 1943	Start of Australian counter-offensive (<i>The Argus</i> 22 Dec 1942).
29 Sep 1943	Australian forces re-occupy Ioribaiwa Ridge (<i>The Argus</i> 1 Oct 1942).
30 Sep 1943	Australian forces re-enter Naoro unopposed (<i>The Argus</i> 2 Oct 1942).
2 Nov 1942	Kokoda re-taken.
22 Jan 1943	Cessation of fighting in the Buna-Gona area.
11 Jun 2003	Proclamation of Kokoda Track Special Purpose Authority by Governor-General.
5 May 2004	KTA Interim Management Committee established.
23 April 2008	Signing of 'Joint Understanding between PNG and Australia on the Kokoda Track and Owen Stanley Ranges' between Somare and Rudd governments (Commonwealth of Australia and Government of Papua New Guinea 2008).
8 July 2010	Signing of 'Second Joint Understanding between Papua New Guinea and Australia on the Owen Stanley Ranges, Brown River Catchment and Kokoda Track Region' between Somare and Gillard governments (Commonwealth of Australia and Government of Papua New Guinea 2010).

TASKS IN THE TERMS OF REFERENCE – WHERE ADDRESSED IN THE REPORT

Task	Where discussed
1A. Investigate and record the oral history of communities relevant to settlement formation and community identity.	In Chapter 2 , the historical record for the early contact period 1871-1899 is gone over in fine detail. This is followed in Chapter 3 with a piecing together of the oral evidence that links present-day groups to those seen at contact. Our updating of 94 charts of genealogy at Naoro 1 & 2, Agulogo, Madilogo, Manari and Loni represented our greatest effort to collect information on families, groups, places and oral history.
1B. Investigate and record the customary social and political organisation of communities within the Ward that reflects the structure, purpose and membership and the current leaders/elders relevant to Task 2.	The critical matter in the Naoro SubCatchment in the formation of successor groups to look after and make use of the lands of the groups seen at contact, some of which were reduced to a handful of survivors from tribal fighting and raids by the police. This is discussed at length for a selection of groups in Chapter 3 with a further explanation of descent principles in Appendix D .
1C. Further investigate literature not included in the Preliminary and Phase 2 Social Mapping reports to determine the contemporary significance of the various names/places/sites mentioned in the records.	Chapter 2 carries a lengthy dissection of the British New Guinea <i>Annual Reports</i> , newly available in digitised form online, for names/places/sites whose contemporary significance we had previously not been able to make sense of.
1D. Take note of any historical or continuing land disputes in the AoI, without undertaking any mediation of such disputes, and document such facts of the cases as community members give their consent to be recorded	Three disputes came to our notice during fieldwork in 2014. <u>At Naoro 1</u> . The principals of an ILG, possibly formed in conjunction with the former Mt Kodu Exploration Licence area, are blocking discussion of land interests (para 461). <u>At Madilogo</u> . Land holdings in the Madilogo are disputed by a ‘West Koiari’ group, representing Bohura land interests, ‘Baura’ being a village in the area visited on numerous occasions in the contact period (Chapter 2). Bohura people lived at Elologo, near Madilogo, in the 1950s, discussed in Chapter 3 (para 196 et seq.) . The land dispute is discussed in Chapter 4 (from para 464) and a geographical error, ‘MacGregor’s Mistake’, is discussed in Chapter 6 (para 470 et seq.) for its possible bearing on the matter. <u>At Manari</u> . An ILG purports to claims half the village. See ‘A discussion at Manari’ in Chapter 6 (para 420 et seq.) .
1E. Document the existing community groups and legal entities within the AoI including youth groups, women’s groups, church groups, landowner companies, incorporated land groups (ILGs) and other business groups <i>based on community interviews</i> .	We did not encounter youth groups, women’s groups, church groups, landowner companies, or business groups. Two ‘name lists’ drawn up for a commercial agreement involving Edevu people are discussed at length in Chapter 6 . Two land groups we encountered at Manari are discussed at length in Chapter 6 .
2. Obtain Free, Prior and Informed Consent (FPIC) to conduct of any part of the work which will involve the collection of personal data on individuals, and determine usage rules for this data.	The selection of porters – in fact elders – and their involvement in and contribution to field work in 2014 is discussed in Chapter 4 . FPIC is discussed under its own heading in Chapter 6 .
3. Recommend ‘safe haven’ options for data collected.	Dedicated section in Chapter 6 .
4. From the Phase 2 Genealogy Census, determine who the people are within the Ward who are able to make decisions	The people who are able to make decisions at each village visited are set out under the section headings ‘the people

<p>when:</p> <ul style="list-style-type: none"> • engaging locals for land use and land management purposes • measures are considered to protect parts of the IPZ • livelihood, cultural and biodiversity values are identified • possible changes in land use are proposed for parts of the Ward. 	<p>who are able to make decisions’ in Chapter 4.</p> <p>Names are given but there are often qualifications. Where names appear it is with the STRONG CAUTION that they have been derived from our genealogical census data following the historical circumstances set out in Chapter 3, using the descent principles in Appendix D, and fully absorbing the discussion of issues in Chapter 6.</p> <p>Names of individuals SHOULD NOT be harvested from this report without carefully following the lines of argument these sections.</p> <p>‘Decisions when ... livelihood ... values are identified’ aligns with JU2 Goal 2 ‘Enhanced quality of life for landowners and communities through improved delivery of basic services, income generation and community development activities’. Development assessment findings from the information collected on families in reported in Chapter 5.</p>
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DELIVERABLES IN THE TERMS OF REFERENCE

Deliverable	Where discussed
1. A detailed report describing the methodology and outcomes of the participatory mapping project which clearly identifies, <i>data collected as obtainable from community interviews</i> :	Note: <i>qualifications in italics</i> and deleted items per meeting between DEC and ANUedge on 28 July 2014.
<ul style="list-style-type: none"> The names of the legitimate resource managers or landowners and the territory they control. 	Chapter 4 – ‘The people who are able to make decisions’.
<ul style="list-style-type: none"> A description of the social means by which they claim legitimacy and the land tenure system. 	Discussed at length in Chapter 3 , with a further explanation of descent principles in Appendix D .
<ul style="list-style-type: none"> Who, in the absence of the resource manager, this authority is delegated to. 	‘Resource managers’ do not have deputies as a fixed position. Discussion of succession in Chapter 3 , with obligation to continue to exercise ‘laws and customs’ to determine who is the next in line.
<ul style="list-style-type: none"> The clan or social unit they represent and the names of the members of the unit. 	Explanation in Chapter 6 why lists of names by clan are culturally inappropriate (clans do not have fixed, non-overlapping memberships). Names may be accessed from the Community Express database following the Information Privacy Principles, and respecting the lines of argument in Chapter 3 , Appendix D , and Chapter 6 .
<ul style="list-style-type: none"> A map of each ward showing territorial or clan boundaries. 	Approximately 30 maps presented in the report. Poster sized master map accompanies the report. Note that only Ward 18 is the subject of study for this report and that it does not have gazetted boundaries. The broad outlines of the Naoro SubCatchment – green line in Map 1 – were taken as the study limits.
<ul style="list-style-type: none"> Other social organizations that might be consulted in discussions on land and resource management (church groups, ILGs etc.) and a contact person for each. 	Alternate groups not encountered. Contact persons for ILGs already known to DEC are listed on the ILG certificates.
<ul style="list-style-type: none"> A description of any disputed area of land or resource management. 	See above under Task 1D.
<ul style="list-style-type: none"> Tables of customary groups and their membership. 	See discussions for each village under the headings ‘clans’ in Chapter 4 . Identities of people with rights to the land estates of these ‘clans’
<ul style="list-style-type: none"> A description of sites of cultural significance in text and map form co-ordinates. 	Sites of cultural significance not visited. Co-ordinates of principal places visited: Appendix C .
2. Map <i>layers</i> produced should show (at a minimum and in addition to the above):	Map layers supplied separately.
<ul style="list-style-type: none"> The boundaries of customarily owned tracts of land, where it is determined that a consensus of local opinion exists on where they are, or the areas of discrepancy; 	See maps in the report, textual interpretations, and accompanying poster sized master map – customary boundaries marked as brown dash lines.
<ul style="list-style-type: none"> The local names of human settlements and sites of significance in the Aol. 	See Chapter 4 , maps in the report, textual interpretations, and accompanying poster sized master map .
<ul style="list-style-type: none"> The number of residents and absentees at each. 	See Appendix B .

<ul style="list-style-type: none"> The names of creeks, rivers, mountains and other significant geographical features the boundaries of LLG Wards, where these can be agreed upon. 	<p>See maps in the report, textual interpretations, and accompanying poster sized master map.</p>
<p>3. A specification of how the data will be stored in a manner compliant with the Information Privacy Principles</p>	<p>Discussed in Chapter 6 (para 535 et seq.).</p>
<p>4. Recommendations of how effective landowner or resource manager engagement should be carried out in each of the Wards as land management agreements and benefit sharing models are being negotiated by the PNG Government. The recommendations should include the names and locations of the key people who should be included in the discussions and reasons why they should be included.</p>	

CHAPTER 1

INTRODUCTION

Relation to tasks and deliverables (summary)

Tasks 1-3 – review of objectives.

Task 1C – key historical findings as they affect the framing of the project area.

OVERVIEW

001 The aim of the Subcatchment Mapping Project in 2014, as a part of a broader effort to undertake social mapping in what has been designated as an Interim Protection Zone (IPZ), may be summarised in terms of establishing this three-stage sequence:

- (i) That a smaller, manageable part – a subcatchment – of a larger, biophysically-defined region (the IPZ) can be meaningfully matched with the collections of low-level social groups that fall into an administrative entity, namely an LLG Ward.

In this case the subcatchment is as shown by the light green line in Map 1. It coincides approximately with Ward 18 of the Koiari Rural LLG, bearing in mind that LLG wards do not have gazetted boundaries.

- (ii) That a clear understanding of the make-up and workings of the human communities, especially their principles of decision-making, that the entity comprises can be achieved by using appropriate field methods and documentation.

If this is achieved then those charged with the responsibility of overseeing the management of the subcatchment (and ultimately the entirety of the IPZ) are able to properly 'read' the Ward – to know who lives in it, where they live, what they have rights to, what their livelihoods are, what development challenges face them, and the totals of residents and absentees – in order to be able to propose sound management strategies.

- (iii) That the approach decided upon meets with community approval, the knowledge that is acquired is endorsed by knowledgeable members of the communities AND the reporting outputs are not subsequently disregarded, interfered with politically, or simply allowed to fall into obscurity.

If this is can be done, then what is achieved is that insiders are left with an enduring sense that outsiders can 'see who they are' properly, that their identity as the owners of customary rights over property and natural resources has been correctly acknowledged, and that, through a participatory process, they have themselves taken meaningful steps to defend against identity fraud and land grabbing.

- 002 This sequence can fail or become compromised at any point. There are many situations when there is no conformability between a biophysical zone and a single jurisdiction; common examples lie across international borders and the IPZ is itself split over two provinces.
- 003 Equally, the human communities in a Ward may defy documentation in any simple manner. For example, urban wards in Papua New Guinea, and many in LLGs bordering towns, could *not be approached* using the methods we have put to use in the IPZ. They would fail because of the difficulty of separating customary owners from the many settler communities, all of different origins, usually found in such locations.
- 004 Lastly, even if the first two steps are met with success, there can easily be failure at the third. Obviously, if sections of a community are not involved in the work, they are unlikely to endorse the findings. But if even community-endorsed information is not refreshed at reasonable intervals, belief in it is likely to fall away as it ages and becomes obsolete.

KEY FINDINGS FROM THE HISTORICAL SOURCES

- 005 In previous reports we were only able to sample the historical record bearing on early contacts with the Mountain Koiari people whose lands make up most of the IPZ on the southern side of the Owen Stanley Range.
- 006 The historian in our first report (Burton 2009), the late Hank Nelson, touched on the early sources for the prospecting rush to the Laloki and Goldie Rivers of 1878-79 and looked into the account of key patrols, such as that of H.H. Stuart-Russell, in the British New Guinea *Annual Reports*. However, apart from those of well-known villages, he found that ‘most names are unfamiliar’.
- 007 The *Annual Reports* have always been in libraries, but as late as 2012 the only publicly available copies were poorly scanned photocopies at the Pacific Manuscripts Bureau.⁵ Since then, a full set of the *Annual Reports* has been digitised and placed online at the Parliament of Victoria web site.⁶ Importantly, this includes the maps at a good level of quality. Where the map scans are of a lesser quality, alternates can be located through the map catalogue of Trove, the search engine at the National Library of Australia.⁷
- 008 A companion resource is the Internet Archive, where almost all out-of-copyright books dealing with the early history of New Guinea may be freely downloaded.⁸ Again, the critical advance is the ability to look up textual information and source good quality map scans quickly.

⁵ <http://asiapacific.anu.edu.au/pambu/>

⁶ <http://www.parliament.vic.gov.au/publications>

⁷ <http://trove.nla.gov.au>

⁸ <https://archive.org/details/texts>

- 009 It is unfortunate that access to the full range of materials has come late in our project because historical richness gives a new picture of the configuration of Mountain Koiari at the time of contact and their responses to the incursion of the government onto their land.
- 010 Three key findings emerge from the historical sources in respect of the lower part of the IPZ and that directly tie in with our previous and recent fieldwork.

1. The Naoro SubCatchment was the centre of Mountain Koiari settlement

- 011 The sources show convincingly that the greater Naoro SubCatchment was the centre of Mountain Koiari settlement in the early contact period, crowded with settlements that have subsequently been abandoned or rebuilt elsewhere and surrounded by ‘immense food gardens’. This is something we did not know before.
- 012 The ‘greater Naoro SubCatchment’ means the strict Naoro drainage area plus settlements around the Brown-Naoro Junction, currently an area with almost no population and, also in Ward 18 today, hamlets in the headwaters of the Goldie River. It is some 550 sq. km in area.
- 013 A substantial population lived in a string of hamlets along the Dabanumu ridge running north from Madilogo – Governor MacGregor camped there for a week and called it ‘Baura’ – but their population had relocated by the 1920s. These were people of Bohura clan whose descendants now live at Edevu.
- 014 On the west bank of the Naoro downstream of Madilogo at contact there was a village called Baruri. Two groups, Elili and Honiri, lived there and, despite the Resident Magistrate Ballantine saying that one, or possibly both, groups had been ‘killed off’ in traditional raiding the descendants now live at Edevu.
- 015 Over a suspension bridge across the Brown River, below its junction with the Naoro, fortified, stockaded villages were located up on the northern spur opposite, which at the time was called Mount Service. The people were collectively referred to as the Hagari and their existence first came to light when they raided settlements on the Vanapa River in 1893, some 40 km away. The government made peace with them in the late 1890s and in 1898-99 they the aforementioned Baura shared a Village Constable. This area is almost deserted today. The Hagari were people of Sohava clan whose descendants now live at Edevu.
- 016 It is very likely that a substantial proportion of the aforementioned groups, prior to moving to Edevu in the 1970s, lived at Elologo, an unlocated village that we had previously only known from its 1958 Tax-Census book. The archaeology team pinpointed the location of the site during 2014 from aerial photographs taken in 1954. Subsequently, I have been able to interrogate the Community Express database to find 184 descendants of the people shown on 1958 Tax-Census book living at Edevu in Ward 19.
- 017 Although we cannot currently explain this, the upper part of the IPZ towards Mt Bellamy appears to have carried a smaller population than the Naoro SubCatchment. Where there are now substantial villages, the contact period settlements of Kagi, ‘Nadunum’ (Naduri),

‘Marapa’ (Maraba), ‘Seregima’ (Seregina, now Boridi) and Monoa (Boridi) appear to have been small stockaded hamlets scattered over a wide area.

- 018 Even Efogi was located in the Naoro SubCatchment. It is described as being ‘on a ridge about 2,500 feet above the Naoro’ and ‘some ten miles’ from Kagi. Maps appear to show its position in the vicinity of Manari, not high up the catchment 3.2 km (2 miles) from Kagi where it is now (para 241 *et seq.*).

2. Tribes that were ‘killed off’ are critical to an understanding of land holdings in the Naoro SubCatchment

- 019 The second major finding is that a set of ‘lost’ groups lived inland of Port Moresby in two areas: in the Middle and Upper Goldie and on the northwestern part of the Naoro SubCatchment. This was quite explicit in early reports:

We ... were in a ‘no man’s’ land. The names of the tribes who have all been killed off are [list of tribes follows] ... the land is quite unoccupied and available for acquisition by the Crown as waste and vacant lands (Ballantine 1900: 79).

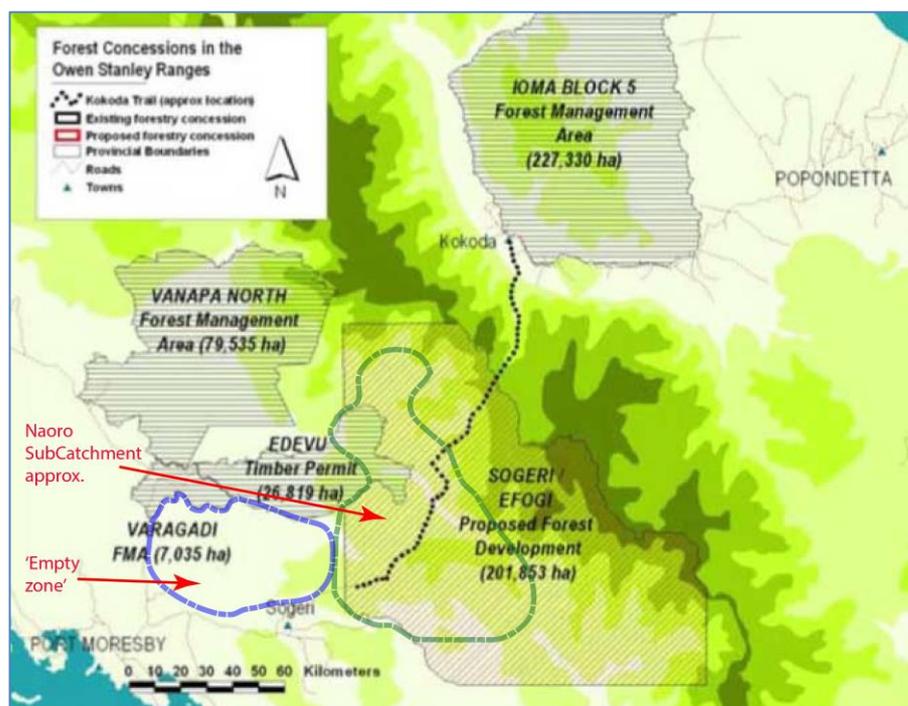
- 020 There were two causes for the demise of the tribes that were ‘killed off’. In the Middle and Upper Goldie – the southern boundary area of Ward 18 – the lost groups were routed from their traditional land by a combination of attacks by armed miners in the gold rush of 1878-79 and ‘pacification’ raids by armed police led by European officers during the 1890s.
- 021 In the northwestern part of the Naoro SubCatchment, the *Annual Reports* suggest that the biggest factor was intergroup raiding in the 1880s and 1890s.
- 022 The implications for the present day are profound. It is clear to residents of Port Moresby between the coast and the foothills of the Owen Stanley Range there is an area of confused landownership. But to be more precise, a large part of the western half of the IPZ is devoid of villages.
- 023 In work reported earlier (Burton and digim’Rina 2011), we could not resolve a number of group or ethnic names or trace all the movements of people from the contact period to the present. Linus digim’Rina pursued some of the unanswered questions at Edevu in 2011, as part of a student training exercise, and was able to make a number of important clarifications. However, without undertaking more fieldwork he was unable to assemble all the pieces of a complicated puzzle (digim’Rina 2011).
- 024 What is possible to report now is that, from a combination of new fieldwork, looking again at our earlier findings, and careful scrutiny of the *Annual Reports*, we can put names to many of the groups – and even identify people in them – that had villages and owned land in the places where there are no villages today. Almost all of these were located in the Naoro SubCatchment.

- 025 Governor MacGregor consistently referred to the inland groups as the ‘Ebé Confederation’, from Ebe,⁹ a contact period village close to Ioribaiwa in Ward 18. Haddon, obtaining information on a visit to Port Moresby in 1898, used instead ‘Baura Confederation’ (1900: 282) after the village of Baura near Madilogo.
- 026 None of us came across any reference to Ebe or a supposed regional alliance of groups during fieldwork. The late Hank Nelson was an expert on the early gold rushes, but his chapter in our 2009 report (Nelson 2009) suggests that he had either passed over this aspect of contact history in Papua or was unable to elucidate the details to any degree. One of the intervillage raids – one of many – took place in 1893 after a massacre of Koitabu and Koiari people on the Laloki. The attackers were chased out of Ward 18 some 30 km to the Vanapa River:
- ... a patrol party was organised to proceed to Ebé ... A detachment of the armed constabulary was attached to the party. They made a vigorous descent on the Varagadi tribes, and ended by chasing them across the Vanapa River (MacGregor 1899a: 2).*
- 027 The reports contain both stock phrases – ‘vigorous descent’ here means the police shot to kill – and tallies of men killed and captured. But we were not given oral historical accounts of these raids during fieldwork which makes the task of unravelling the events a complex matter.
- 028 MacGregor used ‘Ebé Confederation’¹⁰ as a blanket term for what was certainly a set of small groups who formed temporary alliances, and if they were allied at one point could be feuding with each other a short time later, as MacGregor belatedly found for himself (para 109). Only Haddon provides substance to the idea that several villages could collaborate in long distance raiding (para 143), though we still lack knowledge of the cultural reasons for this type of extreme violence.
- 029 There were survivors of the contact period violence, although very few for some groups. The descendants of the survivors are today engaged in a process of reforming in what we may call ‘successor groups’ and some are today active in pursuing land claims, but others are not. The requirement for fair and accurate consultation processes in all parts of the IPZ, means that tracking down all the descendants and/or successor groups of the scattered remnants is now important.
- 030 The linguist Tom Dutton distinguished three Mountain Koiari dialects in Central Province and the area of his ‘Southern’ dialect, ‘a cigar shaped area across the Goldie River’ (Dutton 1969: 370), overlaps with Ebe Confederation localities when archival descriptions are complete enough (Dutton 1969: Map 3; Ballard 2009: Map 13).

⁹ Three spellings are seen: Ebé, Ebei and Ebe. For consistency, this report uses ‘Ebe’.

¹⁰ In one place he wrote ‘Ebé or Ebury confederation’ (MacGregor 1899b: 2). ‘Ebury’ is not a name that appears elsewhere and was clearly a typographical error for ‘Uberi’, who he initially included. In 1898 he explained that the Uberi had just been pacified and should no longer be considered part of the confederation (para 105 *et seq.*).

- 031 Dutton, however, was working with living speakers at modern villages and the centre of the ‘cigar shaped area’ has been a empty zone in the Middle and Upper reaches of Goldie Creek since long before Dutton started work. It is bounded on the north by Edevu Creek and Vaule (‘Oa-Ule’) Creek and on the south by Hombrom Bluff and the edge of the Sogeri Plateau.
- 032 As for the identity of the people that lived in the empty zone – in the villages of Nagila, Varagadi, Ebe, Bereka and others – MacGregor often used the terms Varagadi or Ebe interchangeably. Frank Lawes, who had been through part of the area, wrote that ‘Varagadi and Ebei are one and the same people’ (Lawes 1899).
- 033 The only supposedly Ebe person known by name was Imiri or Imili, who was used on early patrols as an interpreter (e.g. para 161).



Map 2. Proposed and actual timber permits areas in the project area ca. 2008.

Note: Varagadi FMA covers an area marked ‘teak’ on the 1:100,000 topographic sheet; Naoro SubCatchment is approximate; ‘empty zone’ so-designated for historical illustration only – may have active claims.

- 034 Of the groups higher up in the subcatchment, some retreated inland in the 20th century, like the Bereka to Madilogo; others have ‘come out’ to the Brown, like the Varagadi, Elili, Honiri, Bohura and Sohava, who we have encountered at Edevu. Further investigation of these movements is needed for a better understanding of claims both in the Naoro SubCatchment and the remainder of the IPZ to its west.
- 035 The spatial importance of the Naoro SubCatchment and the empty zone in terms of the IPZ may be understood in terms of their respective sizes. The current IPZ has an area of 2,390 sq. km of which approximately 777 sq. km (32.5%) lie in seven council wards in the middle

of the mountains (Wards 15-18 of Koiari Rural LLG and Wards 2, 8 and 9 of Kokoda Rural LLG).

- 036 The remaining 1,613 sq. km (67.5%) are on the lower slopes of the mountains. The extended Naoro SubCatchment makes up 550 sq. km of this; the empty zone covers a full 300 sq. km where there are no roads and no settlements, except in the Lower Goldie where the river reaches the Port Moresby plains (Map 1).
- 037 North of the empty zone, the area between Edevu Creek and the Brown River is criss-crossed by logging roads and a Timber Permit area has been the subject of mapping and the assertion of customary rights (Map 2). By contrast, few if any tracks penetrate, or have ever penetrated, the empty zone to judge from both historic mapping and modern satellite imagery.
- 038 It is not known what attempts, if any, have been made to exploit the timber resources of the empty zone, which groups claim its various parts, if foot tracks cross the area, or even which ward it is in.

3. Historical processes are insufficiently informing development planning; a century of map revision has not helped

- 039 Maps for the project area from 1880 to the present are of variable quality. Topographic accuracy was achieved when the 1:100,000 series sheets were published in the 1970s, but all maps, including the most recent, include cartographers' labelling errors: duplicated places names, reversals of letters in names (e.g. Uga Creek for Agu Creek), and the transposition of mountain names from one peak of similar altitude to another.
- 040 It is easy to spot obvious errors, but not so easy to see the influence of subtler cartographic and historical revisions on the way an area is administered, and how subsequent development planning gets to be undertaken.
- 041 MacGregor's need as a colonial administrator was to build a road across the mountains to the gold fields of the Northern District. Groups of people not particularly friendly to the government lay in the way and, when he and his officers needed to pacify them, it was maps that directed them to where they needed to go and showed afterwards where they had been.
- 042 In examining the colonial records, I have not made a conscious attempt to count the toll of casualties – native Mountain Koiari people who died at the hands of the armed constabulary – but the unavoidable fact is that dozens did perish in the current project area over a 15 year period from about 1883, and it would be possible to undertake a basic count. Their names might be unknown but the main targets of police action, 'the fighting tribes of Hagari, Ebe, and Baura' as MacGregor put it (1899b: 1), are clear enough. By and large they lay between Madilogo and Brown River (Mount Service), and up Hoveia Creek – not along the modern alignment of the Track. More than a decade after MacGregor's time, the police were still burning down houses at Baura, in the Naoro SubCatchment between Madilogo and Brown River (Carr 1913: 2).

- 043 It is sobering to absorb the fact that only a few decades later the sons and grandsons of those who faced the police did not hesitate to assist the Australians during the Kokoda Campaign.
- 044 Years later, development planning under the Joint Understanding has got underway with a focus on the line of the track as it was in WWII. Vocabulary has subtly reinforced this, such that the 2008 Joint Understanding indicated that development and benefits would target the ‘track corridor’, implying a strip or band of restricted width following a particular line, viz:
- ‘the sustainable development of communities along the Kokoda Track corridor’ x 3
 - ‘an improved standard of living, quality of life, and access to basic services for communities along the Kokoda Track corridor’
 - ‘identify potential benefit streams and improved livelihoods for landowners along the Kokoda Track corridor’ (Papua New Guinea and Australia 2008).
- 045 The wording is absent from the 2010 Second Joint Understanding, replaced with the ‘Kokoda Track Region’ where the broader possibilities of the IPZ were in mind. Goal 2 aims at community development:
- Enhanced quality of life for landowners and communities through improved delivery of basic services, income generation and community development activities (Papua New Guinea and Australia 2010).*
- 046 But this is still not followed by a reference to the 14 Wards of the Kokoda Track Authority – that is say, the local government Special Purposes Authority formed around the communities that self-identify as those that collectively own the country through which the Track passes, but to the much narrower formulations ‘communities along the track’ and the ‘Track communities’ (Papua New Guinea and Australia 2010: 4, 5).
- 047 It is unambiguously the line of wartime track to which development initiatives are aimed, not the broader area through which the original track (or tracks) was pushed and that takes into account the homelands of the tribes ‘settled’ (‘descended upon’, defeated in armed conflict) during the early colonial period, as the historical record is witness to.
- 048 The Joint Understanding is right to say that the Track ‘symbolises the lasting bond of friendship and mutual understanding between the people of Papua New Guinea and Australia’ (Papua New Guinea and Australia 2010), but it should not be forgotten that this was built on a broader foundation, which has been in plain sight for over 100 years (e.g. Waiko 1993: 33), and that it is impossible not to acknowledge.
- 049 A key finding of this report is that the first Kokoda Track, the government-surveyed ‘Yodda Road’, was 10 km to the north of the wartime track. It went from a patrol camp at Karema near Edevu, up Brown River to a forgotten camp at Mount Service, up Hoveia Creek and across the ‘Le Hunte Gap’ to Eora Creek and Kokoda.
- 050 The survey plan shows that the Le Hunte Gap, was not the same as the Kagi Gap frequented by modern trekkers. Both gaps are adjacent to high peaks labelled Mt Bellamy, but a

mapping transposition that took place sometime in the 20th century has moved the label on current maps to the current position 10 km to the south (see para 136).

- 051 Our informants at Madilogo were insistent that the Track did not originally follow the modern line and it turns out that they are quite correct.
- 052 A critically important phenomenon, geographically expressed, is the ongoing re-siting of villages over the last 115 years. Following from the observations at (1) above that the Naoro SubCatchment was the centre of Mountain Koiari settlement in the early contact period and at (2) above that the descendants of the ‘tribes who have all been killed off’ have been undertaking a process of re-established successor groups, villages are being brought back to life on traditional sites, yet an understanding of this process has insufficiently informed development planning.
- 053 Ioribaiwa is an example of this in Ward 18. A small village existed throughout WWII until the 1970s but proved unviable and was abandoned in the face of the growth of services at Sogeri. It was re-established in the mid-2000s but did not appear on administrative schedules until the 2012 elections – and it was not included in our 2014 TOR as being a village in Ward 18.
- 054 Ioribaiwa, on the line of the Track between Vaule and Ofi Creeks, appears to be a successor community to Ebe. As we did not go there, we cannot personally report on its ‘access to basic services’ but we suspect they are few.
- 055 Further information is required but the evidence suggests that Efogi was originally sited in the vicinity of Haelogo/Enivilogo in the Naoro SubCatchment. Efogi, in its present position, is one of the centres of ‘track corridor’ development. The Enivilogo/Haelogo area, close to its old location, is not.
- 056 Agulogo is a settlement established on the Track close to the junction of Agu Creek and the Naoro River by the traditional owners of the Agu Valley, a Vamai subclan that is presumably drawn from the same group as the ‘Wamai’ encountered there in the 1890s.
- 057 Of Enivilogo, Haelogo, Ioribaiwa and Agulogo only one – Enivilogo – is included in the Kokoda Initiative’s 2011 planning map and depicted as a recipient of KI projects to that point (Kokoda Initiative 2011).
- 058 I turn to the detail that substantiates the historical findings in Chapter 2 and examine the implications in subsequent chapters.

CHAPTER 2

NEW LIGHT FROM HISTORICAL SOURCES:
THE CONTACT PERIOD, 1874-1899**Relation to tasks and deliverables (summary)**

Task 1C 'Further investigate literature not included in the Preliminary and Phase 2 Social Mapping reports to determine the contemporary significance of the various names/places/sites mentioned in the records'.

FOUNDATION OF PORT MORESBY

- 059 As traced in the Timeline, the period 1874-1899 encompasses the arrival of missionaries of the London Missionary Society in the Papuan region, with the nearest mission station to the IPZ being set up at Elevala (now part of Hanuabada in Port Moresby).

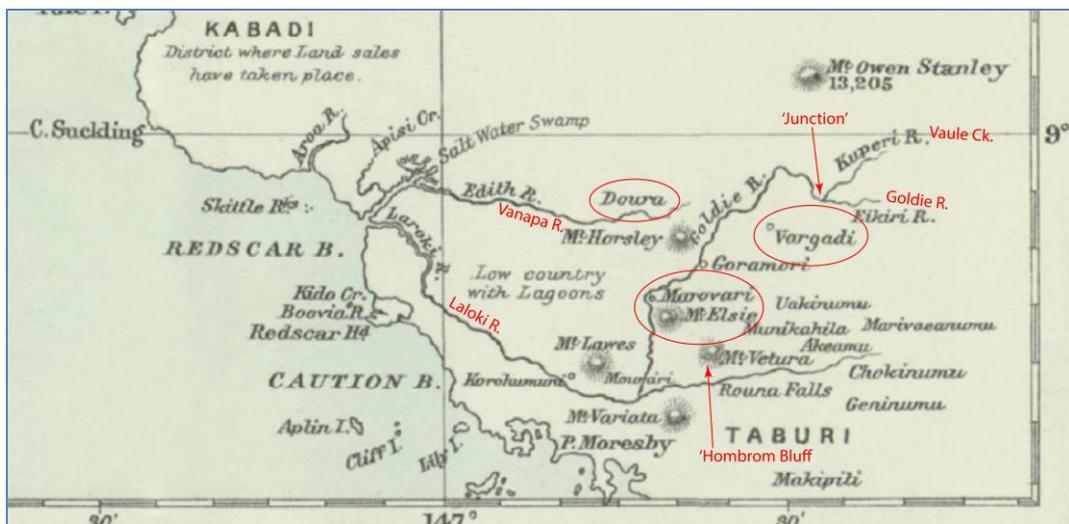


Figure 1. 'Portrait of group of eight Koiari people; six men wearing armlets, loin cloths, some wearing head garments, neck ornaments, nose ornaments; two women wearing plant fibre skirts, armlets; with chicken'.

Photo: Rev. W. Lawes 1881-91. British Museum image AN00343654.

- 060 This was followed by explorations from the Port Moresby area into the Laloki and Goldie River areas, and the pacification of the Mountain Koiari in the Naoro SubCatchment in a quest to open a road from Port Moresby to the Yodda River goldfields.

- 061 Koiari people are known to have visited the vicinity of Rev. Lawes’ station (Figure 1), but at this point the term ‘Koiari’ was used only for the inland people close to Port Moresby who were accustomed to visiting the mission and various trading stations. One reason for this was that even before the official proclamation of British New Guinea in late 1884, Andrew Goldie was having ‘to send 20 miles inland to Koiari to get natives to do three or four days’ work’ to put up some houses he wanted (*Sydney Morning Herald* 10 May 1884) because the Motu people already had sufficient means of acquiring steel tools and trade tobacco (cf. Gibbney 1972b).
- 062 Those living further inland remained poorly known to the mission or the new administration for some time and went by a variety of names such as ‘Moroka’, ‘Faveli’, ‘Eikiri’ and so on. A sketch of the contact history was given in an earlier report, but at the time of writing only a small amount work on the names and locations of inland villages and tribes had been done by us (Burton and digim’Rina 2011: 8-14; digim’Rina 2011).



Map 3. Locations in the Laloki, Goldie and Vanapa River areas.

Notes: ‘Mt Elsie’ = Mt Keith on 1:100,000 ‘Port Moresby’ topographic sheet. ‘Vargadi’ = location of Varagadi village according to Chalmers. ‘Manovari’ = Marovari/Maruvari, see Map 5; ‘Doura’ = staging point on Vanapa River, see also Map 4. Source: Lawes (1884).

THE EARLIER PERIOD OF INLAND CONTACT – THE MIDDLE AND UPPER GOLDIE

Morrison, Chalmers and the Varagadi – 1883, 1885

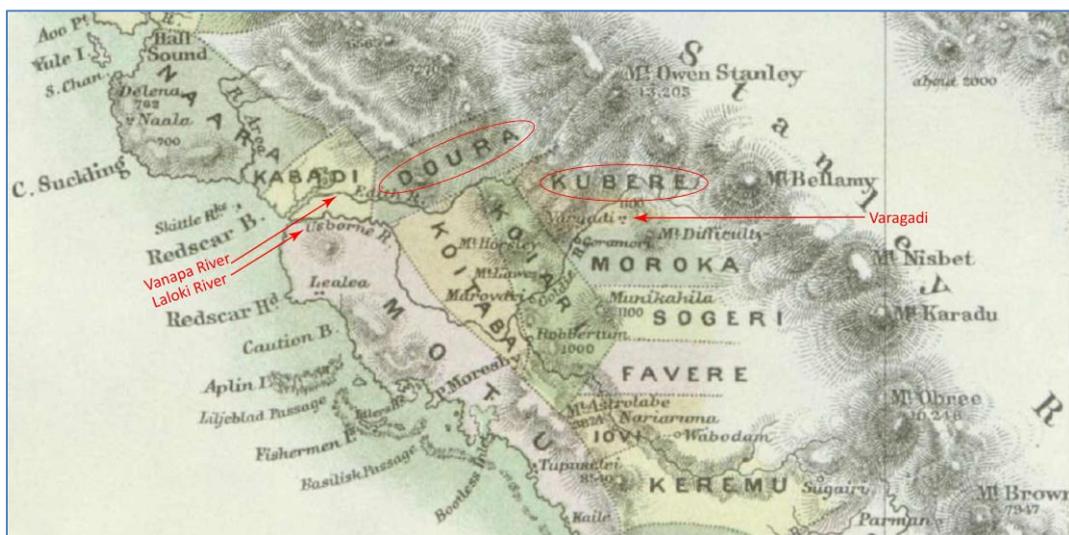
- 063 In an earlier report, we noted in passing George Morrison’s 1883 failed attempt to cross Papua to the Huon Gulf (Burton and digim’Rina 2011: Timeline) but we are now able to see that as an incident it was the tip of the iceberg and one of many events of major significance to the formation of the modern pattern of settlement. Morrison (‘Chinese

Morrison')¹¹ blundered into trouble along the Goldie River and, apart from brief dispatches (*The Argus* 9 November 1883; *The Argus* 17 December 1883), did not write an account of what happened.

- 064 Rev. James Chalmers was led to investigate the circumstances, because he could not understand how people he had previously experienced as friendly had reacted badly to Morrison:

We have always looked upon the inland tribes as good friends, quiet, and not given to stealing, and how to account for this present outrage we could not imagine (Chalmers 1887a: 111).

- 065 He set out to retrace Morrison's steps in 1885, successfully locating Morrison's camps and identifying the people who attacked him as the Varagadi.¹² The attack was triggered when Morrison, angered by petty thefts, shot and wounded the son of a man called Gomara Daure, called by Chalmers the 'Varagadi chief' (1887a: 113). Gomara Daure put tambu signs across the path forward and when Morrison ignored them he was speared and his party was forced to turn back, abandoning the expedition stores to the attackers.



Map 4. Chalmers' summary map of the Port Moresby hinterland.

Notes: 'Edith River' later identified as the Vanapa River (confused with Brown River at this point); 'Doura' = in foothills of the Lower Vanapa; 'Vargadi' – see text; 'Kubere' – see text; 'Moroka' – see text. Source: Chalmers (1887b).

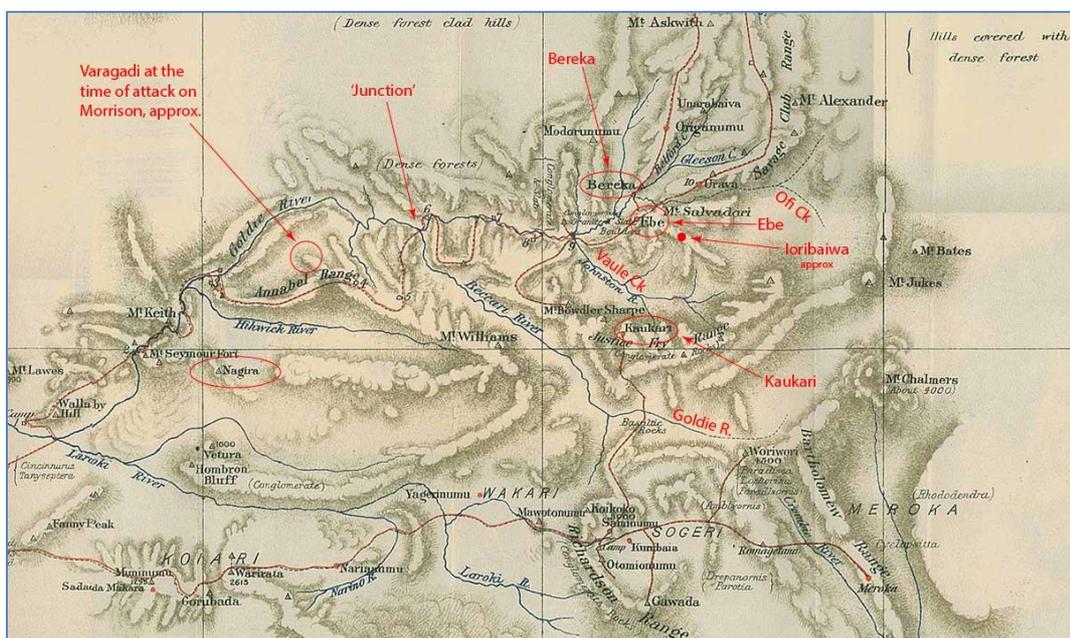
- 066 Morrison's final camp was at a location called 'The Junction'. Morrison's only information was that he 'reached the source of the right-hand branch of the Goldie River' (*The Argus* 9 November 1883). Clues to where this was are given by geographical features passed by Chalmers as he re-traced Morrison's route. A place in the Lower Goldie was 'Mt Elsie' which

¹¹ http://en.wikipedia.org/wiki/George_Ernest_Morrison

¹² Various 'Varagadi' and 'Varigadi' in older documents. 'Varagadi' appears to be currently preferred.

Chalmers refers to as close to the location of Maruvari (or Marovari) and another village called ‘Nagila’ whose headman, Poroko, he interviewed (1887a: 113, 116).

- 067 Both the missionaries and the Administration were working on maps of the hinterland of Port Moresby at this time, and these evolved as time went by. Mt Elsie appears on an early map of Rev. W. Lawes (Map 3) and ‘Nagira’ is present as a small ridge oriented SE-NW in the map accompanying the 1888-89 *Annual Report* (Map 5). Lawes, whose son accompanied Chalmers on this trip, says ‘the Nagila ... live about half-way to Varigadi’ (Lawes 1884: 218), i.e. presumably half-way from the Laloki River to Varigadi (as may be seen on Map 3). On the current 1:100,000 series topographic map a SE-NW ridge labelled Mt Keith appears in this location.¹³



Map 5. Location of ‘Nagila’ and possible location of Morrison’s last camp.

Source: Forbes 1888b. Notes: ‘Beccari River’ = main course of the Goldie. ‘Johnston River’ = Vaule Creek. ‘Belford C.’ = Humaghe Creek. ‘Mt Salvadori’ = unmarked range on topo map. These names have not been used by recent map-makers.

- 068 In a summary map in the *Proceedings of the Royal Geographic Society*, Chalmers shows Varagadi as a cluster of dots, presumably representing groups of houses, up the Goldie River and northwest of a mountain called Mt Difficulty (Map 4). This is not shown on the 1:100,000 ‘Port Moresby’ topographic sheet, but appear to be in the approximate location of the ‘Annabel Range’ on some later maps (e.g. Map 5).

¹³ Mt Keith is not a reliable cartographic label; in the *Annual Report* for 1897-98, Mt Keith is shown north of Mt Lawes on the western side of the Goldie.

- 069 The two branches of the Goldie River in Map 3 shown as ‘Kuperi R.’ and ‘Eikiri R.’ are known today as Vaule Creek (also ‘Oa-Ule’) and the main course of the Goldie.¹⁴ Lawes says:

[Morrison] took horses, and after a very difficult and trying journey, he reached the point on the Goldie river marked on the map I now send, ‘Junction.’ Here he was attacked by natives, and wounded. He was obliged to return, and reached Port Moresby on the 14th of October, his party hungry, fever-stricken, and disheartened (Lawes 1884: 217).

- 070 The drafters of Map 3 at the Royal Geographic Society omitted to label the published map with the word ‘Junction’, but since the only river junction they do show is that of the Goldie and Vaule Creek, it is reasonable to suppose the attack place was here.

- 071 Lawes says that the party led by Chalmers:

... camped about five miles from the place where Morrison was attacked. They left his track there, and took a more easterly direction to the villages of Varigadi. The villages were there sure enough, but empty and deserted. Soon after the attack on Morrison, the natives all left, and went to Eikiri, a district further to the east. They shared the plunder of Morrison's goods with the Eikirians, and so secured their favour (Lawes 1884: 218).

- 072 The approximate position of the Varagadi village(s) can be said to have been on the northern slopes of what is shown in Map 5 as the ‘Annabel Range’. Lawes says that after the attack the Varagadi relocated to Eikiri taking Morrison’s expedition supplies and trade goods with them. Eikiri (or Ekiri) is shown on the later Map 11 as being close to Sogeri; Chalmers collected vocabulary there and Ray says this is Koiari language (Ray 1907: 351).

- 073 Chalmers mentions other groups in this area. He says Morrison was attacked ‘between Varagadi and Gubele, where he pitched his camp’ (1887a: 115). This suggests that Gubele was a location at or near ‘The Junction’. He goes on to say that when the Varagadi had deserted their villages and gone to Eikiri, ‘the Gubele natives had also shifted, [my informant] knew not where’ (1887a: 116). On Map 4, Chalmers labels a tribal area in this vicinity ‘Kubere’. The name has not been seen in subsequent reports.

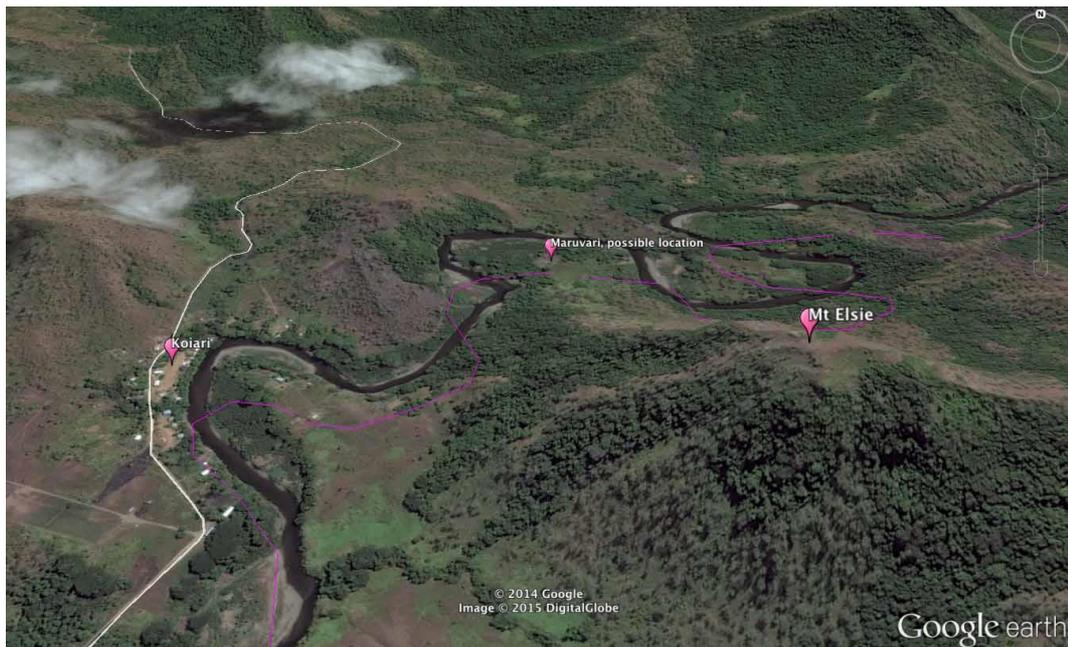
- 074 For his part, Sidney Ray found that ‘Kupele’ was not a linguistically distinct group and that this and Ebe, in Chalmers’ lists, were essentially what he called Koiari language.

During my stay at Port Moresby in 1898 I collected some words from Lowere, an Uberi native, and also the same words from an Ebe man named Imiri. These show 22 words identical in a total of 32. Chalmers called the language Kupele, and gives the pronouns and numerals. These are evidently Koiari (Ray 1907: 350).

- 075 Later Ray said the ‘Kupele of Chalmers’ was Uberi language and that Ebe was localised to the ‘Astrolabe Mountains, north of Uberi’ (Ray 1929: 71).

¹⁴ Morrison could not have ‘reached the source of right-hand branch of the Goldie River’ (what is now considered the Goldie itself) because this is many kilometres further inland.

- 076 Chalmers also refers to Maruvari. He says his party ascended ‘a spur of Mount Elsie and round to its west side to descend to Maruvari, where we came upon Morrison’s camp’ (1887a: 112). This was evidently the camp before Morrison’s ‘last camp’ near or at Gubele. Based on this information, Maruvari was located in a band of the Lower Goldie immediately to the northwest of a prominent hill that may be plausibly identified as Mt Elsie (Map 6).
- 077 There is ample evidence that groups in the Lower Goldie/Laloki River area had reason to fear the inland groups like the Varagadi:
- Early a party appeared at camp with presents of food, and amongst them an old Maruvari chief, whose people had been decimated by the Varagadians and whose villages (three) had been burned (Chalmers 1887a: 115).*
- 078 No later reports have come to light that mention the Maruvari, but it is possible that the settlement shown on the 1:100,000 topographic map as ‘Koiari’ has this group of people as its nucleus. It is in Ward 14 Laloki in Hiri Rural LLG and is 3km from Goldie Settlement, which was listed as CU420 in the 2011 National Census.



Map 6. Probable locations of Mt Elsie and Maruvari on the Lower Goldie river.

Google Earth, north at the top. Imagery date: 27 June 2014. For positions, see detailed location maps. IPZ layer as provided in purple. ‘Koiari’ as shown on 1:100,000 topographic map.

- 079 A total of 102 people were said to be resident at ‘Goldie’ during our genealogical interviews, 2010-2014. We cannot be sure of matching them with this settlement, as the name might refer to a number of different locations. Nonetheless, we may suspect that this is the rough area where these people live. A further clue is that many of school age were said to be attending Goldie Primary School which is located at Goldie Settlement. Further information is required to elucidate this.

080 Of the 102, two-thirds (67/102) originated at villages in Ward 18 – Manari (inc. Loni and Agulogo), Madilogo, or Naoro (Table 1).

081 Sir William MacGregor, who would make his own trip through Ward 18 in 1897 (para 117 *et seq.*), but who was not yet in the country, gave two slightly different versions of Morrison’s attackers:

[Morrison] proceeded only a little way up the Goldie, when he came into conflict with the natives. A large part of his outfit fell into their hands, and he returned to Port Moresby severely wounded by a spear. His assailants were the Varagadi or Ebé tribe (MacGregor 1899b: 1).

... the Ebé Confederation (MacGregor 1899b: 3).

Origin	F	M	Total
Edevu 2	2	2	4
Efogi 1	7	10	17
Haelogo	3	4	7
Manari	6	6	12
Madilogo	1	1	2
Naduri	2	5	7
Naoro 1	21	25	46
Naoro 2	4	3	7
Grand Total	46	56	102

Table 1. People of Koiari Rural LLG origin, said to be resident at ‘Goldie’ (2010-2014 data).

Forbes and Chalmers’ encounters with the Bereka and Ebe – 1886

082 After Chalmers’ brief trip in 1883, Henry Forbes, a botanist who had set up camp at Sogeri, was commissioned to undertake the trip ‘for the purpose of ascertaining if Mount Owen Stanley could be ascended from the head of the Goldie’ (MacGregor 1899b: 2). On his first attempt in 1886, Forbes was accompanied by Chalmers. They struck north from Sogeri until they reached a village called Kaukari where they met and gave gifts to Ebe and Bereka people.

To Kaukari I was accompanied by the Sogeri chiefs, Yaroga and Biaierekin ... On our arrival we rendered ourselves ... personae gratissimae [‘most welcome persons’] to Gomaradauri, the chief, who by various stratagems at length prevailed on some of the Ebe and Bereka people to visit our camp ... we breached the subject of the ‘Great Mountain’. Immediately there was a conspiracy of silence ... Nothing would induce them to go with us (Forbes 1888b: 407).

083 The location cannot be pinpointed for certain because the names of vantage points used by Forbes and Chalmers does not match names seen on more recent maps. Nonetheless, Kaukiri lay on the range between Vaule Creek and the Goldie River to the south of Ebe and therefore in the vicinity of Uberi (Map 5). It was quite possibly on the line of the Kokoda Track currently in use.

- 084 The Gomarauri referred to in this passage is surely the same Gomara Daure earlier referred to by Chalmers (para 064) as the 'Varagadi chief'. Chalmers did not meet this man in 1885, but only spoke to a neighbour, Poroko, the 'chief of Nagila', who told him Gomara Daure would come his village at the time of the next full moon (Chalmers 1887a: 116).
- 085 With the benefit of hindsight we can now see that the first of these two groups were the Bereka, who are now represented at Madilogo. The location of the Ebe matches with the modern village of Ioribaiwa and, while we cannot be certain without further inquiries, the likelihood is that the Ioribaiwa people of today are Ebe people or their successors.

Forbes 2nd expedition – 1887

- 086 In 1887, Forbes made a new attempt to ascend Mt Victoria during the tenure of J. Douglas as Special Commissioner for British New Guinea. Forbes was accompanied by George Belford, a miner named Dennis Gleeson, and two Pacific Islanders (Forbes 1888b: 409). The party retraced the Morrison-Chalmers route up the Goldie to the 'Annabel Range', then followed the 'Beccari River' (Vaule Creek) until he again met the Ebe and Bereka people.
- 087 The Ebe village was on a mountain he called Mt Salvadori (Forbes 1888b: 410). This is an unmarked summit on modern maps south of Ofi Creek and within 2 km of Ioribaiwa. Forbes made a base camp here, leaving behind the expedition's seven horses, and putting the two Pacific Islanders, Jack and Caesar, in charge.
- 088 From Ebe, Forbes then followed the line of the contemporary Kokoda Track to a village called Urava, in the range above Naoro 1, where he picked up carriers. Then he turned north, away from the current track, over the 'incessant rise and fall of the ridges and truncated spurs' of high mountains he called the 'Savage Club Range'.¹⁵ This seems to have been the ridge of the southwest-northeast watershed between the head of Humaghe Creek, a tributary of the Goldie, and the Naoro River, with Mt Sera as the highest point in the centre. Then his party descended to the Naoro River:

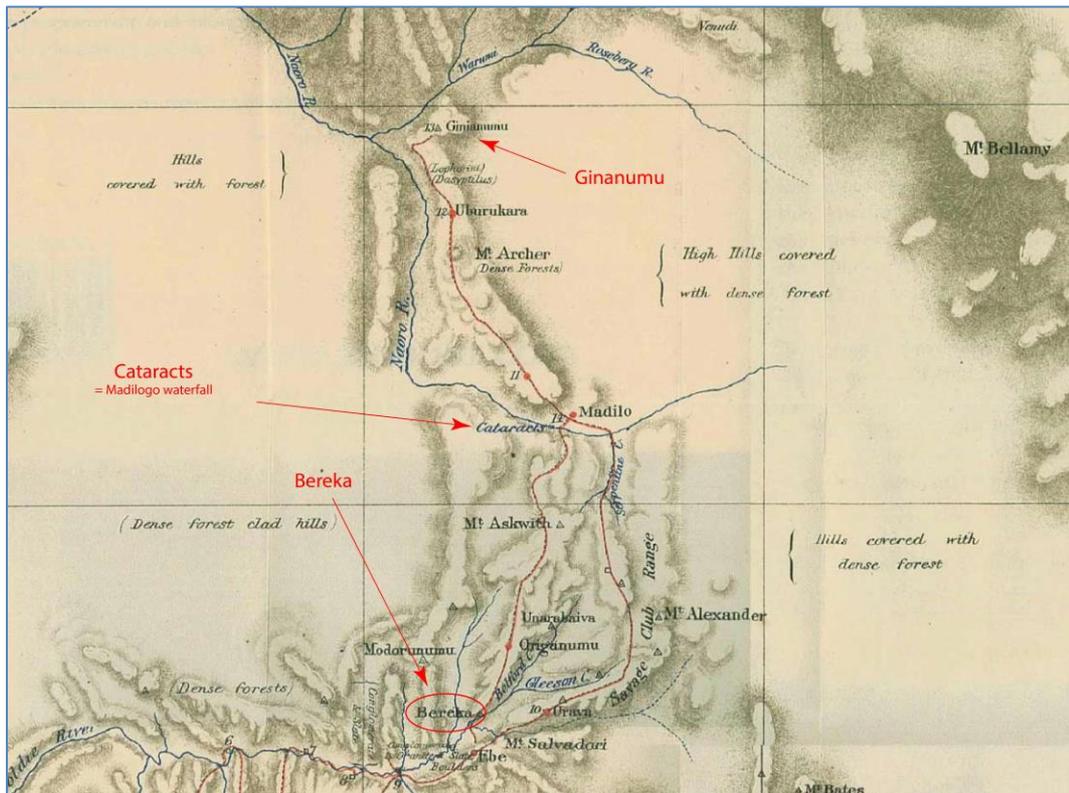
At four o'clock on emerging from the scrub [rainforest] of an alluvial plateau after a long descent, we stood by the bank of the Naoro, and were somewhat disappointed to find it a muddy river, not exceeding 40 yards in breadth, and 5½ feet in depth. Although 2000 feet above the level of the sea, it was running placidly, but swiftly, on a level sandy bed; but the sonorous boom of a cataract told us that at no great distance off it had begun its descent into lower country. Traversing a densely wooded level terrace on its northern side, we found ourselves in front of a very steep forest-clad rise (Forbes 1888b: 412).

- 089 A term of note here is 'scrub'; in Queensland English it meant full tropical rainforest, as opposed to both savanna and 'forest' (*Sclerophyll* woodland). His map shows a place called

¹⁵ Named after a men's club in London (Forbes 1888b: 411). The name does not appear on modern maps. 'Cosacks Twin Peaks' is shown on the 1:100,000 'Efogi' sheets approximately where 'Mt Alexander' is shown on Forbes' map. The Maguli Range is the most common modern usage – both seen on WWII maps and used by trek porters.

‘Madilo’ in the location of Madilogo, which he used as a camp site on the return journey (1888b: 413). He climbed up onto the ridge to its north:

Up this we ascended for hours, and, reaching no villages before sundown, we were compelled to camp on the slope for the night. Next day, continuing the ascent, we reached the summit of Mount Archer, where a large crowd of the people of Uburukara were waiting our arrival (Forbes 1888b: 412).



Map 7. Northern extent of Forbes expedition.

Source: Forbes 1888b. Notes: ‘Madilo’ = Madilogo. ‘Uburukara’ = What was MacGregor recorded as ‘Baura’ (see Map 9). These names have not been used by recent map-makers.

- 090 From the location, this would seem to be where MacGregor located the ‘Baura villages’ in 1897. ‘Mt Archer’ – not shown on later maps – would be the highest point along this ridge (Map 8; Map 9). The village of Uburukara was reached after a ‘long and very rough and broken descent’ at which point the Urava carriers had completed their agreed portage. The people of Uburukara agreed to help him go half a day’s walk further north from here:

The road was unusually rugged and broken, and traversed dense jungle, which precluded any view being obtained of the surrounding country. At ten o'clock, however, we reached the bare flat-topped hill of Ginianumu, and with boundless satisfaction, stood with only the easy descent to the Warumi between me and the long spur rising to the summit of Mount Owen Stanley, distant not more than a good day's climb (Forbes 1888b: 412).

- 091 However, the Uburukara carriers would not go further and people at Mt Ginianumu helped him back to Uburukara village. The party then retraced its route, first back to a camp at ‘Madilo’, then back to Ebe.

About a mile or so from the camp the Naoro, contracted between narrow walls, dashes through its iron gates in a wild and deafening cataract, spanned by a fallen tree of gigantic proportions, across which the booted foot must tread warily ... [after setting off from Madilo] we reached Unarabaiva (a village of the Bereka people on a spur facing Urava), about four o'clock in the afternoon. Next morning ... we started for the main camp. It was while descending from this [village] to the Goldie River, on descrying my tent pitched in the distant village of Ebe, on Mount Salvadori, that I first realised the disaster to my camp (Forbes 1888b: 413).

- 092 He says ‘descending ... to the Goldie River’, but he means he descended to its tributary Ofi Creek as this lay between Bereka (Unarabaiva) and Ebe (Map 7). The Pacific Islanders left behind at the camp at Ebe had been attacked and forced to flee to Port Moresby, leaving one attacker dead. The camp was ransacked; Forbes and his companions recovered the horses and returned to the coast (Forbes 1888a: 144).

- 093 His focus being on ascending the Owen Stanley Range, Forbes’ map-making was an improvement on what preceded it, and it properly located the positions of the principal Bereka and Ebe villages. However, Forbes’ description of the final stages of the journey through Ward 18 between Madilogo and the last point reached, Mt Ginianumu, lacks precision. This leads to a discrepancy in place-naming between him and MacGregor (para 117 *et seq.*). MacGregor’s patrol in 1897 had a focus on the identity and settlements of the people encountered, because a primary objective was to make it safe for travellers to pass through the district, and his account should be considered the more trustworthy.

Attack on Laloki villages by the Ebe and Varagadi – 1893

- 094 In September 1893, the Ebe and Varagadi came out of the mountains and attacked Kava village on the Laloki:

At the end of September [1893] the small village of Kava, inhabited by Koiarians and Koitapuans, was attacked while most of the men were away feasting, by the Ebei and Varigadi tribes. Twelve persons were killed and three wounded. Your Honour will remember that it was these same Varigadi and Ebei people who attacked Morrison's party in 1883. Since then they have periodically been on the warpath, exterminating several small Koiari villages with impunity (Lawes 1894: 56).

- 095 The location is unclear but in a later *Annual Report* MacGregor mentioned another village, Koro-Muhuni, and located it near the Laloki-Goldie Junction:

In 1891 Varagadi killed two natives of Koro-Muhuni, near the junction of the Goldie and Laloki. In 1893 they made a great raid on villages near the same place, and massacred thirteen natives (MacGregor 1999b: 2).

- 096 The police patrol sent to arrest the culprits of the 1893 attack made its way to the Laloki from the back of what is now Gerehu, suggesting that Kava was somewhat to the west of the junction:

I left Port Moresby, according to instructions received from Your Honour, in company with Messrs. Armit and English, the constabulary, and carriers, on the [14 September 1893], to endeavour to arrest certain natives, unknown, of the Ebei tribe, who had, about September last, come down from the hills, surprised and killed, as alleged, fourteen of the inhabitants of Kava ... On the 14th instant we left [Port Moresby] about 8 a.m., arriving at Jimmy Malay's, at which place we got the carriers together and made a start to Vetoroko, a small village on the top of the range, lying about 2 miles north from Tatana (Moreton 1894: 87).

- 097 From Vetoroko, Moreton's report shows that he and his police skirted the Waigani swamp, rounded Mt Lawes on its western side and tracked the suspected attackers northwards to a village called Varamati, on a sharp ridge in the rough country south of Edevu, and another called Kenea about 6km away. Both places were deserted but the police captured two men somewhere between the Brown and Vanapa Rivers.¹⁶

- 098 Although the interpreters found it difficult to question them, it was discovered that they knew Jimmy Malay had been sent after them:

... they had been given notice by the natives of Meroka of Jimmy Malay's being sent out after them, from which time they had not resided in their villages, but had been roaming about continually on the alert (Moreton 1894: 88)

- 099 Meroka (sometimes 'Moroka', 'Maroka') appears on maps from the 1880s (e.g. Map 4) to the middle 1940s as one of a group of villages east of Sogeri (e.g. Map 11). Meroka was sometimes referred to as 'a district', and was distinguished from the Koiari at Sogeri on dialectal grounds:

The Meroka tribe occupy the hills extending to the foot of Mount Obree, and are the most Eastern of the tribes speaking languages allied to the Koiari. A Meroka vocabulary by the Rev. J. Chalmers was published in the British New Guinea vocabularies (Ray 1907: 352).

- 100 The remark adds to the picture that the Varagadi/Ebe were 'on the run' over a wide area in the 1880s and 1890s, and that they were sufficiently in contact with villages that had made peace with the government to be able obtain information about who was after them and where they might take refuge.

- 101 All the areas where Meroka villages are shown on historical maps are uninhabited today.

- 102 More detail on the places near Edevu is as follows:

Running up [a westerly flowing] creek, which became very steep and rough, we came on a village of fifteen houses, of which six were tree houses, and full of spears. The name of this

¹⁶ MacGregor said later 'one of these, now a respectable and steady man, has a few weeks ago [in 1898] been returned home to act among his own people as village policeman' (1899b: 2).

village, we afterwards found, was Varamati; it was deserted, and had been so some weeks ... a deserted village of fourteen houses on the highest point of the same ridge, and about ¼-mile distant ... Another Village was seen some four miles off on a cliff bearing 82 degrees ...

Next morning, without striking camp, we proceeded to the village, and of all places for human beings to settle down at it was about the roughest. The houses here were in a line along a hog-backed ridge, and although Mr English and the natives were able to wriggle round, Mr. Armit and myself had to cut our way through the houses. This village, named Kenea, we found had been deserted a good while, but there were some good gardens on gentler slopes, and we got a few yams to help out our rations ...

Both Mr. Armit and Mr. English agree that there could not have been many more than about fifty natives all told, (Moreton 1894: 87-88).

- 103 These places, somewhere in the rough country near Edevu in Ward 19, cannot be identified at present but they are about 45 km from Meroka, named earlier in the report, with another 15-20 km from the deserted villages of Varamati and Kenea to the Vanapa River – in other words this small group was ranging over long distances at this period.
- 104 People identifying as Varagadi are found in Ward 19 at Edevu – 48 are recorded in the Community Express database – and an area land between Edevu and the Brown River is labelled ‘Varagadi’ on Eddie TORENA’S map (Map 30). There are also Varagadi land claims at other nearby places, such as the Laloki and Brown River bridges on the Hiritano Highway (DoW 2011: 20).¹⁷

THE LATER PERIOD OF INLAND CONTACT – FROM UBERI TO HAGARI

Uberi attacks ‘under the name of Ebé’ – 1897

- 105 In 1897 MacGregor linked the people of Uberi with the Ebe he had previously discussed as ‘Varagadi or Ebe’:

In January [1897] three natives of Uberi were convicted of the murder of certain members of the tribe of Awaiatenumu.¹⁸ The Uberi represented the strongest section of the natives of the district who, under the name of Ebe, had become notorious from the attacks made on the travellers, Mr. Morrison and Dr. H.O. Forbes (MacGregor 1898a: x).

- 106 This may not be a correct association; nonetheless contemporary maps show Uberi in the Upper Goldie not far from the position of the Ebe (Map 11).

¹⁷ The identification of land ownership by ‘clam groups’ [sic] in the Department of Works report is untrustworthy. At Brown River the DoW/Asian Development Bank say that ‘the tribal grouping is identified as the Koiarai [sic] and the clan as the Goilala’. At Laloki River, the site is said to be ‘settled by the Varagadi which consists of 2 clans, one from the upland and the other from the lowland’ (DoW 2011: 20). This may refer to people of the river plains and people of the Goldie foothills – more information is needed.

¹⁸ Not located. MacGregor later says Kone village (1899b: 6; see para 133).

- 107 In 1898, the Resident Magistrate for the Central Division, J.A. Blayney, was linking the Uberi people, not with the Ebe, but with the Hagari:

The Uberi tribes have simply caused a regular reign of terror in the Astrolabe. The natives are building and seeking protection every night in their tree houses. The Uberi and Hagari tribes are no doubt touch in with one another (Blayney 1898: 52).

- 108 In fact, contact between the two groups was likely to have been tenuous at best. The interpreter Imiri, who was probably from Uberi, was only partially able to converse with people in the Naoro catchment (para 161).

- 109 MacGregor finally realised that the small groups that made up the inland tribes had their own interests and were in an alliance with one another when he managed to interview a woman at Wamai on the Naoro River:

On interrogating this woman after our return to the village, I was soon convinced that the Wamai were not only not implicated in the attack on Uberi and on Waiakinumi on the Goldie, but were not even on friendly terms with Baura (MacGregor 1899b: 4).

Rochfort and the bird collectors – 1897

- 110 In 1896, F.A. Rochfort, J. Anthony, a collector working for the English zoologist Walter Rothschild,¹⁹ and Willie and Jack, two South Sea Islanders engaged to hunt for bird skins, camped at Ekiri on the grassland of the Sogeri Plateau for some days then started off along the modern route of the Kokoda Track towards the Naoro area, accompanied by carriers from Uberi:

... shortly after starting we crossed the main branch of the Goldie again. The banks are not near so steep as they were lower down, but from here to Wamai ... a distance of about thirty-seven miles north-east, the country is very mountainous, and all scrub, with here and there a small patch of rough grass on some of the spurs (Rochfort 1899a: 9).

- 111 'Wamai' was here used as a village name; today it is known as the clan name Vamai with land in the Agulogo and Manari area (para 225 *et seq.*). Leaving Sogeri, this party had indeed left the grasslands and entered the rainforest.

From Wamai we went to Baura on the 19th, following down the valley of the River Brown, which runs here nearly due west, and crossing it to the north side by means of a native bridge about eight miles below Wamai. Baura village, where we camped, is situated on the top of a steep hill, about 1,300 feet above the Brown, and distant about two miles from it. This tribe seems to have a quantity of villages, as two or three were visible from where we were. The soil of the hill is magnificent and purely volcanic. Nearly the whole of it is utilised for gardens, and in them you will find maize, cucumber, and spinach growing very freely together with the usual native vegetables (Rochfort 1899a: 10).

¹⁹ http://en.wikipedia.org/wiki/Walter_Rothschild,_2nd_Baron_Rothschild

- 112 'Baura' is the clan name Bohura (para 196 *et seq.*). Since the description is of 'following down the valley of the River Brown' and crossing a bridge eight miles below Wamai, it may be inferred that this was the Naoro River (Map 8).
- 113 The topography is very rugged in this area and several prominent peaks rise sharply from the gorges of the two rivers. The density of population, and the productivity of the gardens, is noteworthy – at the present day there are no settlements in this area. Anthony climbed one of the summits:

When Anthony ascended the hill to the north of the Baura village accompanied by a few natives, they went down the opposite side for some distance, and in descending the noise of a heavy body of water grew every moment louder. The natives stated this was another river the same size as the Brown, and flowed at the foot of the hill on which they were (Rochfort 1899a: 11).

- 114 The river here called the 'Brown' was the Naoro. On the other side of Baura, the 'heavy body of water' was probably Vabuavi Creek.
- 115 The party camped at Baura, but the inhabitants were unfriendly and on the fifth night Willie was speared in the side while cooking some vegetables. They abandoned their tents and supplies and escaped to the vicinity of Ofi Creek after about two weeks. Rochfort fails to mention Willie's fate, and MacGregor says he was incorrect to call his final campsite 'Baura' when the place name was Ginianumu:

It will be seen that Mr. Rochfort and the collector's party reached Ginianumu, but had to retreat from that place with one of their party fatally wounded, abandoning their camp and stores to the Baura people. It should be noted that Mr. Rochfort in his report calls Ginianumu by the name of Baura. It belongs to a division of the Baura tribe, but was not their chief village (MacGregor 1899b: 2).

- 116 Ginianumu is well known as the name of a mountain in this area – it was pointed out by villagers at Milei in 2010 – but, as will be seen below, MacGregor himself misidentifies it and today there seem to be divided opinions about which exact peak carries this name. At some point further information needs to be collected to clear this up.

MacGregor's patrol to find a track over the Owen Stanley Range – 1897

- 117 In 1897, MacGregor determined to patrol into the Mountain Koiari area himself. Two sets of events prompted this. The first were the attacks on both travellers and tribes already pacified by the government by the inland groups he was now (para 028) calling the 'Ebé Confederation':

A visit of inspection was begun on the 2nd August, which extended from Port Moresby as far as the head of the Woweia Valley²⁰ in the Owen Stanley Range. The object in view was to

²⁰ 'Woweia' refers to the northeastern tributary of the Brown above the Brown-Naoro Junction. It is called Hoveia Creek.

impress on certain inland aggressive and powerful tribes the superior force of the Government (MacGregor 1899a: 1).

- 118 He had earlier included the Uberi in this group (para 105 *et seq.*), but now explained that police raids led by Resident Magistrate D. Ballantine, posted to Sogeri, had put a stop to tribal fighting here.

About eight at night the chief of Uberi ... came to report. His tribe are now quiet and peaceful, but up to a year or two ago they used to sometimes join the rest of the Ebé confederation to attack others, and at other times they had hostile misunderstandings with some others of the Ebé people (MacGregor 1899b: 3).

- 119 The second set of events were arguably more important to the economy of Papua and the logistics of governing it. These were the spearing deaths on the Mambare River of George Clark, a gold prospector, in 1895 (MacGregor 1897b), and of John Green, Government Agent with four police, in 1897, in what is now Northern Province (MacGregor 1998b; see also Waiko 1993: 37-40).

- 120 The deaths, and continuing unrest on the Mambare, made it clear to MacGregor that a fast overland route to the gold prospecting areas was needed. The existing means of communication between Port Moresby and the Mambare was by sea, via Samarai, which took many weeks. When Green was killed at Tamata Station on 14 January 1897, MacGregor did not hear about it until 8 March when he was at Boigu Island near the Dutch border (MacGregor 1998a) and it was mid-April before an investigation could be made. An overland route could cut travel time to days or weeks.

The necessity ... of ascertaining whether a road could be got over the Owen Stanley Range at the depression familiarly known as the 'Gap' now made such an inspection urgent. We travelled by way of Taburi, Sogeri, Uberi, Wamai, and Baura (MacGregor 1899b: 1).

- 121 MacGregor's account of his patrol (1899b) is very full and is accompanied by additional reports by others. We see many more names which are still in use. Shortly after leaving Uberi, and accompanied by Ballantine, his patrol crossed 'Wauri' Creek, which can be understood as Vaule Creek ('Oa-Ule' of some maps) and where he measured the latitude as 9°19'52" S. This would appear to be quite accurate and indeed locates the position on Vaule Creek. He then crossed Ofi Creek and descended to 'the village of Wamai, on the eastern branch of the Brown River, there called Naoro' (1899b: 4). He recorded the latitude as 9°14'22" S, or very close to the modern crossing on the Naoro River near Agulogo.

The Uberi people that accompanied us were able to speak with the Wamai men, and the pledges of peace offered to them by the chiefs of [places at Sogeri] were promptly accepted. About six o'clock in the evening the constabulary arrived at Wamai. They had gone up the Naoro some miles, then crossed to the west side of it, where they found several villages and lost their way. It was ascertained that one of our carriers was related to the Eaha tribe, the sept that occupies the part of country that borders with Wamai on the left bank of the Naoro. He was sent with two or three men to visit Eaha, to take the chief some presents, and to offer the tribe peace (MacGregor 1899b: 4).

- 122 The 'Eaha' were in fact one of the two groups that today make up the Naoro community, Elei (Naoro 1) and Eava (Naoro 2). MacGregor describes them as a 'sept', a word commonly used in Scotland for a division of a family (MacGregor being Scottish in origin). He means no more than 'local group'.

We marched for about half a dozen miles along the left bank of the Naoro, downstream. The path lay over flat alluvial land covered by large trees. The plateau is probably nowhere a mile broad, but contains some fine land. There is no occupation on it until the lower end is reached. This lies opposite Ginianumu, to which people apparently the now neglected gardens had belonged. Here we crossed the river by a good ford ... In the afternoon we ascended the hill of Ginianumu, passing some old village sites and former garden ground on the way. The ascent of the last part of the hill to the site of Ginianumu is very steep; but, the abrupt ground notwithstanding, there are good and fertile gardens there. The explanation of this lies in the extraordinary richness of the soil. The hill of Ginianumu seems to be the remains of a circumscribed volcanic outburst from the side of the great schist hill extending from the Naoro to beyond Baura. On the surface of this Ginianumu hill there are numerous pieces of a very light honeycombed lava, which is very friable, and to the decomposition of which the extremely fertile soil near the top of the Ginianumu hill is owing (MacGregor 1899b: 4).

- 123 In point of fact, having started out at 9am and walked six miles along the Naoro River flats, it seems very likely that the patrol had reached the 'lower end' of the flats near Madilogo by midday, hence climbing Mt Dabanumu and the adjacent Hogoinumu, the volcano at Madilogo, in the afternoon, not Mt Ginianumu, because this is the mountain that 'lies opposite' the 'flat alluvial land' the patrol was following downstream and where the ground is strewn with 'honeycombed lava'.

This is the spot that seems to have been fatal to the expeditions of Dr. Forbes and of Mr. Rochfort. It is not now occupied by natives, but has evidently been a village site for many generations. It is customary in that part of the country for the natives to plant at the places where they build their houses certain trees of the fig order. These attain a great size, and present a form that is very convenient for tree-houses and fighting platforms. Ancient or existing village sites can be identified at long distances by these trees. There are several of these on or near the top of [Mt Dabanumu]. Remains of old dustheaps and fences are also frequent at the same place (MacGregor 1899b: 4).

- 124 The presence of old village sites here accords with the findings of Prebble et al. that the area has the archaeological remains of earlier settlements – indeed it is noteworthy that this location and not others are mentioned in this regard.

'MacGregor's Mistake'

- 125 Ballantine had previously visited the spot previously and found one of the tents still standing that had been left behind by Rochfort, Anthony and the South Sea Islanders, together with tins of meat, a rifle and a quantity of cartridges, so it would seem that they too had only come as far as Mt Dabanumu. To have reached the real Mt Ginianumu, a peak overlooking the main arm of the Brown River some 11 km north of Madilogo, from the vicinity of the Naoro flats would have taken at least another day's walk. MacGregor's

latitude reading here was 9°12'04" S, within a hundred metres of the latitude for Madilogo. I discuss the possible reasons for 'MacGregor's Mistake' in a later section (para 470 *et seq.*).

126 The next day MacGregor and Ballantine did press on in this direction:

A depression or hollow a few hundred feet deep separates the Ginianumu hill from the long range that extends from the Naoro to beyond Baura. This range is about 3,000 feet high. A march of about five miles took us to the furthest occupied village of Baura (MacGregor 1899b: 5).

127 They certainly could not have walked 5 miles (8 km) along any ridge unless starting from Mt Dabanumu, on the north side of which there is the kind of small valley described, followed by a south-north ridge about 7 km long.

No natives were living then in any of the houses of Baura, but some had been on watch near this first village site, and, taken by surprise, they threw away spears and shields and ran to inform their friends at work in their gardens on the west side of the Naoro ... The Baura sentinels must have heard [MacGregor's Kiwai carriers talking loudly], and so we were unable to effect a surprise (MacGregor 1899b: 5).



Map 8. Topographic features in the vicinity of Madilogo and the position of Baura as described in MacGregor's 1897 patrol report. Mt Ginianumu rear, far distance.
 Google Earth, imagery date: 8 May 2013.

128 The description given by MacGregor, then, is that the ridge of deserted Baura villages where the patrol camped for seven days was located as shown in Map 8, with (what we

now call) Mt Ginianumu appearing only in the far distance. This also makes sense in terms of the small parties sent out to reconnoitre the surrounding area.

The chiefs of Eaha, Wamai, Uberi, Moroka, Sogeri, &c., remained with us camped at Baura. There were also some of the women of Wamai in camp ... Each day detachments made up of constabulary and carriers were sent out up the course of the Wabuiava, back to Ginianumu, across to the west side of the Naoro, and as far north as the on the nearest spur of Mount Service; but the natives could not be seen anywhere (MacGregor 1899b: 5).

- 129 In this passage, ‘Wabuiava’ means the lower reaches of Vabuiavi Creek. Camped on the ridge, it was a simple enough matter to send out parties across the Naoro River and Vabuiavi Creek. Mount Service refers to the far side of the Brown River where the villages of the Hagari people were located.

The Hagari

- 130 The patrol then moved north to meet the Hagari:

This led us down the very steep Baura hill to the Naoro. When this path was first traversed by the constabulary, there was a bridge across the Naoro, but the natives had destroyed this so completely that now no trace of it was left. As the river was too deep and strong to be forded there, we had to build a new bridge for ourselves, which was successfully accomplished in about an hour. By this we crossed to the west side of the Naoro, and then traversed some steep spurs of the mountain Ufurinumu, reaching the Naoro again about a mile in a direct line below where we had crossed it before (MacGregor 1899b: 6).

- 131 MacGregor’s patrol map, in the collection of the National Library of Australia, confirms the interpretation just given: the Madilogo mountain, Mt Dabanumu, is labelled ‘Ginianumu’; the ridge along which the patrol travelled to Baura is as shown in Map 8; Vabuiavi Creek is to the east of the ridge; the Naoro River is to the west of the ridge. The question of MacGregor’s attribution of ‘Ginianumu’ is discussed again in Chapter 6.

- 132 The patrol proceeded to the Hagari area on the northern side of the Brown:

We ascended the nearest spur of Mount Service to the first gardens of the Hagari tribe, and pitched camp there at an altitude of nearly 2,000 feet above sea level. Like the septs of Ebé and Baura, the Hagari tribe is a fighting, aggressive community (MacGregor 1899b: 6).

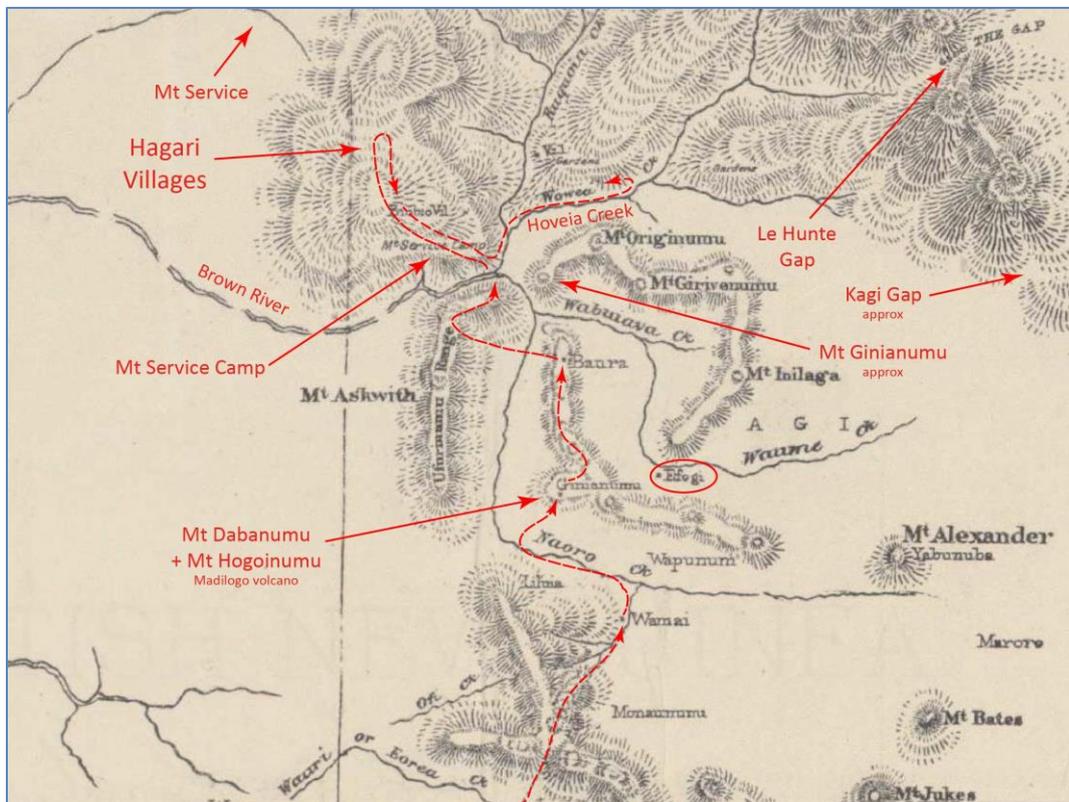
- 133 As noted above (para 122), ‘the septs of Ebé and Baura’ merely means ‘the various local groups found in the Ebé and Baura areas’. In 1896, A.W. Butterworth (para 133) had earlier patrolled with police to the area, but had not been able to place the Hagari on a map:

They came into hostile contact with the Vanapa tribes two or three years ago, and this led to a visit to Hagari by the constabulary, under the Commandant. That detachment reached Hagari from the Kone village on the Vanapa in six days, the whole party travelling light and by forced marches ... Captain Butterworth had no means of ascertaining even the approximate position of Hagari. He was conducted thither by natives from Kone and the neighbouring tribes, and the country was clothed in forest and was generally covered by mist, so that it was only when

we reached Hagari on this last inspection that we knew that it is on the foot of one of the south-east spurs of Mount Service (MacGregor 1899b: 6).

- 134 Attempts at contact were unsuccessful as the Hagari declined to meet the patrol. Nonetheless, it was evident that:

Many gardens were seen up the valleys of the Ruguoia and Woweia, and a second party was sent to try to open relations with the nearest villages on the spurs of Mount Service to the north-east from Hagari. They were only able to exchange shouts with the natives there, but the latter desired to have nothing to do with us ... Two or three times they shouted that they would kill us, and they remained quite unsoftened by the presents we left for them (MacGregor 1899b: 6).



Map 9. Route of MacGregor's 1897 patrol.

Notes: 'Baura' refers to Bohura; 'Efogi' is recorded as a village on Vabuavi Creek at a location that looks closer to Enivilogo than its present site. Source: Government Printer (1899).

- 135 Here 'Ruguoia' is the northern tributary of the Brown marked Roguoia on the 1:100,000 topographic map. In 2010 I was told this is actually called Naoro Creek – a namesake of the Naoro River; informants recognised this as correct in 2014. MacGregor's 'Woweia' is Hoveia Creek. MacGregor ascended Hoveia Creek towards the 'Gap':

... we left the Hagari camp to follow up the valley that leads to the 'gap' in the main range. It is at its western end, about ten miles in a direct line from Hagari. We descended the hill,

crossed the river, and proceeded along the left side of the branch that leads to the gap. About half our march lay through grass patches, on which grew scattered eucalyptus trees. Only one small village was passed during the day, and that was not then occupied. We camped about six miles from the gap. A large part of the country between us and it was grass-covered. It was clear that, without any great trouble, a track for mules or horses could be made from Hagari to the gap, and there is in these valleys abundant pasture ... Mr. Ballantine went on with half the natives that accompanied us, towards the gap. They passed through two villages, leaving presents at several places for the natives. These kept always at a distance, and shouted occasionally to the party, but what they said could not be made out, as the Eaha and Wamai natives did not understand their dialect. Mr. Ballantine went about half-way up to the gap – that is, to about three miles from it – whence he could see that a path to it was easily practicable, and almost certainly already existed. (MacGregor 1899b: 6).

- 136 This information shows the patrol leaving Ward 18 and following Hoveia Creek through Ward 15 past the modern locations of Milei and Boridi and into the headwaters of Hoveia Creek. It is notable, however, that the ‘Gap’ is not at all in the same location as the modern-day ‘Kagi Gap’ (Map 9). The ‘Le Hunte Gap’ – adjacent to Mt Le Hunte on Map 13 – to distinguish it from its better-known counterpart, lies 10 km to the north at about 2180m altitude. It joins the head of Hagege Creek, a northeastern tributary of Hoveia Creek, to a western branch of Eora Creek on the Kokoda side of the range. The Le Hunte Gap was above Seragina village. The Kagi Gap is 4 km due east of Kagi and is at 2020m at its highest point, according to the contours on the 1:100,000 topographic map.²¹
- 137 The Le Hunte Gap was what MacGregor was looking for in order to create an overland route to the Mambare and Yodda goldfields. Miners had already cut a bridle track, i.e. a track passable by horses and mules, from near Mt Lawes to the Lower Brown River. He now sought to have the former extended to Hagari and joined to a new track across the gap:

It was also made evident that a road could be got across the main range, through the ‘gap’, at an altitude not exceeding 7,000 feet. The great question that remained was whether the bridle-track cut by Mr. Rochfort and other miners to the Brown River could be carried on to Hagari (MacGregor 1899b: 7).

Hagari attacks on Vanapa River villages – 1896

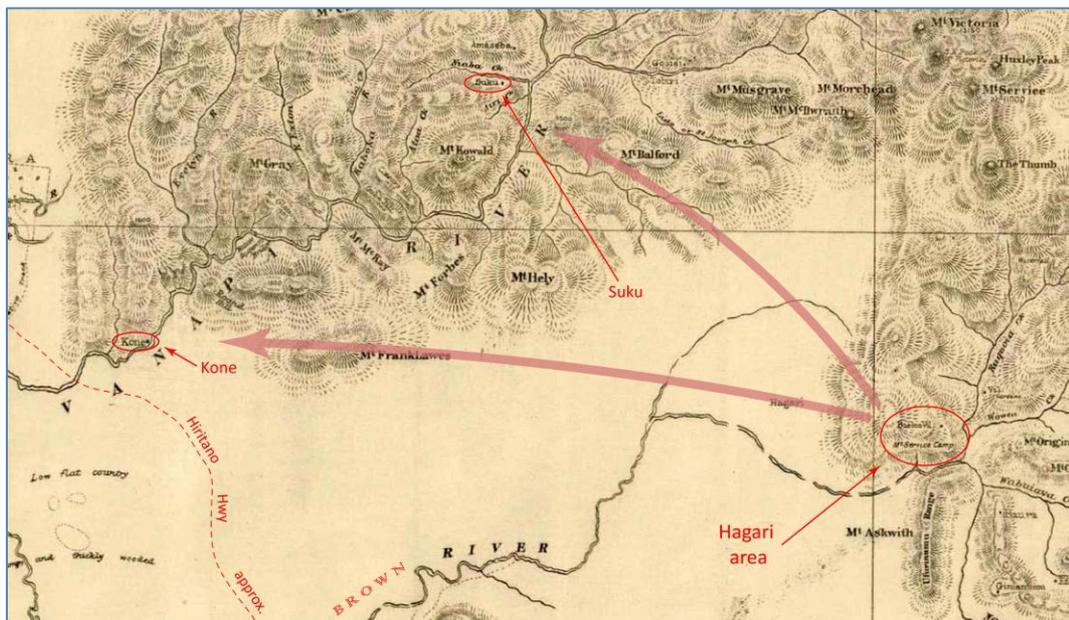
- 138 On returning to Port Moresby, MacGregor had to lead a relief patrol to evacuate prospectors Mt Scratchley area. During the patrol he learned that the Hagari, who he had just visited, were in the habit of attacking Vanapa River villages, some 40 km to the west:

²¹ Maps differ on which should be the original mountain named ‘Mt Bellamy’ as there are three peaks close together in the range at about the same height. Each is at the head of one of the three branches of Hoveia Creek, as shown on Map 13. Peak A ‘Urai’ / ‘Mt Bellamy’ is the most northerly. Peak B ‘Karaye’ / ‘Mt Le Hunte’ is 5 km to the south. Peak C is 2.75 km to the south again, is labelled as ‘Mt Bellamy’ on the topographic map and is marked as 2637m in altitude. Neither of the northern candidates is labelled on the topographic map but both are approximately 2650m in altitude. Mackay, who as chair of the Royal Commission of 1906, walked across the range from Kokoda records that the first village reached on the Koiari side of the gap was Seragina (1909: 130), consistent with the information on Map 13.

[The chief of Suku said] that Suku had also suffered much loss at the hands of the Hagari sept, who, it appeared, had been in the habit of coming all the way from the south-east spurs of Mount Service to attack Suku. It appeared that when I was camped in the Hagari gardens with Mt Ballantine about a month previously the Hagari had fled and taken camp on the Vanapa, but without making war on any tribe there (MacGregor 1899c: 20).

- 139 It also seems that Varagadi people, who had been chased away from the Laloki by Armit and English in 1893, had settled on the Vanapa, as MacGregor noted that a prospector had just obtained Varagadi carriers at Kone. In 1896, Varagadi living near here became victims of the Hagari and their allies:

During January [1897], Commandant and self with police visited the Hagari district, via Vanapa River, re massacre of some thirteen Varigadi natives by the Hagari tribes in December last. Only one murderer was captured, and the fighting chief shot (Blayney 1898: 51).



Map 10. Attacks by the Hagari on Vanapa River villages.

Source: Government Printer (1899); Kone and Suku visited by MacGregor in 1897 (MacGregor 1899c).

- 140 The Police Commandant, Butterworth, and a party of police ascended the Vanapa River in boats then marched towards the Brown River for 7 days:

On the afternoon of [14 January 1897] we were fortunate in reaching the Hagari country. At the first village the natives made a short stand, but on one of their number receiving a fatal bullet wound, the rest ran away. I stayed in this district until the morning of the [18 January 1897], by which time we had succeeded in capturing one of the murderers (Butterworth 1898: 67).

- 141 The Hagari were not properly located until MacGregor’s 1897 patrol so it is not possible to say exactly where the attackers of the Varigadi were encountered. However, it is likely that

a week on foot travelling east from the Vanapa would have brought the police to the Middle Brown River where MacGregor did find the Hagari and the latter (para 133) was satisfied that a correct identification had been made (Map 9, Map 11).

- 142 A noteworthy point is that when MacGregor looked at the feasibility of opening a road from the Laloki River via Karema, a camp on the Brown River in the vicinity of Edevu, to the Mount Service Camp, he said there was *no settlement in this area*:

The whole country is covered by forest, and so far as one could see there were no villages on the river between our [Brown River] camp and the Hagari Tribe on the spurs of Mount Service ... The district from the Laloki to the Brown is uninhabited (MacGregor 1899d: 42).

- 143 Haddon (1900: 282), visiting Port Moresby in 1898, noted the December 1896 raiding, but adds that there had been 12 other killings in raids in September and November 1896. He said ‘150 to 200 Hagari warriors’ had participated – though on what evidence it is not possible to say. Detail not seen in the various accounts in the *Annual Reports* is as follows:

Kadavi, the chief of the village of Bohula, appears to have been the instigator of these massacres; to use the expressive characterization of him by a native, ‘his inside was like fire.’ He sent three men on ahead to cut a road through the bush to Varigadi. On their return there was a big feast at Bohula [i.e. Baura], where the fighting men from six villages had collected preparatory to starting on the raid (Haddon 1900: 282).

- 144 This gives some substance to the idea of ‘confederations’ of groups forming to launch raiding parties at any vulnerable target they could find, as well as a hint of the cultural basis for participating in raiding – perhaps a rare way of organising a collective activity in a society that was otherwise fractious and riven with feuding.

- 145 In Haddon’s account, the Ebe, Bereka, and Varigadi – the perpetrators in Lawes’ and MacGregor’s accounts of violence on the Laloki up to 1893 (para 032) – themselves become the victims a handful of years later:

... the confederation, having swept all the intermediate country, was extending its operations, and even had the temerity to come within a short distance of Port Moresby. The district inhabited by the Ebe, Bereka, and Varigadi has been completely depopulated by the Wamai, Baura, Hagari, and other tribes near the Gap. The few survivors of the first mentioned peoples have thrown in their lot with the Uberi, while some of the Varigadi are still on the Vanapa river (Haddon 1900: 284).

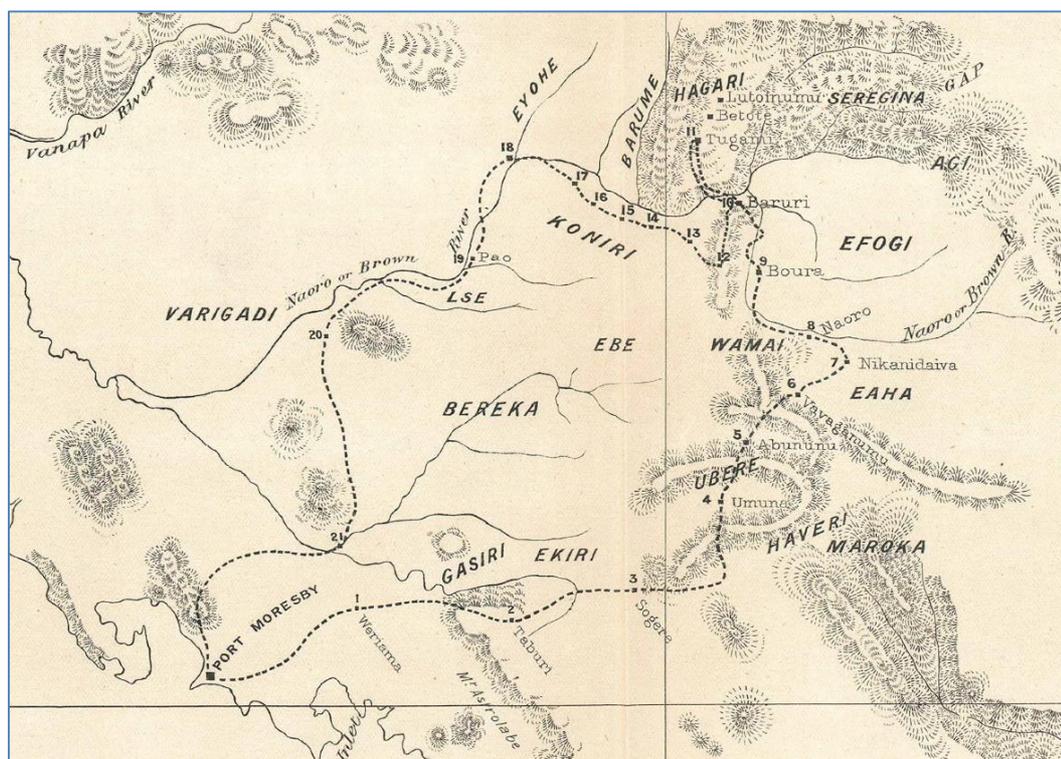
- 146 A plausible explanation is that government intervention destabilised a system of raiding based on mutual deterrence. In this scenario, the more the government succeeded in bringing under control groups on the frontier of police patrolling, the more they placed these groups at risk of attack by as yet uncontacted raiders further inland.

Government survey of 1899 and the Mount Service Camp

- 147 To make peace with the Baura and Hagari, two government patrols set out simultaneously from Port Moresby in April 1899 with the aim of meeting at the Mount Service Camp. The

first, led by D. Ballantine, accompanied by Lario Ismedina and armed police, took the alternate route from Sogeri 'for the purpose of conciliating the Hagari tribe on Mount Service' (Ballantine 1900: 77). Crossing the range, Ballantine arrived in Naoro territory:

... continuing in a northerly direction, ascended a range about 3,000 feet high, and found on the summit four rough huts and a small native garden. It is an Eaha outpost, and is called Vavaganumu. We called out for natives but received no reply, though very shortly afterwards the chief and village constable escorted by about forty men appeared. Every man carried a small netted bag, containing about ten corn cobs. They had come out to meet us ... the chief informed me that Eaha could not be reached that day (Ballantine 1900: 78).



Map 11. Route of Ballantine's 1899 patrol to Hagari via Eaha, Wamai, Baura etc.

Source: Government Printer 1899.

- 148 As noted (para 122), Eaha is the older ethnic name for the people of Naoro 2. Given that they were advised it was too far to proceed on to the main village above the Naoro River and that it took five hours to get there the next day, it may be suggested that Vavaganumu was in the vicinity of 'Dump 88' on the Kokoda Track.

We reached Nikanibavia, shortly after midday, and camped in two large houses there, expressly built by the tribe for Government parties (Camp 7): A large pig was presented to us here. From this point messages were sent to Agi [Kagi], Wamai, and Boura ... The Ubere and Maroka carriers were paid off here, and returned to their villages. (Ballantine 1900: 78).

- 149 A six hour walk the next day brought the patrol to the Wamai hamlet of Utukatana:

.. the road descended very rapidly for about 2,000 feet, thence along the bed of a small creek, thence through flat forest country on left bank of the Brown River (Naoro). One Government camping house had been erected at Utukatana, Wamai, by a man named Gorja, since appointed village constable for district (Ballantine 1900: 78).

- 150 In 2014, we inquired about the location of Utukatana; it is said to have been near the old Naoro village site (Hogologo), but closer to Agulogo, which is today a place belonging to the Havoi branch of Vamai clan. Utukatana was on the left bank of the Naoro River.

- 151 Ballantine found that some of the Eaha men had recently paid a friendly visit to the Hagari and so he sent Gorja ahead to bring in the chiefs of Baura and Baruri:

Boura and Baruri were both on good terms also with that tribe. I therefore sent on a local man to invite the chief of Hagari to come to our camp and establish friendly relations ... we set off to meet them. We still travelled through flat country with plenty of game in it ... At about 9 o'clock I was told that Torua had come to meet me, and soon afterwards we found him sitting on road with twelve men, two women and two children. A pig had also been brought along. I presented the chief with a tomahawk, and invested him with shirt, calico, and belt, and distributed tobacco amongst his followers (Ballantine 1900: 78).

- 152 The patrol detoured onto the left bank of the Naoro and came to a village called Baruri on the south bank of the Brown below the Brown-Naoro Junction. Near here there was a suspension bridge:

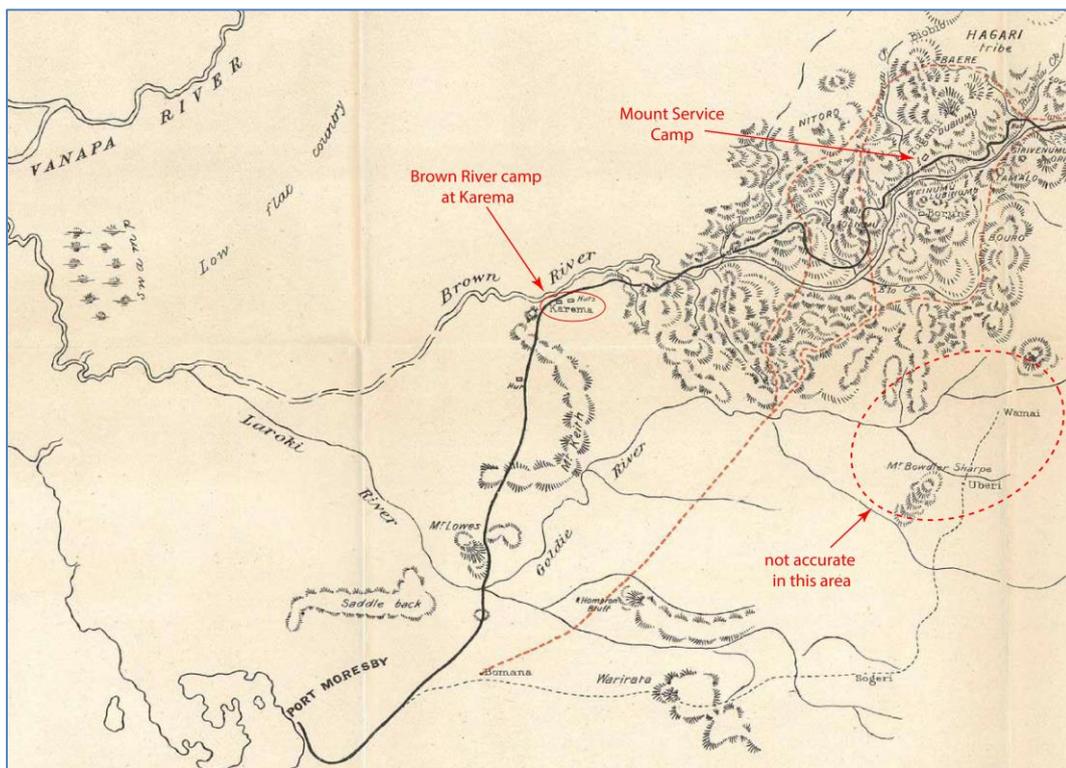
The bridge was made of rattans and vines, and was suspended from a tree on one side to a rough scaffolding erected on the other side. It was about twenty feet above the level of the water and only one person could cross it at a time. As we were a party of nearly a hundred it took three hours for all to cross. We then began the ascent of Mount Service, and soon came to the Hagari villages. We selected a camp site in the village named Tugami, which was a somewhat straggling one of thirteen houses, with stockades erected at six different points (Ballantine 1900: 79).

- 153 Further up the ridge another stockaded village called Lutoinumu which Ballantine says Torua tried to conceal from him and, while the patrol had apparently made friends with the Hagari, he and his police were too nervous to stay there for long. They heard Stuart-Russell's surveying party signaling in the distance but were unable to meet it. The patrol returned to Port Moresby by following the Brown downstream to the vicinity of what is now the Hiritano Highway turn-off to Edevu and which was then called 'first Brown River Camp' (Camp 20), thence back to Port Moresby (Map 11).

- 154 The second patrol was led by H.H. Stuart-Russell, the Government Surveyor, accompanied by police and 16 prisoners and their guards, sent to survey 'the main road to the N.E. coast'. This party made its way using pack animals from the bridle track across the open country between Mt Lawes and camp on the Lower Brown at Karema, near Edevu, then followed the Brown upstream to the Mount Service Camp (Map 12).

- 155 After this, Stuart-Russell reconnoitred a track along Hoveia Creek to the (North Bellamy) Gap, using the route that MacGregor and Ballantine followed for a short distance in 1897.

- 156 On the upper section of Stuart-Russell’s map (Map 13), Mt Bellamy, Peak A, is placed at the head of a northern branch of Hoveia Creek whereas it is due east of it on the 1:100,000 topographic map – Peak C.
- 157 Stuart-Russell’s survey map (Map 12, Map 13) shows the route taken by his party and that he surveyed. As can be seen, the ‘Yodda Road’ does not follow any part of the modern Kokoda Track until somewhere in the vicinity of Eora Creek near the modern Kokoda Station.
- 158 The ‘Yodda Road’ was in effect the first Kokoda Track. The implications of this are examined in a later section.
- 159 Ballantine’s map (Map 11) shows Seregina in a position on the northern side of Hoveia Creek, while Stuart-Russell’s upper section (Map 13) shows Monoa on the north side and ‘Seregima’ on the south side. Today Seregina is used as an alternate for the community at Boridi village, which is located on the south side of Hoveia Creek. Monoa was not a name encountered when in this area in 2010.

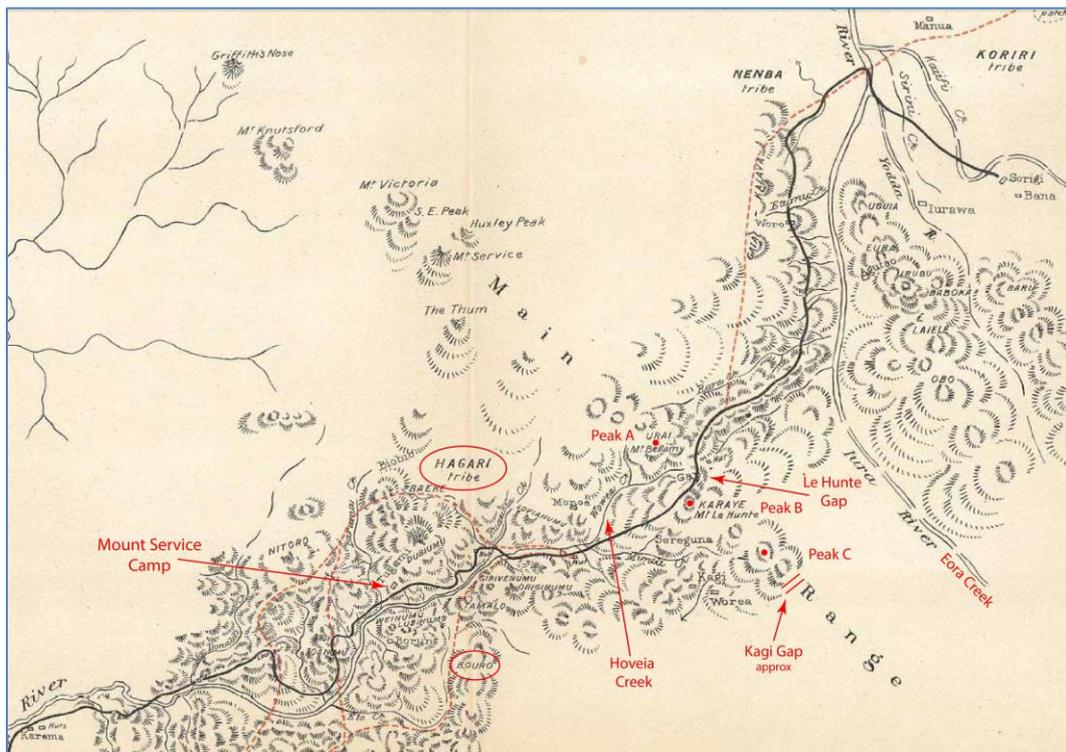


Map 12. Stuart-Russell’s ‘Yodda Road’ survey map – (i) Karema to Mount Service.

Source: Government Printer (1900). Note: the alternative, dashed route is schematic; the Naoro River is omitted.

- 160 The names of individuals also become apparent for the first time: Gorja, ‘since appointed village constable’ at Wamai; Torua, ‘chief of Tugami’ (Hagari); Geue, the ‘chief of Kagi’; the ‘chief’ Utume of Monoa; Tau-uli of Seregina; Batia of Maraba.

- 161 Imiri, supposedly of Ebe, but perhaps from Uberi, also comes up at this time. He did not accompany Stuart-Russell into the area and had to be fetched by police messengers from Uberi when Stuart-Russell needed to talk with previously uncontacted people at Kagi.
- 162 Gorias name ('Goria of Wamai') is seen in both Blayney and Ballantine's reports. Blayney gives a full list of Village Constables in the Central District, adding that Goria 'carries a rifle' (Blayney 1900: 70). This indicates that Village Constables, at least, had some means of access to cash at this early period, perhaps by dealing with the government or, conceivably, prospectors. We have not been able to trace descendants of Goria and it may be that none have survived.
- 163 On the two patrols, many more group names were used that are recognisable today: 'Seregima', or Seregina, an alternate nowadays for Boridi; Monoa; 'Marapa', or Maraba; Kagi.



Map 13. Stuart-Russell's 'Yodda Road' survey map – (ii) Mount Service to Yodda River.

Source: Government Printer (1900). Note: the area around 'Bouro' is schematic; the Naoro River is omitted. Peaks A, B, C – see text.

- 164 The Mount Service Camp was located a short distance downstream of the Brown-Naoro Junction. Above it, two south-flowing tributaries draining from the main range delimit a north-south ridge. The eastern tributary, 'Roguoia Creek' on the topographic map but called 'Naoro Creek' by informants, flow in to Hoveia Creek. The western tributary, not named by informants but shown as 'Barume Creek' on Ballantine's map (Map 11), flows into the Brown River 7 km downstream. The Hagari village of Tugami was located on this ridge in the period 1897-1899 (Map 1).

- 165 During fieldwork in September 2010, we planned to visit Manumu but were dissuaded from doing so while at Milei on the grounds that ‘only two families’ lived there and that they would come and visit us at Milei, which they did. Google Earth imagery not available at the time, but which has since been put online, shows that there were two small hamlets at Manumu containing a maximum of four iron-roofed houses in total in mid-2010.
- 166 However, on further inspection a much bigger hamlet was situated on the same ridge as Tugami and probably very close to its location (Map 14). We did not hear about this settlement during fieldwork. As can be seen from Map 14, it was surrounded by substantial gardens. Evidently this is a satellite settlement for Manumu and its inhabitants form part of Ward 15.



Map 14. Unnamed hamlet near the 1897-99 site of the Hagari village of Tugami in 2010.

Source: Google Earth, image date 12 May 2010.

- 167 In 2011 we noted (Burton and digim’Rina 2011: 19) that the SIL linguists Roger and Susan Garland, who lived at Efoji in the 1970s, distinguished the following following dialects (Garland 1979):
- Efoji (6 villages): Launumu, Efoji, Manari, Enevilogo, Madilogo and Hailogo.
 - Kagi (4 villages): Kagi, Naduri, Maraba and Daoi.
 - Manumu (3 villages): Manumu, Boridi and Sulia.
- 168 We wrote that Sulia, which we did not hear mention of during fieldwork, was probably an alternate name for Milei, also known as Dubi, a small village on Hoveia Creek in Ward 15. The name arises as a possibility for the unnamed hamlet. However, both suggestions are incorrect. Sulia is shown in the 1980 Provincial Data System map (NSO 1981) as close to a

tributary of the Vanapa River near Gosisi. At the present time we cannot put a name to the settlement shown in Map 14.

- 169 We recorded 21 individuals as resident at Manumu in 2010; 13 of them were recorded as being of Vovoli clan. Without further information we cannot tell how they relate to the contact-period people known as the Hagari.
- 170 We have not recorded any individuals as resident at the unnamed settlement, either in 2010 or more recently. However, it may be that informants reported anyone living in this area as residing at Manumu.
- 171 As noted, the ‘chief of Tugami’ was Torua. In 2010 we wrote down the name of a man in genealogies at Haelogo as Torua DOVANA [sic] of Elili clan. He was married to a woman called Hagari KAMALI from Haelogo, born in 1944 and still living at Edevu. He was said have been from Madilogo and lived there until he died. Torua had earlier wives and we have identified him with ‘Tovana TOLUA’ living at Elologo, not Madilogo, in 1958 according to the Elologo Tax-Census Sheets. This man was born in 1918 and, assuming our identification is correct,²² is a candidate to have been the son of Torua of Tugami.
- 172 We recorded Tovana TOLUA as being of Elili clan which, as discussed below (para 183), was associated with the contact era village of Baruri (Map 11). But Torua of Tugami was portrayed in the contact period as a ‘chief’ of the Hagari and today Edevu people use the clan name Sohava²³ as a synonym for Hagari (digim’Rina 2011). Tovana’s father and Torua may have been different men. If, as we suspect, they were the same man, Torua is likely to have been an Elili man living among the Sohava/Hagari – his mother may have been from there or he may have married there.

FOLLOW-UP WORK FROM FINDINGS IN THIS CHAPTER

- 173 This chapter has thrown up previously unknown events and many names of places, groups and individuals not previously available to the members of the various social mapping teams that have worked on the project since 2009. Here I have concentrated on the period from first contacts in the Port Moresby area in 1871 up to the opening up and survey of the Yodda Road in 1899.
- 174 It leaves ample scope for follow-up work in the future. I have not tried to explain every hamlet name on the 19th century maps nor have I looked past 1899, except in a cursory manner.
- 175 There is also great scope to work collaborative with the PNG National Museum / the archaeology team / community members to locate and investigate ‘lost village’ sites like Ebe, Varagadi and Bereka.

²² The consonants ‘l’ and ‘r’ are frequently interchanged in the rendition of Mountain Koiari personal names and place names. In this case it appears the given and family names were reversed, although there are also many cases of men calling their sons after their own fathers in this area, e.g. Avei MOI, Moi AVEI etc.

²³ In 2011 Elton Kaitokai acquired a three page document at Edevu ‘Name list for the Sohava Clan 2011’ containing the names of 244 people. We have identified about 50 of the list members so far.

176 The greatest omission is not to have tested the information with informants in the Naoro SubCatchment during fieldwork in 2014, because this project did not allow for adequate preparation time.

Recommendation 1. DEC should assemble a digital archive of early historical documents relating to the project area. This should include a set of the *Annual Reports* and target 19th / 20th century works like missionary memoirs, papers from journals published by the Royal Geographical Society, and books by botanical and zoological collectors. Dozens are available on the Internet Archive for free.

Recommendation 2. DEC should assemble a digital archive of historical maps covering the IPZ (and anywhere in Papua New Guinea). Archives and libraries in the USA, UK and Australia have digitising programs and new material is coming online each year for free.

Recommendation 3. Future consultations with IPZ landowners should allow for investigative sessions in Port Moresby in which the 19th century documents and maps can be explained properly and unidentified names and events discussed.

Recommendation 4. Follow-up work should involve a collaboration between the archaeology and subcatchment mapping subprojects to locate the contact-period stockaded villages and other settlements described by MacGregor, Ballantine, Stuart-Russell and others.

Recommendation 5. Future Kokoda Initiative subprojects should aim to explore the oral history and cultural significance of the contact period and subsequent changes in landscape use and the pattern of settlement.

CHAPTER 3

THE SUCCESSION OF CLANS TO THE PRESENT

Relation to tasks and deliverables (summary)

Task 1A ‘Investigate and record the oral history of communities relevant to settlement formation and community identity.’

Task 1B ‘Investigate and record the customary social and political organisation of communities within the Ward ...’

Deliverable 1 ‘The names of the legitimate resource managers or landowners and the territory they control ... A description of the social means by which they claim legitimacy and the land tenure system ...’

Deliverable 2 Map layers – see accompanying master map.

THE PROBLEM

- 177 The historical record has both thrown up the names of ‘tribes who have all been killed off’, in Ballantine’s words and, as will be seen good evidence as to their locations. The problem is that that where the same groups live now is not the same as where they lived in Ballantine or MacGregor’s time.
- 178 The issue of succession was alluded to in Chapter 1 (para 019 *et seq.*) The Naoro Subcatchment in particular has many relict areas belonging to tribes that (i) do not live here, (ii) may live here but merged with other groups, or (iii) are genuinely extinct. How do we trace the people who hold the rights to these lands?

Name	Explanation
Aiari	Identified with Kaiari of Naoro 1. Naoro 2. Requires further inquiry.
Bereka	Represented at Madilogo today, para 209 <i>et seq.</i>
Ebe	Village on the side ridge as Ioribaiwa in 1880s (Map 5); no field information.
Erei	Identified with Elei of Naoro 1.
Koniri	Honiri – at least 123 people in the Community Express database at Edevu and Binige trace Honiri descent.
Mokuri	?
Uruvi	Identified with Kurivi/Guluvi of Manari (larger group) and Naoro 1 (smaller group).
Varagadi	Varagadi – at least 37 people in the Community Express database at Edevu, Binige and Aunaba trace Varagadi descent. Possible relatives on Vanapa River.

Table 2. Tribes ‘killed off by the Hagari, Agi and other tribes about the Gap’.

Source: Ballantine (1900: 79).

- 179 I give the full quote from Ballantine’s 1900 report, with its description written from just west of the contact period village of Baruri:

We had now left Baruri and Hagari territory, and were in a 'no man's' land. The Koniri tribe had all been killed off; in fact, between Hagari district and Port Moresby the land is quite unoccupied and available for acquisition by the Crown as waste and vacant lands. It is good agricultural country, well watered, and abundantly stoked with game. The area would probably be about 200 square miles. The names of the tribes who have all been killed off by Hagari, Agi, and other tribes about the Gap are Koniri, Ebe, Uruvi, Varagadi, Bereka, Mokuri, Erei, and Aiari. There are a few survivors of some of these tribes still on the Vanapa. Some have affiliated themselves with Ubere and Eaha, but they have quite deserted their own lands (Ballantine 1900: 79).

- 180 Ballantine, who was earlier the pacifier of the Sogeri and Uberi area, is suggesting that the Hagari and Kagi²⁴ were the culprits who 'killed off' the other groups. (We can observe that he is not taking into account the effects of police actions, including those led by himself.) He lists eight groups allegedly wiped out (Table 2).
- 181 We are able to make sense of seven of the eight names. The location of Ebe is clear from maps, but not having been to Ioribaiwa we cannot say who the descendants are. We have not heard of Mokuri.

SMALL NAMES

- 182 Some of the cases we can document from genealogical and other information collected during fieldwork follow. These cases should be taken as a sample only of all those in the Naoro SubCatchment. To generate information of other cases is a matter of interrogating the Community Express database and exploring the interrelationships between people, geography and historical events.

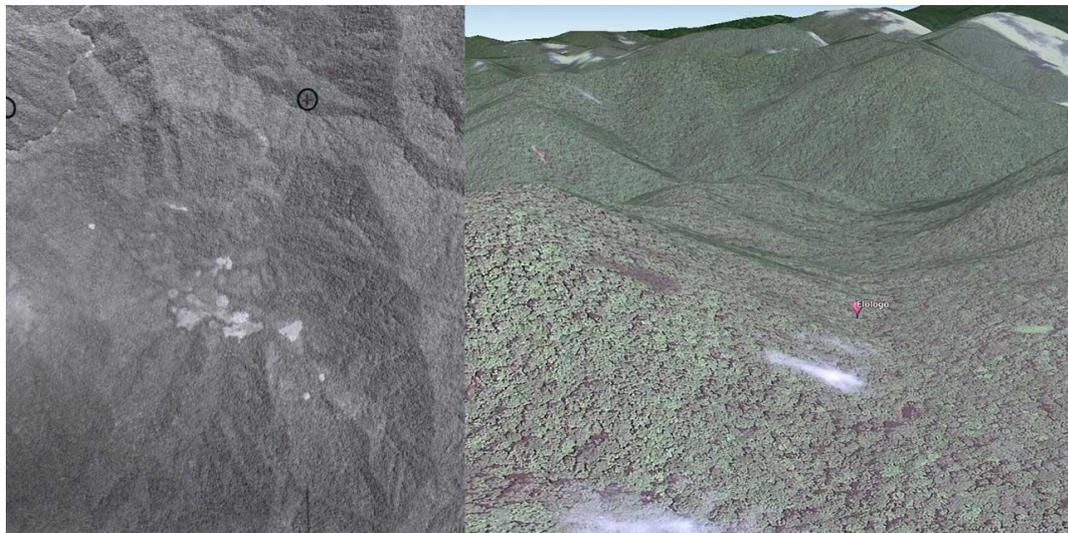
Honiri

- 183 Ballantine's report entry above (para 179) was written in reference to a location between Camps 13 and 14 on Map 11 and, as can be seen, the area he was in was labelled 'Koniri'. This is the contemporary clan name Honiri.²⁵ At Edevu 2 today, Elili and Honiri clans are referred to jointly as Baruri, originally the inhabitants of the contact era village of Baruri (Map 11; digim'Rina 2011).
- 184 Ballantine said that 'Koniri' had been 'killed off' and that if there were survivors, they might have gone to the Vanapa River but 'they have quite deserted their own lands'. This may have been so in 1900 but it is clear that they have since been able to return and most now live in the Edevu area.
- 185 We have picked up six people convincingly born prior to Ballantine's patrol in genealogies: Habono (m), b. ~1870, Tota (f), b. ~1880, Lubuge (m), b. ~1895, Searo (m), b. ~1895, Maise

²⁴ See linguistic note, p. iv.

²⁵ See linguistic note, p. iv.

- MADORI (f), b. ~1895, and Habono's son Auka HABONO (m), b. ~1895. Two more people were probably born a little later: Vagogo (f), b. ~1900, and Gadule AUKA (m), b. ~1905.
- 186 In 2011, Elton Kaitokai and Linus digim'Rina recorded some 123 people at Edevu 2 and Binige able to trace some Honiri ancestry and in 2012-14 we have recorded a further 28 at Madilogo.
- 187 To be clear, this does *not* mean there are '151 living Honiri people'. These are people who can trace some Honiri ancestry, mostly from the people just mentioned. From the table, it can be seen that perhaps only 37 people give Honiri as their primary affiliation.
- 188 Without further archival study, we cannot at present day when the village of Baruri was abandoned. Given that Ballantine was saying that 'Koniri' numbers had dropped to a level that would probably make a standalone village unviable, it may be that the inhabitants simply joined other contemporary settlements.
- 189 However, the next village that we can trace with a good level of detail is Elologo. It was a successor community to Baruri, about 6.7 km to the northeast (Map 1; Map 11), and it was a place shared by Elili and Honiri (digim'Rina 2011). The move from Baruri to Elologo took the inhabitants outside the Naoro SubCatchment and into a separate valley draining into the Brown. Its story is essential to an understanding of settlement formation in the area.



Map 15. Elologo – aerial photography in 1950s and 7 January 2011.

Notes: left, 1957 aerial image located by Mark Walker and Matthew Prebble in the National Library of Australia; right, Google Earth image with Elologo marker at lat/long position in 1990 PNG place names gazetteer.

Elologo

- 190 Elologo is recorded with its latitude and longitude in an Excel version of the PNG place names gazetteer (Papua New Guinea 1990). On Google Earth this plots to the same location

as a heavily gardened area photographed from the air in the 1950s, approximately 7 km northwest of Madilogo. Today this location is climax rainforest (Map 1; Map 15).

- 191 The 1958 Tax-Census book for Elogo lists the names of 68 people. All 68 can be found in the Community Express database, 10 of whom were still alive and living at Edevu 2 at the time of our last data collection there in 2011. The oldest was a man called Velo VENANA, b. 1939. Another was Gauve GADIA, b. 1950, of Honiri, the wife of Jonathan LOVE, b. 1948, of Elili.

Location	Clan	?	M	F	Total
Edevu/Binige	(blank)		5	9	14
	Bereka		3	3	6
	Bohura		5	2	7
	Elei		2	2	4
	Elili		31	17	48
	Elomi		0	1	1
	Honiri		7	7	14
	Kauvi		2	2	4
	Madili		3	5	8
	Niguia		4	2	6
	Samori		0	2	2
	Sohava		4	2	6
	Tobo		5	7	12
	Vabari		4	2	6
	Vahuia		1	2	3
	Vamai		3	4	7
	Varagadi		3	3	6
Total			82	72	154 (83.7%)

Location	Clan	?	M	F	Total
Elsewhere	(blank)		1	1	2
	Bereka		0	1	1
	Elili	2	4	6	12
	Honiri		4	5	9
	Sohava		0	1	1
	Vabari		1	1	2
	Vahuia		1	0	1
	Varagadi		0	2	2
Total		2	11	17	30 (16.3%)

Grand Total		2	93	89	184 (100.0%)
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Table 3. Present day descendants of the Elogo people, with primary clan affiliations.

- 192 I have been able to trace the children and grandchildren of the 68 people. The method was as follows: (i) generate descendant trees for 12 apical ancestors that cover all 68 people (ii) combine living members of the trees into a single collection. The result is that there are 184 living descendants of whom 84% live in the Edevu/Binige area. The leading clans represented, by primary affiliation, are Elili and Honiri (Table 3).

- 193 The composition of the descendant population, broken down by age and sex is as shown in Figure 2. The roughly pyramidal shape and absence of obvious gaps in any section of the population is confirmation that it is essentially a normal rural community, such as would be expected after the relocation of an intact community to a new place. (The undersized 0-4 year cohorts are an artefact of informant recall – infants are underreported in all similar surveys.)
- 194 Although we have not interviewed Elili people to ask them where their land is, we may expect to find that the area marked by Eddie TORENA as Honiri is in fact subdivided into Honiri and Elili land (Map 30).
- 195 This is the same area covered by the Edevu Timber Permit area (Map 2), for which Jonathan LOVE of Elili is the principal spokesman, so far as we understand.

Bohura

- 196 Written down as ‘Baura’, ‘Boura’ or ‘Bohula’ in early accounts, the collection of settlements that made up Bohura – as our informants wrote it for us in 2014 – were strung along the ridge north of Madilogo as shown in Map 8. The physical presence of these settlements and their gardens was impressive:

The Baura villages ... had immense food gardens. The soil of the Baura hills, though the ground is generally steep, seems to be everywhere rich (MacGregor 1899a: xii-xiii).

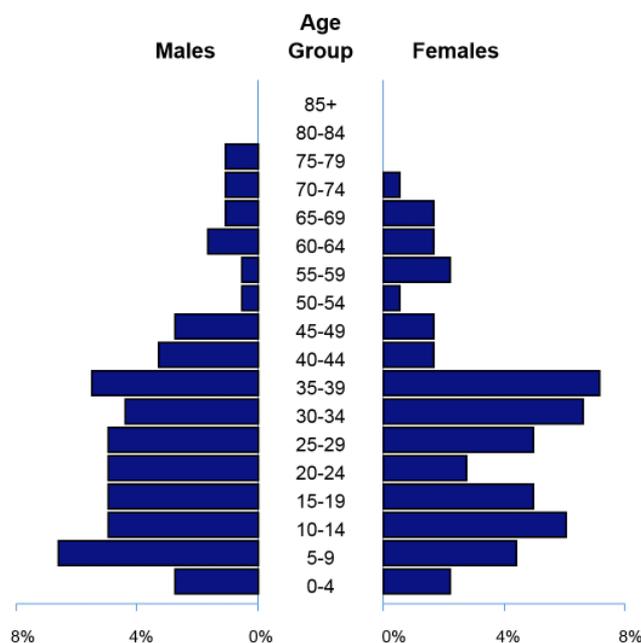


Figure 2. Age-sex structure of present day population descended from the 1958 residents of Elologo.
 Notes: The undersized 0-4 year cohorts are an artefact of informant recall – infants are underreported in all similar surveys; N= 182.

197 MacGregor camped here for a week but the inhabitants were too frightened to approach, He blamed Forbes for provoking the Baura into taking an aggressive stance towards outsiders:

[the risk of attack] was very greatly increased for future travellers by the expedition of Dr. Forbes, as it not only confirmed the hostility of the Ebé or Eburi confederation,²⁶ but animated the more powerful and more warlike Baura tribe (MacGregor 1899b: 2)

198 In fact, he had no reason to come to any conclusions about the intentions of the Baura because he knew very little about them. Two years later things had changed somewhat. Ballantine had a government camping house at Naoro ('Wamai') and was talking with the 'chiefs' of Baura and its neighbour Baruri. Wishing to contact the Hagari peacefully, he found that Baura and Baruri were 'both on good terms' with Hagari (para 151).

199 It is nonetheless true that more than a decade later, the police were still burning down houses at Baura, according to the Seventh-Day Adventist missionary Septimus Carr (1913: 2).

200 At some point in the early 20th century, this area of settlement was abandoned and the inhabitants distributed themselves among other villages. We can trace some 129 living descendants from our genealogical information in nine contemporary villages (Table 4).

201 The earliest Bohura ancestor in Bohura genealogies that we know of was a man called Garuru, b. ~1875. Many living Bohura people, such as Nelson BADI, are descended from him.

Village	M	F	Grand Total
Binige	1	2	3
Boridi	0	1	1
Edevu 2	14	10	24
Efogi 1	0	5	5
Efogi 2 (Launumu)	0	1	1
Enivilogo	1	4	5
Haelogo	39	30	69
Loni-Manari	2	0	2
Madilogo	12	7	19
Grand Total	69	60	129

Table 4. Locations of people tracing descent from Bohura.

Source: Fieldwork 2011-2014.

202 Without the benefit of what the historical records had to say about Bohura, and the locations of the Bohura settlements at contact, we were at a loss to pursue meaningful inquiries during fieldwork in 2014, a missed opportunity.

²⁶ See fn 10, p. 5.

- 203 It may be noted that the village of Baura was conclusively located on the *south* side of Vabuaivi Creek in the contact period, on the ridge that runs north from Madilogo (Map 8). The map of the northern part of the Naoro SubCatchment marked up by Eddie TORENA (spokesman for Bereka) reached us only after we had left the area (Map 29); he has positioned Bohura land on the *north* side of Vabuaivi Creek.
- 204 I cannot throw more light on this without making further inquiries.

Kauvi – ‘He settled on his mother’s land’

- 205 Kauvi, the clan upon which the village of Madilogo is built, is not in Ballantine’s list of ‘tribes who have all been killed off’ but, in a similar manner, its living representatives trace their descent from two people²⁷ living prior to contact: the unnamed mother of Dourei, b. ~1860 at Madilogo and a man called Idibobo, b. ~1890 at Haelogo. *All descendants* at both places link to their Kauvi ancestor through connections through women.

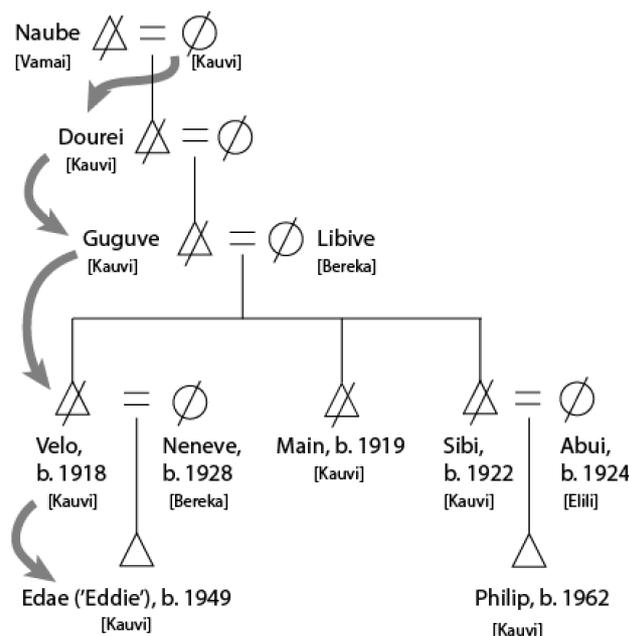


Figure 3. Genealogy of Velo and Sibi at Madilogo.

Source: Edae VELO, Madilogo, 4 Aug 2014; birth dates 1918-49 from 1958 Tax-Census sheets for Madilogo.

- 206 The senior Kauvi descendant at Madilogo is Edae ('Eddie') VELO, 65 years. A simplified genealogy of his forebears is shown in Figure 3. Naube, b. ~1855, was a Vamai man. He married an unnamed woman from Kauvi clan in the Madilogo area. Naube’s son, Dourei, b. ~1885, could have followed his father and identified as a Vamai. Instead ‘he settled on

²⁷ There may be a third Kauvi apical ancestor, a woman, but she may be from the same family as Dourei. More information is required.

his mother’s land’ so that his subsequent descendants are Kauvi people. Dourei is today considered an apical ancestor for Kauvi.

- 207 The present-day expression of this is that Edae VELO, the eldest surviving son of Velo, is the senior Kauvi man from this lineage. Velo’s middle brother Main had no issue. His youngest brother Sibi had four sons; the first died leaving daughters who married and live at Sogeri; the next two died leaving no children; the last-born is Philip SIBI, a bachelor of 52 years.
- 208 We do not know why Ballantine did not list Kauvi among the extinct tribes, but we can see how Kauvi has been resurrected. Once it was realised that Dourei’s mother was the last of her family to have surviving descendants, the extended family has followed the principles of genealogical precedence (Appendix D) such that her most senior living descendant, Edae VELO, is now the elder who must speak for her Kauvi land. He has more junior people to assist him, like Philip SIBI, a man in his 40s who lives at Edevu, two men in their 30s who live in Port Moresby, and the three sons of his late brother, Torena, who live at Madilogo.

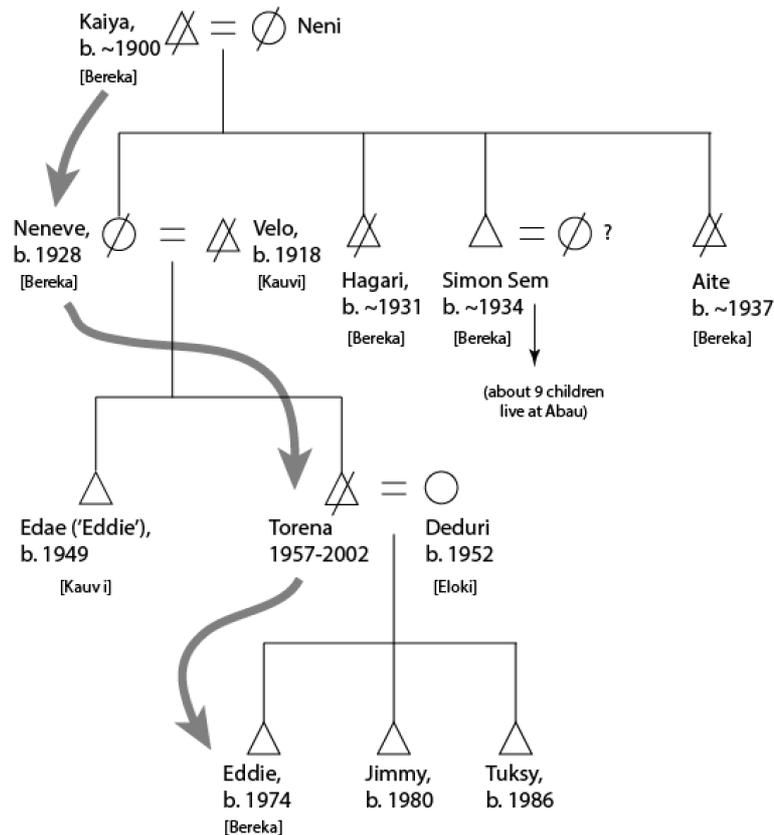


Figure 4. Genealogy from Kaiya to Eddie TORENA at Madilogo.

Source: Edae VELO, Eddie TORENA and others, Madilogo, 4 Aug 2014; birth dates 1918-52 from 1958 Tax-Census sheets for Madilogo.

Bereka

- 209 Bereka is in Ballantine’s list of ‘tribes who have all been killed off’. In this case we know where the village was in the 1880s (Map 5, Map 7), but we have no names at all for any Bereka people living at or before contact in 1897.
- 210 The only Bereka person born around the time of contact that we know was Kaiya, b. ~1900 d. 1940-50s (Figure 4). Kaiya had one daughter, Neneve (she is also shown in Figure 3), and three sons, Hagari, Simon Sem and Aite. Hagari and Aite died without bearing children. Simon Sem left Madilogo and went to live at Abau, where he has married and had a large family.
- 211 Theoretically, Simon Sem, 80 years old at the time of fieldwork, is the primary inheritor of Bereka land – and after him his Abau children – but he lives a long way away and has not visited Madilogo for many years. Whether Simon is still alive, and the names of his children and grandchildren, are not known at Madilogo.
- 212 This has placed the descendants of Kaiya in a quandary. The eldest living descendant (apart from the unknown people who live at Abau) is Edae VELO, but he is already the spokesman for Kauvi land (Figure 3). They have solved it among themselves by nominating Eddie TORENA (Figure 4) as the spokesman for Bereka, being the next most senior male descendant of Kaiya.
- 213 In reality, the large extended family at Madilogo made up of the descendants of Velo and Neneve all have rights to Kauvi *and* Bereka, but they have decided to make a division of who should represent the land this way. On the other hand, if some benefit were to arise from Kauvi land and Bereka land, *all the descendants* would be entitled to share equally.
- 214 Madilogo village is built on Kauvi land, which extends to the north, and the land on the south side of the Naoro river at Madilogo belongs to Bereka. Eddie TORENA sent marked up copies of the topographic maps to show that Bereka land takes in Sigale Creek and reaches Vaule Creek on its southern boundary (Map 1, Map 30).

The small names are ‘estate groups’

- 215 Ballantine refers to the above as ‘tribes’ and people loosely call them ‘clans’ today. The names are therefore used as demonyms, but are they really ‘groups’? The answer is no, not in the sense where people can be isolated into distinct, non-overlapping sets. They are ‘estate names’ before anything else.
- 216 Figure 5 illustrates the way people use use names to refer to themselves, as well as other sets of people, by the kinds of demonym (‘name of a people’) discussed in this chapter.
- 217 But the reality is that this is a shortcut. The correct logic of the situation is as shown in Figure 6. First the name refers to a land estate. Oral history associates named ancestors

with the estate. The living derive rights through cultural transmission²⁸ from the ancestors. When the living have followed this cultural logic, they can use the land estate name as a demonym, and say ‘we are the Kauvi’.



Figure 5. Shortcut: the names are demonyms.

As a shortcut, people refer to themselves and to other sets of people by ‘clan’ names. Example: Kauvi.

218 Any person who is able to trace their connections to ancestors, male or female, that were associated with a land estate, may claim a share of the rights to that estate. They will be able to claim rights in multiple land estates if they can trace descent from the respective ancestral owners.

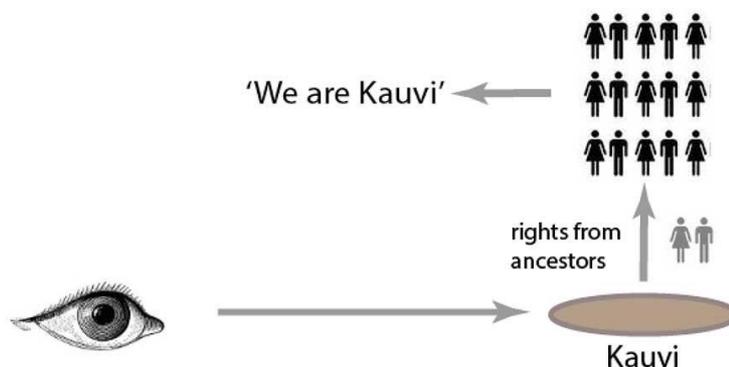


Figure 6. Expansion of the shortcut.

Example: how the land estate Kauvi comes to be used as a demonym.

219 This refocusses attention to the hierarchy of attributes that Honiri, Bohura, Kauvi, Bereka etc possess as names. Firstly, they are land estates – enduring parcels of land with stable and knowable boundaries, even if people can dispute the geographical features that mark the boundaries and their locations. Secondly, their associations with named ancestors links them to knowable genealogical structures, even if people argue about the correct versions. Lastly, the genealogical structures yield up the identities of the living individuals who can, at last, use the names as demonyms: ‘we are the Kauvi’, ‘we are the Bereka’ etc.

²⁸ We have emphasised descent (including adoption) as shown in genealogy through the life of this project, but it should be borne in mind that other forms of cultural transmission may be found in other parts of Papua New Guinea.

- 220 It is on this basis that each of the names can be called a ‘clan’, a word that is deeply entrenched in Papua New Guinea daily language, but that is unfortunately overloaded with several senses.

Effect on security of tenure

- 221 In all the cases where, in Haddon’s words, raiding parties ‘swept all the intermediate country’ (para 145) and reduced estate-holding groups to a handful of survivors, we can see that the remnants lacked the numbers, and it would have been too dangerous, to remain in their own villages. We can also see that some survivors followed the path of founding successor villages like Elologo, which were later to be abandoned, while others went to live with relatives at bigger, safer settlements, examples given by Ballantine being that some ‘affiliated themselves with Ubere and Eaha [Naoro 2]’.
- 222 We are still grappling with the details of where people went, but it certainly seems that this accounts for some of the complex mix of rights and interests found at present day villages.
- 223 What is clear is that 19th century raiding and the responses of the survivors has had a profound effect on security of tenure at the present day. As the foregoing examples show, a swathe of small groups from the Naoro SubCatchment do not live on their traditional homelands and are still struggling to decide how to manage their lands, and who should do it, more than century after raiding ceased.
- 224 The implications for reporting the names of ‘the people able to make decisions’ over the land estates that make up the IPZ are taken up again in the discussions of Chapter 6.

BIG NAMES, SUBCLANS, PLACES THAT HAVE MOVED

Wamai

- 225 In the contact period, Wamai was ‘big name’ for a place on the Naoro River that was typically the first place a patrol came to after walking over the Maguli Range from the loribaiwa area (e.g. Map 9, Map 11, Map 12).
- 226 It is easy, but a little too casual, to translate Wamai as the modern clan name Vamai. People tracing some link of ancestry to Vamai live today predominantly at Manari, but also at Enivilogo, Madilogo, Agulogo and Efogi 2, and among many other places (Table 5).
- 227 This has only an indirect relationship with whether there is Vamai clan land at these places. There are at least four basic scenarios:
- (i) The village is predominantly on Vamai land; it is a Vamai place. Example: Manari.
 - (ii) The village is on Havoi land, a branch of Vamai; it is a Havoi place. Example: Agulogo.

- (iii) The village is on the land of another clan, but Vamai land, gardens, *okari* nut groves, etc are nearby, and people of Vamai clan have a historically close relationship with the traditional owners of the village site. Example: Madilogo.
- (iv) The village is on the land of another clan and there are no Vamai lands nearby. The people identifying as Vamai live among their aunts, uncles etc, or have married villagers. Example: Naoro 2.

228 However, at the contact period we have to confront additional scenarios:

- (v) Early travellers mis-heard what they were told and attributed place names and clan names to incorrect locations. Example: MacGregor thought he had climbed Ginianumu when this was another mountain much further away (para 123).
- (vi) Early travellers heard correctly, but attributed place names and clan names to broader areas than were warranted. Example: MacGregor ‘Uberi ... under the name of Ebe’ (para 105).

229 In the first of these cases, it is often only luck that allows us to unravel the error; in this case MacGregor very distinctly describes the Madilogo volcano so we cannot be mistaken.

Village	?	Males	Females	Total
Agulogo		24	25	49
Aunaba		1	0	1
Boridi		5	2	7
Edevu 2		8	6	14
Efogi 1		9	4	13
Efogi 2 (Launumu)		27	21	48
Enivilogo		39	73	112
Haelogo		9	5	14
Loni-Manari	7	266	284	557
Madilogo		20	38	58
Manumu		9	7	16
Naduri		1	0	1
Naoro 1		2	1	3
Naoro 2		8	9	17
Totals	7	428	475	910

Table 5. People tracing some link of ancestry to Vamai or Havoi, a branch of Vamai, in Mountain Koiari villages.

Source: Fieldwork 2010-2014. Note: ‘Some link of ancestry’ = through any parent, grandparent etc of either sex (minimum numbers).

230 In the second case, a close reading of the sources can usually discount errors. Nonetheless, everyone in Papua New Guinea is familiar with colonial era place names that have come to stand for regions or groups that they did not originally designate in native usage. This gives rise to ‘big names’ which it is not always possible to make sense of.

- 231 In the present context Wamai is likely to be a ‘big name’ in this sense. Thus if we see Wamai on an early map, it *probably does not* designate Vamai the clan name, i.e. everybody encountered by patrols in the area first called Wamai was subsequently called Wamai whether they should have been or not.
- 232 On the maps we do have, the placement of Wamai is a matter of no small importance. Probably on Map 9 and certainly on Map 11 Wamai is shown on the left bank (west/south side) of the Naoro River. MacGregor specifically says that Wamai was on the left bank:
- .. the Eaha tribe, the sept that occupies the part of country that borders with Wamai on the left bank of the Naoro (MacGregor 1899b: 4)*
- 233 But at the present day, Vamai land is conclusively on the *right bank* (east/north side) and it is Niguia clan that owns land on the left bank between Ebologo and Naoro 1.
- 234 We have a choice of at least three interpretations. First, that this is a mapping error and that Wamai does mean Vamai but the label has been placed on the wrong side of the Naoro River. However, this is contradicted by MacGregor’s written description.
- 235 Second, Niguia was at the time considered a ‘subclan’ of Vamai, and therefore the map and description are not incorrect but misleading.
- 236 Third, Wamai was on the left bank at the time but subsequent tribal fighting – or other processes that can lead to land changing hands – has led to Vamai clan vacating the area.
- 237 I must immediately say that no-one has suggested that Niguia was a subclan of Vamai as Havoi, on the other side of the Naoro River, clearly is (para 238 *et seq.*). But what will Havoi look like in 100 years’ time? It is imaginable that some schism could lead to Havoi members distancing themselves from Vamai. Then, after the passage of decades, knowledge that the two were formerly linked could become lost.

Havoi

- 238 Havoi²⁹ is said to be a ‘subclan’ of Vamai. In the case of (ii) in para 227, in English people may say ‘we are Havoi’ and ‘Havoi is a subclan of Vamai’, but it is by no means clear what this means. It happens in this case that Havoi are the landowners of the valley of a tributary of the Naoro, Agu Creek, which joints the Naoro at the village (hence: ‘Agulogo’).
- 239 Is Havoi a subclan because the land of its members maps onto a geographical space that is a subspace of the Vamai land? Or, alternatively, is Havoi a subclan because its genealogy split from the main line of Vamai sometime in the past, and it just happens that Havoi land is in the Agu Valley?
- 240 We cannot answer all these questions at present.

²⁹ Also heard as ‘Habo’.

Names that have moved: Efogi, ‘Agi’.

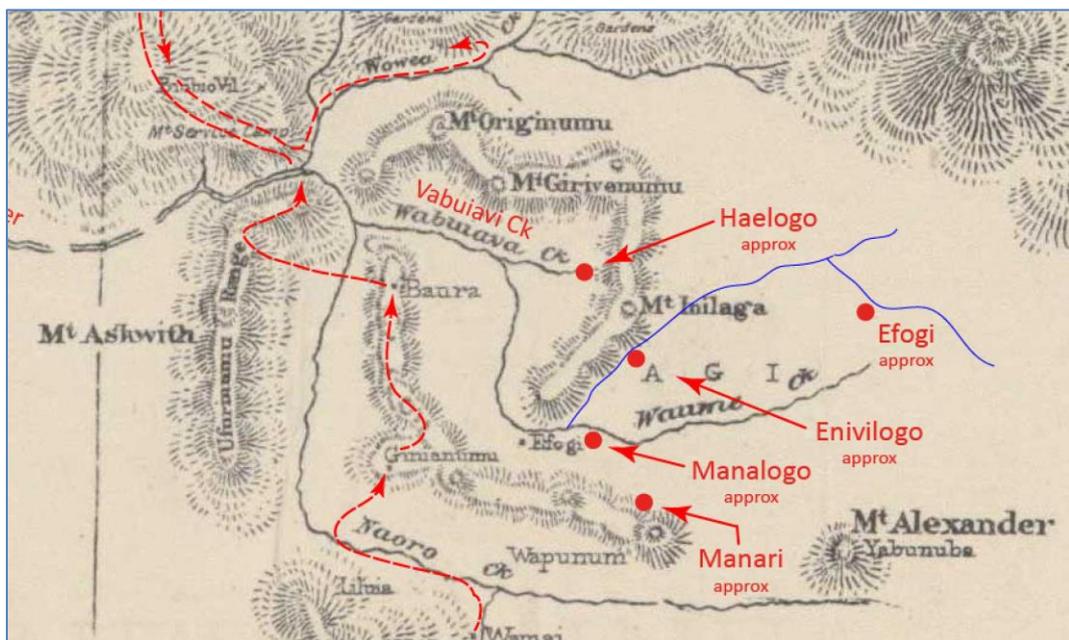
241 Continuing the additional scenarios:

(vii) Early travellers heard correctly and pinpointed names to correct locations, but the groups and villages so designated have genuinely moved to new locations.

242 On Map 9, Efogi is shown on the south side of ‘Wabuiava Ck’, reasonably interpreted as Vabuiavi Creek which flows into the Naoro about 3 km upstream of the Brown-Naoro Junction. Map 16 shows this in more detail.

The Wabuiava, which higher up in the country becomes the Whaumi (MacGregor 1899b: 5).

243 On the patrol map the creek, ‘Whaumi’ is shown as ‘Waume Ck’. It is plausibly Fagume Creek, a branch of Vabuiavi Creek shown on the topographic sheet with this name, also heard in the field as ‘Vanume Creek’. The real course of this creek hugs the base of the 1400m high ridge which divides present-day Haelogo and Enivilogo.



Map 16. Enlargement of Map 9, route of MacGregor's 1897 patrol.

Notes: red dots – surmised positions of modern villages based on their relationship to the Naoro River and Vabuavi Creek, and ‘Mt Inilaga’ being the ridge between Haelogo and Enivilogo.

244 Interpreting the long southwest-northeast ridge labelled ‘Mt Inilaga’ in Map 16 as the ridge separating Haelogo and Enivilogo, the position shown for Efogi places it very close to the Seventh-Day Adventist school that opened at Manalogo during the 1960s (Burton and digim’Rina 2011: Figure 9).

- 245 If this is even partially correct then Efogi was in a position 7-8 km distant from the present-day location where, as far as is known, the village has been sited since the 1920s when the SDA Pastor, William Lock, lived there for three years.

'Efogi is situated on a ridge about 2,500 feet above the Naoro, and consists of eight or nine houses surrounded on three sides by a large stockade' (Ballantine 1899: 17).

- 246 Although a position '2,500 feet above the Naoro' is not quite what we see in Map 16, it does not place Efogi near its modern location. Also in Map 16, we see the label 'Agi', meaning Kagi,³⁰ across an area that would locate this village close to Enivilogo, not high up in the catchment where it is now. The approximate nature of the map means that this is not conclusive evidence, but it is suggestive of the fact that people reported under particular place names in the contact period may not have been where they were found some decades later.
- 247 We see similar things at the present day: sometimes people relocate and call the new settlement by the locality name; at other times they rebuild their villages on new sites and bring their old village name with them.

Names that have not moved: Ioribaiwa, Seragina

- 248 An obvious example of re-using an old name is the case of Ioribaiwa, discussed below. The village used to exist high up on the ridge between Ofi and Vaule Creeks; then it was abandoned and the site grew back to rainforest; since 2003 it has been rebuilt on or near the old site and the name has been brought back to life. The logic here is that if there is a village in the area it must be called 'Ioribaiwa'.
- 249 An example of a name that has *not* moved, at least not far, is Seragina. It is true that the village of Boridi is sometimes loosely called 'Seragina', but this name can be seen to have had its own, possibly moving location in the upper catchment of Hoveia Creek in the 1890s (Map 11, Map 13). At any rate, the main name for the village is Boridi, which is presumably a locality name. A likely reason for it not being called 'Seragina' is that Boridi may have assembled more than one group at this place.

FOLLOW-UP WORK FROM FINDINGS IN THIS CHAPTER

- 250 We are by no means able to account for all the early names and tell their story to the present. The objective of the sketches above is to provide illustrative background to claims to land in the Naoro SubCatchment.
- 251 What emerges is that there were survivors from most of the groups that were supposedly 'killed off' by the 1890s and that they have descendants who are the inheritors of their lands. The upshot is that the configuration of people and places today is only a guide to the underlying patterns of ownership.

³⁰ See See linguistic note, p. iv.

- Recommendation 6. The reconstruction of the Elololo population should be followed up with informants at Edevu to obtain fuller details of the oral history of Baruri, Elologo, the groups that lived at both places, and the reasons for their shift to Edevu.
- Recommendation 7. Knowledgeable elders from the land-owning groups represented at Edevu should be invited to present their own versions of the boundaries of Honiri, Elili, Bohura, Sohava and other relevant groups – taking care not to provoke disputes in so doing.
- Recommendation 8. We are hampered in not knowing how inter-group raiding worked in traditional culture. There is scattered evidence in the early accounts but we do not know why raids were launched, how they were carried out and what were the motives of the raiders. Some focus on this in future work would be beneficial – both in terms of effort to piece together the historical evidence and the collection of oral history from knowledgeable informants.
- Recommendation 9. The oral history of Imiri of Ebe and/or Uberi, one of the few historical figures in the area who makes recurrent appearances in the early literature (Sidney Ray, Dr Blayney, Hubert Murray), should be investigated.

CHAPTER 4

FIELDWORK IN THE SUBCATCHMENT IN 2014

Relation to tasks and deliverables (summary)

Task 1A ‘Investigate and record the oral history of communities relevant to settlement formation and community identity.’

Task 1B ‘Investigate and record the customary social and political organisation of communities within the Ward ...’

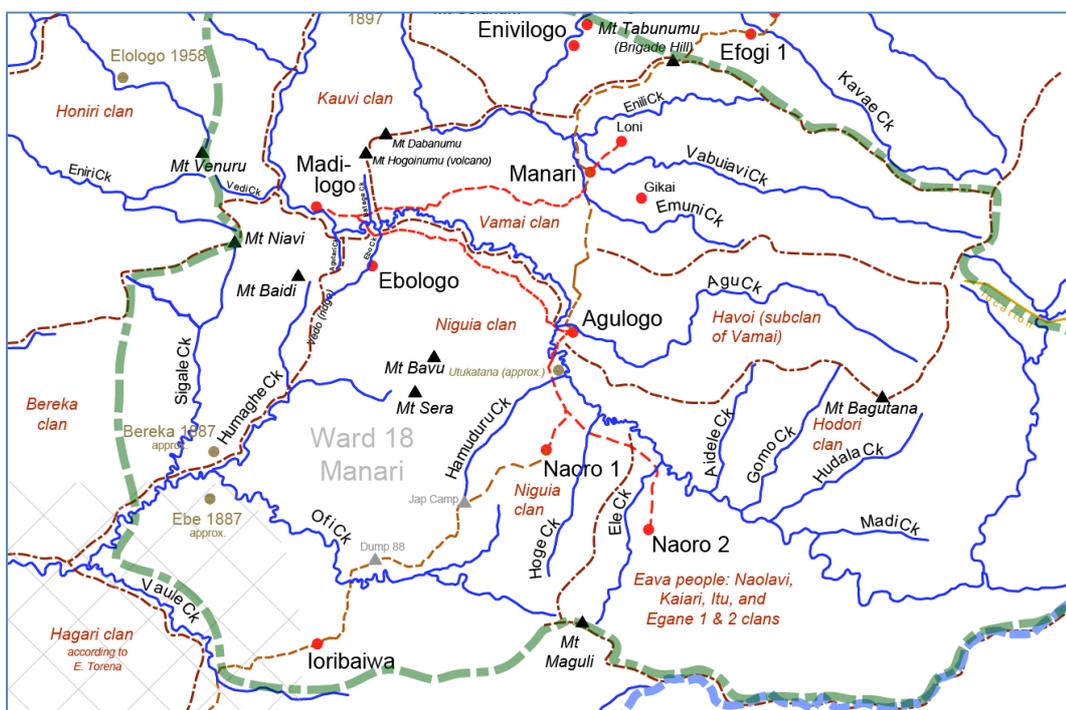
Task 1D. ‘Take note of any historical or continuing land disputes in the AoI ...’

Deliverable 1 ‘The names of the legitimate resource managers or landowners and the territory they control ... A description of any disputed area of land or resource management...’

Deliverable 2 Map layers – see accompanying master map.

PLACES VISITED

252 Between 29 July and 9 August 2014, the field team visited six settlements in the subcatchment (Appendix A).



Map 17. Route of field patrol 29 July–9 August 2014.

Notes: Light green = edge of subcatchment; red dashed line = route of patrol; brown dash-dot line = notional clan boundary (subject to clarification by informants); light brown dashed line = modern Kokoda Track.

253 This is shown in Map 17 (red dashed line). We did not visit Ioribaiwa, Ebologo or Gikai. Ioribaiwa was an abandoned place up to the mid-2000s and did not re-appear in

administrative lists for Ward 18 until the 2011 National Census. It was unknown to us at the time of fieldwork since the National Statistical Office had released only summary results by early 2014 (see longer discussion, para 359 *et seq.*)

- 254 We did not visit Ebologo because only one family maintains houses there. The household head, Joe MUSIA, was staying at Madilogo when we were there. Gikai is a new satellite settlement for Manari, supposedly established since 2010 to pick up EM-TV reception from Port Moresby. Any inhabitants in 2014 have chosen to give 'Manari' as their place of residence.

LOCAL TEAM

- 255 The logistics of the field program was organised in a very satisfactory manner. As there have been questions on previous occasions about the need for, or possibly the unnecessary expense of, trek porters, it is necessary to highlight a hidden function the porters fulfilled.

Who	Village	Clan	Other roles
Morea BILOI	Naoro 2	Naolavi	Eldest of three brothers who are the custodians of Naolavi land in which the village site at Naoro 2 is located.
Dagiri SOLOMON	Naoro 2	Goribi	Porter from Naoro 2
Rasta DURU	Naoro 1	Naolavi	Link person between Naoro 1 and Naoro 2.
John INIVE	Agulogo	Vamai	Owner of the 'Five Creek' camp site.
Frank RABIE	Madilogo	Vamai	Key settlement leader at Madilogo.
Jonathan RABIE	Madilogo (res. Edevu)	Vamai	Ward 18 councillor 2008-2013.
Kay IMIRI	Madilogo	Vamai	Link person between Manari and Madilogo.
Robert VALELE	Madilogo	Kauvi/Vamai	Porter from Madilogo
Jack GATOI	Manari	Kori	Chief cook.
Isaac MATAMA	Kagi (Ward 16)	Niguri	Experienced trek leader. A link person between Ward 18 and people in Wards 15, 16 and 17; will relay news about our activities at village level.
Elijah PETER	Manari	Vamai	KTA Ranger for Ward 18

Table 6. Porters – actually reps and elders drawn from the five villages – plus Elijah PETER, Kokoda Track Authority ranger, on 2014 field trip.

- 256 Naturally they carried supplies and equipment, but the most important aspect of *the particular selection* of ten porters that came with us was that they were village elders from the five communities we were visiting.
- 257 Liaising with Elton Kaitokai, Mr Frank RABIE of Madilogo was responsible for this. Rather than pick a team of career porters from Ward 18, he made sure village elders from across Ward 18 who wanted to be involved in the consultation process accompanied us (Table 6). This proved critical to the success of the overall work.
- 258 These men played a vital role in injecting the ‘participatory’ element into the field activities. After a few days orientation in what we were doing, thereafter they took the lead in explaining the purpose of the work to other community members and worked co-operatively to ensure we were able to complete the mapping tasks.
- 259 I can also say that, if we had hired ‘ordinary’ porters it would very likely have been necessary to hire a selection of elders – probably the same men – to act as guides and cultural consultants.

METHODOLOGY DURING VILLAGE VISITS

Updates of genealogical charts

- 260 A large part of our time in villages, and the major task of fieldwork, was to do updating of what is called in the TOR the ‘Phase 2 Genealogy Census’.
- 261 This is not stated as an explicit task in the TOR (p. xvii) but is implicit in Task 1B ‘Investigate and record the customary social and political organisation of communities within the Ward that reflects [their] structure, purpose and membership ...’ and Task 4 ‘From the Phase 2 Genealogy Census, determine who the people are within the Ward who are able to make decisions ...’.
- 262 Both things depend on accurate knowledge of the ‘Phase 2 Genealogy Census’ – the information in the Community Express database that successive social mapping teams have built up over fieldwork spread across four years (2010-12, 2014).
- 263 As will have become apparent, the lines of evidence used by community members to determine their own rights (e.g. Kauvi, para 205, Bereka, para 209, etc) follow their own, detailed knowledge of places, family history and genealogy. To be able to follow this, there is no shortcut but to acquire the knowledge that community members deploy themselves.
- 264 The successive tasks of collecting genealogies, data entry, field updating, and further data entry are very time-consuming. They are resource-intensive and expensive. But until a hypothetically quicker, cheaper yet equally informative technique emerges or can be conceived of, there is no alternative.
- 265 I underline this and continue the discussion in Chapter 6 (para 505 *et seq.*).



Plate 2. Joyce Onguglo, Malcolm Keaka, Jack GATOI and Frank RABIE laying out charts at Manari, 9.00am 6 Aug 2014.



Plate 3. Families locating themselves on charts at Manari, 9.43am 6 Aug 2014.



Plate 4. KTA Ranger Elijah PETER showing Geda GEREVA (holding a 2010 picture of her son, James Gereva) her place on Chart 26, 9.44am 6 Aug 2014.



Plate 5. Goma GERE, Geda’s daughter-in-law, clarifying a point on Chart 26 with Elton Kaitokai, 11.13am 6 Aug 2014.

- 266 Data preparation prior to fieldwork in 2014 consisted of generating a comprehensive set of genealogies covering the residents of Ward 18, together with their relatives who live in other parts of Central Province, in Port Moresby, and in other parts of Papua New Guinea, and printing out the portrait photographs we had taken on previous visits.
- 267 For Ward 18, this resulted in a set of 94 charts at ARCH-D (24" x 36") size. Eleven charts covered Madilogo, 46 for Manari, Loni and Agulogo, 11 for Naoro 1, and 26 for Naoro 2.
- 268 At each village, a standard procedure was followed. A community meeting was convened after our arrival, late in the afternoon or the next morning depending on the time. The meetings lasted about an hour. At each meeting, Elton Kaitokai and I set out DEC's interests in environmental protection, and explained the process of allowing community members to represent their own identities and interests in a transparent manner, not omitting city-based community members, but giving priority to the views and wishes of village-resident community members.
- 269 Even at our first meeting at Naoro 2, Elijah PETER, the Ward 18 KTA Ranger, and former councillor Jonathan RABIE added to our explanations, alternately talking in language and Tok Pisin. Elijah PETER expressed what is essentially set out in Goal 1 of the 2nd Joint Understanding, 'a safe and well-managed Kokoda Track'. Jonathan RABIE re-inforced the consultative nature of the exercise and the usefulness of community participation.
- 270 At no meeting was any specific economic venture or projects connected to proposals for the IPZ discussed other than in general terms. The closest that discussions came to this lay in broad statements like 'PNG Power has been to the area and if they want to talk about their interests they will do so themselves'. At Naoro 2, Morea BILOI, our porter and the settlement leader for Naolavi clan (Table 6), himself raised the topic of 'carbon trading' – reflecting a Papua New Guinea-wide awareness of the international proposals that have been floated concerning rainforest conservation.
- 271 Community members welcomed the resumption/follow up of the social mapping exercise that they had participated in at Naoro 1 & 2, Manari and Loni in 2010 and at Madilogo in 2012. They needed little encouragement to re-engage after we had distributed the photographs from 2010 and 2012 and put the results of our previous work on display.
- 272 Plate 2, Plate 3, Plate 4 and Plate 5 show a sequence of events at Manari, and we proceeded in a similar way at each village. The community meeting at Manari was held in the late afternoon on the day of our arrival and it was agreed to start the chart updates the next morning. The photographs show a sequence of events from 9am.
- 273 We laid out the charts for Manari on the ground and quite quickly people congregated to find themselves on them. Our porters, who became more and more expert on the charts as time went by, directed families to the charts they would find themselves on.
- 274 Once people found their charts, they waited in line to have the details checked and updated (or came back later). Our special focus was on checking whether people on the charts were alive or dead, connecting married people to their families of birth or marriage respectively, getting the birth order of children right, adding alternate names for the same

person, obtaining the current place of residence, and adding dates of birth (and death where known in the case of deceased people).

- 275 A single chart update, depending on the complexity of the information needing correction or addition took from 5 minutes to an hour and a half to complete, and could be continued at a subsequent village.
- 276 A frequent anxiety that community members expressed in return visits to places where a social mapping team has previously been in Papua New Guinea is *ol i no kisim mi*, i.e. that the team left somebody out by failing to do the work properly.
- 277 For example a man at Madilogo, who assisted the archaeology team at Madilogo in late 2012, arrived at the village after our field trip a few weeks earlier. He was convinced that we had left him out and complained vigorously to the archaeology team about it. In fact we had not omitted him at all and all was well as he was able to find out in 2014.
- 278 In 2014, we are happy to say that as far as we know no village resident failed to locate themselves on the charts. In many cases people appeared on more than one chart for the reason that they were descended from more than one of the apical ancestors we started the charts with. Community members were given confidence that they were properly represented by the fact that the portrait pictures from 2010-12 were printed as thumbnails on the charts, i.e they could see for themselves *yes, mi stap pinis*.
- 279 Two complaints were that we had not printed the clans that each person belonged to and that sometimes men found themselves on their grandmother's charts when they wanted to see themselves on their grandfather's charts. I explain this and add technical detail in Appendix D.

Mapping and interviewing about landscape

- 280 It is not culturally appropriate to enter a village where people do not know you and start by asking pointed questions about land boundaries. It is confrontational and is likely to yield information that you cannot assess the value of. Yet a critical aspect of fieldwork in 2014 was to be able to map land estate boundaries. How was this done?
- 281 The answer is that we informally discussed clans and boundaries for the entire length of time we were in the field, but our best information came from 'walking through the landscape'. That is to say, walking and talking as we went was the most authentic way to learn about points of reference, the names of places, and the stories associated with them.
- 282 At one location, on the side of Mt Niavi west on Madilogo, Malcolm Keako and I climbed to a vantage point with Kauvi, Bereka, Niguia and Vamai experts from which to look down the Naoro River and make inquiries about the disposition of the drainage to the west and south (Plate 6).
- 283 I used a Garmin 62S to record tracks and waypoints, converting the data later for use with Google Earth, MapInfo etc.

284 After returning to Australia, Malcolm Keako sent me Eddie TORENA's maps (Appendix E).



Plate 6. Eddie VELO, Jonah BAMAVE, Malcolm KEAKO (DEC), Eddie TORENA and Kay IMIRI discussing the landscape at Mt Niavi lookout, Madilogo, 4 Aug 2014.

Notes: The four local experts here each represented different interests: Eddie VELO (Kauvi), Jonah BAMAVE (Niguia), Eddie TORENA (Bereka), Kay IMIRI (Vamai).

CURRENT SETTLEMENTS IN THE SUBCATCHMENT

Naoro

- 285 The contact period maps show that a range of settlements existed in the upper part of the Naoro Valley under the name 'Eaha' (e.g. Nikanibavia, Map 11). This is the covering term 'Eava' for the clans that form the nucleus of Naoro 2 (para 122). Eaha was still in use as a name in 1921 (*The Register* 7 December 1921) but it is only a historical usage today.
- 286 Eava and Elei (para 300 *et seq.*), the other original group on the left bank of the Upper Naoro River, combined in the 20th century to form the single village of Naoro.
- 287 Naoro frequently appears in WWII reports of the Kokoda Campaign, as may be seen from the Timeline, mainly in the brief period between the fall of Brigade Hill to the Japanese on 6 September 1942 and the re-entry of the Australians into Naoro on 30 September 1942.
- 288 Of three villages at the Sogeri end of the Kokoda Track, Uberi, Ioribaiwa and Naoro, the latter was described as being 'by far the largest' (*The Argus* 2 October 1942). However,

wartime maps are vague and without a detailed examination of the War Diary it is not possible to be precise about its location.



Map 18. Naoro 1 – image date 4 February 2002.

Notes: Kokoda Track enters from Maguli Range at right, descends to Naoro River to left.



Map 19. Naoro 1 – image date 20 February 2012.

Notes: Kokoda Track enters from the garden at top right; new hamlet at right; CHW's house and Aid Post – 2 buildings at far right.

289 In the 1970s, the single village was on the river flats at the site of Hogologo where, at least from the 1970s, it had an airstrip,³¹ to as late as around 2000. Subsequently the single village has split into two villages, Naoro 1 and Naoro 2, each formed around a nucleus of clans which reflect the land interests around them. Naoro 1 is on the line of the current Kokoda Track.

Naoro 1 – Village

- 290 In 2002, Naoro 1 was a small ridge-top village of about 10 houses. By 2012, the houses had been rebuilt all with iron roofs and the village was enlarged with a new hamlet.
- 291 The changes between the two dates reflects the social and economic effects of the rise of trekking from 2001 – when 76 trekkers walked the track – to the present rate of about 4,000 trekkers/year.



Plate 7. Naoro 1, 1 August 2014.

292 Many reports suggest that direct income to householders at Track villages is low, for example that trekkers spend only about \$30 in Track villages. Recent information is that the average trekker spends \$546 on a personal porter and \$10/night in camp site fees (Curtin University 2012). It is not believed that a large proportion of porter income is spent in villages. Nonetheless, and bearing in mind that a proportion of the trek fees from the cumulative total of about 42,000 trekkers is remitted to villages, Naoro 1 families have felt it worthwhile to establish their village on a more substantial footing over the decade.

³¹ Airport code NOO. A Britten-Norman BN-2A Islander crashed there on 14 August 1975. See also *Australian Women's Weekly* 1 August 1973.

293 Their efforts have not extended beyond basic housing. No family living at Naoro 1 in 2014 enjoyed ‘improved housing’ in the terms of UNDP’s Multidimensional Poverty Index (Appendix H).

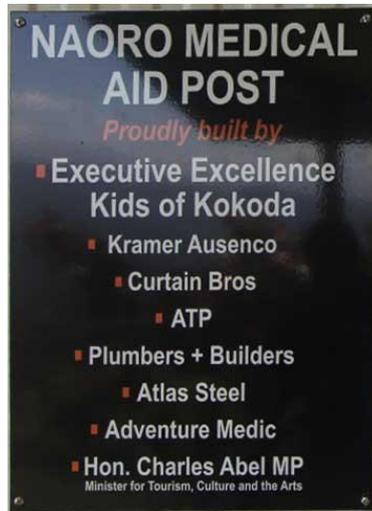


Plate 8. List of Naoro 1 Aid Post donors.



Plate 9. Naoro 1 Medical Aid Post, 1 August 2014.

294 A Elementary School was operating in 2010 and the field team met the teacher, but by 2014 the building had been dismantled again. We did not meet the teacher in 2014.

- 295 In 2011 a consortium of donors built an Aid Post and CHW's house at Naoro 1 (Plate 8). The list does not include the Kokoda Initiative although 'health facility upgrade' is listed on the KI projects map (Kokoda Initiative 2011).
- 296 Residents said that a local CHW had been appointed to staff this clinic but that he had only worked for a few months in 2011 before quitting. Both the Aid Post and CHW's house had been vacant from 2011 to the time of our visit.
- 297 I am aware that the basis of project planning by the Kokoda Initiative / Kokoda Development Program is that proposals for infrastructure are subject to discussion and approval by provincial authorities (J. Philemon, pers. comm. 2013) and that it is Central Province's agreed responsibility to staff and run health posts.
- 298 Perhaps in response to governmental failure, in 2014 the Kokoda Track Foundation was training seven CHWs under a scheme which requires them to serve in a clinic in the Track area on graduation.³²
- 299 The poor health outcomes in Ward 18 are discussed in Chapter 5.

Naoro 1 – Clans

- 300 Elei is said to have been one of the two original groups on the left bank of the Upper Naoro River, the other being Eava. Both groups would have originally lived in scattered hamlets prior to contact, then together at the single Naoro village site adjacent to the river.
- 301 At least 181 living people can trace descent from Elei, for the most part split between Naoro 1 and 2. The nucleus of Naoro 1 is said to be Elei while the nucleus of Naoro 2 is said to be Eava. The largest number of people (67) at one place with a primary affiliation with Elei is indeed Naoro 1. It does not mean they live there exclusively; a quarter of the 102 people who live at Naoro 2 also have a primary affiliation with Elei (23).
- 302 Others who have a secondary affiliation with Elei have a primary affiliation with Aeae (14), Niguia (13) and so on.³³
- 303 Niguia is a clan with land extending from Hamuduru Creek, downstream of Naoro 1, to Agotari Creek west of Ebologo, and Vamai, whose predominant land holdings are on the right bank of the Naoro from Agulogo to Madilogo (Map 1, Map 30). All these groups are intermarried.

Naoro 1 – 'The people who are able to make decisions'

- 304 I convened a short meeting at Naoro 1 to obtain a list of spokespersons for the land estates of this village. Present were Rasta DURU, b. ~1967, with rights to Naolavi and Kaiari lands

³² <http://www.kokodatrackfoundation.org/community-health-worker-scholarships.aspx>

³³ For the meaning of 'primary affiliation' and 'secondary affiliation', see discussion in Appendix D.

(predominantly Naoro 2 groups); Noxcy HUENA, b. ~1977, with rights to Guluvi and Nigua lands (Guluvi being predominantly a Manari group); Kendy KIBIDI, b. ~1970, with rights to Egane 2 lands (Egane 2 being predominantly a Naoro 1 group); and Esco AVU (details not known).

- 305 However, Naoro 1 presents a difficult problem in that (a) the inhabitants have a complex mixture of interests and (b) key men with senior positions in the genealogies that link to the apical ancestors for the land estates are non-residents.
- 306 I was notified of a dispute (para 461) and closed the meeting.

Naoro 2 – Village

- 307 In 2002, Naoro 2 was evidently a newly cleared space in the forest with fewer than 10 houses. By 2012, the village was well-established, with about iron roofed houses owned by some 20 households, a corrugated iron church and an Elementary School building.



Map 20. Naoro 2 – image date 4 February 2002.

Notes: Newly cleared village site; house of bush materials only.

- 308 As noted above for Naoro 1, the development of the village between the two dates reflects the social and economic effects of the rise of trekking from 2001.
- 309 At the time of our visit the iron-roofed Elementary School, built by the residents, required more work – it had neither a blackboard nor a teacher’s office and had no doors – and it had no teacher (Plate 10). In this village, children either enrolled at Manari Primary School and boarded with relatives, were absent for schooling in Port Moresby, or simply did not attend school.

- 310 The village has a water supply – it was unclear who had installed it as the Kokoda Initiative projects map (Kokoda Initiative 2011) does not show Naoro 2 – but at the time of our visit no water flowed from the taps at the lower end of the village.



Map 21. Naoro 2 – image date 20 February 2012.

Notes: Village fully established with houses in about 20 groups with iron roofs; Elementary School building at lower right (closed).

Naoro 2 – Clans

- 311 Key clans at Naoro 2 are:

- Noalavi – owners of the current village site
- Kaiari
- Hodori
- Egani 1
- Egani 2 – also known as Deave
- Itu – no individuals recorded

- 312 Our information is that Hodori land is situated on the eastern side of the Naoro River, extending up the eastern side of the valley to the ridge between the Naoro River and Agu Creek.

- 313 It is unclear in which areas the remaining clans have land holdings.

- 314 From such a long distance away, it was extremely difficult to get clear answers on land in the headwaters of the Naoro River, but Naoro 2 land extends up the Naoro to a imaginary line drawn from the head of Vabuavi Creek directly down to the Naoro and up the opposite side to the head of Evi Creek.

- 315 The IPZ crosses from the Maguli Range to Evi Creek, follows it for approximately 3 km, but then cuts up to the ridge between Evi Creek and the Naoro River. Elders at Naoro 2 indicated to me, though, that their land followed Evi Creek to its source before cutting west as just described.
- 316 Better information would be obtained if good quality satellite imagery were available for the area. It lies outside the high resolution tiles available from the public providers.



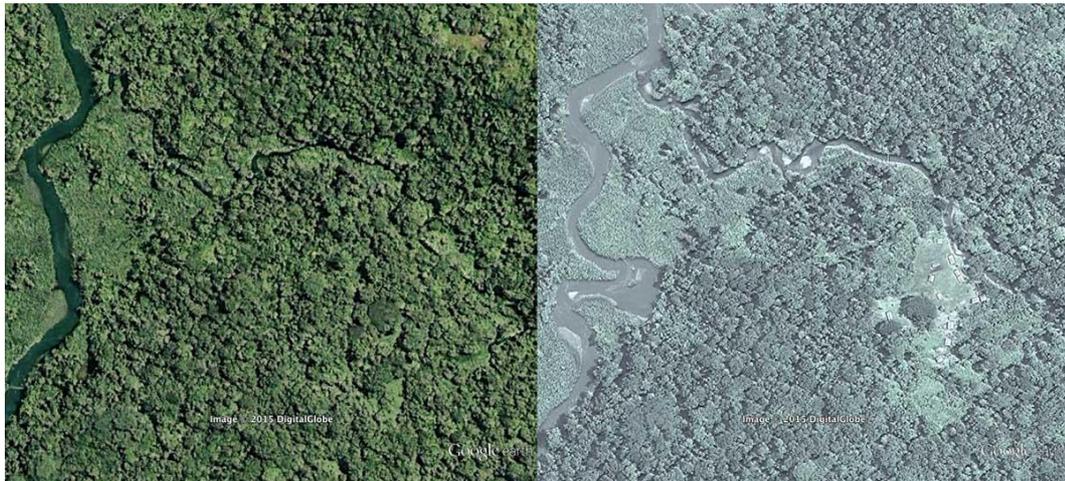
Plate 10. Naoro 2 – Elementary School building, 30 July 2014.

Note: interior construction with carpentered roof frames, but no fit-out, blackboard or doors; closed at the time of our visit.

Naoro 2 – ‘The people who are able to make decisions’

- 317 Morea BILOI, b. 1959, is the eldest of three brothers who are the custodians of Naolavi land in which the village site at Naoro 2 is located.
- 318 Gere VIVIO, b. 1941, is the senior Hodori man at Naoro 2. A cohort of other men are a generation younger, of whom the oldest is Richard LOVEI, b. ~1963, but most live at 5 Mile, A.T.S. and various parts of Port Moresby.
- 319 Morea KERKEMU, b. 1934, is the senior Kaiari man at Naoro 2, if still living. Many other Kaiari men are a generation younger, have mixed affiliations to clans at Naoro 2, and most live outside the village at 5 Mile, Goldie, Baruni, Sogeri, etc and in various parts of Port Moresby.

- 320 Buai Peter BOLARU, b. 1949, is the oldest man with Egani 1/Aeae affiliations but lives at loribaiwa. Abel AUWA, b. ~1976, appears to be the oldest Egani 1 man resident at Naoro 2. Of the cohort of younger men, almost none live in the village.
- 321 Buta GIRIVE, b. 1947, is the senior Egani 2 man at Naoro 2. Other Egani 2 men are a generation younger and most live outside the village at Erima, Girinumu, 5 Mile and in various parts of Port Moresby.
- 322 We did not record any individuals belonging to Itu clan.



Map 22. Agulogo – 4 February 2002 (left) and 20 February 2012 (right).

Note: North at top; Agu Creek (right to left) joins the Naoro River (left) at top left; Kokoda Track from Naoro 1 enters from the southern end of the village and leaves for Manari at the northern end.

Agulogo

- 323 Agulogo is situated near the junction of the Naoro River and Agu Creek. Its traditional owners are the Havoi subclan of Vamai clan. The ‘headquarters’ of Vamai being Manari, it can be said that Agulogo is a satellite settlement of Manari. Villages under the umbrella name ‘Wamai’ were noted in this area at the contact period.
- 324 MacGregor’s latitude reading at Wamai in 1897, 9°19’52” S, located it very close to the modern crossing on the Naoro River near Agulogo (para 121).
- 325 Ballantine wrote that he made a steep descent off the range, walked along ‘flat forest country’³⁴ on the left bank of the Naoro to reach the hamlet of Utukatana where there was a ‘Government camping house’ and a Village Constable, Goria.³⁵ He called the place ‘Utukatana, Wamai ... (Camp 8)’. On his map, Camp 8 is labelled ‘Naoro’ (Map 11, Ballantine

³⁴ Contrasted in 19th century Queensland English ‘scrub’ (rainforest), ‘forest’ meant light woodland or, in this context, regrowth from old gardens. Both Forbes (para 089) and Rochfort (para 110) had used the same vocabulary.

³⁵ Goria does not connect to living families in our genealogies; his lineage may not have had issue.

1900: 78). People who recognised the name Utukatana suggested it was about halfway between the disused Naoro airstrip and Agulogo.



Plate 11. Agulogo – 2 December 2010.

Note: Agu Creek flowing at left; north at bottom of photo (World Bank visit to Madilogo).

- 326 The current village was founded in the mid-2000s as can be seen from satellite images. It is located on the Kokoda Track but the drafters of the 2011 Kokoda Initiative projects map were not aware of its presence or perhaps thought it an informal hamlet of garden huts (Kokoda Initiative 2011).
- 327 However, the village is an important staging point on the Track, depending on how trekking companies break the length of the Track into daily sections. It has two camp sites, one maintained by Sobi LADIVE and the other by his brother Simon LADIVE.

Agulogo – clans

- 328 The traditional owners of Agulogo are the Havoi subclan of Vamai clan.

Agulogo – ‘The people who are able to make decisions’

- 329 Sobi LADIVE, b. ~1970, is the principal spokesman for Agulogo and Havoi subclan, supported by his younger brother Simon LADIVE, b. 1975. They are the senior male descendants of the Havoi ancestor Sobi 1 HAREMI.

- 330 Two half-brothers Albert INIVE, b. ~1977, and Badi VAVAGA, b. ~1979, are descendants of Sobi 1 HAREMI through their mother.



Plate 12. Faole BOKOI, b. 1924, of Manari, war carrier and Village Constable in the 1950s, on 7 August 2014.

Manari

- 331 Manari (Map 23) has not moved since its present site at least since the 1950s. In 1958, as now, the village was divided into two halves Vadulogo and Emoia. Each had its own Tax-Census Book but Faole BOKOI, b. 1924 according to the Vadulogo book, was the single ‘Village Constable or Lului’ (Plate 12).
- 332 The village has had significant development assistance since the early 2000s. A water supply serves each cluster of houses from a source up or above Emuni Creek, but the taps did not work at Guest House Manari, in the lower part of the village where the team stayed.
- 333 There were polyurethane drum toilets – an all-in-one seat over a pit latrine – at Guest House Manari, possibly constructed at Manari on one of several ‘eco-toilet’ projects.³⁶
- 334 Regardless, they were very close together and either did not have lids or the lids were not habitually closed to prevent flies entering or travelling between the pits. Configured as they were, they do not count as ‘improved sanitation’. Teachers at the school may have acquired

³⁶ No Roads Expeditions Foundation says it has installed eco-toilets toilets at Manari and Agulogo among other places <http://www.noroadsfoundation.com/project-the-kokoda-track-foundation-ktf.html>.

the polyurethane drums – I saw one in the school store – but it is unlikely they are in common use in the village.

- 335 The school now has classrooms for Elementary Prep up to Grade 7. The earlier grades are in bush material buildings but the later grades are in modern double classrooms. A further double classroom was under construction in 2014 to take the school up to Grade 8.



Map 23. Manari – 2 April 2002.

Notes: North at top; Manari Primary School considerably extended and Manari Clinic rebuilt since 2002.

- 336 Assistance for the school improvement has come from multiple donors, the KDP included. However, the responsibility for running the school lies with the Central Province Division of Education. According to the national education calendar (PNGDoE 2014), Term 3 should have started on 14 July 2014. But only one teacher was on duty at the Primary School at Manari in the week of 4-8 August 2014, which should have been the fourth week of class.
- 337 I was unable to interview the headmaster about the reasons for the absence of the teaching staff, but it seems the case that allowances etc may not have been paid.
- 338 It was also glaringly obvious that, in contrast to the bright new classrooms, staff housing was essentially village housing. Other shortcomings (shared with rural schools across the country) were: desks limited to the higher classes, no electricity or laboratories (no possibility of computer studies or adequate science education in Grades 7 and 8 by which time students are typically 16-17 years old), and inadequate sanitation for staff and students. I failed to check whether pipes from the village water supply ran as far as the school, but since no water flowed from the taps at Guest House Manari, 300m uphill, this would not seem a critical omission.



Plate 13. Children in Grade 4 at Manari Primary School, 7 August 2014.
 Note: They were the only children attending class in the 4th week of term.



Plate 14. The Manari Clinic, 7 August 2014.
 Note: The nurse was away on a course the week of 4-8 August 2014.

339 The Manari Clinic (Plate 14) has been the subject of several upgrades and the provision of smaller assistance (donations of cash, medical supplies) from multiple donors over the last decade. A plaque bearing the emblems of the PNG government, the Australian

government, the Koiari Development Authority and Rotary International commemorates its construction around 2003.

- 340 It is unclear whether it has the status of an Aid Post or the next level facility, a Health SubCentre. The nurse was absent on a course during the week of our visit and was therefore unavailable for interview. Adjoining buildings are for day clinics and a small maternity ward.

Manari – clans

- 341 The native clans of Manari are: Vamai, Goribi, Kurivi/Guluvi, Vovoli and Havoi (at Agulogo).

Clan	M	F	Grand Total
Vamai	59	41	100
Goribi	21	20	41
Kurivi/Guluvi	16	10	26
Vovoli	5	14	19
Kori	12	6	18
Elomi	9	8	17
Hodori	4	3	7
Havoi	3	1	4
Niguri	1	2	3
Tobo	2	0	2
Kaiari	1	1	2
Kolili	0	1	1
Naolavi	1	0	1
Oagi	0	1	1
Elei	0	1	1
(blank)	4	25	29
Total	138	134	272

Table 7. Primary clans of 272 residents at Manari in 2014.

Source: 'Native' clans in light yellow.

- 342 Statistically, the primary³⁷ clan attribution of the 272 residents of Manari in 2014 was as shown in Table 7. This shows Vamai (as a primary attribution) is represented by the most people, followed by Gobiri, Kurivi/Guluvi and Vovoli.
- 343 There are other opinions, however. I discuss a dispute at Manari in Chapter 6.

³⁷ Bearing in mind that people have multiple choices and these numbers are *not* the same as the 'number of people for each clan'.

Loni, Gikwa

- 344 The small hamlets of Loni and Gikwa on ridges high above the main village are outstations of Manari. People living there, 28 in the case of Loni and a handful at Gikwa, have removed themselves from the relative crowding of Manari to locations closer to land and gardens, but at the same time have distanced themselves from conveniences like the village water supply. The locations also oblige children to walk approximately one hour to school if they sleep at home on school days. We visited Loni on 8 August 2014 and saw that it did have a water pipe (but not taps) with a header higher up the ridge it is located on.
- 345 Gikwa was said to have been established since 2012 for the purpose of obtaining the EM-TV signal from Port Moresby, which is not obstructed by intervening ridges in its location. Informants said an entrance fee is charged to watch NRL and State of Origin games during the Australian Rugby League season. Presumably the owners of the TV(s) also have petrol generators. We did not visit Gikwa.

Manari (inc Loni and Gikwa) – ‘the people who are able to make decisions’

- 346 Many families at Manari have rights and interests in Vamai land. Among them are:
- RABIE family (Jonathan, Jethro and Frank RABIE) – for land east of Bataga Creek in the Madilogo area.
 - Elijah PETER – senior male descendant of Harari, b. ~1830, of Vamai, Elijah’s greatgreatgreatgrandfather – at Manari.
 - James VELEMI – senior male descendant of Brorebe, b. ~1905, of Vamai, James’s grandfather – at Manari.
- 347 Because of the ‘discussion at Manari’ (para 420 *et seq.*) it was not appropriate to pursue questions of representation in respect of Goribi, Kurivi/Guluvi or Vovoli.

Ebologo

- 348 A single family lives at Ebologo – Joe MUSIA (alternate name Joe GUROVA), his 2nd wife and two children (his 1st wife died in 1996 aged 23 years). Joe is of Niguia clan and the village lies wholly within Niguia land.
- 349 We did not visit Ebologo because Joe MUSIA visited us at Madilogo and it would have involved a detour. However, I flew over Ebologo in 2010 and its location on Ebo Creek helps position the Niguia-Bereka boundary just to its west.

Ebologo – ‘The people who are able to make decisions’

- 350 Joe MUSIA, b. ~1969, is the principal man living at and responsible for this small settlement. Jonah BAMAVE, b. ~1971, is a backup spokesmen for the area.



Map 24. Ebologo – 7 January 2011.



Plate 15. Ebologo from the air looking towards the east.
Notes: Kagi Gap area in far distance; Naoro River out of view at left (World Bank visit to Madilogo, 3 December 2010).

Madilogo

- 351 'Madilo' is shown as a place in 1887 on Forbes' map (Map 7), though it is not clear that there were houses there in that year or in 1897 when MacGregor camped in the vicinity. At any rate, the current Madilogo village site (Map 25) has been in continuous use since the 1950s and probably throughout the 20th century.
- 352 Madilogo has a small resident population (Appendix C) which can swell or shrink by 50% at any one time depending on the need for children to attend school and for parents to support them. Some families relocate to Edevu for the school year, in order for children to attend Edevu Seventh-Day Adventist Primary School. Other children enrol at Manari where they must board with relatives. At the time of our visit, Manari was closed so children who had completed Terms 1 and 2 there in 2014 had not gone back from the mid-year break.
- 353 Madilogo has a functioning water supply (Plate 16), but unimproved sanitation arrangements.



Map 25. Madilogo – unknown date 2010-2014.

Notes: Naoro River flowing right to left at bottom; north at top (FlashEarth image).

Madilogo – clans

- 354 Four clans hold land in the vicinity of the village. The village lies on Kauvi land; Bereka land extends from the south bank of the Naoro River opposite the village southwards as far as Vaule Creek; 1.5 km east of the village Bataga Creek marks the boundary between Kauvi and Vamai land; more or less opposite Bataga Creek, Agutari Creek and then a ridge called Vedo mark the boundary between Bereka land and Niguaia land. Niguaia land unbroken on the left bank of the Naoro River from Hamaduru Creek near Naoro 1 to Agutari Creek.

Madilogo – land dispute

- 355 There has been a constant level of disputation over land in the Madilogo area since we began doing fieldwork in the IPZ in 2010. See relevant background in Chapter 2, Chapter 3 (para 196 *et seq.*), and discussion in Chapter 6 (para 464 *et seq.*).



Plate 16. Deduri ELUTU using the tap stand at her house in Madilogo.

Notes: white plastic pipe is a retractable take-off pipe for a shower behind a screen at left (fieldwork 4 August 2014).

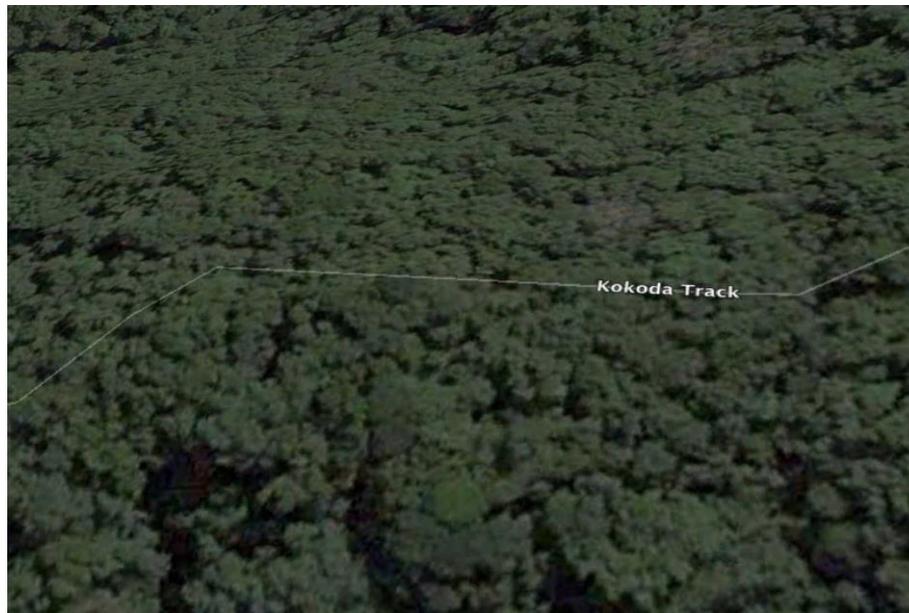
Madilogo – ‘The people who are able to make decisions’

- 356 As discussed above, Edae VELO, b. 1949, is the principal spokesman for Kauvi (para 205) while Eddie TORENA, b. 1974, is the principal spokesman for Bereka (para 209).
- 357 Frank RABIE, b. 1973, is the principal spokesman for Vamai at Madilogo (his elder brother and the previous Ward Councillor, Jonathan RABIE, b. 1967, lives at Edevu 2).
- 358 Joe MUSIA, b. ~1969, is the principal man responsible for Niguia land around Ebologo, close to Madilogo. Jonah BAMAVE, b. ~1971, resident at Madilogo, is a backup spokemen for the area.

Ioribaiwa

- 359 At the time of earlier reports, the fate of Ioribaiwa, historically located on the Kokoda Track in the Upper Goldie catchment between Ofi Creek and Vaule Creek, was unknown to us. The text of our current TOR, and accompanying maps, did not list Ioribaiwa as a part of

Ward 18 and in consequence pre-fieldwork planning did not include it. Nonetheless Ioribaiwa is in Ward 18. A short history is as follows.



Map 26. Ioribaiwa – 28 August 2003.
Source: Google Earth.



Map 27. Ioribaiwa – 14 July 2009
Source: Google Earth.

360 The 1958 Tax-Census book for 'Auwaiabai'iwa', annotated by hand as 'Vioribaiwa', listed 24 people led by a Village Constable, Boraru BUAI. The name 'Auwaiabaiwa' appears on the '8479 Efogi' 1:100,000 topographic map based on information collected up to 1973, and it is shown as a part of Census Division 10 'Mt Koiari' in the 1973 Village Directory, but its small population had probably already moved to the Girinumu area between Vesilogo and

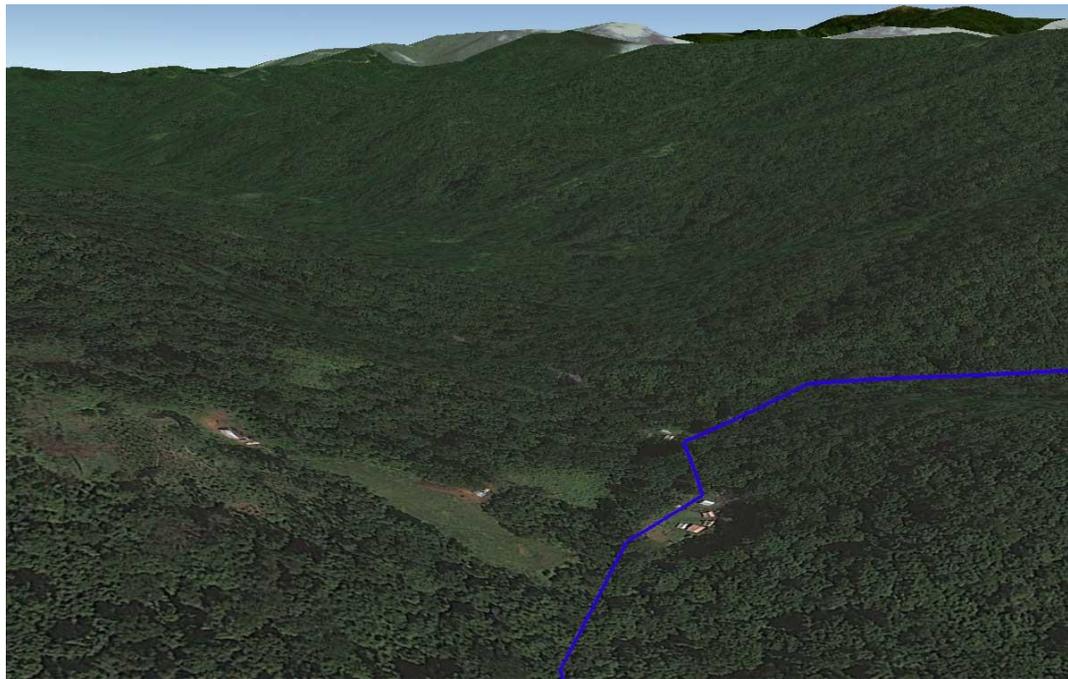
Owers Corner, which was then in Census Division 11 'Sogeri Valley' (Papua New Guinea 1973: 29). The village site was abandoned.

- 361 It should be pointed out that 'loribaiwa' is only an approximation of the correct name in language. I am unsure whether these are names for the inhabitants or the place itself, but in the loribaiwa dialect the referent should more correctly be *Ai'ahi* while in the dialect spoken at Naoro 1 it should be *Kayaki*. At any rate, loribaiwa is the name fixed by the Australians during WWII (e.g. *The Argus* 1 October 1942), and, having recently rebuilt their village, the inhabitants have called the new version loribaiwa.³⁸
- 362 Variants of the name 'loribaiwa' do not appear in the documentation for the 1980, 1990 or 2000 censuses or in the gazettal of wards and villages following the new local government arrangements occasioned by the *Organic Law on Provincial Governments and Local-level Governments* 1998.
- 363 After the start of contemporary trekking in the 2000s, Peter BORARU, the son of the 1958 Village Constable, is said to have pioneered a 'camp' on the land of the old village. Subsequently others came so that a sizable village has been re-established and is now an optional trekking stop on the Kokoda Track.
- 364 Historical Imagery on Google Earth show that the re-establishment of loribaiwa took place after 28 August 2003 and was complete by 14 July 2009 (Map 26; Map 27). Imagery from 2013 shows the further addition of iron-roofed houses on the south side of the new village and at the eastern and western ends.
- 365 The first official documentation we have been able to find showing the existence of the new loribaiwa is the 2007 National Election polling schedule; an electoral team was due at lorobaiwa on 6 July 2007 (PNGEC 2007: 12). This narrows the date of re-establishment to between 2003 and 2007. Unpublished village-level census results acquired in late 2014 show that loribaiwa was Census Unit 022 'lori Baiva' in the 2011 national census; 65 people were counted there.

Vaule Creek, Uberi

- 366 The fact that loribaiwa should have been included in inquiries covering Ward 18 raises the question of which other places have also been left out. Uberi is another candidate and there are clusters of houses at a numbers of points between the Goldie River and the crest of the Maguli Range, such as on Vaule Creek (Map 28). I assume that any place north of the Goldie River crossing is in Ward 18, although this needs verifying.

³⁸ Discounting the apparent mis-spelling 'lori Baiva' in the 2011 census listing.



Map 28. Houses at the Vaule Creek crossing – 10 April 2013.

Source: Google Earth; blue line – GPS waypoints along Kokoda Track.

FOLLOW-UP WORK FROM FINDINGS IN THIS CHAPTER

367 The chapter describes the places currently inhabited in the Naoro SubCatchment but several have been omitted.

Recommendation 10. A large reason for the success of the 2014 fieldwork was the selection of elders to come on the trek as porters. Lest arrangements be altered through oversight, future fieldwork should continue to pay careful attention to the culturally appropriate selection of trekking team members and the expert knowledge they bring to field investigations.

Recommendation 11. A field visit to investigate the status of any settlements in the IPZ between Owers Corner and the crest of the Maguli Range, including Ioribaiwa, Uberi and Vaule Creek, is a priority for future work.

Recommendation 12. Many of the people who appear to be the senior representatives for clans at Naoro 1 and Naoro 2 appear to be living in many different locations outside the village. It is recommended that DEC, by asking them to come into the office, try and determine whether this is the case and then find an appropriate way of canvassing their views.

Recommendation 13. Knowledgeable elders at all the places visited in 2014 should be invited to comment on the master map of the IPZ that accompanies this report and forward to DEC their commentary on any areas they

have an interest in – taking care not to provoke disputes in so doing.

- Recommendation 14. Port Moresby-based representatives for one or more clans at Naoro 1 have registered an ILG. It is recommended that DEC, by asking them to come into the office, try and to ascertain the facts of the case.
- Recommendation 15. Representatives for one or more clans at Manari have registered an ILG. Some of the principals live in Port Moresby and others live in the village. It is recommended that DEC, by asking them to come into the office try and to ascertain the facts of the case.
- Recommendation 16. In respect of the land dispute at Madilogo, discussions with the stakeholders focussing on the oral history of the contact period is recommended, followed by – if possible – informal mediation to resolve the issues amicably.

CHAPTER 5

OBSERVATIONS ON DEVELOPMENT IN WARD 18: ASSESSMENT FROM THE COMMUNITY EXPRESS DATABASE

Relation to tasks and deliverables (summary)

Task 4 ‘From the Phase 2 Genealogy Census ... livelihood ... values.’

Joint Understanding Goal 2 ‘Enhanced quality of life for landowners and communities through improved delivery of basic services, income generation and community development activities’ (Papua New Guinea and Australia 2010)

LIFE EXPECTANCY

- 368 Community Express comes with a wide range of statistical outputs. While it has not been a major analytic task, and a full description of method is omitted here, I report here on life tables for Ward 18, separated into the the resident and non-resident population.
- 369 During fieldwork the social mapping team was struck by the high death rate among residents of Ward 18, in both sexes and in all age groups. Our impression is borne out by particular statistics: one of them is that *28 of a sample of 77 resident households (36%) had lost children.* (See next section.)

Year	e ⁰ (years)	Source	Reference
1966	43.5	Census	McDevitt (1979: 48)
1971	49.2	Census	McDevitt (1979: Tables 5.4, 5.5)
1980	49.6	Census	Bakker (1986: 221)
1991	51.7	Census	Hayes (1996: Table 6.3)
2000	58.7	Census	UNDP (2014b: Appendix 2)
2013	62.4	Modelled	UNDP (2014a: Table 1; 2014b: Appendix 2)

Table 8. Historical measurements of life expectancy in Papua New Guinea.

- 370 The calculation tables are given in Appendix F. The results for life expectancy at birth, e⁰, is that there is a life expectancy ‘gap’ of 11 years between residents and non-residents:

Resident population of Ward 18 – e⁰ = 49.9 years

Non-resident population of Ward 18 – e⁰ = 61.1 years

- 371 Looking at Table 8, *residents* of Ward 18 are experiencing health conditions as they were in Papua New Guinea prior to Independence, while *non-residents* – most having access to the housing standards, tap water, electricity etc, and health services of Port Moresby – have a life expectancy more or less the same as is estimated for Papua New Guinea as a whole in the 2000s.

- 372 Several qualifications may be made. The two populations do not have the same age profile. The non-resident population has a bigger proportion of adults of working age raising children whereas the resident population is missing part of the adult working age population and the children who accompany them. These cohorts might be expected to be healthier and this will explain some of the gap – but not all of it.
- 373 In terms of data accuracy, details of the resident population are likely to be more accurate in respect of deaths, and again this will explain a small part of the gap – but not much of it.
- 374 The method used is a measurement of life expectancy based on the accumulation of years-lived-in by members of the population. It means that, like the sisterhood method commonly used in PNG for estimating maternal mortality, the result is a historical one and reflects a period 15 years in the past or more.
- 375 This method is therefore unsuited for measuring the effect of recent Kokoda Initiative health interventions, but it is an important one for those wishing to understand the baseline situation for health in the IPZ.
- 376 However, suggesting that the baseline has not improved in recent years, we constantly encountered instances of children and adults under 40 who were alive in 2010 but had died by 2014. Some died in Port Moresby; two examples were a woman of 38 photographed by the field team in 2010 who had fallen sick and died in Port Moresby a year later, and a boy aged 16 at school in Port Moresby, whose body was returned to Naoro 1 for burial the day after we began the field trip.
- 377 Ward 18 residents, particularly women (para 499 *et seq.*), are conscious of the risks of living at home in the village, and it is a telling comparison that access to health, other services and employment opportunities that are the pull factors causing 73% of Ward 18 people to live outside the village, only result in a improvement in life expectancy to around the same level as that of Northern Territory males, considered to be the section of the Australian population that has the least acceptable health outlook.

Year	e ⁰ (years)	Source
Australian Non-Indigenous	82.6	AIHW 2011: Table 2
Australian Indigenous (all states)	72.9	AIHW 2011: Table 2
Australian Indigenous (NT males only)	61.5	AIHW 2011: 7
Ward 18 Non-Resident	61.1	This report
Ward 18 Non-Resident	49.9	This report

Table 9. Life expectancy gaps: Australian Non-Indigenous and Indigenous and Ward 18 non-residents and residents.

- 378 In the course of doing data entry for the chart updates, I tallied 19 families where multiple members of the family had died – typical three or more in a mix of one or both spouses and/or 1-3 children. Where a father or mother had died, it was common for surviving children to be adopted into other families.

- 379 We found two deaths in childbirth in the last 5 years: a mother of five aged 35 at Manari and a mother of five aged 37 at Madilogo. There were 110 women in Ward 18 aged between 18 and 44 years during 2014. It is difficult to convert this into a recognisable health statistic like the maternal mortality ratio, but it is in the range of the often-quoted lifetime risk of dying from a pregnancy related cause in Papua New Guinea of 1 in 20 (e.g. Mola 2009).
- 380 To understand the significance of the figures reported here, the Australian Institute of Health and Welfare reports regularly on Indigenous v Non-Indigenous life expectancy in Australia. Its latest data show that ‘the gap’ – the life expectancy gap that causes so much anxiety for Aboriginal reconciliation and that is the subject of an annual report to parliament – is 9.7 years between Indigenous and Non-Indigenous sections of the population (Table 9).
- 381 But between Indigenous Australians and the non-resident members of Ward 18, there is an even bigger gap of 11.8 years and, between non-residents and residents, a *further gap* of 11.2 years.
- 382 In brief, and while it has limitations, the life table method backs up direct observation that mortality is unacceptably high in both sexes and in all age groups in the project area.

OXFORD MULTIDIMENSIONAL POVERTY INDEX

- 383 The inaccuracies of demographic statistics and income measures in regions with poor statistical reporting, the things that contribute to the Human Development Index, have been apparent for some time. In Papua New Guinea, per capita income is an even less helpful measure than usual because it is skewed by large mining and petroleum projects.

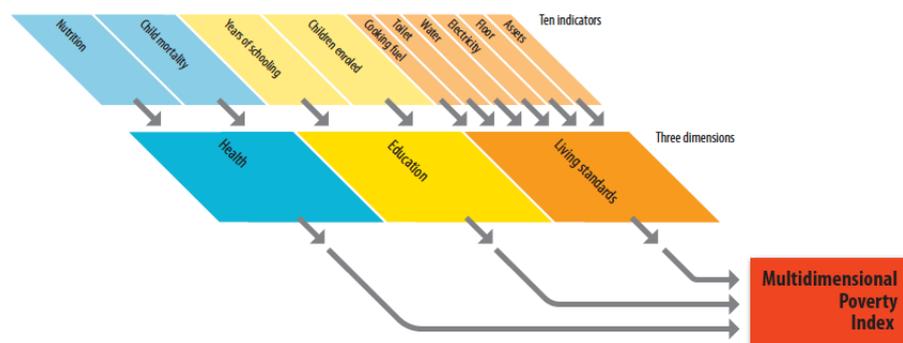


Figure 7. The Multidimensional Poverty Index: 10 indicators in three dimensions.
Source: UNDP 2010: Figure 5.7.

- 384 Because of this, UNDP began reporting a new measure in 2010, the Oxford Multidimensional Poverty Index (UNDP 2010). MPI calculations are done by household, and result in an overall score for a community, or a larger area like a district or a country. It is a

- non-income based measure. Only ten MPI indicators must be measured and are scored in terms of a household being deprived (1) or not deprived (0) on each indicator.
- 385 It was possible to score nine of the indicators for households in Ward 18 from a combination of direct observation (e.g. ‘is there a water supply?’) and from interviewing we did for the genealogy chart updates. There was no need to ask additional questions.
- 386 I have scored the 10th indicator question, ‘is anyone malnourished in the household?’ as zero (not deprived) since we were not in the village to do a nutrition survey. In reality, nutrition surveys in Papua New Guinea do repeatedly show that a proportion of people – usually infants and the aged, but also expectant mothers – can be malnourished in rural communities.
- 387 For full details of the household scores and further commentary on method, see Appendix G and Appendix H.
- 388 The Multidimensional Poverty Index for 77 households at Agulogo and Manari was 0.39.
- 224 The dataset is adequate to reflect average conditions in Ward 18 and is consistent with results from other parts of Papua New Guinea. In all areas where the method has been used, MPI indicator scores reflect both what is actually seen in each village on inspection visits and what other kinds of surveys reveal.
- 389 No household had a c score of less than 2.0 classing it as ● ‘Not MPI-poor’; 22 were classed as ● ‘at risk of becoming MPI-poor’; 55 were classed as ● ‘MPI-poor (Appendix G).
- 390 Since UNDP has published international data, country comparisons can be made, bearing in mind the limitations of comparing a village against a country:
- 0.50 or higher – EXTREME POVERTY. 9 countries were in this bracket in 2011 (including Somalia, Ethiopia, Mali and Niger).
 - 0.40-0.50 – SEVERE POVERTY. 6 countries were in this bracket in 2011 (including Rwanda, Sierre Leone and Liberia).
 - 0.30-0.40 – STRUGGLING TO ACHIEVE DEVELOPMENT. 15 countries were in this bracket in 2011 (including Côte d'Ivoire, Timor Leste and Tanzania).
 - 0.10-0.30 – IN THE PROCESS OF DEVELOPMENT. 25 countries were in this bracket in 2011 (including Kenya, India and Bangladesh)
 - 0.00-0.10 – MOSTLY DEVELOPED. 54 countries were in this bracket in 2011 (including Philippines, Jordan, Viet Nam – OECD countries were not measured).
- 391 The MPI score of 0.39 places Agulogo and Manari in the ‘Struggling to Achieve Development’ category.
- 392 With Walter Pondrelei, then of Morobe Mining Joint Ventures, I collected comparable data for 11 villages in Wampar Rural LLG, Morobe Province, in 2012.

- 393 The Wampar villages fell into three groups, according to their access to services like schools and health posts. The MPI score for Agulogo and Manari falls into the ‘service deprived group’ with not very good indicators (Figure 8).
- 394 On the education dimension, adults in Agulogo and Manari households were well-educated, no household being deprived on the E-ENR indicator.
- 395 However, no children were in school at the time of our field trip 28 July-9 August. The Elementary Schools at Naoro 1 and Naoro 2 were permanently closed. At Manari Primary School, according to the Department of Education calendar (PNGDoE 2014), Term 3 should have started on 14 July 2014. But only one teacher was on duty at the Primary School at Manari in the week of 4-8 August, which should have been the fourth week of class. The remainder had failed to return from Port Moresby. All households with children, therefore, have been scored as deprived on the enrollment indicator (E-ENR).

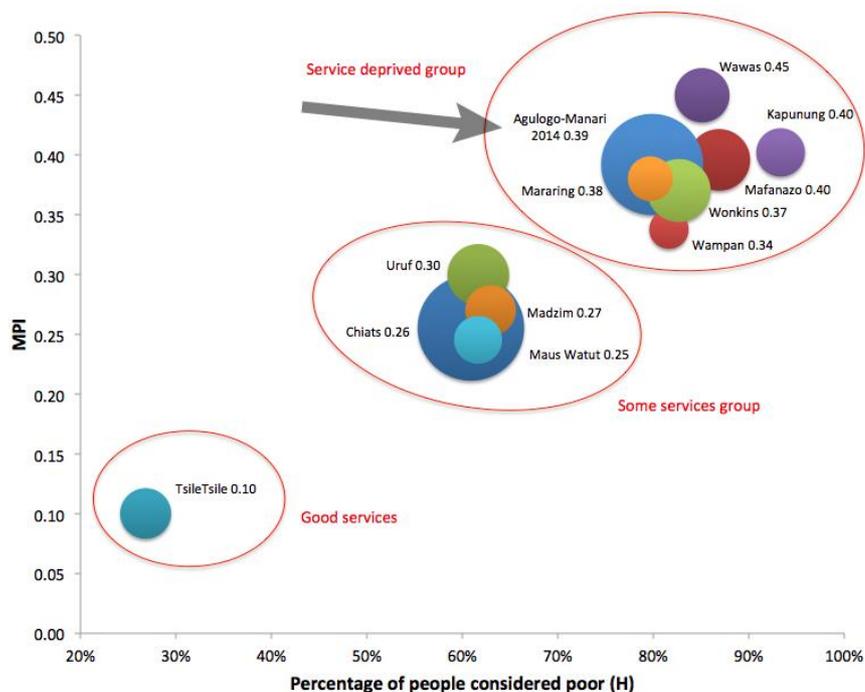


Figure 8. Multidimensional Poverty Index results for Agulogo-Manari plotted with 11 villages in Wampar Rural LLG, Morobe Province.

- 396 On the health dimension, we did not score the nutrition indicator (H-NUT), but 28 out of 77 households (36%) had lost children (H MORT).
- 397 On the assets dimension, all households had very similar scores – no electricity (a few households did have solar lighting and installations can be expected to become more popular

in the future), un-improved housing, all were deprived of motorised or other transport to help to sell marketable produce.³⁹

- 398 A difference between households was that there is no water supply at Agulogo. Thus, Agulogo households were scored 'deprived' for safe water (A-WAT).
- 399 In contrast to the life table calculation, the MPI method is *highly suited for measuring the effect of Kokoda Initiative development interventions*.
- 400 Actions that would start to lift household MPI scores in the short or longer term in IPZ Track communities include:
- Ensure that teacher absenteeism ceases at Manari – immediate effect on the school enrolment indicator
 - Re-open and staff the Elementary Schools and Naoro 1 and Naoro 2 – immediate effect on the school enrolment indicator at these villages
 - Improve village sanitation – medium term effect on the sanitation indicator
 - Start vocational training specialising in carpentry and basic trade skill – medium term effect on housing indicator
 - Ensure that the nurse at the Manari Clinic has a replacement when absent on a course and the Naoro 1 Aid Post is staffed – effect on health in the longer term
 - etc

FOLLOW-UP WORK FROM FINDINGS IN THIS CHAPTER

- 401 It is critical that staff from all agencies absorb the fact that the residents of the villages along the Kokoda Track, and in the IPZ generally, are objectively suffering from poverty.
- 402 The MPI method has been designed internationally to highlight the things that makes life safe and allows for basic economic opportunities. Communities that score badly on this index do so because they lack them. This should be borne in mind in all dealing with IPZ communities.

Recommendation 17. Evidence-based M&E (monitoring and evaluation) of the effectiveness of Kokoda Initiative development interventions, particularly in the area of health, should be a strong focus during the life of the Joint Understanding 3 (believed to be under negotiation).

Recommendation 18. Designs for future Kokoda Initiative development projects should look to align the objectives with the post-2105 Sustainable Development Goals.

³⁹ The Koiari Development Authority, a precursor to the KTA, at one time air-lifted coffee to Port Moresby but this service ceased over a decade ago.

CHAPTER 6

HOW THE INFORMATION WE HAVE PRESENTED CAN BE USED IN IPZ MANAGEMENT

Relation to tasks and deliverables (summary)

Task 2 ‘Obtain Free, Prior and Informed Consent (FPIC) to conduct of any part of the work which will involve the collection of personal data on individuals, and determine usage rules for this data.’

Task 3 ‘Recommend ‘safe haven’ options for data collected.’

Deliverable 3 ‘A specification of how the data will be stored in a manner compliant with the Information Privacy Principles ... A description of any disputed area of land or resource management.’

Deliverable 4 ‘Recommendations of how effective landowner or resource manager engagement should be carried out in each of the Wards as land management agreements and benefit sharing models are being negotiated by the PNG Government ...’

RETURNING TO A LANDOWNER ENGAGEMENT STRATEGY

403 By way of background, the TOR offer the reminder (taken from Burton et al. 2009: para 224) that designs for IPZ consultation and decision-making should satisfy the following five goals:

- That consultations are undertaken at locations and with groups of people *meaningful in terms of the rights and interests found in the project area*;
- That representatives emerging from such groups are *properly authorised* to make decisions on behalf of them;
- That they enjoy the *continuing endorsement* of other members of their groups;
- That the process is *accepted* by the representatives and members of like groups in the project area; and,
- Taken as a whole, the decisions that emerge from the consultative / decision-making process result in *measurable progress* in fulfilling the objectives of the project.

404 I now give commentary on these areas in summing up the main lessons to be drawn from this report.

MEANINGFUL IN TERMS OF THE RIGHTS AND INTERESTS

No Koiari is an island

405 A critical lesson to draw from the results of our 2014 fieldwork and the analysis in this report is that the project area does NOT present a picture of a patchwork of micro-nations each occupying a sovereign, and exclusively settled territory of some hundreds or perhaps thousands of hectares in extent, which can be assembled into an area we call the IPZ and

knowledge of which might thereafter make it possible for a future management team to maintain a list of delegates for the purpose of steering policies and making decisions for IPZ management.

- 406 It is certainly possible to draw up a map of land estates, even with quite precise boundaries in some cases, and as a result of the fieldwork we undertook in 2014 we have certainly advanced knowledge on this score. But there are very strong caveats to establish in presenting what we have found.
- 407 I have to preface my explanation in this way because of a recent assault on the reality on what traditional society is like.
- 408 As is well known, the *Land Groups Incorporation Act 1974* was introduced before Independence with the good intention of providing a way for customary groups to show who they were and take the first steps to managing their lands and resources.
- 409 As is also well known, significant shortcomings became apparent in this legislation and a revision, the *Land Registration (Amendment) Act 2009*, has been passed with the good intention to rectifying them.
- 410 Here I draw attention to just one aspect of the reform process and what the government's experts felt to be important. In its proposals before the new bill was drafted, the Constitutional and Law Reform Commission wrote:

Since all automatic citizen Papua New Guineans are born into one clan or such other social unit, it is the intention behind this reforms to ensure that multiple membership to ILGs is restricted (CLRC 2008: xi).

Since Papua New Guineans by birth are born into a one and the same social unit (clan, sub-clan etc) that own customary land, and the land group incorporation process is aimed at giving corporate status to an existing social unit that owns customary land, it is only plausible that a PNG citizen cannot belong to more than one ILG (CLRC 2008: 19).

- 411 This is to conceptualise social groups in the way illustrated in Figure 5.
- 412 The Mountain Koiari would face extreme difficulties if this principle were applied to them because they exemplify the lived reality of having to balance their inheritance of multiple interests from their (multiple) grandparents, greatgrandparents, and as far back as they need to remember.
- 413 Leaving aside for a moment the nature of traditional culture, the 'tribes killed off' phenomenon in the Naoro SubCatchment has meant that several traditional groups have had to rebuild their memberships from as few as three known survivors at the end of the 19th century. This never meant that the property rights of the groups were extinguished, or their existence forgotten, but the idea that the groups were self-contained islands into which people could be exclusively born is wrong, indeed hurtful considering the history.

- 414 The purest example is that of Bereka and Kauvi presented in Chapter 3, where the kindreds⁴⁰ that claim Bereka and Kauvi rights overlap to the point where they are almost identical.
- 415 Figure 6 illustrates the meaning of names – demonyms – like Bereka and Kauvi; they are not discrete collections of people that can be isolated from one another.
- 416 Or consider the examples of Naoro 1 and Naoro 2. Informants are happy to say that the basis of the two villages is that one represents ‘Elei’ and the other ‘Eava’, an idealism that suggests the existence of two distinct tribes or clans. But empirical evidence shows that this is not the case. Both villages are made up of people with many affiliations and although a nucleus of people whose primary affiliation is Elei live at Naoro 1, a quarter of those at Naoro 2 also have a primary affiliation to Elei.
- 417 A compounding factor in this case is that it appears that many of the working age adults with rights to the land estates at Naoro 1 and Naoro 2 live outside the area.
- 418 The same pattern is repeated in all the clans found in the modern villages and contradicts the assertion of the Constitutional and Law Reform Commission that Papua New Guineans are universally born into one group, and one group only.
- 419 The issue becomes very serious when we turn to the effects on village communities of merely *thinking about* Incorporated Land Groups.

A discussion at Manari

- 420 The information of the early patrols, the genealogical data we were collecting, and general discussions in the village, showed that the principal clan at Manari was Vamai. But there was a difference of opinion. A younger man was insistent that Elomi was a principal clan and owned half of Manari village. After he had left the interview place, three knowledgeable elders, mature family men in their 40s and 50s, shook their heads and restated our existing information that Manari was a Vamai place and Elomi, for its part, was best known at Efogi.
- 421 One said ‘Vamai goes first’ at Manari. But another said ‘Let’s be careful. Maybe there’s someone at the back of him who’s pushing him forward’.
- 422 DEC acquired several ILG certificates in 2010. The ILG certificate No. 10838 ‘Elomi-Vovori Land Group Inc’, issued by the Registrar of Incorporated Land Groups in 2005, says ‘its members belong to Manumu Village’ and has a list of 100 places claimed to be owned by the ILG. One of the names that is recognisable is ‘Vatalogo’, which indicates Vadulogo, i.e. half of Manari. This would fit with the claim that Elomi owned half of the village. The list also includes ‘Elulogo’ = Elologo, and Mt Victoria. There is a link with Manumu village in that Vovoli is a clan represented there (para 169), as it is at Manari.

⁴⁰ Kindred = set of people sharing common descent and relationships.

- 423 Mt Victoria, it should be said, is drained to the west by the Dala Poupe River, a tributary of the Vanapa, and to the east by Ebei Creek, a tributary of the Mambare. The tributaries of the Brown River do not drain off Mt Victoria, reaching only as far as Mt Thumb, 3240m (or Mt Service, depending on map labelling), a distinct summit separated from the massif of Mt Victoria, 4038m.
- 424 The elders then gave a folk story to explain the division of Vamai people into clans (or subclans) at Manari:
- “The first people lived in one house where they cooked and ate together. Then they broke up and called themselves by different names: Goribi, Havo, Kuruvi, Vovoli.”*
- 425 Another ILG certificate, No. 15306 ‘Manari Kori Land Group (Inc)’, issued in 2009, reflects the membership of a small group at Manari called Kori. In response, one of the elders said this the creation of ‘just one man who wanted to split the community’ and pointed out that he currently lives at 5 Mile in Port Moresby.
- 426 The former councillor of Ward 18 said that he had been asked to endorse the ILG application during his term of office but that he had declined. ‘Mi no wanbel,’ he said.
- 427 Ignoring the rights or wrongs of *the claims* associated with a particular ILG incorporation, I drew from the tenor of the discussion the fact that people in this society have a fundamental objection to the idea of fixing groups and rights, full stop.
- 428 The elders brought out two key factors that lie behind the smooth running of community life as it relates to groups and rights. These were (i) the ‘one house where they cooked and ate together’ idiom and (ii) full and accurate knowledge of family and ancestors.
- 429 There are many clan names today and these are useful for showing the areas of land associated with particular apical ancestors, male or female. This is the main way to validate the rights of people who can trace descent from them. But the significance of the names is not much more than this. It is socially inappropriate to split communities into bounded sets of people to which can be assigned *exclusive* proprietary rights.
- 430 In relation to ILGs, it is the concept expressed by the Constitutional and Law Reform Commission that concerns people. They do not have to read the particular document I have cited, they are aware of the intent simply by reading the media. Exclusive membership of groups contravenes custom because it ‘breaks the house’.
- 431 Accompanying this, an informed and detailed knowledge of family and ancestors lends authenticity to statements about rights. When people demonstrate ignorance, others become offended. One of the elders observed that the younger man had not known of the name of his own greatgrandfather until he told him. The implication was that lack of knowledge of where rights came from – about the ancestors whose names should be engraved in memory – was enough to render the younger man’s utterances devoid of meaning.
- 432 Hopefully this begins to explain why we have invested such a lot of time and effort in collecting and updating genealogical information. It is not done to refine lists of people’s

names; what we are trying to do is to learn what elders know for their own communities, but across the IPZ as broadly as we can. Rights to land are not static blobs assigned to fixed sets of people; they have to be reasoned for each family by reference to who they are descended from.

Comparison with Australia

- 433 The situation I have been describing merits comparison with the evidence required to obtain successful outcomes in Native Title claims in Australia. Evidence in support of a land claim is conventionally presented in the form of a ‘Connection Report’. There are many commentaries on evidence (e.g. Finlayson et al. 1999; Queensland Government 2003) which in summary require three questions to be answered in the affirmative (Table 10).

No.	Question	Type of evidence needed in support
1.	Can the existence of a land owning group be demonstrated in the area claimed at the time of contact?	<p><u>Australia</u>: Descriptions of early travellers and settlers are useful, especially when they contain the names of people, groups and places. Difficulties include frontier violence that drove people from their land, population collapse, and abandonment of country.</p> <p><u>Naoro SubCatchment</u>: Descriptions of Forbes, MacGregor, Ballantine, Stuart-Russell etc noting the names of mountains, rivers, villages, ‘tribes’ and individuals. Difficulties include frontier violence that drove people from their land, population collapse, and abandonment of country.</p>
2.	Can the claimants demonstrate unbroken connection from the members of the contact-period group to themselves?	<p><u>Australia</u>: Use genealogies to connect living people with ‘apical ancestors’ alive at the time of contact and asserted to be members of the contact era groups.</p> <p><u>Naoro SubCatchment</u>: Use genealogies to connect living people with ‘apical ancestors’ alive at the time of contact and asserted to be members of the contact era groups (Kauvi, Bereka, Honiri, Bohura ...).</p>
3.	Do the claimants continue to observe their laws and customs, pursuant to which their rights and interest arise?	<p><u>Australia</u>: Must be demonstrated. The Federal Court has disqualified claims where the ‘tide of history’ has ‘washed away’ knowledge of and observance of traditional laws and customs.⁴¹</p> <p><u>Naoro SubCatchment</u>: This is a live issue – community residents follow their ‘laws and customs’ on a daily basis, but feel that the 73% of Ward 18 people who live outside the area must also demonstrate authentic knowledge and respect custom, or else defer to people who do live on the land in the village.</p>

Table 10. Comparison with connection evidence used in Native Title claims in Australia.

- 434 Legal concepts about the nature of traditional Aboriginal society have been influenced by the so-called Tindale map of Aboriginal Australia,⁴² based on information collected 1938-74,

⁴¹ Notably in *Members of the Yorta Yorta Aboriginal Community v Victoria* [2002].

⁴² A revised version is currently sold in the bookshop of the Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS): <http://www.aiatsis.gov.au/asp/map.html>

which shows the continent divided into separate nation-like ‘tribes’. The Tindale map, and then current concepts in Australia, is in turn likely to have influenced the drafters of the *Land Groups Incorporation Act 1974*.

- 435 Separate developments in the ethnographic description the small-scale societies of both Australia and Papua New Guinea during the 1960s led anthropologists away from the rigidity of earlier views. In summary, social groups like villages in Papua New Guinea have come to be seen as collections of people with divisible but overlapping interests and ownership rights. In some of the highlands provinces in Papua New Guinea there are tribes and clans resembling ‘solid teams’ that live within strongly marked boundaries, but for other parts of the highlands – Hela and Porgera are well-known examples – and large parts of the lowlands, including where the Mountain Koiari live, this is not the case.
- 436 Unfortunately, new ethnographic insights have failed to penetrate legal thinking in both countries.
- 437 Claimants involved in Native Title cases in Australia and the elders we met in Ward 18 therefore face a similar difficulty. They are trying to observe their laws and customs, trace their rights to apical ancestors, and maintain and teach their knowledge of land, places and ancestors to their children, yet have to confront the equivalent of an ID-card system of tribe membership that State law provides for if they – or their neighbours – go down the path of creating ILGs.

The dangers of lists

- 438 Illustrating the seriousness of this problem, in 2011 Elton Kaitokai acquired a three page document ‘Name list for the Honiri Clan 2011’, a list of clan members drawn up by the principals of a commercial agreement involving Edevu people.⁴³ We do not know if the list is associated with an ILG.
- 439 In any case an ILG requires such a list. The *Land Groups Incorporation Act 1974*, Sec. 5(2)(c) requires ‘a list of all members of the group’. Schedule 1 of the *Land Registration (Amendment) Act 2009* is stricter, requiring:
- ‘a true and complete list of its members including the qualification of each’
 - ‘a certified copy of the birth certificate of each person who claims membership of the group’
 - ‘[a] qualification ... stating they are not members of another incorporated land group.’
- 440 The example of the Kauvi (para 205) and Bereka (para 209) shows why the people tracing their rights to the areas of land called Kauvi and Bereka face an impossible task, because the residents of Madilogo belonging to both groups comprise the same people.

⁴³ Uncertain but thought to involve ‘Papua New Guinea Hydro Development’, a company with an alternate hydroelectric power proposal on the Brown River.

- 441 Some groups with joint memberships and/or properties may incorporate with merged names, as in the case of ‘Elomi-Vovori Land Group Inc’.
- 442 Kauvi and Bereka cannot do this because there are other people with potential interests in the territories of the groups, at Haelogo in the case of Kauvi and Abau in the case of Bereka, who could theoretically return and raise an objection.
- 443 Parenthetically, this seems a strong possibility in the case of ‘Elomi-Vovori Land Group Inc’ because Vovoli is a candidate for being the most widespread clan name in the IPZ. People claiming a connection to Vovoli are found at Naduri, Kagi and Maraba in numbers ahead of those found at Manari, Manumu and Edevu, and there are more at Daoi, Boridi, Alola and Madilogo. There is no indication that the ILG executives have factored their rights into consideration.
- 444 The Kauvi and Bereka have found a culturally-appropriate solution by following their descent rules. The senior man on the Kauvi descent line is – by default – the lead representative for Kauvi. He and his close relatives have then nominated his late brother’s eldest son as the lead representative for Bereka.
- 445 We can see that they retain a strong feeling that Kauvi and Bereka land and interests *are distinct and must be kept apart*, else one man could be the lead representative for both ‘groups’.
- 446 Their solution satisfies custom and provides for flexibility because, should anything happen to either man, they can re-interrogate their genealogical structures to supply the next replacement(s) using the logic shown in an earlier section (para 215 *et seq.*; Figure 6).
- 447 The implication is that for a landowner engagement strategy to be ‘meaningful in terms of the rights and interests’, it must bear more resemblance to what the Kauvi and Bereka and have done than as the *Land Registration (Amendment) Act 2009* would try to force on them.

REPRESENTATIVES ... ARE PROPERLY AUTHORISED, HAVE CONTINUING ENDORSEMENT, ARE ACCEPTED BY OTHERS

The Honiri list

- 448 The Honiri list contains the names of 186 people. Table 11 shows the primary clan affiliations of a sample of 100 people⁴⁴ from the list as they stand in our database – that is to say, the clan affiliations we were given during fieldwork.
- 449 The table shows that only 6 (of whom one was deceased) of the 100 people were said by themselves to have been primarily Honiri. Other information shows that a further 31 have a

⁴⁴ We cannot identify all 100 under the names given. The sample is the first 100 we identified.

secondary affiliation with Honiri, which leaves 63 people without a lineal connection. What exactly has happened here?

450 Table 12 is a breakdown of how the 100 people we identified in the sample are connected – or not connected to Honiri. SubGroups 1-4, adding up to 54 people, have connections to Honiri that are visible to us. Those in SubGroups 5-11, adding up to 45 people, *may* have a connection but we do not know what it is. Given that we can account for the *many non-Honiri connections* that these people do have, if they have Honiri connections they are certainly not obvious ones.

Where	Clan	M	F	Total
Edevu 2	(blank)	4	5	9
	Bereka	1	2	3
	Bohura		1	1
	Elei	2	2	4
	Elili	15	8	23
	Honiri	2	4	6
	Kauvi		1	1
	Madili	1	4	5
	Niguia	8	2	10
	Tobo	5	5	10
	Vabari	1	1	2
	Vamai		1	1
	Varagadi	3	3	6
Total		42	39	81

Where	Clan	M	F	Total
Haelogo	(blank)	2	5	7
	Elili	5	1	6
Total		7	6	13

Where	Clan	M	F	Total
Madilogo	Elili		1	1
	Kauvi	1		1
	Vamai	2	1	3
Total		3	2	5

Where	Clan	M	F	Total
Milei	Elili	1		1

Grand Total		53	47	100
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Table 11. Sample of 100 people from ‘Name list for the Honiri Clan 2011’ by primary clan affiliations.

Source: Fieldwork 2011-2014.

451 As already noted, we recorded one person, an older woman, as deceased by the time of fieldwork in 2011 – in fact Jonathan RABIE’s mother-in-law. Obviously, older people are likely to die after lists of clan members are made up, but inspection of the full list shows

other, younger people believed to have died and a companion list, ‘Name list for the Sohava Clan 2011’, has a person called ‘Baby’ with the annotation ‘not yet born’ attached.

- 452 Jonathan RABIE is on the list and his case is worth examining. He is not only a straight Vamai man (the son of the son of the Vamai ancestor Labiori),⁴⁵ but as an eldest of three brothers he is also a principal spokesman for his family’s Vamai land.
- 453 Jonathan is on the list because his wife has rights to Honiri land through her mother, the granddaughter of Auka HABONO, one of the survivors from the raiding period just prior to contact (para 185). Jonathan’s children are primary Vamai people and secondary Honiri people, SubGroup 2 in Table 12.
- 454 When I asked Jonathan how he was on the list, he said that he was not on it. Once I had convinced him he was on it, he realised that it was through his wife’s connections as just set out.
- 455 The combination of the 45% of the list members we cannot easily connect to Honiri, the occurrence of people who have died and people yet to be born, and the inclusion of senior members of other groups – who could potentially be in dispute over land ownership or boundaries – means that questions hang over this kind of list.

SubGroup	Where	Total
1	Primary Honiri	5
2	Secondary Honiri	31
3	Spouses of Honiri	13
4	Adopted child and her children	5
5	Family A – mother from Haelogo, father from another province	7
6	Family B – mother Bohura, father Niguia	8
7	Family C – mother Hagari/Boridi/Elili, father Varagadi	6
8	Family D – mother Bohura, father Bereka/Elili	5
9	Family E – mother from another province, father Elili	8
10	Family F – mother from Madilogo, father Elili	7
11	Single individuals, no connection determined	4
12	Deceased	1
	Total	100

Table 12. Sample of 100 people from ‘Name list for the Honiri Clan 2011’: categories.

Source: Fieldwork 2011-2014.

- 456 Is the practice of making up lists like this harmful?
- 457 The list is defective if the 45% with unknown connections are on the list for reasons outside those that accord with custom or there are *other people* who are Honiri who have been deliberately or accidentally left out. This particular list may be valid; we cannot tell without doing a field vetting exercise.

⁴⁵ ‘Rabie’ is a shortening of his grandfather’s name Labiori, he says.

- 458 When lists are defective – a common expression in the Papua New Guinea media is ‘filled with ghost names’ – they have the potential for very serious harm if used for either electing representatives or benefit distribution. Examples are well-known in mining areas.
- 459 What has really happened is that the compilers of the list were thinking about their relatives with their minds in ‘recruitment mode’. This led them to consider everyone close to them as members of their clan. This might be acceptable if some future project were sited entirely within Honiri land but if, as in the case of the IPZ, a process must be devised for a wider region, lists like this will cause overlaps and conflicts of interest.
- 460 For a landowner engagement strategy to ensure that ‘representatives ... are properly authorised, have continuing endorsement, are accepted by others’, it can be suggested that (i) a much stricter vetting process is needed to avoid disputes over jurisdiction, (ii) a system needs to be in place to ensure that the status of representatives is regularly updated, and (iii) if groups decide they wish to formalise their status, they must all do it together and compare the results.

DISPUTES

Naoro 1

- 461 During our visit, and before we had raised any issues, it was said that two young men climbed from the village to the summit of the Maguli Range to get a phone signal to talk to the co-registerers of a Naoro 1 ILG who reside in Port Moresby and at Goldie. When I attempted to discuss who represented which clan at Naoro 1 the discussion stalled because an individual came and said we should not talk about land without the ILG executives present.
- 462 The ILG was possibly formed in connection with the former Mt Kodu Exploration Licence area, about 500m to the south of the Kokoda Track between ‘Dump 88’ and ‘Jap Camp’ (places between Ioribaiwa and Naoro 1).
- 463 It was not possible to learn the name of the ILG, nor which of the several clans found at Naoro 1 it was said to represent.

Madilogo

- 464 There is a long-standing dispute over land estates in the Madilogo area. See discussions in Chapter 2, Chapter 3 (para 196 et seq.) and the next section.
- 465 The modern expression of the dispute takes the form of an Edevu-based ‘West Koiari’ group sending letters ordering who we should talk to at Ward 18 villages, visits by men sent out by the West Koiari group to wards at the top of the catchment promoting schemes between them and ‘the Company’ (Burton and digim’Rina 2011: 30), visits by the principals of the group visiting DEC’s office, and so on.

- 466 The analysis I have been able to do from historical sources in Chapter 2 and Chapter 3 represents significant progress in understanding the basis of the dispute. The key stakeholders can be seen in the Community Express database to relate to the historical ownership of land in the Madilogo area and in the ridge north of Mt Dabanumu where MacGregor found the 'Baura villages'.
- 467 Critical questions yet to be answered are: What is the relationship between by Kauvi and Bohura? What is the oral history of Kauvi and Bohura in the contact period? Where did Kauvi and Bohura live in the early and mid-20th century?
- 468 What is needed next is more formal interviewing to pursue these questions, followed by – if possible – informal mediation to resolve the issues amicably. Legal avenues exists beyond this, starting with the Local Land Court, but they would be a recourse of last resort.
- 469 We did not encounter spokesmen for the West Koiari group on fieldwork Ward 18 during 2014.

Explaining MacGregor's Mistake – the Ginianumu problem

- 470 Linked to the foregoing, a critical historical anomaly requires resolution at Madilogo. It concerns the equation of Bohura land with 'Mt Ginianumu', this name deliberately in apostrophes.

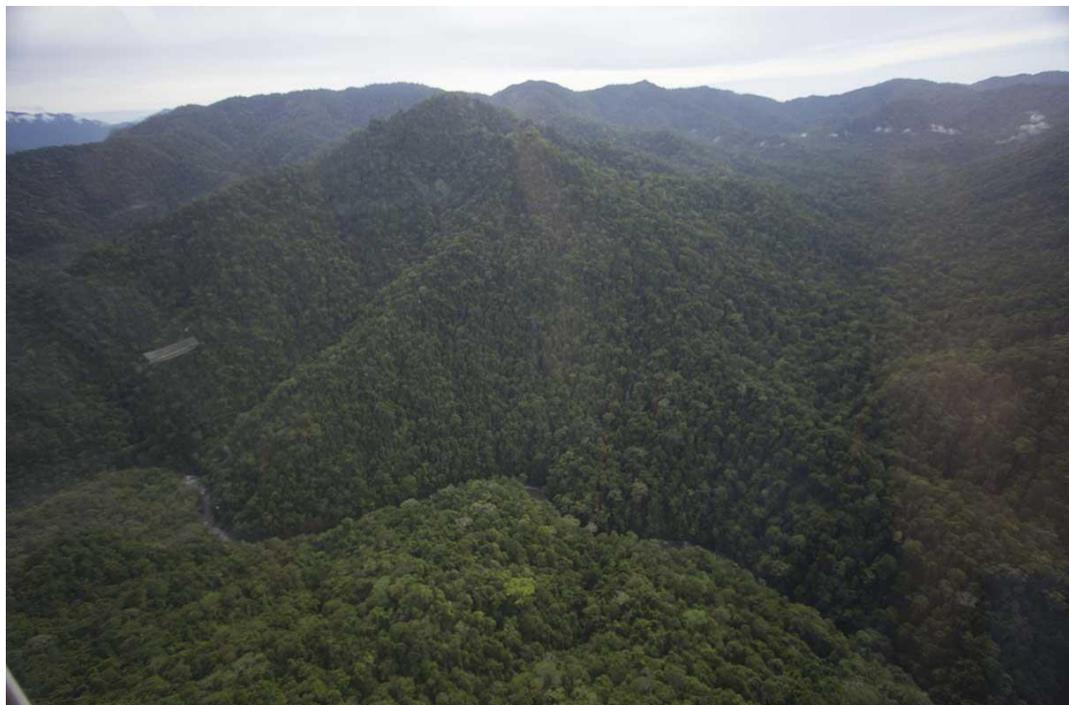


Plate 17. The pyramidal mountain marked as Mt Ginianumu on Map 1.

Notes: North at left of picture; Vabuiavi Creek flowing into Naoro River at right; Naoro River flowing right to left close to its junction with Brown River (World Bank visit to Madilogo, 3 December 2010).

- 471 It first appears as MacGregor’s apparent cartographic mistake of recording Mt Dabanumu as Mt Ginianumu (para 123 *et seq.*). At the present day, people closer to Brown River – for example, at Milei – pointed to Ginianumu as being a pyramidal mountain, rising to 1480m, between Hoveia Creek and Vabuiavi Creek, that is to say north of the confluence of Vabuiavi Creek and the Naoro River (Map 1, Plate 17).
- 472 Jonathan RABIE acknowledged this, but said that Ginianumu should really be approximately in the location of Baura on Map 8, i.e. *south* of the confluence of Vabuiavi Creek and the Naoro River, ‘but people have moved the name north to the peak near Milei’. He said it should be at the north end of the ridge that has Dabanumu on it. (We still do not have a name for this ridge.)
- 473 If Jonathan is correct, MacGregor may not have made a cartographic error at all. My personal experience is that people are not nearly so unanimous about the names of mountain peaks in the Mountain Koiari area as in some other parts of Papua New Guinea. I do not find it a stretch to imagine that if Jonathan heard that Ginianumu was at the northern end of the ridge, then MacGregor could have heard it that it was at the southern end.
- 474 This is believable given that he had men from other areas (the ‘chiefs of Eaha, Wamai, Uberi, Moroka, Sogeri’, para 128) accompanying the patrol with whom he could converse with varying degrees of difficulty and who may not have known for sure anyway. The inhabitants of the Baura villages on the ridge itself had all run away; he could not have asked them.
- 475 The connected issue is that there is no mistake that Baura is located where it is on Map 8 and Map 9, at 920m altitude on the topographic map. This would suggest that Bohura land was in this area. However, Eddie TORENA’s map (Map 29) marks Bohura land as being between Hoveia Creek and Vabuiavi Creek, that is to say on the other side of Vabuiavi Creek from where Baura village was – to where I have Ginianumu on Map 1.
- 476 The displacement of Ginianumu looks like a historical curiosity if taken in isolation, but the possibility that Ginianumu and the Bohura land may have been displaced together links the two issues.
- 477 If it is the case that *Ginianumu is the reference point* for Bohura land, not knowledge of boundaries specifically, then getting the correct location for Ginianumu takes on considerable importance.
- 478 It is unfortunate that this analysis had to post-date fieldwork, because the land dispute between parties based at Edevu and parties based at Madilogo may hinge on it. Cautious further inquiry at both places, armed with the detail brought to light in this report, is suggested as the first step forward.

Manari

- 479 (Dispute discussed above, para 420 *et seq.*)

FPIC AND GENDER INCLUSIVENESS

FPIC

- 480 Various guides and codes of conduct set out requirements for obtaining the consent of research subjects, often discussed under the rubric of Free, Prior and Informed Consent (FPIC). Australia's *National Statement on Ethical Conduct in Human Research* says:

Respect for human beings involves giving due scope to people's capacity to make their own decisions. In the research context, this normally requires that participation be the result of a choice made by participants – commonly known as 'the requirement for consent'. This requirement has the following conditions: consent should be a voluntary choice, and should be based on sufficient information and adequate understanding of both the proposed research and the implications of participation in it (NHMRC 2007: 19).

- 481 In institutional settings this be done by obtaining signed consent forms. But this is not a requirement. The *National Statement* continues:

Consent may be expressed orally, in writing or by some other means (for example, return of a survey, or conduct implying consent) (NHMRC 2007: 19).

- 482 Obtaining written consent would be difficult, but not impossible, in rural PNG. However, it can be rejected in most circumstances on the grounds it would pose a threat to the integrity of information gathering exercises. Unless community members knew the research team extremely well, most would see asking them to sign something as replicating the behaviour of list gatherers (para 448 *et seq.*). A hidden agenda would be suspected.

- 483 Instead, the way we proceeded can be broken down into parts that helped us to test the consent of the people we wished to engage with as well as the quality of this consent. At each point there is a means of judging 'yes, people consent' or 'no, they do not consent'.

- 484 Selection of porters. As discussed in Chapter 4, the team of porters had an important influence on the success of the field program because the porters were village elders from the five communities we were visiting. Elton Kaitokai and Frank Rabie collaborated on the organisation of the porter team and the way they did this allowed senior men from each community to opt in to the consultation exercise (Plate 18).

Tests for consent: elders reject the consultation exercise; delegate portering to 'porters', ignore the activities at villages / elders enthusiastically participate in consultation, become porters themselves in order to come on the trek, get involved in activities at villages.

- 485 Provision of information at meetings. A formal part of our work was to hold community meetings at which we could present the purpose of what we were doing and allow community members to raise their concerns and put their own ideas

Tests for consent: villagers show little interest, are unable to understand, are openly hostile / villagers are interested, understand clearly, ask well informed questions.

486 Of course, public meetings are poor occasions for some sections of the community to express views or seek information in Papua New Guinea – notably women – so that lukewarm responses at a meeting may not mean very much. On the other hand, if villagers object to something, they will usually make this very obvious.

487 Dialogue of over the 12 days of the fieldwork. We were in constant dialogue with the team of porters/elders and leaders at villages during the period of fieldwork and as we walked between from one village to the next. This allowed for a very substantial information flow in both directions, far more than is the case at meetings.

Tests for consent: trek companions go on ahead leaving the team to find its own way, fail to point out places of interest, abscond entirely / trek companions lead the team commenting all the way, show and explain places of interest in an informative manner.

488 Community members took charge of their own information. As seen in the sequence of photographs Plate 2-Plate 5 above, once our public meetings were over and families began to update their family tree information, they took complete charge of presenting their own information. Women participated just as much as men did. Essentially all collaborated on the 'return of a survey'. It was one of the best indications of all-round consent.

Tests for consent: spokesmen fail to engage with chart updating, reject the process and obstruct other family members from participating, break out into arguments / family members immediately engage with the process, discuss their own information among themselves, spend up to an hour with team members correcting their information.

489 Community members engaged with having portrait photographs taken. It is inappropriate to photograph human subjects in some cultures and certain contexts, and we were sparing of this in 2010. We photographed almost no children at all. But by bringing back prints of the 2010 photographs in 2014, we created an almost completely non-verbal means of asking for and being given consent – to re-photograph those photographed before, and to photograph everyone else, including children.

Tests for consent: it is culturally offensive to photograph human subjects, community members find it intrusive, children may not be photographed / photographing human subjects is fine (as long as you return the prints), it is considered an enjoyable activity, children may be photographed (as long as their parents and guardians agree and you return the prints).

490 In each of the above cases, few problems were encountered but there is a qualification in the case of the photographs – the prints from 2014 MUST be returned at a future date in order to complete the conditions of consent.⁴⁶

491 The few problems regarding consent related to the disputes set out in the previous section. At Naoro 1, at a meeting to list the spokesmen for the village land estates I was notified of a dispute. Per Task 1D 'Take note of any historical or continuing land disputes ... without undertaking any mediation of such disputes', I noted what I had learned and closed the meeting (para 304).

⁴⁶ 10c/print from Officeworks, but the courtesy MUST be carried through.

492 In summary, each of the steps above provided an opportunity for community members to make a ‘voluntary choice’, to obtain ‘sufficient information’ to ensure they had ‘adequate understanding of both the proposed research and the implications of participation’. Except where we learned of disputes, we understood the positive community responses as implying ‘conduct implying consent’.



Plate 18. Field team with porters / elders at Manari, 9 August 2014.
 Left to right: Joyce Onguglo, Rabie Frank, Dagiri Solomon, John Inive, Jack Gatoi, Robert Maena, Morea Biloi, Jonathan Rabie, Elton Kaitokai, Rasta Duri, Frank Rabie, Brendon Frank, Malcolm Keaka, Kay Imiri, Isaac Matama.



Plate 19. Joyce Onguglo with Manari women, 9 August 2014.
 Women voiced personal views more freely in settings away from public meetings.

Gender inclusiveness

- 493 The recent Kokoda Initiative gender snapshot report suggested that social mapping teams had been unsuccessful in getting women on the Track to speak up although ‘elderly women recalled their ancestry better than the old men, who are usually assumed to be custodians of traditional knowledge’ (IWDA 2014: 3).
- 494 Whether the last comment is correct or not (in either of its parts), the snapshot did not comment on the section that discussed the gender inclusiveness of our social mapping methods in a previous report (Burton and digim’Rina 2011: 50-52). However, it was true that women rarely spoke up in community meetings, and this was little different in 2014.

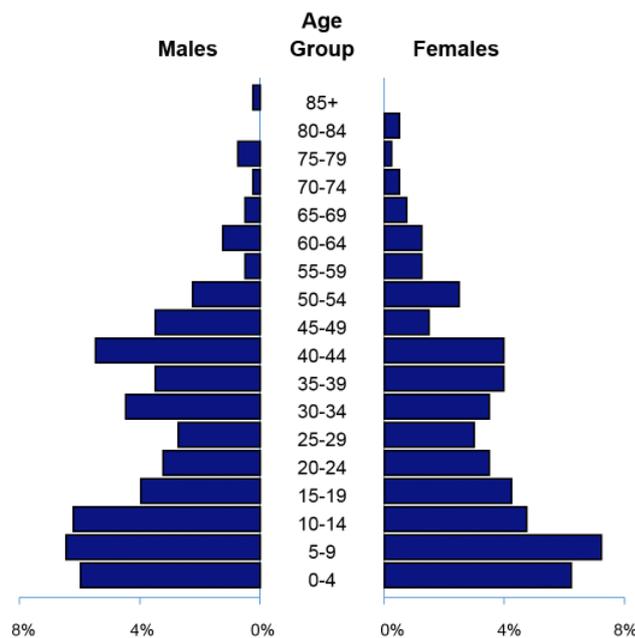


Figure 9. Age-sex structure of photographic portrait subjects, 2014.
 Notes: Represents all family members present and contributing to genealogical chart updating interviews; N= 402.

- 495 This is not to say that women did not contribute to interviews – they participated very fully in 2010, and they did so again in 2014, as seen in Plate 2, Plate 3, Plate 4 and Plate 5 (and Burton and digim’Rina 2011 Figure 25). One failing in 2010 is that we did not have a means of adequately recording women’s involvement. The main issue was that field team training absorbed a lot of time in 2010 and the two teams used were a person short compared to 2014.
- 496 In 2014, Malcolm Keako, DEC’s mapping officer, otherwise free while Elton Kaitokai and Joyce Onguglo were doing chart updating, was able to work full time taking portrait photographs of everybody present at updating interviews, once each chart was completed.
- 497 In comparison to 2010, when only 98 people were photographed (largely due to lack of time), 402 people were photographed in 2014. Everyone photographed had to be present at their chart updating interview so that collating the people with photographs gives a very

good idea of who participated (Figure 9). It properly reflects who was doing the talking as we can see in Plate 5 where a young mother was giving her family's information.

- 498 Figure 9 shows an even balance between females and males present at interviews and between adult age and child age groups. Infants are also represented, but then they were present too, if in their mothers' arms.
- 499 A shortcoming in 2010, unlike in 2014, was that we did not have a woman on either of the two field teams that year. In 2014, Joyce Onguglo, as well as doing chart updates, visited women in their homes at Agulogo, Madilogo and Manari (Plate 19) and held group meetings with women at Naoro 1 and Manari (Plate 20).⁴⁷



Plate 20. Joyce Onguglo obtaining the views of women at Manari, 6 Aug 2014.

- 500 The views she received from women focussed on problems in daily life. Women face the hardships of remoteness in terms of access to markets, for example having to walk the Kokoda Track to Port Moresby to buy store goods or market okari nuts, and in respect of services.
- 501 Women most frequently face childbirth in the village because the Naoro 1 clinic is closed and not all women have the means to stay at Manari where births can be supervised. In respect of the Manari clinic, medications have to be paid for somehow and they have very limited income for this.

⁴⁷ A factor in 2010 was the higher altitude of the helicopter drops, 1400m (Kagi) and 1230m (Efogi) as against 1070m (Naoro 1) and 830m (Manari), permitting one less passenger. We allowed this to affect the balance of the team and this must be avoided in future fieldwork.

- 502 Women worry about their children being able to enrol in school because the only facility open in 2014 – although it was closed at the time of our visit – was at Manari. Some children have relatives they can stay at Manari with during school terms, but others do not. It was suggested that dormitories might solve this problem.
- 503 Women have limited means of benefitting from the trek tourism. During our stay at Agulolo, a trekking group camped one night and three mothers each sold a dish of food for K10.00. This compared with some hundreds of kina the male camp site owner will have received for a group of about 20.
- 504 Other concerns included the lack of an insurance scheme for their husbands/sons who worked as porters, and can miss work as a result of trek-related injuries. As for village improvements, women at one village felt solar lighting would be very useful.

MEASURABLE PROGRESS IN FULFILLING THE OBJECTIVES OF THE PROJECT

Assumptions v disruptive findings

- 505 I return to Deliverable 4, recommendations for ‘effective landowner or resource manager engagement’ in the IPZ so that ‘land management agreements and benefit sharing models’ can be negotiated by the PNG Government.
- 506 Here we were set the task of covering a single ward as a test of method. Implicit in Deliverable 4 is a consideration of the quality, costs and viability of full social mapping studies across a possible total of 8 wards in the Kokoda IPZ as currently configured, or equally across a large prospective environmental conservation area in another part of Papua New Guinea.
- 507 The TOR recap the design for social mapping across the IPZ (Table 13). As of the completion this report, the project will have advanced to Step 3 (1 ward only). My recommendations are a commentary on this schema.

Step	Done?	Description
1.	Yes*	Collate existing information
2.	Yes	Undertake a first round of field work to accomplish preliminary mapping
3.	1 ward only	Undertake subsequent rounds of fieldwork to accomplish full-scale mapping
4.	–	Establish a steering committee
5.	–	Obtain community endorsement

Table 13. Design for social mapping in the IPZ (from TOR).

* With the qualification that new work continues to reveal information.

- 508 The steps are logical, but they have a weakness of relying on a simple model of a social mapping project area. The schema lacks an allowance for the early steps to throw up

‘disruptive’ information that will either overthrow the simple model or require the basic conception of what needs to be examined to undergo substantial revision.

- 509 In this case, the simple model may be stated as ‘landowners live in groups across the area; identify their representatives and map their land estates; hold consultations with them to progress the project area objectives’.
- 510 At least five disruptive findings alter this picture:
- Landowners do not live together in groups; at least 70% of community members are non-resident (finding in 2010).
 - Extreme violence in the contact period reduced many groups to a handful of survivors, affecting the security of tenure of the descendants (new finding in 2014).
 - Rights to properties do not come from ‘groups’ but must be reckoned, in the majority of cases, by tracing descent from the survivors (new finding in 2014)
 - The Mountain Koiari may have an ideology of patrilineal social organisation but descent from the ‘tribes killed off’ is as often traced through women as through men (suspected in 2010, but detailed data in 2014)
 - At some settlements (e.g. Naoro 1, Naoro 2), the senior spokesmen for land estates are predominantly non-resident (not seen in 2010, new finding in 2014).
- 511 This means that even local residents do not always know who are ‘the people who are able to make decisions’ because their own communities are going through a process of trying to resolve disputes. This places us in a difficult position – if we are too quick to endorse one party or another, we are very likely to make errors and make the disputes worse.
- 512 All of these things have cost implications. If the tasks of archival analysis, collecting genealogies, data entry, field updating, and further data entry are already time-consuming and expensive, the situation is only made worse by the discovery of new, disruptive information. Is there a more cost-effective way?

Alternatives

- 513 One place to look is at projects in Papua New Guinea’s extractive sector. Here, a variety of different models have been employed for the purposes of community consultation and, ultimately, benefit sharing.
- 514 Space does not permit a full account of the success and failings, but the consensus is that the cost to community members of the theft and diversion of benefits is not hundreds of thousands of kina, not millions of kina, but *hundreds of millions* of kina. It has outstripped the cost of putting together and maintaining proper landowner identification systems by an order of magnitude.

- 515 At Porgera, starting around 1988, customary land has been handled using the provisions of the *Land Act*, which involved the appointment of clan agents to sign for benefits. However, the original pool of approximately 300 agents who were the spokesmen for quite small parcels of land were consolidated into 23 ‘super agents’ prior to the 1988-89 Mining Development Forum. This was a success in that the 23 super agents negotiated the Porgera Agreement, but a disastrous failure in that 26 years has now passed and it has proved impossible to dislodge the 23 incumbents – although several have died and one was killed by another – let alone hold them to account for the fair distribution of benefits (cf. Golub 2007, Filer 2008).
- 516 This is not anecdotal. The PNG National Research Institute recently sent an investigator to Porgera. His report, essentially the government’s best information on the matter, concluded that officials in the local authority, the provincial government and the landowner associations ‘have been unable or unwilling to explain where and how *billions of kina* are spent’ (Johnson 2012: xi, my emphasis). The Porgera Joint Venture has devoted effort and resources to community engagement over many years, but evidently its efforts have not succeeded in thwarting the diversion of mining benefits from their intended recipients.
- 517 Similar problems are heard of at every mine and in petroleum licence area: landowner associations are overwhelmed by factional disputes, benefits fail to reach the grass roots, the government regulators are more interested in keeping the operations open than in ensuring that engagement with the community is carried out properly.
- 518 A project where a different way has been tried is Ok Tedi. Faced with imminent closure in 2006, the mine engaged professional facilitators and embarked on an exhaustive round of negotiations for what became known as the Community Mine Continuation Agreements. The company and allowed the entire process documented and to be made open access.⁴⁸
- 519 The negotiations continued for 18 months, involved 500 meetings and people from 150 villages. The company found no way of shortcutting the process, nor of beating the heavy burden of travel costs to convene the meetings, to achieve the outcomes that have received high international praise (e.g. Menzies and Harley 2013).
- 520 The drawback was the reported A\$8 million spent on the consultations.
- 521 All known examples reinforce the rule of thumb that organisations can select ‘effective landowner or resource manager engagement’ solutions by choosing from three criteria: *low cost, quick to complete, or best practice*. The Catch-22 is that all known solutions can only meet two of the three criteria.
- 522 When a hypothetically quicker, cheaper yet equally effective technique emerges to any of the community engagement strategies so far employed, it will be seized upon by organisations that depend on goodwill in the community, but none has as yet.

⁴⁸ <http://www.paxpopulus.com/wanbelistap/>

Maintaining the Community Express database as a one of the elements of consultation

- 523 At all villages we met with considerable community interest in what we proposed to do. As a central part was a round of chart updating, it is possible that we did not have to explain the objectives as much as we did in 2010 when the exercise was new to everybody. But in reality, most community members grasped both the process of what we doing and the objectives immediately (see additional discussion above under FPIC).
- 524 This is not surprising, because it is a general and long-standing finding throughout Papua New Guinea that people *actively seek* to involve themselves in exercises to correctly represent *who they are* and *what they have rights over*.
- 525 The community view of what we did, and our experience of it, were somewhat different. To the outsider, chart updating would appear as a *technocratic exercise*, a time-honoured variant of census which is described by Scott (1998) as a state project for making citizens 'legible'.
- 526 This would be the case if census still retained its full status in Papua New Guinea as a 'state project' such that citizens had a degree of confidence that census indeed enabled their governing authorities to 'see' them.
- 527 As things as, few citizens today believe this, in the cultural senses of (i) being able to correctly identify who they should be talking to in respect of customary rights to resources and (ii) 'see' them as in 'look after' them in respect of services and possible development project benefits.
- 528 I raise this to draw attention to the *consultation aspects* of the chart updates. I re-iterate that we in the field team, other Kokoda Initiative teams, DEC, DotE etc were likely to frame what we did in chart updating was 'just' collecting genealogies, but that for elders and community members alike it was a way of *getting involved*.
- 529 Other Kokoda Initiative activities will vary in their ability to involve – and therefore consult – ordinary people. Archaeology also lends itself to widespread community involvement, field studies for a biodiversity assessment are somewhere in the middle, while a hypothetical remote sensing project to evaluate forest carbon stocks would involve the smallest component of consultation.
- 530 An additional feature of social mapping field activities between 2010 and 2014 is that they have formed part of a *trust-building exercise*.
- 531 As I have just said, citizens have lost confidence in the State's ability to see who they are.⁴⁹
- 532 Remarkably, community members trusted our original teams 2010-12, and the current team in 2014, to do this properly. Fortunately we could keep true to our promises to be

⁴⁹ A practical demonstration was that a census team either failed to go to Efogi 1 and 2 in 2011 or its data sheets were lost. Census results recently obtain show a blank for both villages.

fair, accurate and not omit people. We had the means to collate their data accurately, we did not lose what they had given us, and we were able to bring it back in 2014 in a format that was *readable by all community members*. We brought back ‘Ward 18’, i.e. a representation of the people of Ward 18 in the form of 94 charts of genealogy, showing who was alive or dead, where they lived and who they were related to.

- 533 It is often assumed that elderly people lack formal literacy, but none were troubled in grasping the layout of the charts and identifying themselves (e.g. Plate 4). One by one, each family, including its old people, brought its chart to a team member to indicate changes and repair confusions.
- 534 Beyond FPIC, we took this to be an effective demonstration community members experienced what we were doing was an exercise in participation. *This is a major non-written consultation outcome for the wider social mapping project across the IPZ.*

Data protection and the promise of confidentiality

- 535 Part of our promise to community members, and an element of the trust we have endeavoured to build up between the IPZ community and DEC, is that they remain the owners of their own information and we will NOT DISCLOSE it to others without authorisation.
- 536 This promise is aligned with Deliverable 3 in the TOR which asks for a specification of how the data will be stored in a manner compliant with the Information Privacy Principles.
- 537 To date, PNG has not made an effort to comply with what is believed to be its only privacy-related commitment, the APEC Privacy Framework (APEC 2005). However, as soon as data collected on individuals enters or leaves PNG from or to a party that is committed to the OECD Privacy Principles⁵⁰ (Australia, Canada, France, United States etc), OECD data security compliance is triggered at the sending or receiving party’s end.
- 538 Australia’s implementation of data privacy stem from the *Privacy Act 1988* and its amendments. In the latest amendment, in force from 12 March 2014, the Australian Privacy Principles (APP) replaced the Information Privacy Principles.
- 539 The APP affect data used or stored in Papua New Guinea. Under APP 8 ‘Cross-border disclosure of personal information’, an organisation must not send data to another country unless it reasonably believes that:
- i. the recipient of the information is subject to a law, or *binding scheme*, that has the effect of protecting the information in a way that, overall, is at least *substantially similar* to the way in which the Australian Privacy Principles protect the information; and
 - ii. there are mechanisms that the individual can access to take action to enforce the protection of the law or binding scheme (Australia 2014, my emphasis).

⁵⁰ <http://oecdprivacy.org>

- 540 This can only be relaxed if the individuals the data is collected on explicitly consent to the disclosure of the information.
- 541 The first matter at issue comprises the 94 charts of genealogy generated from the database in Canberra, protected by encryption and safeguarded by back-up procedures. The act of carrying them across the Australia-Papua New Guinea border to reveal the information in Papua New Guinea constituted a ‘Cross-border disclosure of personal information’.
- 542 In this case the act was permissible because there was a ‘binding scheme’ in place to protect the information in a ‘substantially similar’ way to how they are protected in Canberra, namely that they were always under the care of the social mapping team and could not foreseeably be diverted to some other use, published on social media etc.
- 543 The second matter concerns the database itself, now updated after field data collection. The project TOR do not say this, but at some point DEC is likely to want a copy of the new version of database.
- 544 The first part of the specification concerns a ‘binding scheme’ at the destination: *the destination computer system must be secure enough to protect the data from loss, theft or unauthorised access.*
- 545 DEC’s system in the Michael Somare Foundation building between 2010 and 2012 was not up to the required standard. Network backups had ceased, anti-virus protection was out-of-date and, when the building was no longer fit for use, it is understood that part of the network hardware was held by the building’s owner as part of a business dispute. Fortunately, no loss or privacy breach occurred.
- 546 Lastly, under APP 10 ‘Quality of personal information’, an organisation must make sure that ‘the personal information that the entity uses or discloses is, having regard to the purpose of the use or disclosure, accurate, up to date, complete and relevant’.
- 547 This means that if DEC receives the information and can safeguard it on an appropriate computer system, the second part of the specification is that it *must not later make use of it if it has gone out of date or is found to have errors or is incomplete.*
- 548 The third part of the specification concerns authorisation. From the point of view of community members, who is authorised to see the information?
- 549 This can be derived from the ‘binding scheme’ criterion. Essentially, community members have consented to (i) the field team members and (ii) others working at the direction of the team members to use the data. At DEC this means that Elton Kaitokai is the primary person responsible. It means that if he supervises or trains and an assistant, the assistant is also an authorised user.
- 550 Community members expect us to look after the information they have provided to:
- assist them in drawing up rules for inclusion in a benefit sharing scheme at some future point
 - provide a neutral means of implementing the rules

- help defend against imposters

551 They do not authorise us to:

- share the database with a different section at DEC, another branch of government, or people casually inquiring to copy it
- allow others to do database lookups for purposes other than we explained prior to collecting it
- to publicly release lists of people without first obtaining permission at meetings to authorise this
- break the duty of care we described in any other manner, e.g. through a lapse in security

552 These are strict conditions, but a successful demonstration that they can be adhered to is provided by the Community Express database that I created for the Lihir gold mine at the time of its construction. This system has been operating for than 20 years and is maintained by a small section of two women under the supervision of the Manager for Sustainable Development and Environment. It exists at the wish of landowners and has been used to vet local applicants for employment since the 1990s.

Capacity building for DEC and University of Papua New Guinea to undertake future work

553 The TOR specified in the objectives that the current work will ‘develop and pilot a methodology’ which will:

Include capacity building opportunities for DEC and University of Papua New Guinea who will be responsible for undertaking participatory mapping within the broader Kokoda Initiative Interim Protection Zone in the future (TOR, p. 3).

554 In Table 14 I break down the effort days as allocated and as needed in 2014. Let me clarify that this is a question of how the deliverables could be supplied *in the context of the DEC’s desire to build its own and the University of Papua New Guinea’s capacity to undertake future work.*

555 The requested deliverables formed a very specific and demanding set of requirements.

556 Other than collect the data as we did, conduct the investigative research and present the analysis in this report as I have done, I cannot see how it would be possible to come close to complying with the deliverables to the standard expected.

557 But I must state that the detailed specification of the work carried with it a great underestimate of the time required to carry it out.

558 Factored in, as it must be, the initial design work was undertaken at the invitation of DEC when I was a salaried employee of the Australian National University in 2013.

559 But my employment ceased at the end of 2013 and consequently I could make no further inputs, or even commentary, on the project design until contracted to begin fieldwork. The free transfer of skills from an Australian university to DEC or UPNG is not the issue; the problem is hidden inputs into the pilot project that stopped before the project got underway and will not be available at all in the future.

What	Allocated	Used	Commentary
Project design	nil	15 days	Underwritten by ANU over a period of weeks in 2013.
Background research	nil	(main report)	Absorbed into research for the main report.
Prepare maps and charts for field use	nil	5 days	Original proposal included requirements to prepare field materials, but elapse of 14 months between design and go-ahead given; not apparent in the scope of services issued.
Fieldwork	15 days	15 days	Per TOR, 1 st milestone.
Clean up data from fieldwork	10 days	3 days	Per TOR, 2 nd milestone.
Interim report		2 days	
Data entry	11 days	20 days	No provision.
Data analysis, further documentary research, main report writing; align report with TOR checklist of deliverables		43 days	Background research undertaken <i>after fieldwork</i> ; inadequate allocation of resources for the scale of the investigation. Completion: 3 rd milestone.
Scan all data sheets, do database maintenance tasks	nil	–	Yet to happen, 5 days estimate.
Total	36 days	103 days	

Table 14. Resources required for Pilot SubCatchment Mapping in the Naoro SubCatchment in 2014

560 It would not have been unreasonable for two-thirds the load carried by me in Table 14 to have been borne by staff at DEC and UPNG if there had been a greater investment of time in thinking about the capacity building objectives.

561 Aspects of the work I could have assisted with, but not done as a consultant are:

- Data entry – Elton Kaitokai and I could have been mentoring a new staff member to do this.
- Database maintenance – ditto (task not done)
- Scan all charts – ditto (task not done)
- GIS work and map production – could have been a joint activity with DEC or UPNG’s GIS staff
- Investigative research – no reason why this could not have been part of a program higher degree research for existing or new graduate staff

- Querying and analysis of results from the Community Express database – I could have been mentoring existing or new graduate staff at DEC in how to do this
- Report writing – no reason why this could not have been a joint effort with DEC with the kind of collaboration followed in Canberra in 2012

562 As I summarised at the start of this section, the field team made huge progress in 2014 with the quality of the community engagement in Ward 18, and I believe the analysis I have been able to present in the report radically improves our understanding of the western half of the IPZ. Set against this, the lack of progress with the capacity building objectives is disappointing.

Recommendations	Where	Type
1-5	Chapter 2	CAPACITY – Advice for providing DEC (and/or UPNG) with tools and capacity for investigative work
6-7	Chapter 3	MUST DO NOW – Consultations that have to happen before preceding to the next step
8-9	Chapter 3	BACKGROUND – Ongoing investigations needed to understand IPZ history
10	Chapter 4	CAPACITY – Advice to DEC not to change field consultation method
11-13	Chapter 4	MUST DO NOW – Consultations that have to happen before preceding to the next step
14-16	Chapter 4	MUST DO NOW – Dispute resolution measures that have to be taken before preceding to the next step
17-18	Chapter 5	BACKGROUND – Advice to Kokoda Initiative in relation to JU2 Goal 2.
19	Chapter 6	MUST DO NOW – Desktop review of land use and agreement making approaches.
20	Chapter 6	SOON - Workshop to take stock of the above.

Table 15. Recommendations in this report listed by priority.

Moving towards the design of land management agreements and benefit sharing models

563 Deliverable 4 of the TOR is essentially the means of implementing Steps 4 and 5 in Table 13, where the suggestion is for a Steering Committee to oversee the drafting of agreements with landowners, and community endorsement achieved for its proposals, perhaps through having Ward representatives periodically attend authorisation meetings for this purpose:

Recommendations of how effective landowner or resource manager engagement should be carried out in each of the Wards as land management agreements and benefit sharing models are being negotiated by the PNG Government. The recommendations should include the names and locations of the key people who should be included in the discussions and reasons why they should be included.

- 564 In my opinion, embarking on the design of land management agreements and benefit sharing models would be premature at this stage.
- 565 I have set out recommendations for follow-up work at the end of each of the preceding chapters. Some of the recommendations are guidelines for how future work should be conducted but others need to be attended to before any attempt is made to start negotiating land management agreements (Table 15).
- 566 Among the recommendations, those marked ‘BACKGROUND’ may be taken as longer term directional advice. This does not mean they have a low priority – nos. 15-16 are life and death matters – but that moving towards agreement-making is not contingent on them.
- 567 Those marked ‘CAPACITY’ need to be attended to if any future work is to be undertaken with a degree of diligence matching the specific and demanding requirements of the current TOR. Moving towards agreement-making is contingent on them *if the current standard of work is to be maintained*.
- 568 Those marked ‘MUST DO NOW’ are commonly called ‘show stoppers’ in Papua New Guinea. No move towards agreement-making should be made without attending to them. They include initiatives to resolve the disputes we were alerted to during the course of fieldwork in 2014.
- 569 My last two recommendations are as follows. The first is to suggest a desktop review of approaches to agreement making over land in Papua New Guinea. As is common knowledge, this a subject with a long and troubled history. All experience points towards not rushing, appreciating the complexity of what is being attempted, and learning from the mistakes of others.
- 570 The second is to suggest a workshop to take stock of the current state of knowledge, the issues raised in this report, and any other matters that other project teams can bring of relevance to future land use and agreement making in the IPZ. At least preliminary findings from the desktop review should be available prior to the holding of the workshop.

Recommendation 19. A desktop review should be undertaken of the different approaches to land use and benefit sharing agreements at mining and petroleum projects, in the forestry sector, at oil palm projects, in existing protected or conservation areas and any other relevant contexts. The review should look broadly at legislative provisions, comparative costs, and highlight the advantages and disadvantages of each approach as it might apply to the IPZ and protected areas.

Recommendation 20. At a suitable point, a workshop should be held among DEC, DotE and recent project teams and Kokoda Initiative consultants, whose work is relevant to agreement making and the themes of this report. The objective of the workshop should be to take stock of the state of knowledge of all issues relating to historical processes, social organisation, land use and agreement making in the IPZ.

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APPENDIX A

ITINERARY – 28 JULY-9 AUGUST 2014

Mon 28 Jul 2014	Onguglo & Burton CNS-POM. Preparations and meeting with Elton Kaitokai, Malcolm Keako and James Sabi at the Department of Environment and Conservation.
Tues 29 Jul 2014	Helicopter to Naoro 2, arr. 10.40am. Greeting and community awareness by Ward 18 KTA Ranger, Elijah PETER. News that a body was being flown from POM to Manari for burial at Naoro 1 on 31 Jul 2014. Itinerary re-planned. Onguglo & Kaitokai – updating of charts of genealogy for Naoro 2.
Weds 30 Jul 2014	Dep. Naoro 2, 10.10am, arr. Agulogo 1pm. Updating of charts of genealogy and consultations with settlement leader Sobi LADIVE from 4.45pm.
Thu 31 Jul 2014	Onguglo – consultations with Agulogo mothers and additional data collection for Multidimensional Poverty Index. Dep. Agulogo 10.45, arr. Naoro 1 1.15pm. Greeting and community awareness by Ward 18 KTA Ranger, Elijah PETER. Apologies for coming soon after the burial. Onguglo & Kaitokai – updating of charts of genealogy for Naoro 1.
Fri 1 Aug 2014	Burton – inspection of vacant Aid Post. Onguglo – consultations with Naoro 1 mothers. Burton – consultations with Naoro 1 men regarding an ILG registered in this village. Dep. Naoro 1 11.30am, arr. Agulogo 1pm.
Sat 2 Aug 2014	Seventh-Day Adventist Sabbath. Burton and Onguglo – updating field notes.
Sun 3 Aug 2014	Dep. Agulogo 7.50am, arr. Madilogo 11.50am. Met with community.
Mon 4 Aug 2014	Greeting and community awareness intro in language by former cllr. Jonathan RABIE. Onguglo & Kaitokai – updating of charts of genealogy for Madilogo 10am-3pm. Burton, Keako – walk to lookout for boundary mapping with clan elders.
Tue 5 Aug 2014	Dep. Madilogo 9am, arr. Manari 3pm.
Wed 6 Aug 2014	Onguglo, Kaitokai, Burton, Keako – updating of charts of genealogy for Manari from 9am. Onguglo – discussions with women from 2pm. 5pm stop work.
Thu 7 Aug 2014	Completed chart updates from 8am. Visits to Manari Primary School, Health Clinic and war carrier Faole BOKOI.
Fri 8 Aug 2014	Dep. Manari 10.45am to photograph family members at Loni who were not present at Manari, return to Manari 2pm to finalise chart updates.
Sat 9 Aug 2014	Helicopter pickup at 10am, return to POM. Scheduled debrief with DEC missed. Onguglo & Burton POM-SYD-CBR, arr. 9.30pm.

APPENDIX B

CENSUS DATA FOR PROJECT AREA VILLAGES

Tax District	Village	Males	Females	Total
Mt Koiari	Elologo	38	30	68
Mt Koiari	Boridi	55	38	93
Mt Koiari	Dubi	38	17	55
Mt Koiari	Eguru (Kagi)	58	39	97
Mt Koiari	Samoli (Kagi)	54	62	116
Mt Koiari	Bagianumu (Efogi)	54	52	106
Mt Koiari	Launumu (Efogi)	79	59	138
Mt Koiari	Enivilogo	39	25	64
Vanapa River	Luma	32	25	57
Mt Koiari	Hailogo	57	45	102
Mt Koiari	Madilogo	30	21	51
Mt Koiari	Emoia (Manari)	66	61	127
Mt Koiari	Vadulogo (Manari)	43	37	80
Mt Koiari	Manumu	34	28	62
Mt Koiari	Nadunumu	36	43	79
Mt Koiari	Naoro	88	65	153
Mt Koiari	Ioribaiwa	14	10	24
Mt Koiari	Uberi	17	23	40
Totals		832	680	1512

Table 16. Populations of Mountain Koiari villages from 1958 Tax-Census Books.

Census Units in Ward 18 in 2014 in light yellow.

Villages	
Mt Koiari area	Sogeri
Awaiaba'iwa (Ioribaiwa)	Aguro
Bodinumu	Bagianumu
Boridi	Bisiatana
Dubi	Uberi
Efogi	Vadilogo
Eguru (Kagi)	
Elologo	
Emoia (Manari)	
Enivilogo	
Hailogo	
Launumu (Efogi 1)	
Madilogo	
Manari	
Manumu	
Nadinumu	
Naoro	
Samoli (Kagi)	
Population	2138

Table 17. Census Division 10 Mt Koiari in 1973 Papua New Guinea Village Directory.

Source: Papua New Guinea (1973). Notes: No village counts; Census Units in Ward 18 in 2014 in light yellow.

CU	Census Unit	Residents	Total
002	Bodinumumu	215	237
003	Boridi	101	124
004	Dubi	55	71
005	Efogi	246	391
006	Enivilogo	78	143
008	Hailogo	86	131
009	Kagi	194	344
010	Madilogo	89	104
011	Manari	273	348
012	Manumu	146	153
013	Nadinumu	116	147
014	Naoro	284	324
	Totals	1883	2517

Table 18. Census Division 9 Mountain Koiari in 1981 Provincial Data System Rural Listing (NSO 1981).

Census Units in Ward 18 in 2014 in light yellow.

CU	Census Unit	Males	Females	Total
002	Bodinumumu	78	81	159
003	Boridi	41	54	95
004	Dubi	22	25	47
005	Efogi	125	116	241
006	Enivilogo	35	35	70
008	Hailogo	32	43	75
009	Kagi	73	88	161
010	Madilogo	48	38	86
011	Manari	105	117	222
012	Manumu	63	58	121
013	Nadinumu	48	66	114
014	Naoro	135	108	243
	Totals	805	829	1634

Table 19. Census Division 9 Mountain Koiari in 1980 National Census.

Census Units in Ward 18 in 2014 in light yellow.

Ward	CU	Census Unit	Males	Females	Total
15 Boridi	002	Bodinumumu	81	88	169
	003	Boridi	54	61	115
	004	Dubi	22	23	45
	012	Manumu	28	28	56
16 Kagi	009	Kagi	68	79	147
	013	Nadunumu	62	68	130
17 Efogi	005	Efogi No. 1	78	94	172
	006	Enivilogo	31	21	52
	008	Hailogo	21	33	54
	019	Efogi No. 2	31	35	66
18 Manari	001	Manari	93	113	206
	010	Madilogo	27	27	54
	014	Naoro	44	45	89
	017	Ebologo	17	23	40
	020	Loni	10	10	20
19 Edevu	006	Edebu No.1	7	10	17
	007	Binige	5	2	7
	008	Edubu No.2	32	25	57
	009	Gaunaba	0	0	0
	010	Yobenumu	0	0	0
Totals			711	785	1496

Table 20. Wards 15-19 in Koiari Rural LLG in 2000 National Census.

Census Units in Ward 18 in 2014 in light yellow.

Ward	CU	Census Unit	Males	Females	Total
15 Boridi	002	Bodinumumu	55	39	94
	003	Boridi	67	61	128
	004	Dubi	17	15	32
	012	Manumu	10	7	17
	013	Daoui	57	36	93
16 Kagi	009	Kagi	106	82	188
	013	Nadunumu	78	67	145
17 Efogi	005	Efogi No. 1	0	0	0
	006	Enivilogo	33	34	67
	008	Hailogo	27	26	53
	019	Efogi No. 2	0	0	0
18 Manari	001	Manari	108	115	223
	010	Madilogo	33	35	68
	014	Naoro	52	38	90
	017	Ebologo	30	27	57
	020	Loni	21	21	42
	021	'Maoro 2'	45	42	87
19 Edevu	002	'Iori Baiva'	30	35	65
	006	Edebu No.1	21	30	51
	007	Binige	15	15	30
	008	Edubu No.2	135	127	262
	009	Gaunaba	25	31	56
Totals			965	883	1848

Table 21. Wards 15-19 in Koiari Rural LLG in 2011 National Census.

Census Units in Ward 18 in 2014 in light yellow.

APPENDIX C

LOCATIONS AND POPULATIONS OF WARD 18 SETTLEMENTS IN 2014

Name	Where	Latitude	Longitude	Altitude
Naoro 1	Church	9°15'53.73"S	147°36'42.72"E	957m
Naoro 2	Centre of main plaza	9°16'58.61"S	147°38'20.54"E	1068m
Agulogo	Centre of main plaza	9°13'57.73"S	147°37'10.79"E	719m
Ebologo	Centre of main plaza	9°12'59.78"S	147°34'3.06"E	730m*
Madilogo	Church	9°12'5.65"S	147°33'15.30"E	656m
Manari	Top of airstrip	9°11'32.47"S	147°37'23.66"E	828m
Loni	Centre of main plaza	9°11'4.50"S	147°37'54.60"E	1130m
Gikai	Centre of main plaza	9°11'56.01"S	147°38'19.40"E	1228m*

* Not visited, Google Earth estimate

1. Ward 18 Residents

Where	Visited	Population
Naoro 2	29-30 July	105
Agulogo	30 July, 2 August	37
Naoro 1	31 July-1 August	59
Ebologo	(not visited)	4
Madilogo	4-5 August	37
Manari	6-8 August	272
Loni	8 August	28
Gikai	(not visited – residents recorded as 'Manari')	–
Ioribaiwa etc	(not counted)	–
Total		542 (27.4%)

2. Ward 18 Non-Residents

Where	Notes	Population
5 Mile	(Top 10 places where non-residents live)	193
Erima		69
Goldie		67
Edevu 2		65
Doe		57
'Port Moresby'		55
A.T.S.		50
Tokarara		35
Sogeri		33
Osabea		31
Other places		783
Total		1438 (72.6%)

Grand total		1980 (100.0%)
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APPENDIX D

THE ORDER OF GENEALOGICAL PRECEDENCE IN INCOMPLETE GROUPS

571 Although various orders of precedence can be proposed, if the father’s group takes precedence over the mother’s group – the normative rule for a patrilineal system – the most basic is as shown in Figure 10, which assumes knowledge of the identity of all ancestors to three generations before the present one. The diagram could be extended to four generations, and more, in the same way. The default is that Ego will have a ‘primary affiliation’ with group A.

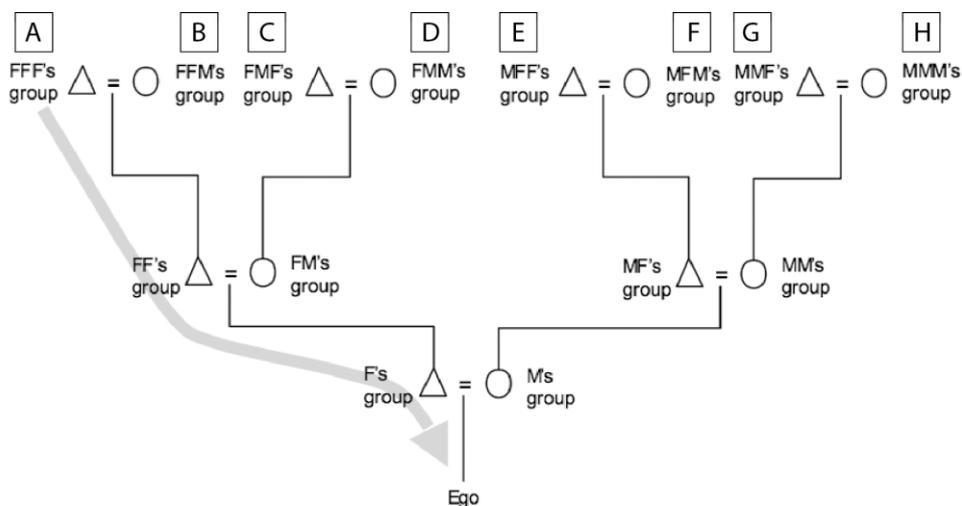


Figure 10. Ancestor groups up to three generations.

F = father, M = mother. Arrow shows highest order of precedence when descent in the male line takes precedence over descent in the female line.

572 The Mountain Koiari allow a good degree of flexibility in the assignment of people to groups, so Ego has a ‘secondary affiliation’ with any of the groups B, C ... H, and may exercise this if he or she chooses to.

573 The selection of A is as much to do with the fact that groups B, C ... H will have their own living men whose FFF’s were ancestral members of the respective groups, following the normative⁵¹ principle that men should succeed their fathers if possible.

574 But this is a rare ideal because among the Mountain Koiari (a) genealogical structures reach back to the time of tribal fighting and knowledge of ancestors in the grandparental / great grandparental generation may have been disrupted and (b) the identity of all more recent individuals may not be known as people marry into other ethnic groups or leave the area permanently.

⁵¹ ‘Normative’ – as in ‘a normative system of traditional laws and customs’ that gives rise to ‘rights and interests’ in land etc. A term widely discussed in Native Title cases in Australia, e.g. *Members of the Yorta Yorta Aboriginal Community v Victoria* [2002].

- 575 An example of a more typical situation is shown in Figure 11.
- 576 Here, only the groups of the father’s mother’s mother, D, the mother’s father’s group, G, and the mother’s mother’s group, H, are known. It is not so clear which should have precedence. On the logic of patrilineal (father-son) links taking precedence over matrilineal (mother’s side) ones, the order FFF, MFF, FFM, MFM, FMF, MMF, FMM, MMM (A, E, B, F, C, G, D, H) can be suggested as the *default order of precedence*.
- 577 If this is followed then Ego should look to the groups of his/her ancestors in the order (1) MMF, (2) FMM, (3) MMM (G, D, H).
- 578 I stress that another order might be argued if additional cultural information were to hand.
- 579 Which of G, D or H will actually be followed depends on whether Ego (a) just wants to live with the people of G, D or H or, (b) wants to assert the right to make decisions over land or resources belonging to G, D or H.

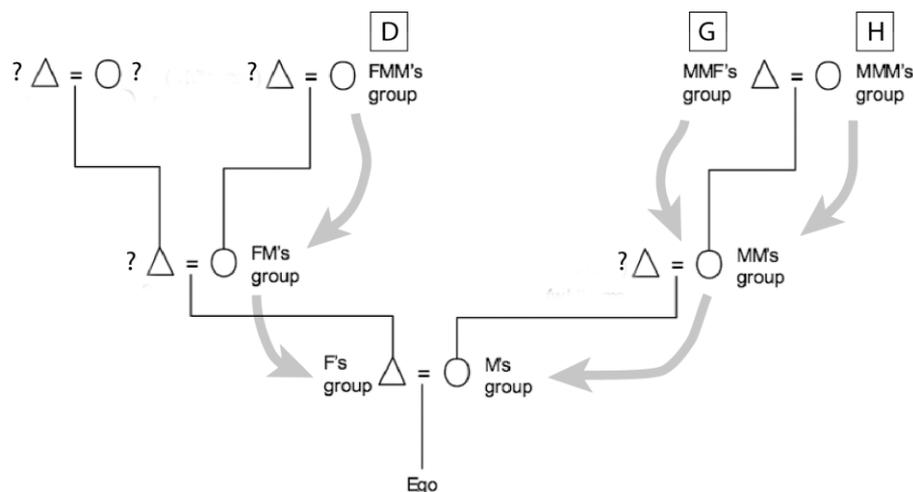


Figure 11. More typical situation where genealogical is incompletely known.

F = father, M = mother. Arrow show possible alternate lines of transmission of decision-making rights over the land and resources of groups D, G and H.

- 580 If the former, it is unlikely Ego can be turned away. During the course of a man’s or a woman’s life among the Mountain Koiari, the options of where to live and where to make gardens do change. Choice may also be influenced by the affiliations of one’s wife or husband, the availability of land, the proximity of schools and roads, and so on.
- 581 But if the latter, a stricter ‘genealogical calculus’ will have to be followed. Critically, the choice may depend on whether, in Figure 11, which of G, D or H has no-one else with a higher claim to represent it.
- 582 In all cases, adoption can play a factor. Everywhere in Papua New Guinea, brothers and sisters give each other children to make up for barrenness or to give a boy or a girl to a couple with only girls or boys, respectively. This extends in *some societies* to the deliberate

adoption of children to inherit land where there would otherwise be a break in the line. *It may be the case* among the Mountain Koiari that strategic adoption can take place for this reason. Further information is needed on this subject.

How clans are recorded in Community Express

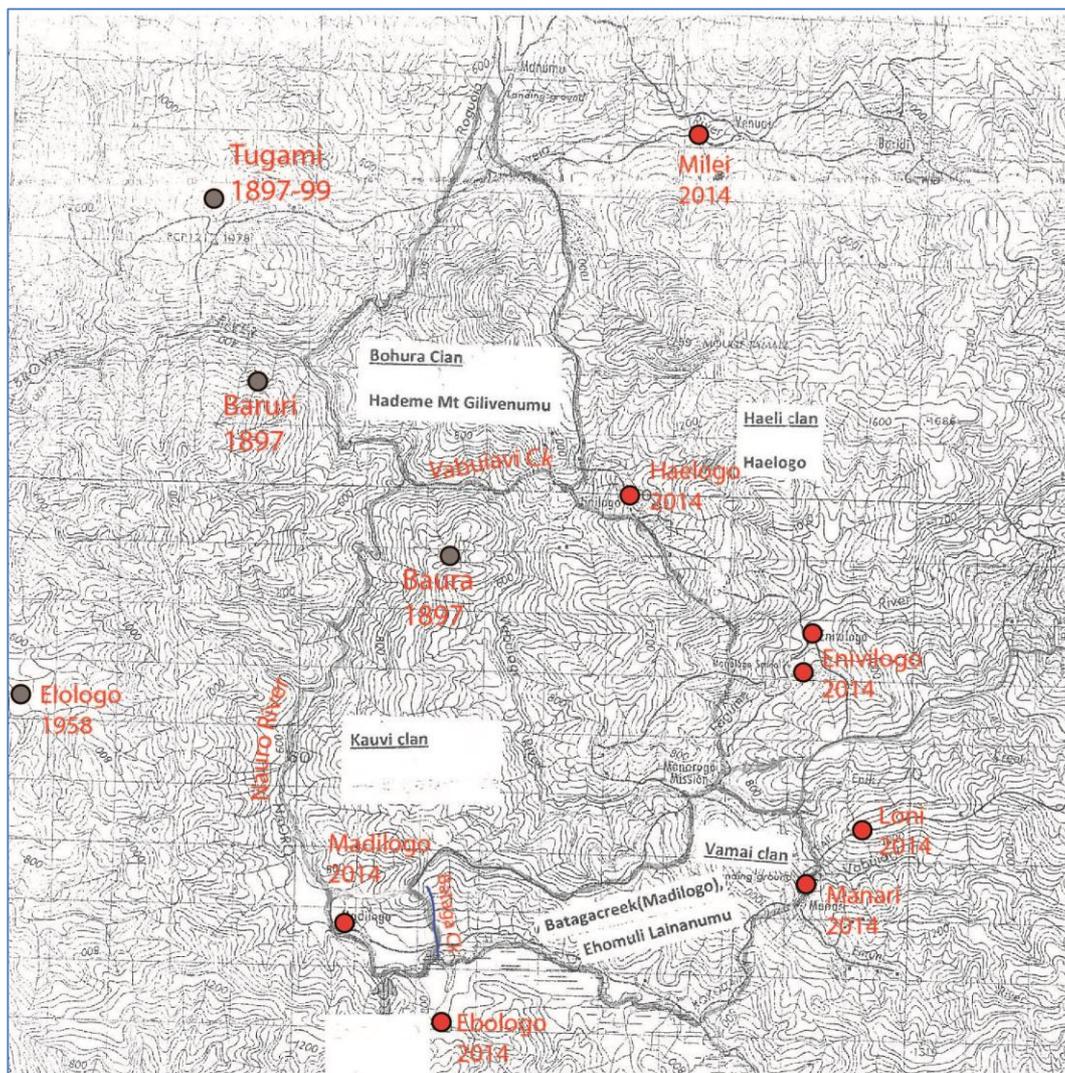
- 583 The above discussion is precursor to showing how the transmission of group interests can be implemented in software, not to rule people in or out of groups, but to act as a guide to how they trace their connections. A simplified method is used in Community Express,⁵² the software used on the project for the Mountain Koiari genealogical database.
- 584 Because each person has an indefinite number of forebears, it might be thought necessary to go back an indeterminate number of generations to work out any person's interests. But only some ancestors are actually knowable prior to the greatgrandparental generation.
- 585 Apical ancestors are *manually assigned* what may be neutrally called 'descent interests' according to knowledge about them. For example, 'he was Elei', 'she was Niguia' etc. There is no judgement about whether Elei or Niguia is a place, a tribe, a clan etc. Only one interest is normally assigned. (If there was more than one, knowledge of the parents would be available and, if so, the parents would be apical ancestors).
- 586 For subsequent people, descent interests are *assigned automatically*, unless a 'stop' is put on a person (for example, when an adopted child does *not* follow its adoptive parents). Community Express proceeds as follows to determine how a person of either sex, Lindsay, inherits and transmits descent interests:
1. Shorten Lindsay's father's descent interests to the first four, in order of precedence.
 2. Shorten Lindsay's mother's descent interests to the first four, in order of precedence.
 3. Combine the two lists following the logic of Figure 10 and Figure 11.
- 587 When Lindsay has children with an unknown partner, they inherit Lindsay's interests without modification.
- 588 When Lindsay has children with a partner, Vivian, the exercise continues:
4. Take Lindsay's four descent interests ...
 5. Take Vivian's four descent interests ...
 6. Combine the lists ...
- 589 By this means, almost all the more than 10,000 individuals in the database are automatically given descent interests by specifying the interests of no more than 10 to 30 ancestors at each village. It must be emphasised that this is simply a *guide* to who, among the 10,000 individuals, can trace their rights to which original groups. The reality – of which groups people actually choose – may be very different. Perhaps only 30% of people follow the 'straight' line that genealogical logic would suggest.

⁵² <http://www.communityexpress.info/>

- 590 During fieldwork in 2014, community members at several villages pointed out that we had not brought charts of genealogy with their clans printed out on them. They wanted to see this. We explained that it was a deliberate omission because we would be bound to provoke disputes if we did it.
- 591 First, we did not want to give the impression that the paper charts are law-like documents ('charters') telling people what their clans are. We already face the problem that everyone wants to see their own family tree printed out for the clan they have chosen, thinking that if they don't see it this way, we have not recorded the information correctly.
- 592 For example, when starting a chart with a greatgrandfather and a greatgrandmother we have normally printed only one chart to save weight and keep down the number of charts to carry about, because all descendants from the couple will be identical. But this does not prevent a descendant of the greatgrandmother's *father* wanting a new chart – identical to the one we have but showing the greatgrandmother's father as the first person.
- 593 We have not solved this issue yet. It is a technical one.
- 594 Second, the purpose of field updates is to make corrections and this means that we must inevitably print out incorrect information. It is a minor thing to print someone's name incorrectly, and we have never encountered objections to spelling mistakes or transpositions of names. They are simply corrected. The incorrect assignment to clans, however, is seen as a life and death matter. We would definitely risk inflaming local feelings by presenting the wrong information by accident.
- 595 This is also a technical issue and it may be that we can innovate with a discreet way of providing the information, say on an iPad, so that individuals can see what is recorded for them – and that it can be freely edited – without everyone else seeing this and starting an argument.
- 596 Third, village-level political changes frequently occur in rural Papua New Guinea. When we record information about customary groups, we must do so in a way that is neutral to the kind of information we are collecting. In other words, whatever people decide about their customary groups, we must follow. We cannot be seen to pre-empt decision-making by some automated process.
- 597 This is not a technical issue, but one that is just inherent in the nature of social processes. It is a limit on what is knowable.

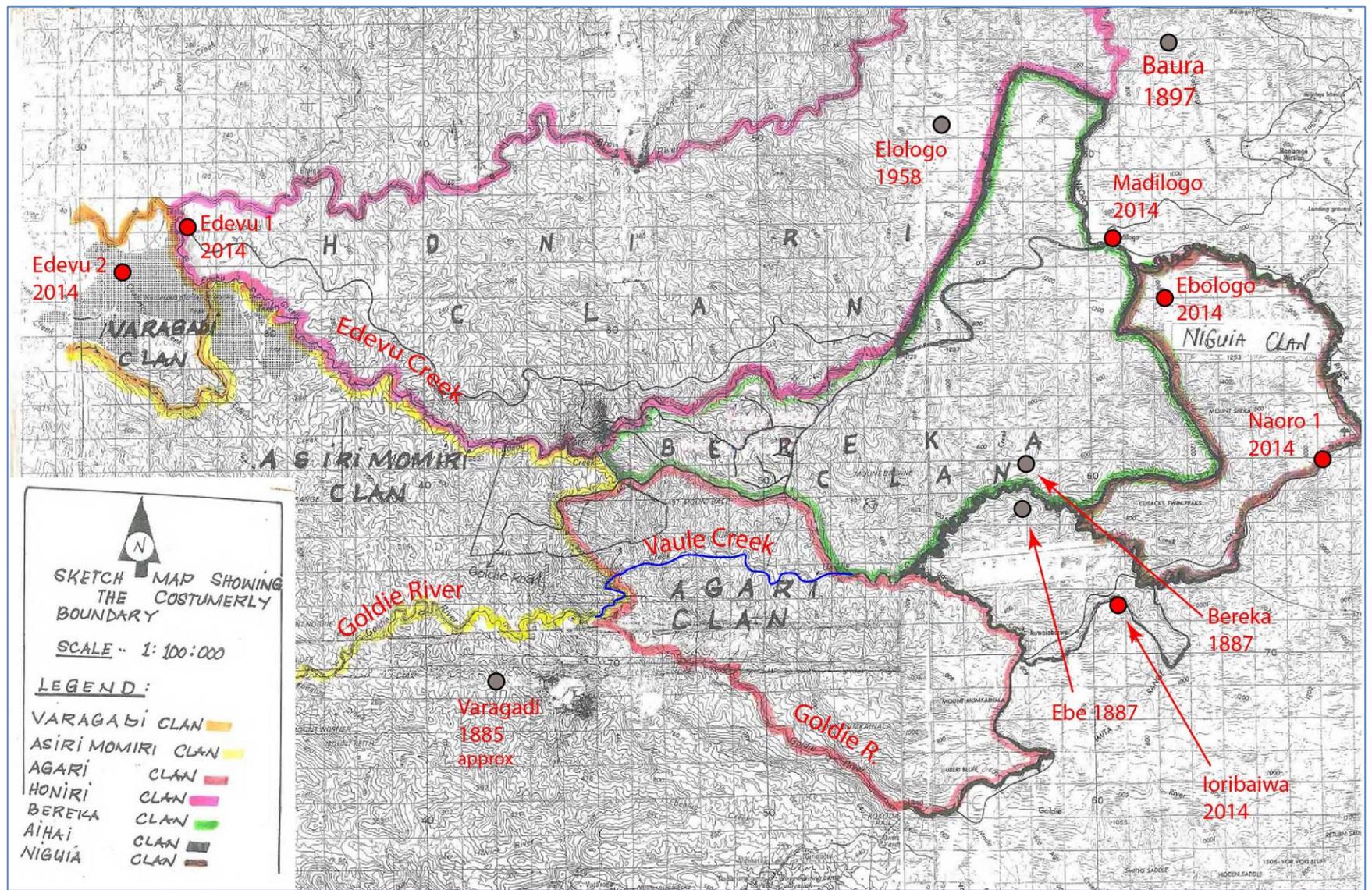
APPENDIX E

EDDIE TORENA'S MAPS



Map 29. Eddie Torena's map of the northern part of the Naoro SubCatchment.

Notes: Settlement positions copied from Map 1 and historical maps.



Map 30. Eddie Toren's southwestern part of the Naoro SubCatchment.

APPENDIX F

LIFE TABLES FOR WARD 18

Conventionally, life tables are calculated either (i) using intercensal methods in large populations or (ii) from registers of births and deaths. The first method gives a snapshot of life expectancy as experienced by the population between the two census dates, that is usually the previous 5 or 10 years (see Bakker 1986 for the calculation of the 1980 PNG life tables). The second method reflects the lived years and the burden of mortality experienced over the lifetime of the people in the registers, which could be as long as 100 years. Many guides give an explanation of how the various columns in a life table are derived (e.g. Palmore and Gardner 1986). The first entry in the e_x column, or e^0 , gives the most usually quoted figure – life expectancy at birth.

Life expectancy has only been measured directly a handful of times in Papua New Guinea's history; at other times, modelling has been done. However in Papua New Guinea, even with direct methods, many assumptions have still to be made (see discussion in Hayes 1996).

In respect of Ward 18, conventional methods cannot be used: the population is far too small and few death dates are known. Instead, I have used a cohort survivorship method as an alternate means of deriving the l_x column in a life table (all columns can be calculated from any one column, but conventionally the M_x or q_x columns are the starting point). The method can be shown to be robust in that its use on different subpopulations in the same area gives consistent results, but further benchmarking is required to determine if there is a systematic bias to under- or over- estimation of life expectancy.

1. WARD 18 – RESIDENT FAMILIES (NAORO 1 & 2, MANARI, AGULOGO AND MADILOGO COMBINED)

Living = 565. Dead = 375. Total = 940. Life expectancy at birth, $e^0 = 49.9$ years.

x	n	nax	Mx	qx	lx	dx	Lx	Tx	ex
0	1	0.0500	0.0750	0.0700	1000	70	934	49879	49.88
1	4	1.5240	0.0145	0.0559	930	52	3591	48945	52.63
5	5	2.5000	0.0094	0.0457	878	40	4290	45354	51.66
10	5	2.5000	0.0044	0.0215	838	18	4144	41065	49.01
15	5	2.5000	0.0015	0.0077	820	6	4083	36920	45.04
20	5	2.5000	0.0045	0.0221	814	18	4023	32837	40.36
25	5	2.5000	0.0069	0.0338	796	27	3911	28814	36.22
30	5	2.5000	0.0090	0.0439	769	34	3759	24904	32.40
35	5	2.5000	0.0116	0.0565	735	42	3571	21145	28.77
40	5	2.5000	0.0158	0.0758	693	53	3336	17574	25.34
45	5	2.5000	0.0216	0.1024	641	66	3040	14238	22.22
50	5	2.5000	0.0283	0.1322	575	76	2686	11198	19.47
55	5	2.5000	0.0348	0.1599	499	80	2296	8512	17.05
60	5	2.5000	0.0404	0.1835	419	77	1905	6215	14.82
65	5	2.5000	0.0466	0.2086	342	71	1534	4311	12.59
70	5	2.5000	0.0569	0.2491	271	68	1186	2777	10.25
75	5	2.5000	0.0785	0.3281	203	67	851	1591	7.82
80	5	2.5000	0.1324	0.4973	137	68	514	740	5.42
85+	n/a	3.3000	0.3030	1.0000	69	69	227	227	3.30

2. WARD 18 – NON-RESIDENT FAMILIES (NAORO 1 & 2, MANARI, AGULOGO AND MADILOGO COMBINED)

Living = 1479. Dead = 427. Total = 1906. Life expectancy at birth, $e^0 = 61.1$ years.

x	n	nax	Mx	qx	lx	dx	Lx	Tx	ex
0	1	0.0500	0.0525	0.0500	1000	50	953	61070	61.07
1	4	1.5240	0.0094	0.0369	950	35	3713	60117	63.28
5	5	2.5000	0.0022	0.0110	915	10	4550	56404	61.65
10	5	2.5000	0.0006	0.0029	905	3	4518	51854	57.31
15	5	2.5000	0.0001	0.0005	902	0	4510	47337	52.46
20	5	2.5000	0.0003	0.0015	902	1	4505	42827	47.49
25	5	2.5000	0.0011	0.0055	900	5	4490	38321	42.56
30	5	2.5000	0.0027	0.0132	895	12	4448	33832	37.78
35	5	2.5000	0.0048	0.0236	884	21	4366	29384	33.25
40	5	2.5000	0.0074	0.0363	863	31	4236	25018	29.00
45	5	2.5000	0.0108	0.0526	831	44	4048	20782	25.00
50	5	2.5000	0.0156	0.0752	788	59	3791	16734	21.24
55	5	2.5000	0.0226	0.1071	729	78	3448	12944	17.77
60	5	2.5000	0.0325	0.1504	650	98	3008	9496	14.60
65	5	2.5000	0.0461	0.2069	553	114	2478	6488	11.74
70	5	2.5000	0.0657	0.2822	438	124	1882	4011	9.15
75	5	2.5000	0.0993	0.3976	315	125	1260	2128	6.76
80	5	2.5000	0.1888	0.6414	190	122	644	868	4.58
85+	n/a	3.3000	0.3030	1.0000	68	68	224	224	3.30

APPENDIX G
MULTIDIMENSIONAL POVERTY INDEX CALCULATIONS FOR AGULOGO AND MANARI

Household	MPI indicators										Scores			
	E-YRS	E-ENR	H-MORT	H-NUT	A-ELEC	A-WAT	A-SAN	A-HSE	A-FUEL	A-OWN	c	n	q	$\Sigma(q*c)$
Rodney LADIVE	0	1	1	0	1	0	1	1	1	1	● 6.1	5	5	30.56
Sobi LADIVE	0	1	1	0	1	1	1	1	1	1	● 6.7	7	7	46.67
Simon LADIVE	0	1	1	0	1	1	1	1	1	1	● 6.7	6	6	40.00
Badi VAVAGA	0	1	1	0	1	1	1	1	1	1	● 6.7	4	4	26.67
John INIVE	0	1	0	0	1	1	1	1	1	1	● 5.0	6	6	30.00
Thomas TAHOTI	0	0	1	0	1	0	1	1	1	1	● 4.4	6	6	26.67
James VELEMI	0	1	0	0	1	0	1	1	1	1	● 4.4	6	6	26.67
Solomon SORI	0	1	0	0	1	0	1	1	1	1	● 4.4	5	5	22.22
Seile SORO	0	1	0	0	1	0	1	1	1	1	● 4.4	4	4	17.78
Sori SEI'ILE	0	1	0	0	1	0	1	1	1	1	● 4.4	7	7	31.11
Moses MADO	0	0	1	0	1	0	1	1	1	1	● 4.4	5	5	22.22
David MOSES	0	0	0	0	1	0	1	1	1	1	● 2.8	4	0	0.00
Graham MOSES	0	0	0	0	1	0	1	1	1	1	● 2.8	3	0	0.00
Lendi BOKOI	0	1	0	0	1	0	1	1	1	1	● 4.4	7	7	31.11
Elijah PETER	0	1	0	0	1	0	1	1	1	1	● 4.4	7	7	31.11
Tagai IMIRI	0	1	0	0	1	0	1	1	1	1	● 4.4	5	5	22.22
Homara WUENA	0	0	0	0	1	0	1	1	1	1	● 2.8	3	0	0.00
Fred GIBSON	0	1	0	0	1	0	1	1	1	1	● 4.4	3	3	13.33
Gibson GIBSON	0	1	0	0	1	0	1	1	1	1	● 4.4	6	6	26.67
Lovia GILOVA	0	0	1	0	1	0	1	1	1	1	● 4.4	2	2	8.89
Andy DOUGLAS	0	0	0	0	1	0	1	1	1	1	● 2.8	2	0	0.00
Robert LOVIA	0	1	1	0	1	0	1	1	1	1	● 6.1	4	4	24.44
Vaiebe GILOVA	0	0	0	0	1	0	1	1	1	1	● 2.8	3	0	0.00
Benny LIDA	0	0	0	0	1	0	1	1	1	1	● 2.8	2	0	0.00
Jack GATOI	0	1	0	0	1	0	1	1	1	1	● 4.4	7	7	31.11

Household	MPI indicators										Scores			
	E-YRS	E-ENR	H-MORT	H-NUT	A-ELEC	A-WAT	A-SAN	A-HSE	A-FUEL	A-OWN	c	n	q	$\Sigma(q*c)$
Gereva ODAVA	0	1	0	0	1	0	1	1	1	1	● 4.4	2	2	8.89
James GEREVA	0	1	0	0	1	0	1	1	1	1	● 4.4	4	4	0.00
Elijah GEREVA	0	0	1	0	1	0	1	1	1	1	● 4.4	3	3	13.33
Kia NATHAN	0	1	0	0	1	0	1	1	1	1	● 4.4	3	3	13.33
Agnes KIA	0	0	0	0	1	0	1	1	1	1	● 2.8	3	0	0.00
Helen KIA	0	0	0	0	1	0	1	1	1	1	● 2.8	3	0	0.00
Vasiri NIBABA	0	0	1	0	1	0	1	1	1	1	● 4.4	3	3	13.33
Jimmy VASIRI	0	0	0	0	1	0	1	1	1	1	● 2.8	3	0	0.00
Mabilu BABAI	0	1	1	0	1	0	1	1	1	1	● 6.1	4	4	24.44
Borebe IMIRI	0	0	1	0	1	0	1	1	1	1	● 4.4	1	1	4.44
Joel TAETE	0	0	1	0	1	0	1	1	1	1	● 4.4	3	3	13.33
Tediso MATAMA	0	1	0	0	1	0	1	1	1	1	● 4.4	4	4	17.78
Joe MATAMA	0	1	0	0	1	0	1	1	1	1	● 4.4	5	5	22.22
Moses GEREVA	0	1	1	0	1	0	1	1	1	1	● 6.1	5	5	30.56
Junior GEREVA	0	0	0	0	1	0	1	1	1	1	● 2.8	5	0	0.00
Ian TOLIO	0	0	0	0	1	0	1	1	1	1	● 2.8	2	0	0.00
Kero KOROI	0	1	1	0	1	0	1	1	1	1	● 6.1	6	6	36.67
Naomi KERO	0	0	0	0	1	0	1	1	1	1	● 2.8	2	0	0.00
Faole BOKOI	0	0	1	0	1	0	1	1	1	1	● 4.4	2	2	8.89
Bokoi FAOLE	0	1	0	0	1	0	1	1	1	1	● 4.4	6	6	26.67
Silva ELODO	0	1	0	0	1	0	1	1	1	1	● 4.4	6	6	26.67
Shirley SILVA	0	0	0	0	1	0	1	1	1	1	● 2.8	6	0	0.00
Sibi ELODO	0	1	1	0	1	0	1	1	1	1	● 6.1	7	7	42.78
Esther ELODO	0	1	0	0	1	0	1	1	1	1	● 4.4	6	6	26.67
Gary SORI	0	1	0	0	1	0	1	1	1	1	● 4.4	8	8	35.56
Lolive SORI	0	1	0	0	1	0	1	1	1	1	● 4.4	2	2	8.89
Mikes IMIRI	0	1	0	0	1	0	1	1	1	1	● 4.4	8	8	35.56
Dago IMIRI	0	1	0	0	1	0	1	1	1	1	● 4.4	6	6	26.67
Dickson DAGO	0	0	0	0	1	0	1	1	1	1	● 2.8	4	0	0.00

Household	MPI indicators										Scores			
	E-YRS	E-ENR	H-MORT	H-NUT	A-ELEC	A-WAT	A-SAN	A-HSE	A-FUEL	A-OWN	c	n	q	$\Sigma(q*c)$
Rex DAGO	0	0	0	0	1	0	1	1	1	1	● 2.8	2	0	0.00
Havali ILUBE	0	0	1	0	1	0	1	1	1	1	● 4.4	2	2	8.89
Charlie HAVALI	0	1	1	0	1	0	1	1	1	1	● 6.1	7	7	42.78
Joyce HAVALI	0	1	0	0	1	0	1	1	1	1	● 4.4	3	3	13.33
Terry HAVALI	0	1	1	0	1	0	1	1	1	1	● 6.1	6	6	36.67
Aubi HAVALI	0	0	1	0	1	0	1	1	1	1	● 4.4	4	4	17.78
Dumu ILUBE	0	0	1	0	1	0	1	1	1	1	● 4.4	4	4	17.78
Dickson DUMU	0	0	1	0	1	0	1	1	1	1	● 4.4	3	3	13.33
Graham DUMU	0	0	0	0	1	0	1	1	1	1	● 2.8	3	0	0.00
Malinda BEMOGI	0	0	0	0	1	0	1	1	1	1	● 2.8	3	0	0.00
Bagoi AUBI	0	0	1	0	1	0	1	1	1	1	● 4.4	1	1	4.44
Anua ALAI	0	1	1	0	1	0	1	1	1	1	● 6.1	5	5	30.56
Andy ANUA	0	0	0	0	1	0	1	1	1	1	● 2.8	3	0	0.00
Alai ANUA	0	1	0	0	1	0	1	1	1	1	● 4.4	5	5	22.22
Auda NOU	0	0	0	0	1	0	1	1	1	1	● 2.8	2	0	0.00
Ebono ALOLO	0	1	1	0	1	0	1	1	1	1	● 6.1	3	3	18.33
Elijah EBONO	0	0	0	0	1	0	1	1	1	1	● 2.8	2	0	0.00
Eti ALOLO	0	0	1	0	1	0	1	1	1	1	● 4.4	6	6	26.67
Alex ALAI	0	1	1	0	1	0	1	1	1	1	● 6.1	7	7	42.78
Bernard VAIGI	0	0	0	0	1	0	1	1	1	1	● 2.8	2	0	0.00
Samuel VAIGI	0	0	0	0	1	0	1	1	1	1	● 2.8	4	0	0.00
Stanis MINA	0	1	0	0	1	0	1	1	1	1	● 4.4	5	5	22.22
Rocksy INIVE	0	1	0	0	1	0	1	1	1	1	● 4.4	5	5	22.22

Families = 77

328 262 1286.11

 Headcount Ratio, $H = \Sigma n / \Sigma q$ 0.7988

 Intensity of poverty, $A = \Sigma(q*c) / \Sigma(q)*d$ 0.4909

MPI = H*A 0.39

APPENDIX H

MULTIDIMENSIONAL POVERTY INDEX CALCULATIONS - EXPLANATION

MPI calculations are done by household, which means that single number – the MPI score – can be calculated for a sample of households, a village, or a larger area like a district or a country. The method of calculation is set out in the *2010 Human Development Report* (UNDP 2010: 221-222). The ten MPI indicators are as follows, where an observed *deprivation* is coded as 1, or 0 if otherwise:

Education dimension:

- E-YRS – deprived if no household member has completed five years of schooling;
- E-ENR – deprived if any school-aged child is not attending school in years 1 to 8;

Health dimension:

- H MORT – deprived if any child has died in the family;
- H-NUT – deprived if any adult or child for whom there is nutritional information is malnourished;

Assets dimension:

- A-ELEC – deprived if the household has no electricity;
- A-WAT – deprived if the household does not have access to safe drinking water within 30 minutes walk from home;
- A-SAN – deprived if the household does not have an ‘improved toilet’ or if the toilet is shared with another household;
- A-HSE – deprived if the household does not have an ‘improved house’;
- A-FUEL – deprived if they cook with firewood or similar;
- A-OWN – deprived if the household does not own a motor vehicle or outboard-powered canoe (a *moto*).

In general it is not necessary to ask for all ten indicators at each household in a Papua New Guinean village, because if no water supply or tanks are in sight, it will be obvious that no household has access to safe water. Similarly, a single glance in a bush village will register whether the houses are all made of the same materials and will pick out any that might be of a higher standard.

On nutrition, all rural surveys suggest that a measurable percentage of children are malnourished. However, since we have no direct data for Koiari Rural LLG, this indicator is scored as zero (not deprived) throughout.

For ‘improved toilet’, the criterion is strictly that a household must (a) not share a toilet with another and (b) there must be a barrier between human waste and the rest of the environment, including water sources. In Papua New Guinea only VIP (‘Ventilation Improved Pit’) or better toilets qualify. There were polyurethane drum toilets at both Agulolo and Manari, but (a) they

were attached to trekking camp sites and (b) they were very close together and either did not have lids or the lids were not habitually closed to prevent flies entering or travelling between the pits.

No households at Agulogo and Manari were therefore scored as having ‘improved toilets’.

For ‘improved house’, in the Mountain Koiari area the key is that it should exclude common disease vectors. This principally means that it must be mosquito-proof; it must be framed with sawn timber, have properly fitting windows and doors, and flyscreens in good condition.

Only the unused Community Health Worker’s house at Naoro 1 qualified as an ‘improved house’.

On cooking fuel, many people use firewood for cooking in PNG without feeling deprived. In reality, it is what goes with cooking on an open fire that is the problem – if you do not have a modern house with food storage cupboards there is an insufficient barrier between small children, animals (whether pets or vermin) and utensils used for food preparation.

The last indicator, owning a car, tractor or outboard-powered canoe, correlates with being able to bring products that exceed household needs to market and to be able to transport passengers and other people’s goods.

The three MPI dimensions of health, education and household assets are equally weighted and are worth 1/3 each. Scores for the ten indicators are multiplied by the appropriate weighting factor: 1/6 of 10, or 1.66666, for the health and education indicators and 1/18, or 0.555556, for the asset indicators, and summed to give a household score, or *c*. A household with a *c* value of between 2 and 3 is considered ‘at risk of being multidimensionally poor’ and of 3 or more as ‘multidimensionally poor’ or MPI-poor.

The data collected in 2014 at Agulogo and Manari are given in Appendix G. The household *c* scores are indicated in the table as follows:

- 5.8 Red lamp – this family is MPI-poor.
- 2.3 Amber lamp – this family is at risk of becoming MPI-poor.
- 1.6 Green lamp – this family is not MPI-poor (no examples)

The sum of people in households with a *c*-score of 3.0 or more, divided by the total population, is the MPI *headcount* or *H*. (For example, $H = 0.55$ means that 55% of the people in the village live in an MPI-poor household.)

The intensity of poverty, *A*, is a special averaging of the *c*-scores of the MPI-poor households to give the percentage of indicators on which a household is deprived. If $A = 45\%$, it means that the MPI-poor households are ‘only’ poor on 45% of the indicators. If $A = 70\%$ it means they are more deeply poor.

Looking at Appendix G *all* 77 households at Agulogo and Manari in 2014 were classed as

- MPI-poor or ● at risk of being MPI-poor.

Finally, the MPI itself is $H \times A$ and is a score between 0 and 10 that expresses the status of the whole community / region / country. In Appendix G it will be seen that the heads of households

are identified. While it is normal to de-identify survey data, it may be more beneficial for future investigators to be able to see all the data than not, on the grounds that a large amount of the past survey data that we could be using today to evaluate progress has been lost.