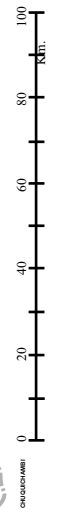
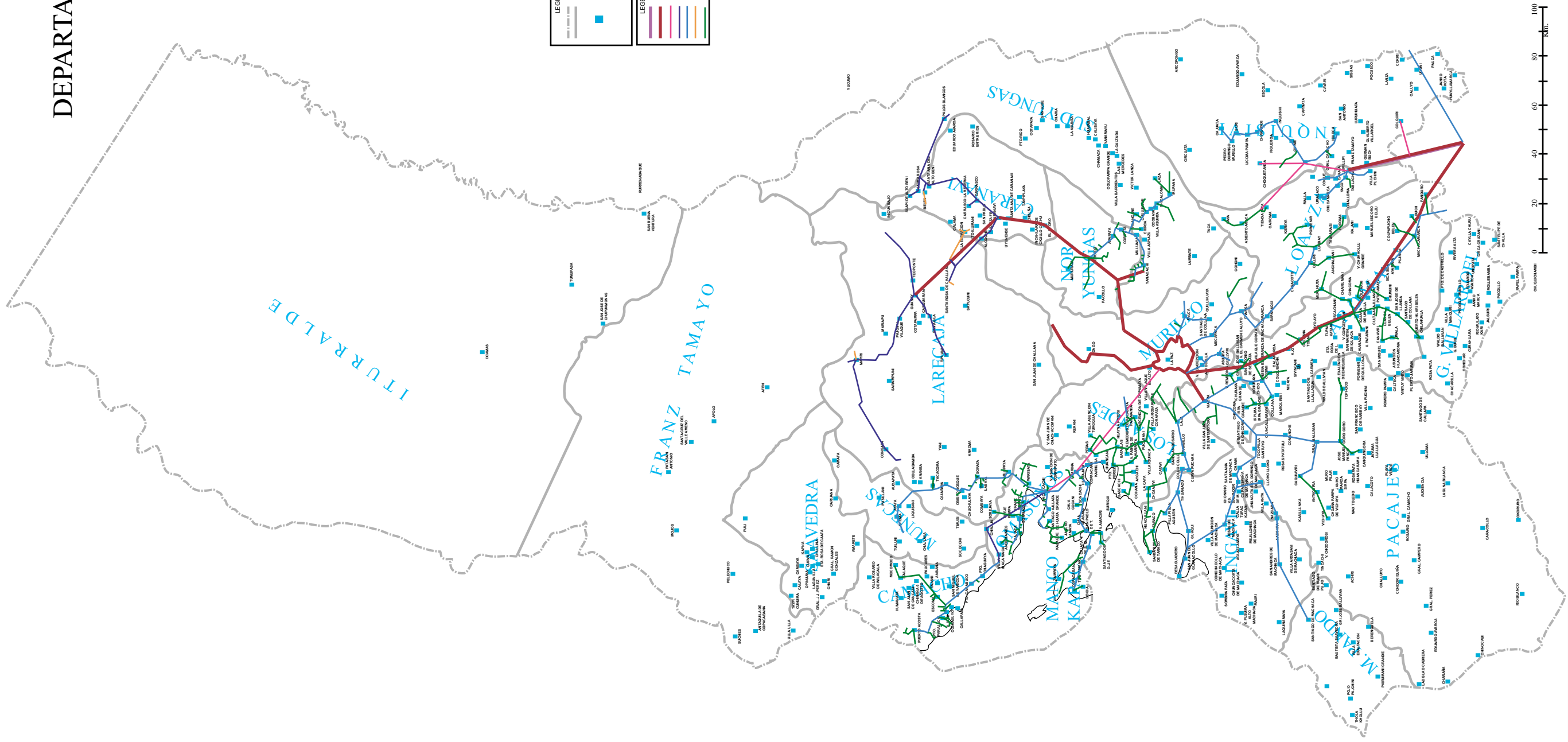
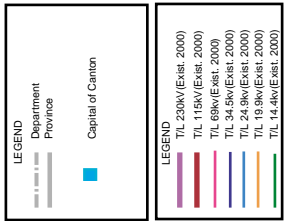


DEPARTAMENTO DE LA PAZ

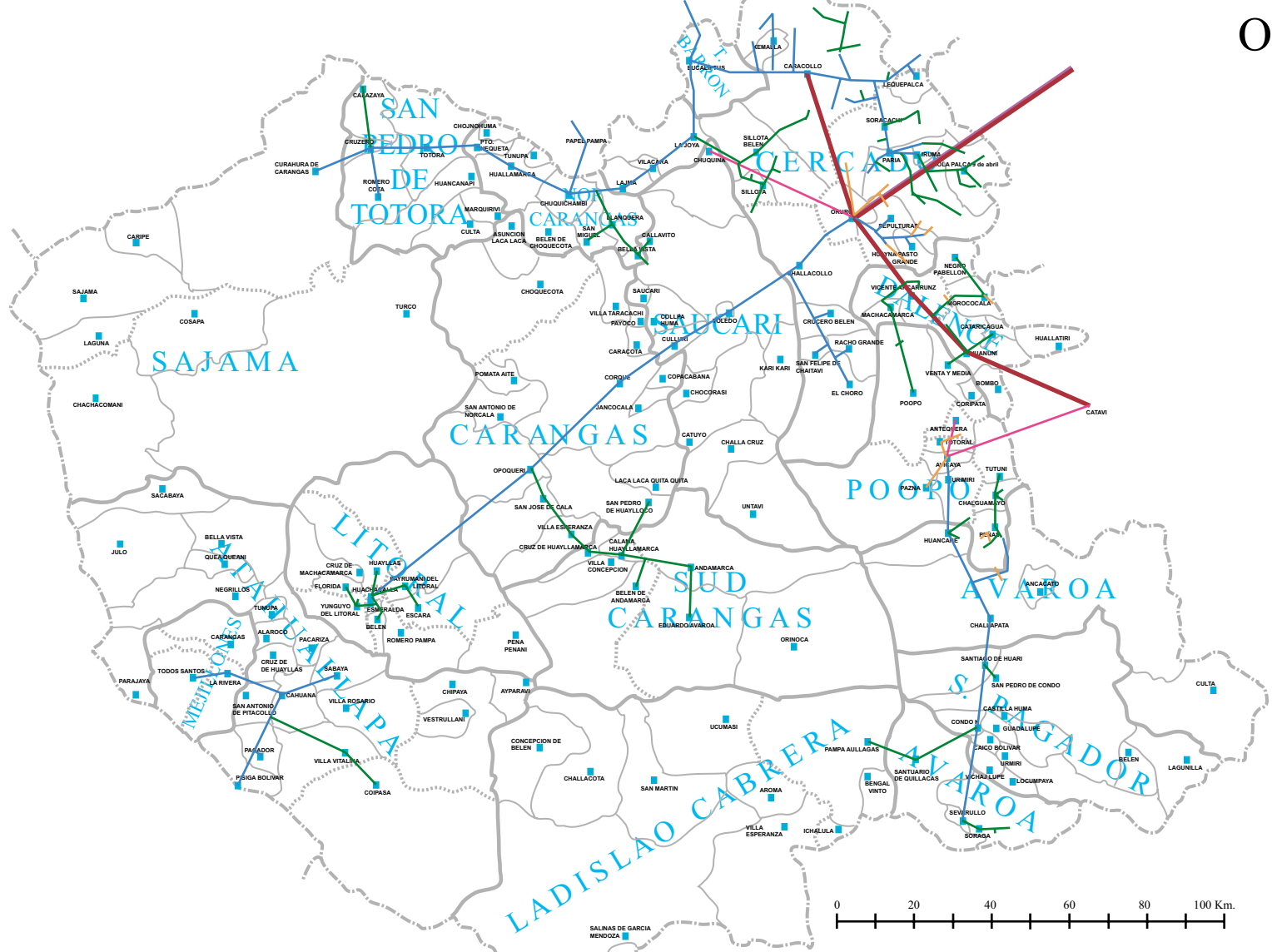


THE STUDY ON RURAL ELECTRIFICATION
 IMPLEMENTATION PLAN BY RENEWABLE ENERGY
 IN THE REPUBLIC OF BOLIVIA
 JAPAN INTERNATIONAL COOPERATION AGENCY

図 4.1

ラパス県既存送配電網図
 (as of Eary 2001)

DEPARTAMENTO DE ORURO

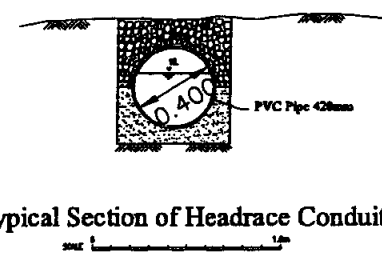
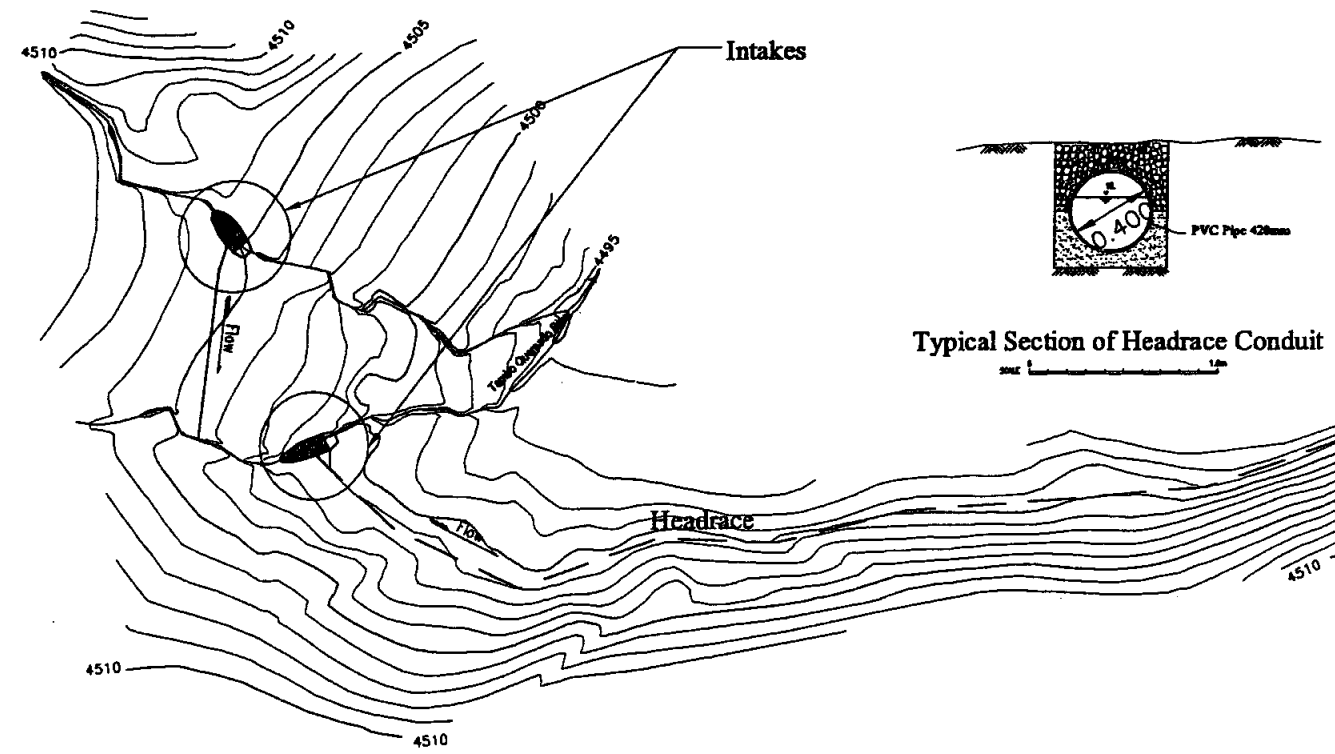
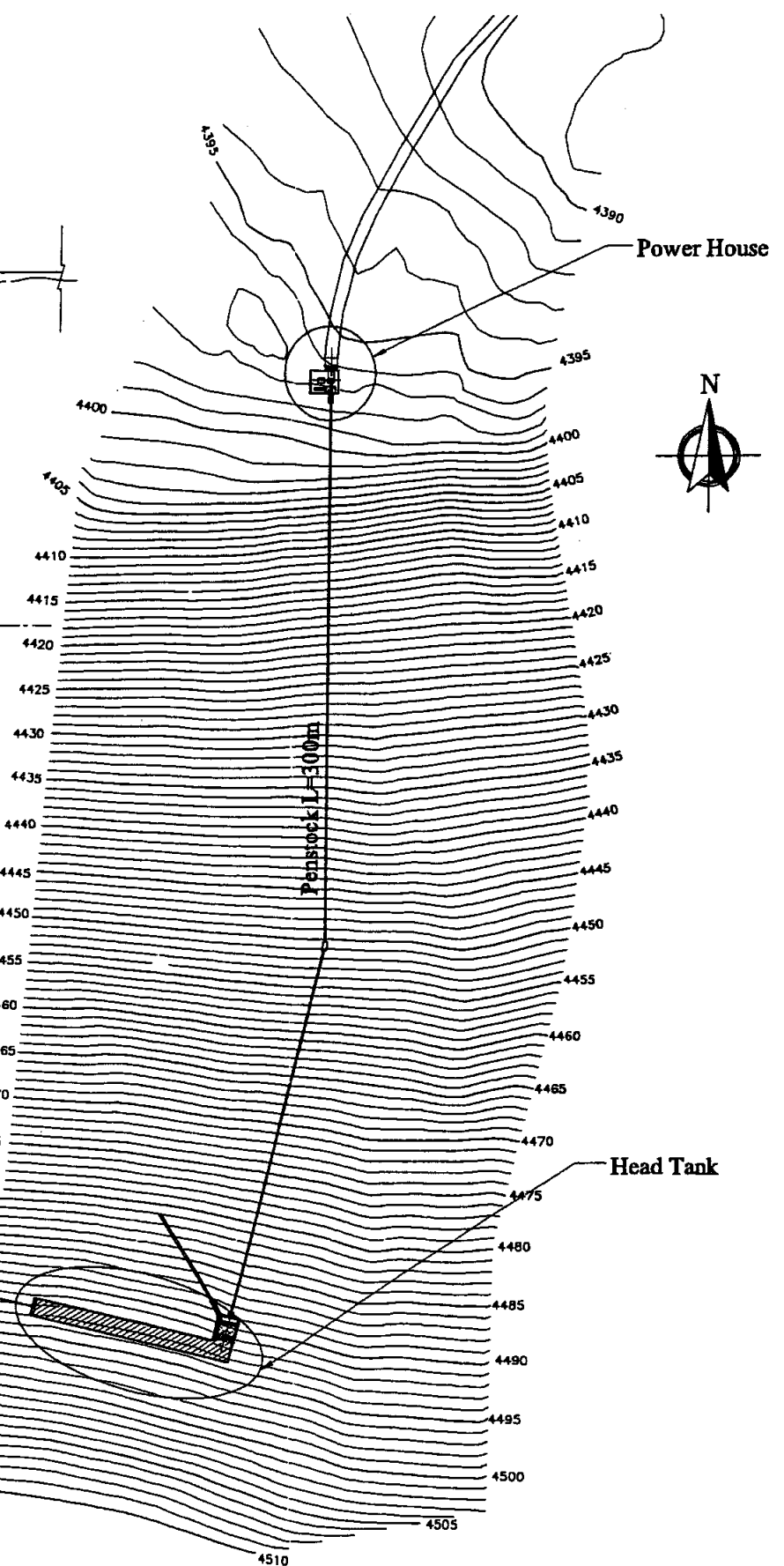
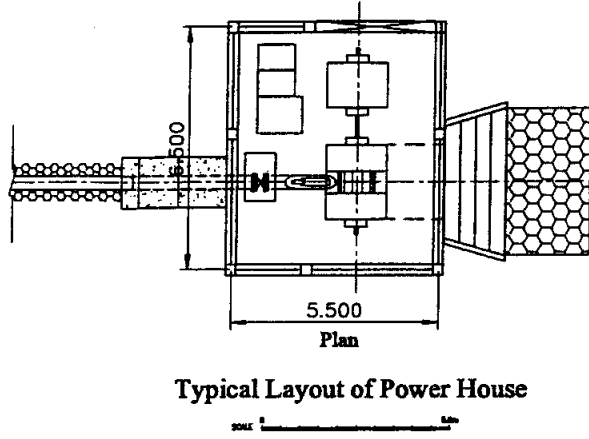
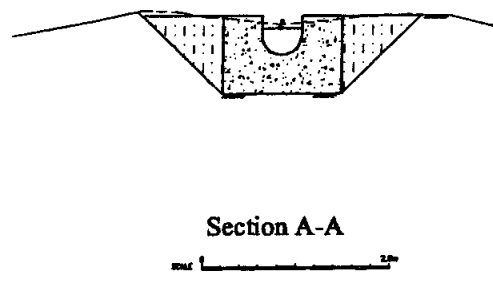
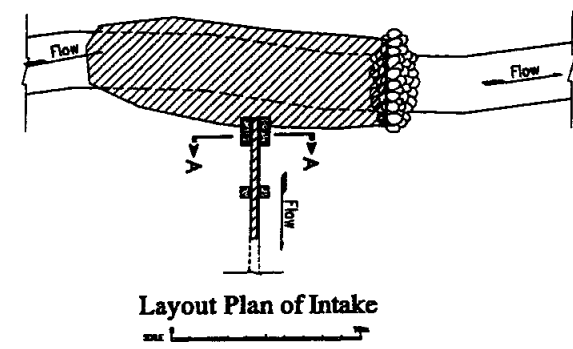
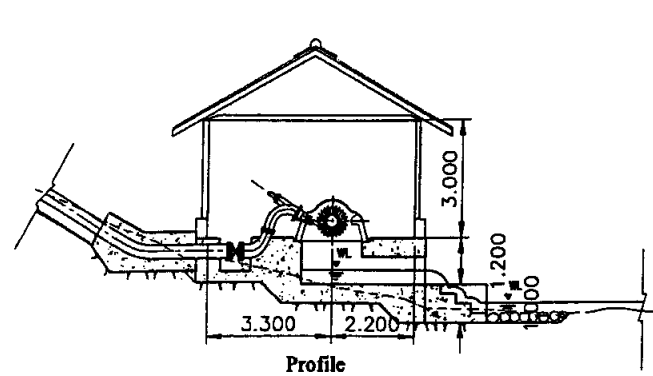
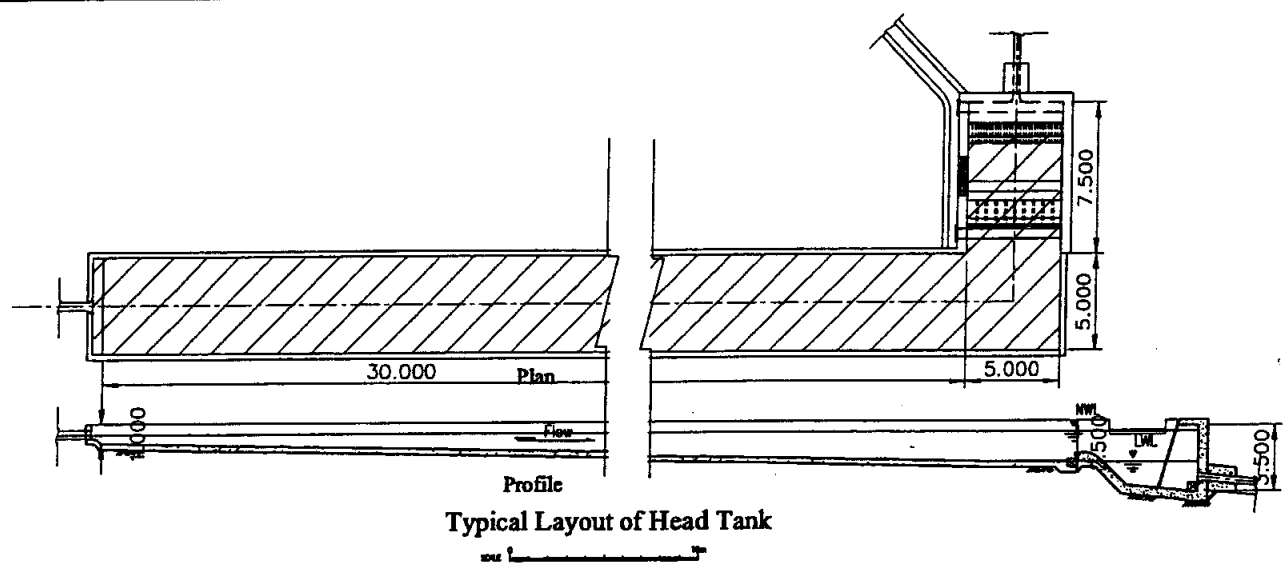


LEGEND	
	Department
	Province
	Municipio
	Canton
	Capital of Canton

LEGEND of Transmission Line	
	T/L 230kV (Exist. 2000)
	T/L 115kV (Exist. 2000)
	T/L 69kV (Exist. 2000)
	T/L 24.9kV (Exist. 2000)
	T/L 14.4 kv (Exist. 2000)
	T/L 6.6 kv (Exist. 2000)

THE STUDY ON RURAL ELECTRIFICATION
IMPLEMENTATION PLAN BY RENEWABLE ENERGY
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図 4.2
オルロ県既存送配電網図
(as of Early 2001)



THE STUDY ON RURAL ELECTRIFICATION
IMPLEMENTATION PLAN
BY RENEWABLE ENERGY
IN THE REPUBLIC OF BOLIVIA

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

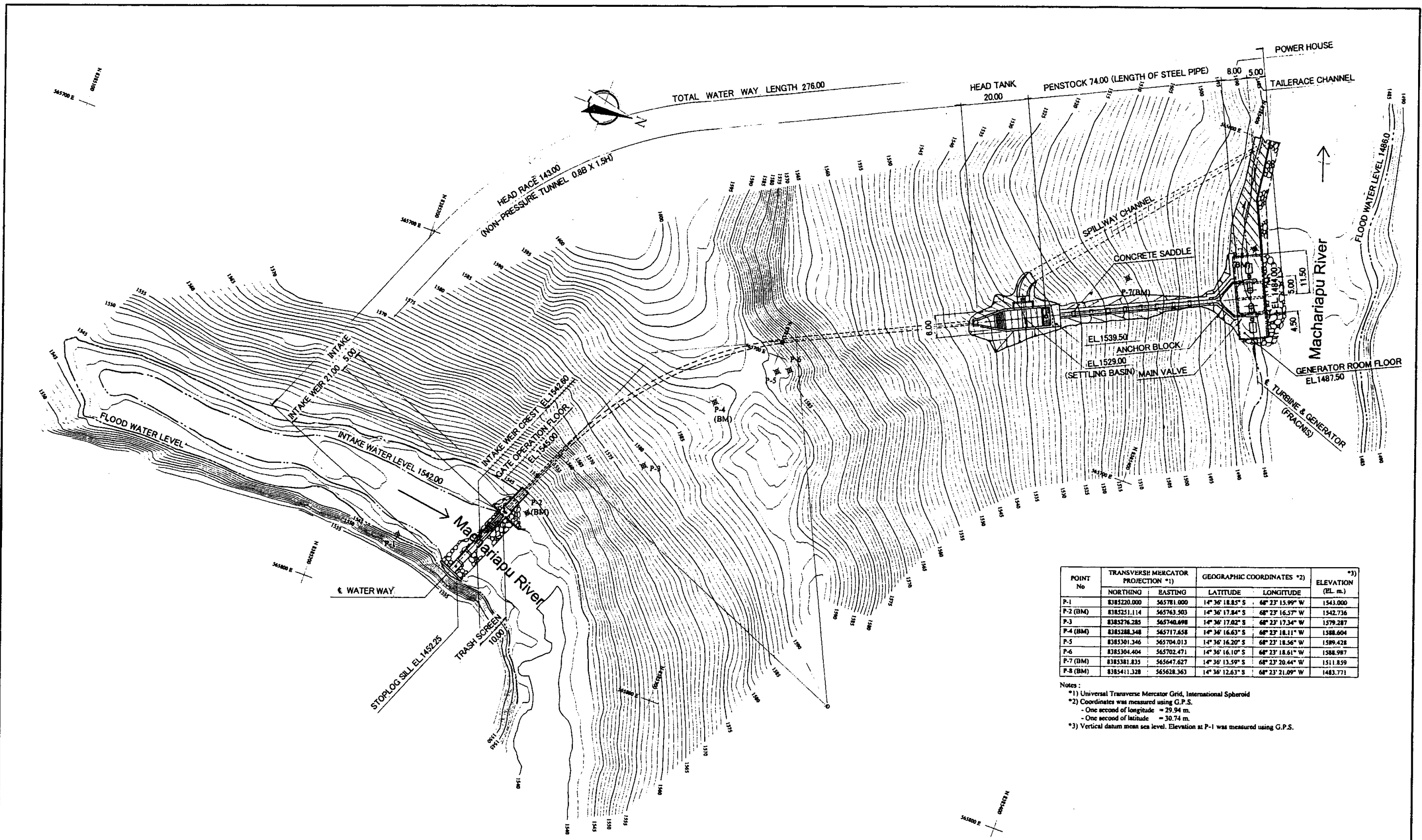
LOCATION:
TAMBO QUEMADO / SAJAMA PROVINCE
ORURO DEPARTMENT

図 6.1 タンボ・ケマード小水力発電所計画
施設配置図

SCALE:
H = 1 : 2000

DATE:
February-2001

SHEET:



POINT No	TRANSVERSE MERCATOR PROJECTION *1)		GEOGRAPHIC COORDINATES *2)		ELEVATION (EL. m.) *3)
	NORTHING	EASTING	LATITUDE	LONGITUDE	
P-1	8385220.000	565781.000	14° 36' 18.83" S	68° 23' 15.99" W	1543.000
P-2 (BM)	8385251.114	565763.503	14° 36' 17.84" S	68° 23' 16.37" W	1542.736
P-3	8385276.285	565740.698	14° 36' 17.02" S	68° 23' 17.34" W	1579.287
P-4 (BM)	8385288.348	565717.658	14° 36' 16.63" S	68° 23' 18.11" W	1588.604
P-5	8385301.346	565704.013	14° 36' 16.20" S	68° 23' 18.36" W	1589.428
P-6	8385304.404	565702.471	14° 36' 16.10" S	68° 23' 18.61" W	1588.987
P-7 (BM)	8385381.835	565647.627	14° 36' 13.59" S	68° 23' 20.44" W	1511.859
P-8 (BM)	8385411.328	565628.363	14° 36' 12.63" S	68° 23' 21.09" W	1483.773

Notes:
 *1) Universal Transverse Mercator Grid, International Spheroid
 *2) Coordinates was measured using G.P.S.
 - One second of longitude = 29.94 m.
 - One second of latitude = 30.74 m.
 *3) Vertical datum mean sea level. Elevation at P-1 was measured using G.P.S.

CONTOUR INTERVAL 1.0 METERS
 ELEVATION UNIT IN METERS (m) FROM SEA LEVEL
 HORIZONTAL UNIT IN METERS (m).

THE STUDY ON RURAL ELECTRIFICATION
 IMPLEMENTATION PLAN
 BY RENEWABLE ENERGY
 IN THE REPUBLIC OF BOLIVIA



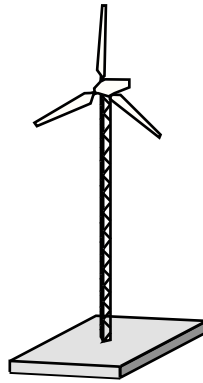
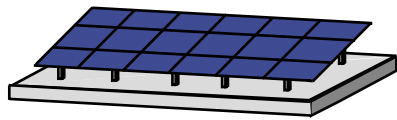
LOCATION :
 APOLO / FRANZ TAMAYO PROVINCE
 LA PAZ DEPARTMENT
 MACHARIAPU RIVER

図 6.2
 アポロ小水力発電所計画施設配置図
 (Río Machariapu)

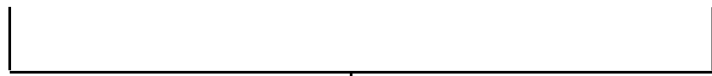
SCALE :
 1: 1000

DATE :
 JULY - 2001

SHEET :
 1 / 1



Photovoltaic Generation 10 kW
Wind Generation 80 kW



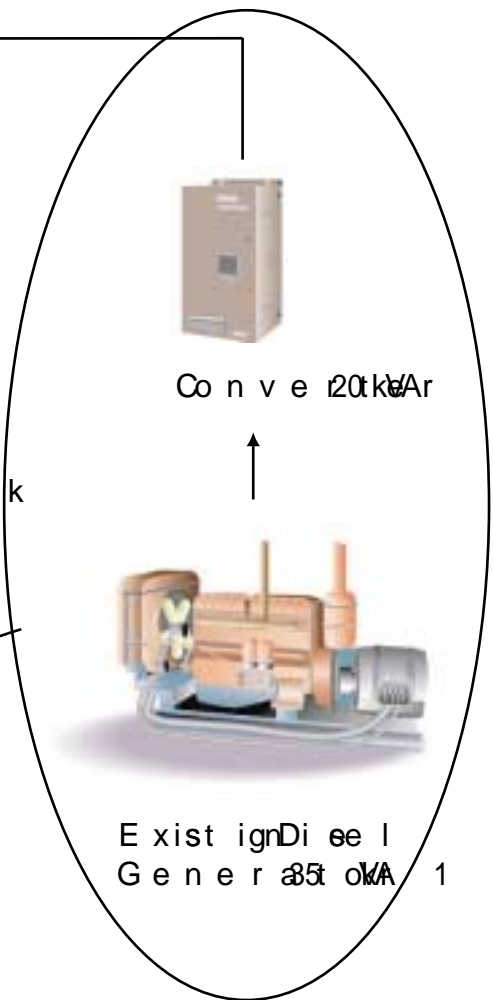
DC Controller



Inverter 4 kVA



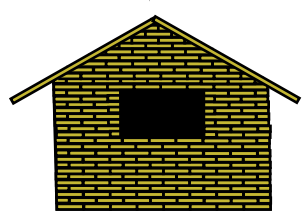
Battery Bank
44 Ah



Converter 20 kVA



Existing Diesel Generator 35 kVA



Demand

Household	150
Microwave	10
Cafe	8
Office	7
Store	5
School	3
Health Clinic	1
Community Center	1

Backup Power Source

図 7.1
風力・太陽光ハイブリッド・システム
ラパス県チャラーニヤ

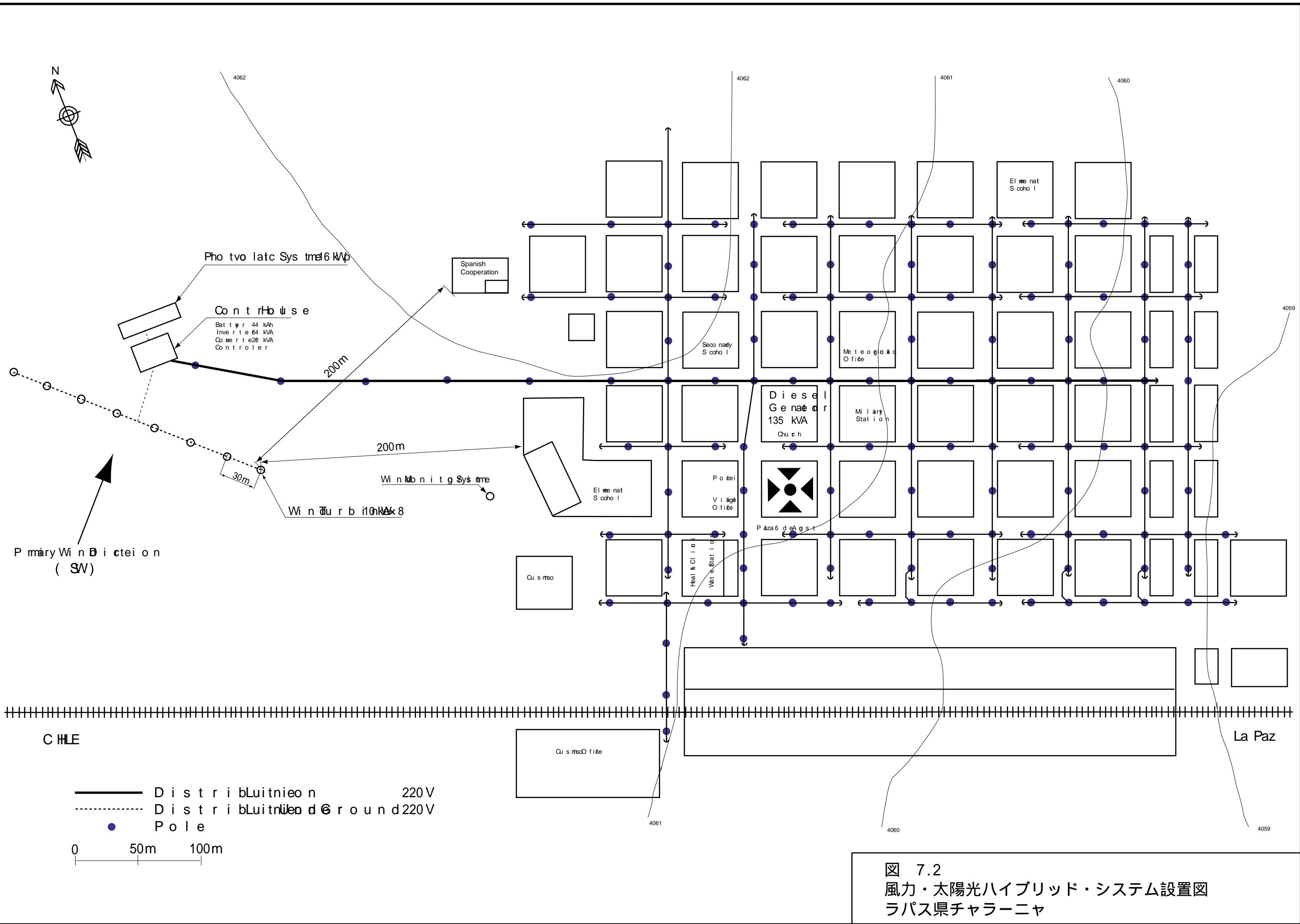
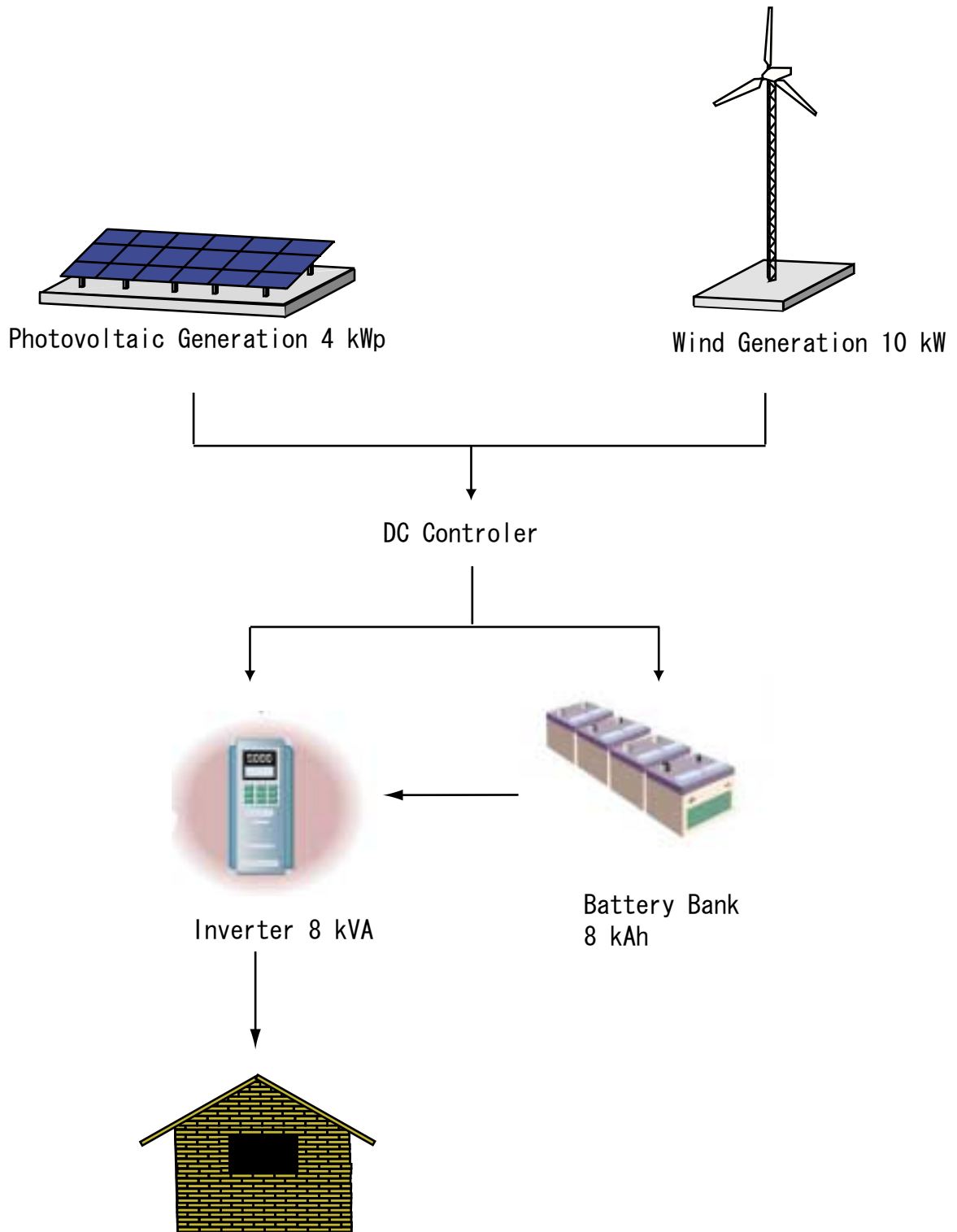


図 7.2
 風力・太陽光ハイブリッド・システム設置図
 ラパス県チャラーニャ



Demand	
Household	30
Cafe	3
Store	2
School	1
Health Clinic	1
Community Center	1

図 7.3
風力・太陽光ハイブリッド・システム
オルロ県カリペ

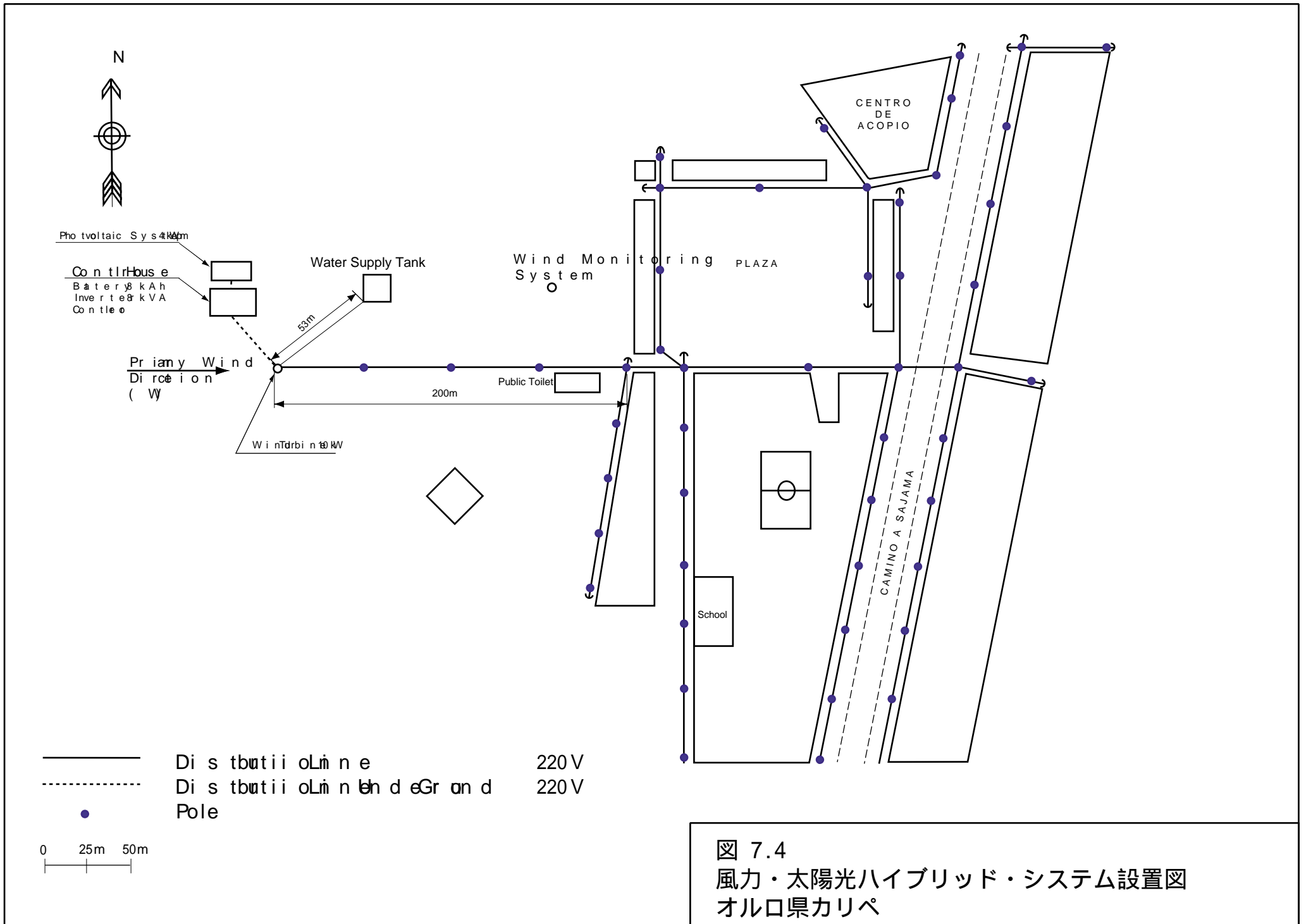
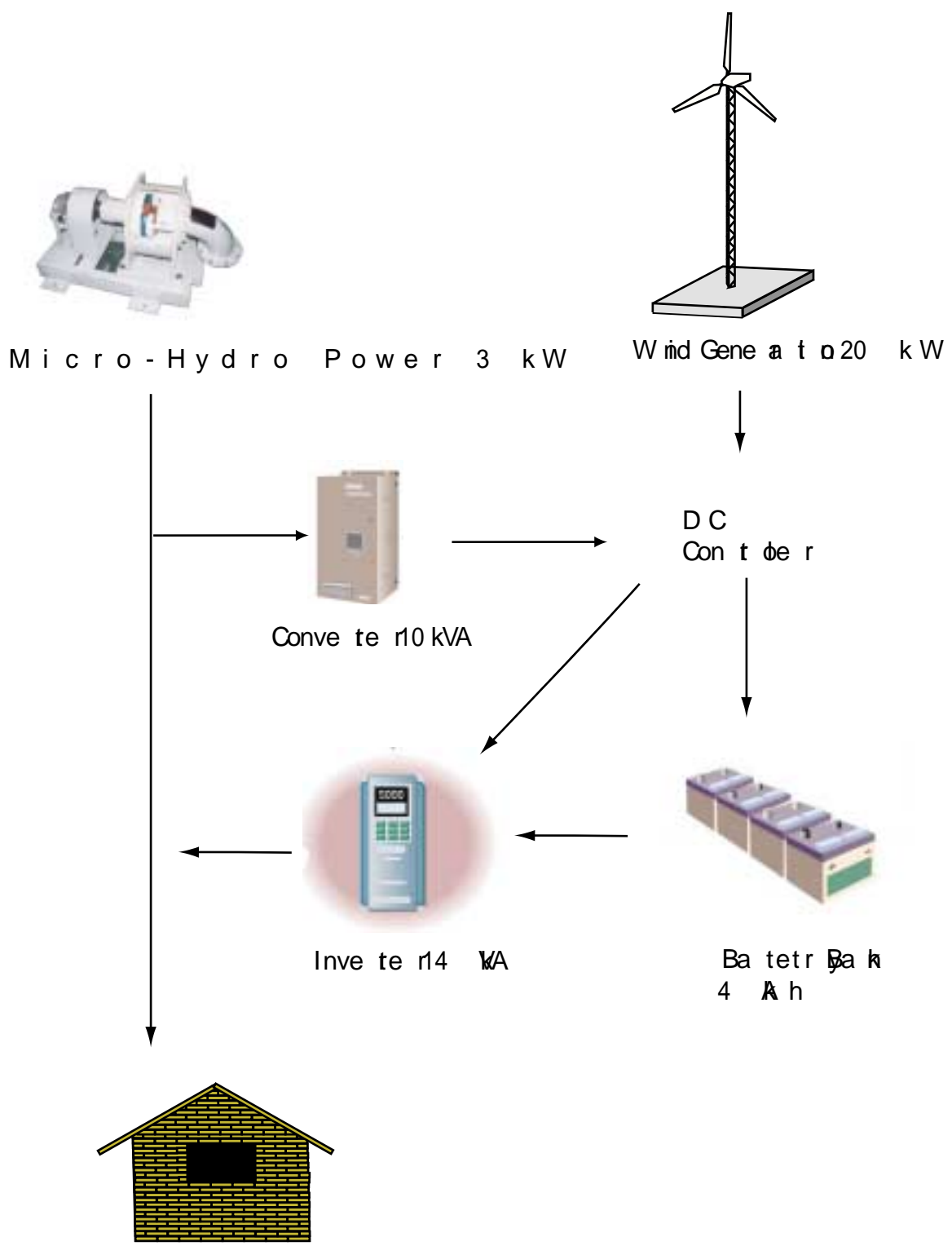


図 7.4
 風力・太陽光ハイブリッド・システム設置図
 オルコ州カリペ



Demand	
Household	70
Cafe	3
Store	4
School	1
Health Clinic	1
Community Center	1

図 7.5
風力・太陽光ハイブリッド・システム
オルロ県チャチャコマニ

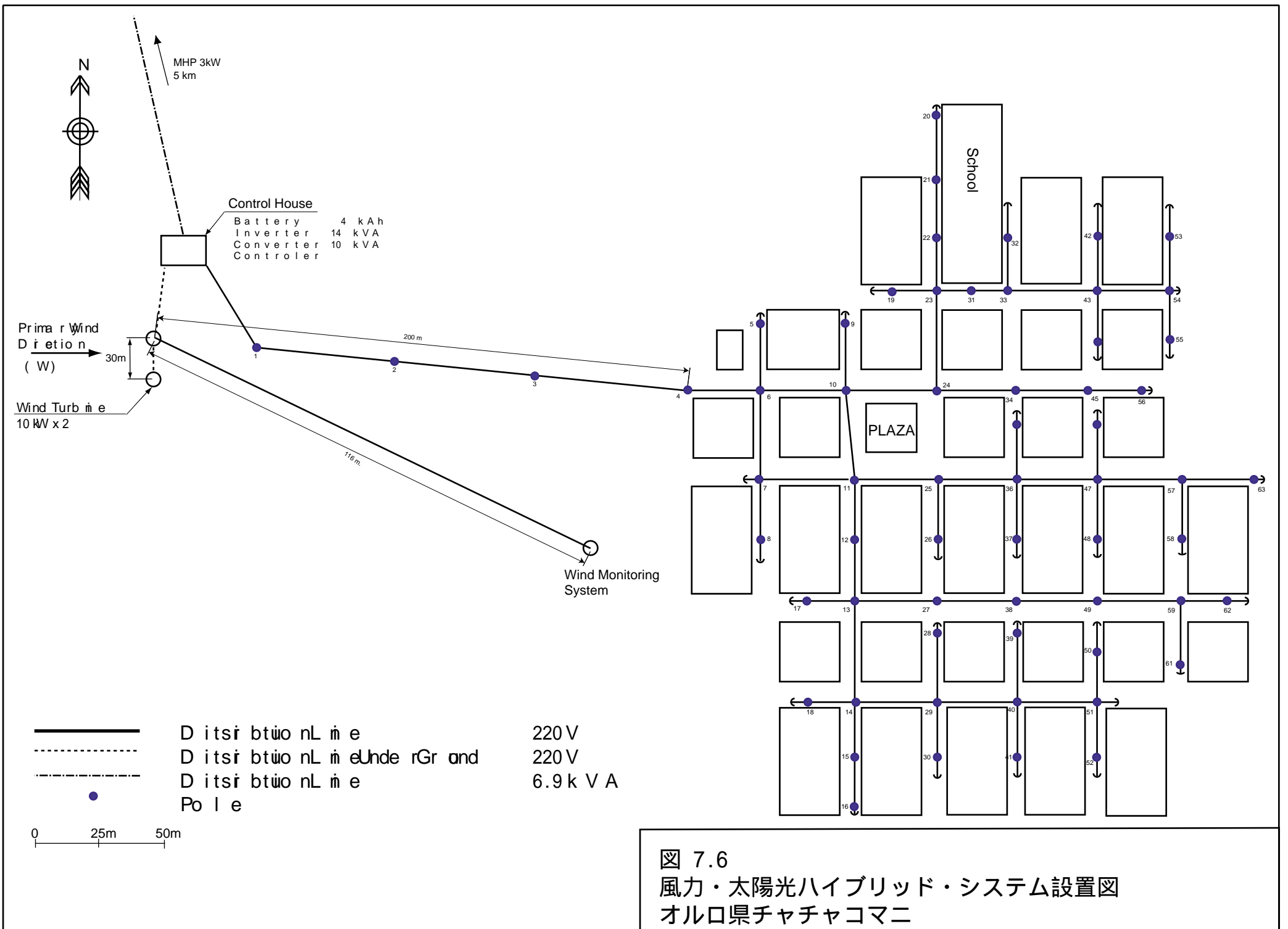


図 7.6
 風力・太陽光ハイブリッド・システム設置図
 オルロ県チャチャコマニ