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MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT,
MINISTRY OF PLANNING AND INVESTMENT
SOCIALIST REPUBLIC OF VIETNAM

THE STUDY
ON
GROUNDWATER DEVELOPMENT IN
THE RURAL PROVINCES OF
THE CENTRAL HIGHLANDS

FINAL REPORT
VOLUME IV
DATA BOOK
Gia Lai Province

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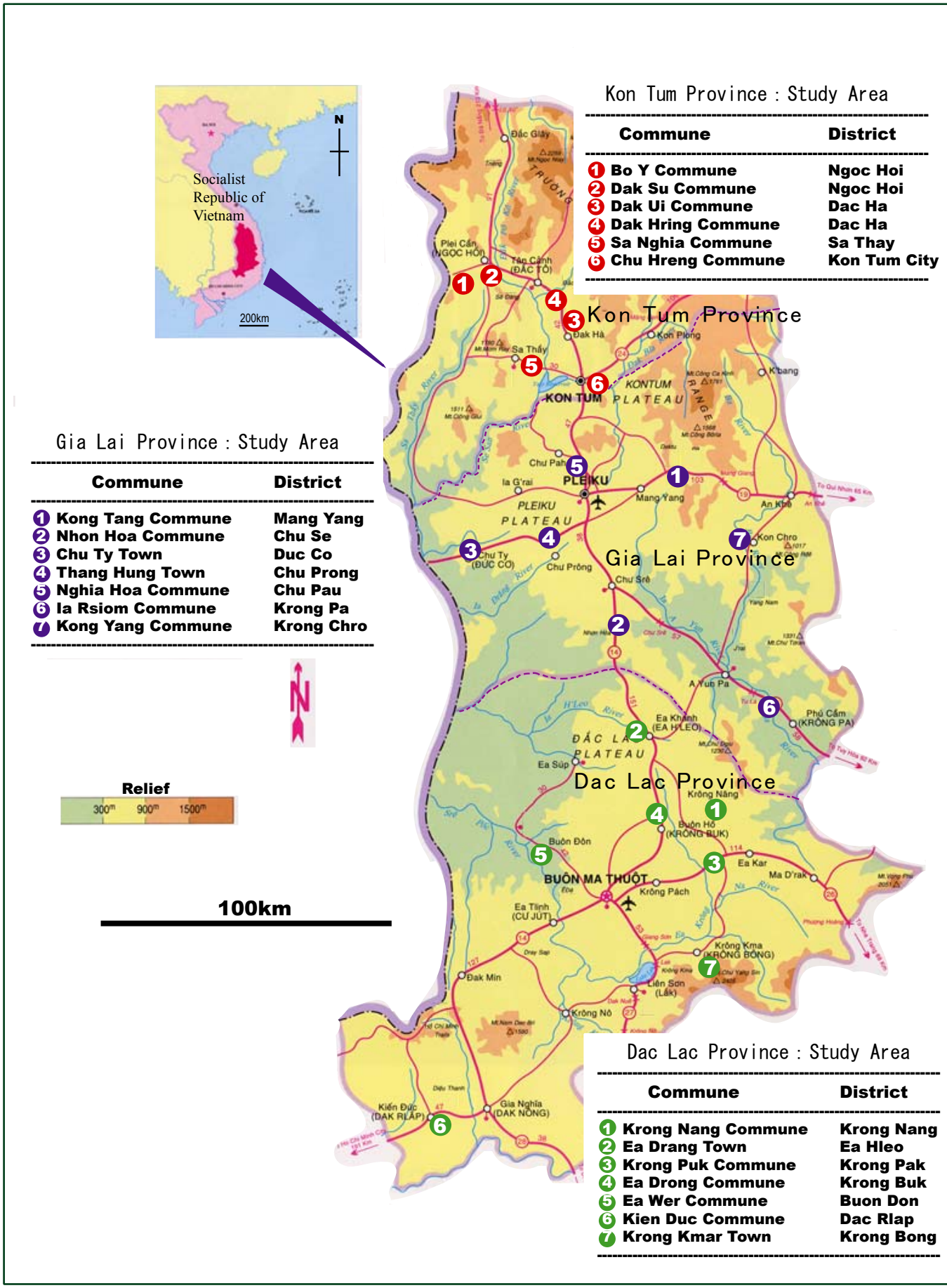

Kon Tum Province : Study Area

Commune	District
1 Bo Y Commune	Ngoc Hoi
2 Dak Su Commune	Ngoc Hoi
3 Dak Ui Commune	Dac Ha
4 Dak Hring Commune	Dac Ha
5 Sa Nghia Commune	Sa Thay
6 Chu Hreng Commune	Kon Tum City

Gia Lai Province : Study Area

Commune	District
1 Kong Tang Commune	Mang Yang
2 Nhon Hoa Commune	Chu Se
3 Chu Ty Town	Duc Co
4 Thang Hung Town	Chu Prong
5 Nghia Hoa Commune	Chu Pau
6 Ia Rsiom Commune	Krong Pa
7 Kong Yang Commune	Krong Chro

Dac Lac Province : Study Area

Commune	District
1 Krong Nang Commune	Krong Nang
2 Ea Drang Town	Ea Hleo
3 Krong Puk Commune	Krong Pak
4 Ea Drong Commune	Krong Buk
5 Ea Wer Commune	Buon Don
6 Kien Duc Commune	Dac Rlap
7 Krong Kmar Town	Krong Bong

Location Map

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Hydraulic Calculation

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List of Abbreviations

ADB	Asian Development Bank
As	Arsenic
ATP	Ability to Pay
AusAID	Australian Grant Aid
BARD	bank for Agriculture and Rural Development
B/D	Basic Design
CERWASS	Centre for Rural Water Supply and Sanitation
CHC	Community Health Centre
CIDA	Canadian International Development Assistance
CPC	Commune People's Committee
DANIDA	Danish International Development Assistance
DARD	Department of Agricultural Development
DF/R	Draft Final Report
DFID	UK, Department for International Development
DGMV	Department of Geology and Minerals of Vietnam
DHC or DHS	District Health (Services) Centre
DOF	Department of Finance
DOH	Department of Health
DOSTE	Department of Science, Technology and Environment
DPC	District People's Committee
DPI	Department of Planning and Investment
EIA	Environmental Impact Assessment
EM	Ethnic Minority
F	Fluorine
F/R	Final Report
F/S	Feasibility Study
FU	Farmer's Union
GAD	Gender and Development
GDP	Gross Domestic Product
GSO	General Statistical Office
HDPE	Hard PVC pipes
HRD	Human Resources Development
HC	House Connection
IEC	Information, Education and Communication

IC/R	Inception Report
IT/R	Interim Report
IEE	Initial Environmental Examination
JICA	Japan International Cooperation Agency
KI	Key Informant
kWh	kilo Watt(s) hours
lcd	litre per capita per day
LEP	Law on Environmental Protection
MARD	ministry of Agriculture and Rural Development
MCM	Million Cubic Meter
M/M	Minute of Meeting
MOC	Ministry of Construction
MOET	Ministry of Education and Training
MOF	Ministry of Finance
MOLISA	Ministry of Labour, Invalids and Social Affairs
M/P	Master Plan
NGO	Non-Governmental Organizations
NIPHEP	National Institute of Public health and Environmental Protection
NRWSS	National Rural Water Supply and Sanitation
VIWASE	Vietnam consultant for Water supply Sanitation and Environment
ODA	Official Development Assistance
O&M or O & M	Operation and Maintenance
PC	Portland Cement
PCERWASS	
PCM	Project Cycle Management
PDM	Project design Matrix
PDOSTE	Provincial Department of Science, Technology and Environment
PDPSC	Provincial Disease Prevention and Sanitation Centre
PHSC	Provincial Health Services Centre
PPC	Provincial People's Committee
P/R	Progress Report
PSCWS	Provincial Steering Committee for Water Supply and Sanitation
PE	Poly-Ethylene Pipe
pH or PH	Potential of Hydrogen
PT	Public Taps
PVC	Poly-Vinyl Chlorine Pipe

PWL	Pumping Water Level
QTT2	Quantification Theory Type II
RRA	Rapid Rural Appraisal
RWSS	Rural Water Supply and Sanitation
SPC	State Planning Committee
SRV	Socialist Republic of Vietnam
S/W	Scope of Work
SWL	Static Water Level
TEM	Transient Electromagnetic Method
TDEM	Time Domain Electromagnetic Method
THS	Town Health Services Centre
TPC	Town People's Committee
TV	Television media
UARD	Unit of Agriculture and Rural Development
UFW	
UNDP	United Nation Development Planning
UNICEF	United Children's Fund
USD	US Dollar
VHW	Village Health Worker
VIP	Ventilation type Improved Pit
VND	Vietnam Dong
VNYU or YU	(Vietnam) Youth Union
WB	World Bank
WATSAN	Water Supply and Sanitation
WHO	World Health Organization
WID	Women in Development
WTP	Willingness to Pay
WU or VWU	(Vietnamese) Women's Union

Unit

bar	Pressure
h	Hour
pH	Potential of Hydrogen
q_{max}	Maximum hourly demand
Q_{max}	Maximum daily demand
Q_{av}	Average day demand
mg/l	milligram per litre
l	Litre
m	Medium
vh	Very high
l/c/d	Litre per capita per day
l/s	Litre per second
m^3	Cubic meter
km^2	Square kilometre
μ	1×10^{-6}
ϕ	Diameter
℃	Centi-degree
%	Percent
γ	Gamma (electrical logging)
k	Permeability coefficient
S	Storage capacity