

RESEARCH REPORT OF THE SOCIAL DEVELOPMENT SURVEY DIVISION

THE MINISTRY OF EDUCATION AND SCIENCE, GOVERNMENT OF JAPAN

THE JOURNAL OF THE SOCIETY FOR THE STUDY OF THE HISTORY OF EDUCATION IN JAPAN

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JANUARY 1982

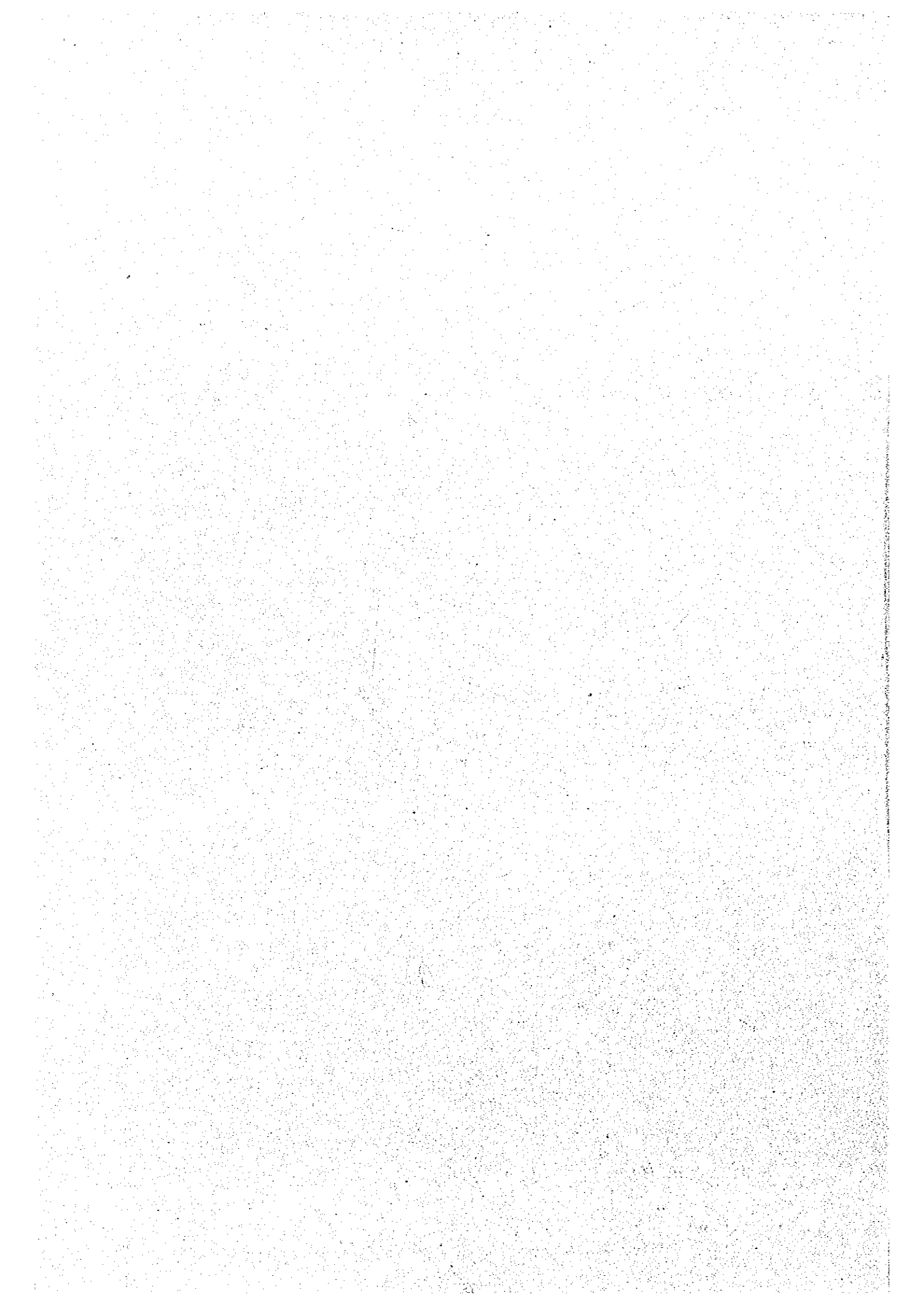
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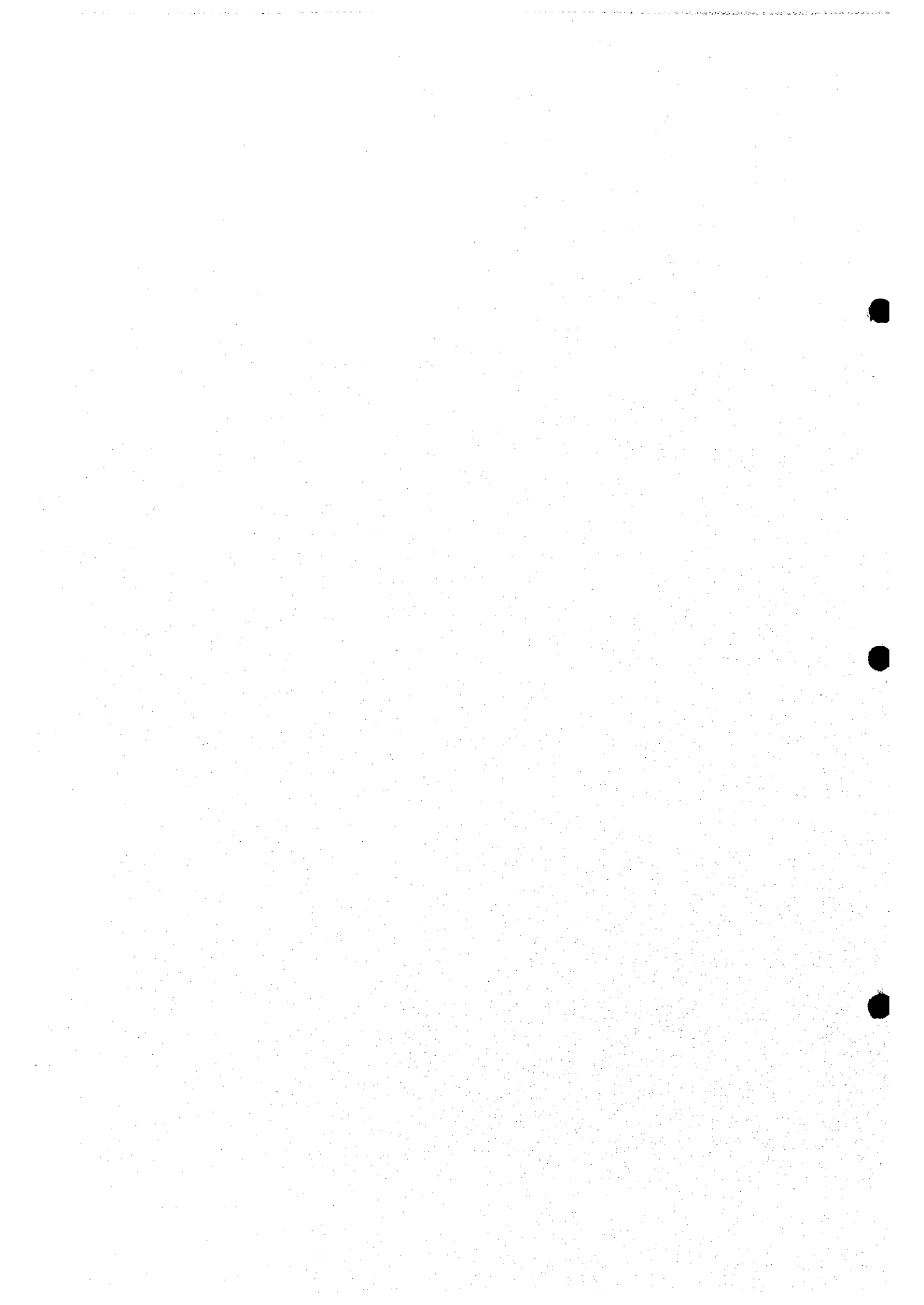
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JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

THE MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT
THE SOCIALIST REPUBLIC OF VIET NAM

THE STUDY
ON GROUNDWATER DEVELOPMENT
IN THE RURAL PROVINCES
OF NORTHERN PART
IN THE SOCIALIST REPUBLIC
OF VIET NAM
FINAL REPORT
DATA REPORT

JANUARY 2000

KOKUSAI KOGYO CO., LTD.
OYO CORPORATION

**The Study on Groundwater Development in the Rural Provinces of Northern Part of
the Socialist Republic of Viet Nam**

Final Report

Data Report

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Composition of the Final Report

The final reports are composed of the following 7 volumes.

1. Summary Report (Japanese)
2. Summary Report (English)
3. Summary Report (Vietnamese)
4. Main Report (English)
5. Supporting Report A (English)
6. Supporting Report B (English)
7. Data report (English)

CHAPTER 1

DATA SHEET OF EXISTING WELL SURVEY

Data Sheet for Hydrogeological Survey in Northern Part of Vietnam

Province: Thai Nguyen Commune: Dong Bam

(1/1)

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Year Const.	UTM-E (m)	UTM-N (m)	GWL from MP (m)	MP Height (m)	GWL from GL (m)	pH	EC (ms/m)	ORP (mV)	DO (mg/l)	Color & smell	Water Sample No.	Remarks	Coliform
DB-1	16-Sep-98 8:30	Hand Dug	7.80		587639	2389977	2.65	0.63	2.02	4.94	19.37	87	5.5 /8.5	Clear	TN-1	Temp=26.4deg Dia=90cm	+
DB-2	16-Sep-98 8:45	Hand Dug	about 10	1998	587649	2390185	2.65	0.62	2.03	6.82	39.6	48	4.1	Clear	TN-2	Temp=26.5deg Dia=55cm	+++
DB-3	16-Sep-98 9:05	Hand Dug	about 7	1991	588381	2390076	1.78	0.55	1.23	5.11	20.4	72	3.1	slight turbid	TN-3	Temp=26.8deg Dia=90cm	+
DB-4	16-Sep-98 9:20	Hand Dug	6.9		588467	2390169	0.70	1.00	-0.30	5.76	11.42	71	3.4	slight yellow	TN-4	Temp=27.3deg Dia=64cm Dry Seas. 1-1.5m lower	++
DB-5	16-Sep-98 9:38	Hand Dug	6.2 (orig=9m)	1971	588729	2390638	1.20	0.62	0.58	6.00	31.2	70	3.9	slight gray	TN-5	Temp=26.8deg Dia=67cm Botm:sand & gravel	++
DB-6	16-Sep-98 9:49	Hand Dug	6.3	1986	588643	2390549	1.77	0.68	1.09	5.36	29.7	75	3.0	Clear	-	Temp=26.5deg Dia=65cm Botm:sand & gravel	++
DB-7	16-Sep-98 10:02	Hand Dug	6.6		588694	2391184	1.37	0.60	0.77	6.50	27.2	69	2.6	slight turbid	TN-6	Temp=28.5deg Dia=45cm Botm:sand & gravel	+
DB-8	16-Sep-98 10:22	Hand Dug	6.6	1987	587963	2389136	4.86	0.60	4.26	6.81	89.7	59	4.9	Clear	TN-7	Temp=28.0deg Dep: 0-2.5m: clay then c.s. & gravel	++
DB-9	16-Sep-98 10:48	Tube	8	1996 Dec	588000 587960	2389030	-	-	-	6.29	112.8	49	3.9	Clear	TN-8	Temp=26.0deg Botm: pebble	+
DB-10	16-Sep-98 11:14	Hand Dug	8.1	1990	587325	2388983	5.98	0.70	5.28	6.39	60.7	52	4.3	Clear	TN-9	Temp=26.8deg Dia=62cm with No.6 Pump	++
DB-11	16-Sep-98 11:30	Tube	8.0	1992	587453	2388908	-	-	-	6.37	58.9	55	3.6	Clear	TN-10	Temp=26.3deg with UNICEF No.6 Pump	0
DB-12	16-Sep-98 11:52	Hand Dug	7.26	1981	586946	2388829	5.43	0.82	4.61	6.63	69.4	53	3.7	slight brown	TN-11	Temp=26.4deg Dia=55cm with No.6 Pump	++
DB-13	16-Sep-98 12:12	Hand Dug	8.18	1974	586850	2388914	6.41	0.75	5.66	6.83	50.4	59	4.9	Clear	-	Dia=55cm with Local H.P.	++

Data Sheet for Hydrogeological Survey in Northern Part of Vietnam

Province: Thai Nguyen Commune: Hoa Thuong (1/1)

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Year Const.	UTM-E (m)	UTM-N (m)	GWL from MP (m)	MP Height (m)	GWL from GL (m)	pH	EC (ms/m)	ORP (mV)	DO (mg/l)	Color & smell	Water Sample No.	Remarks	Coliform
HT-1	16-Sep-98 13:56	Hand Dug	4.4	1995	586800	2394009	2.50	0.10	2.40	6.29	36.9	54	3.2	Clear	TN-12	Temp.=27.9deg near P.C.	++
HT-2	16-Sep-98 14:34	Hand Dug	4.77	1996	585246	2394128	1.63	0.82	0.81	6.97	48.0	54	3.2	Clear	TN-13	Temp.=27.3deg gravel/clay	+
HT-3	16-Sep-98 14:58	Hand Dug	5.14	1968	584614	2394229	1.54	0.42	1.12	6.75	53.5	52	2.7	Clear	TN-14	Temp.=25.5deg	+
HT-4	16-Sep-98 15:13	Hand Dug	9.8	1967	584045	2394328	3.72	0.74	2.98	6.53	63.5	-4	2.5	Clear Bad smell	TN-15	Temp.=26.0deg heavy rain bad smell drinking another well	++
HT-5	16-Sep-98 15:49	Hand Dug	3.55		585787	2395003	1.28	0.58	0.70	6.68	31.2	36	2.3	Clear	TN-16	Temp.=28.5deg enough side flow	++
HT-6	16-Sep-98 16:03	Hand Dug	10.3	1995	587825	2393296	2.03	0.46	1.57	6.97	53.7	41	3.1	Clear	TN-17	Temp.=26.7deg primary school drink after boiling	++
HT-7	16-Sep-98 16:28	Hand Dug	- (17.8)	1997	587824	2392710	- (6.8)	- (0)	- (6.8)	7.18	58.4	43	1.6	Clear	TN-18	Temp.=28.7deg ()=neighbour well	++
HT-8	16-Sep-98 17:00	Large Dug	11.5	1972			2.30	0.00	2.30						TN-19	2.6m x 4.9m Military well G=60m3/hr. 600m3/d	no test
HT-9	16-Sep-98 17:15	Hand Dug	5.45	1984	588049	2392446	2.27	0.67	1.60	6.81	120.3	46	3.9	slight turbid & salty	TN-20	Temp.=27.7deg	++
HT-10	16-Sep-98 17:36	Hand Dug	4.1	1995	588972	2392071	1.58	0.00	1.58	7.11	64.6	50	4.1	Clear	TN-21	Temp.=27.2deg	++

Data Sheet for Hydrogeological Survey in Northern Part of Vietnam

Province: Thai Nguyen Commune: Thinh Duc (1/2)

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Year Const.	UTM-E (m)	UTM-N (m)	GWL from MP (m)	MP Height (m)	GWL from GL (m)	pH	EC (ms/m)	ORP (mV)	DO (mg/l)	Color & smell	Water Sample No.	Remarks	Coliform
TD-1	17-Sep-98 9:26	Hand Dug	7.0	1994	584327	2378951	5.90	0.67	5.23	5.59	12.95	70	4.1	Clear	TN-22	Temp.= 27.2 deg	++
TD-2	17-Sep-98 9:49	Hand Dug	5.15	1994	584428	2379205	3.30	0.55	2.75	5.02	14.37	89	5.0	slight turbid	TN-23	Temp.= 26.2 deg	++
TD-3	17-Sep-98 10:01	Hand Dug	4.00	1996	584861	2378701	1.53	0.67	0.86	5.61	10.02	79	1.9	slight turbid	TN-24	Temp.= 27.9 deg Dia.=64cm	+++
TD-4	17-Sep-98 10:12	Hand Dug	5.9	-	584446	2380372	3.74	0.67	3.07	5.09	18.87	93	3.3	slight turbid	TN-25	Temp.= 27.6 deg	+++
TD-5	17-Sep-98 10:23	Hand Dug	5.2	1990	583976	2380170	3.70	0.40	3.30	5.59	17.06	83	2.4	Clear	TN-26	Temp.= 26.7 deg with No.6 Pump	++
TD-6	17-Sep-98 10:42	Hand Dug	5.35	1997	583088	2380217	1.86	0.85	1.01	4.84	3.00	111	5.1	Clear	TN-27	Temp.= 28.1 deg	++
TD-7	17-Sep-98 10:59	Hand Dug	5.75	1992	583806	2381051	3.85	0.62	3.23	4.89	5.10	111	3.6	Clear	TN-28	Temp.= 26.8 deg with Local Pump	+++
TD-8	17-Sep-98 11:13	Hand Dug	7.75	1984	583000	2382128	4.77	0.33	4.44	4.76	4.70	114	4.4	Clear	TN-29	Temp.= 26.2 deg At Waste Disp. Man. Office	+++
TD-9	17-Sep-98 11:32	Hand Dug	5.30	1994	563301	2382903	1.62	0.72	0.90	5.88	19.52	86	2.7	brown	TN-30	Temp.= 27.8 deg	+++
TD-10	17-Sep-98 11:44	Hand Dug	6.2	1968	583740	2382425	4.25	0.56	3.69	4.56	39.6	117	3.8	Clear	TN-31	Temp.= 27.2 deg with Local Pump Drink after boiling	+++
TD-11	17-Sep-98 13:46	Hand Dug	about 10	1994	582197	2384357	-	-	-	5.01	18.33	99	3.1	Clear	TN-32	Temp.= 26.7 deg Inside rice shop	++
TD-12	17-Sep-98 14:00	Hand Dug	7.05	-	581617	2382728	3.16	0.23	2.93	4.53	70.2	117	3.6	Clear	TN-33	Temp.= 25.7 deg	+
TD-13	17-Sep-98 14:16	Hand Dug	7.6	1958	581782	2382066	3.95	0.65	3.30	5.18	21.5	101	4.5	Clear	-	Temp.= 27.5 deg	+
TD-14	17-Sep-98 14:40	Hand Dug	7.85	1952	582468	2382582	3.70	0.60	3.10	5.85	47.4	85	3.5	Clear	-	Temp.= 27.6 deg Dia.=53cm 3 m away pond	+

Data Sheet for Hydrogeological Survey in Northern Part of Vietnam

Province: Thai Nguyen Commune: Thinh Duc (2/2)

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Year Const.	UTM-E (m)	UTM-N (m)	GWL from MP (m)	MP Height (m)	GWL from GL (m)	pH	EC (ms/m)	ORP (mV)	DO (mg/l)	Color & smell	Water Sample No.	Remarks	Coliform
TD-15	17-Sep-98 15:07	Hand Dug	5.52	1997	584571	2383392	3.98	0.70	3.28	5.23	15.38	90	6.1	slight turbid	-	Temp.= 27.6 deg near irrig. Canal red shale area	+
TD-16	17-Sep-98 15:26	Hand Dug	9.26	-	585112	2383110	2.87	0.53	2.34	4.47	11.95	115	5.3	slight turbid	-	Temp.= 27.7 deg on shale hill red shale area	++
TD-17	17-Sep-98 15:41	Hand Dug	6.5	-	584827	2382518	4.49	0.57	3.92	5.38	24.9	95	4.5	slight turbid	-	Temp.= 26.9 deg on foot of shale hill 7m higher than paddy	+++

Data Sheet for Hydrogeological Survey in Northern Part of Vietnam

Province: Thai Nguyen Commune: Nam Tien (1/1)

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Year Const.	UTM-E (m)	UTM-N (m)	GWL from MP (m)	MP Height (m)	GWL from GL (m)	pH	EC (ms/m)	ORP (mV)	DO (mg/l)	Color & smell	Water Sample No.	Remarks	Coliform (about 100)
NT-1	18-Sep-98 9:58	Hand Dug	6.9	1984	589091	2366712	3.83	0.63	3.20	4.66	13.7	102	4.8	slight brown	TN-34	Temp.= 26.8 deg	+
NT-2	18-Sep-98 10:19	Hand Dug	6.4	1958	589669	2365901	3.67	0.74	2.93	5.44	39.9	91	4.0	slight turbid	TN-35	Temp.= 26.9 deg	++
NT-3	18-Sep-98 10:37	Manually Drilled Tube	about 10.0	1997	588740	2365199	-	-	-	5.59	5.63	85	3.0	Clear	TN-36	Temp.= 25.9 deg Located on natural levee	+++
NT-4	18-Sep-98 10:50	Hand Dug	8.7	1995	588691	2364404	7.49	0.80	6.69	6.03	14.92	71	3.1	slight brown	TN-37	Temp.= 26.2 deg Dry season no water	++
NT-5	18-Sep-98 11:14	Hand Dug	7.94	1965	589545	2365108	2.63	0.73	1.90	5.08	21.0	93	4.0	Clear	TN-38	Temp.= 27.1 deg	++
NT-6	18-Sep-98 11:26	Hand Dug	6.0	1993	590337	2365230	2.68	0.67	2.01	5.11	7.21	99	3.5	Clear	TN-39	Temp.= 27.7 deg with Local HP	+
NT-7	18-Sep-98 10:59	Hand Dug	5.0	1950	591003	2365824	2.13	0.50	1.63	5.98	70.20	69	3.1	slight brown	TN-40	Temp.= 27.6 deg weathered s.s., hard	+
NT-8	18-Sep-98 11:13	Hand Dug	3.9	1980	590825	2366031	2.40	0.67	1.73	5.68	51.70	73	3.6	Clear	TN-41	Temp.= 27.2 deg	4
NT-9	18-Sep-98 12:02	Hand Dug	5.75	1969	590250	2366073	2.87	0.59	2.28	4.80	24.2	98	4.4	Clear	TN-42	Temp.= 27.9 deg at margin of terrace	++
NT-10	18-Sep-98 13:38	Hand Dug	7.00	1968	590593	2367845	3.74	0.63	3.11	4.39	59.8	103	4.1	Clear	TN-43	Temp.= 26.3 deg	2
NT-11	18-Sep-98 13:47	Tube	about 28.5	1998	590908	2366875	2.02	0.2	1.82	7.19	31.7	55	3.2	Clear	TN-44	Temp.= 26.5 deg drilled by manual rotary red s.s.	6
NT-12	18-Sep-98 14:10	Hand Dug	3.15	1995	591400	2365826	1.80	0.60	1.20	4.97	15.64	85	3.5	Clear	TN-45	Temp.= 28.0 deg east of railway	no test
NT-13	18-Sep-98 14:25	Hand Dug	5.65	1950	591402	2366302	2.84	0.50	2.34	5.24	50.9	80	3.3	Clear	-	Temp.= 26.9 deg	no test

Data Sheet for Hydrogeological Survey in Northern Part of Vietnam

Province: Ha Noi Commune: Xuan Dinh (1/1)

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Year Const.	UTM-E (m)	UTM-N (m)	GWL from MP (m)	MP Height (m)	GWL from GL (m)	pH	EC (ms/m)	ORP (mV)	DO (mg/l)	Color & smell	Water Sample No.	Remarks	Coliform
XD-1	13-Oct-98 9:02	Tube	28.00	1989	583195	2329927	-	-	-	5.05	16.63	156	3.7	clear	194	T = 25.2 deg in PC for everything	119
XD-2	13-Oct-98 9:16	Hand Dug Tube	10.45 23.00	1985 1997	583011	2329655	1.20	0.65	0.55	-	-	-	-	-	195	T = 24.9 deg H.D. only for washing drink T.B. water	8+
XD-3	13-Oct-98 9:33	Tube	30.00	1991	582795	2329544	-	-	-	5.13	6.61	148	4.7	clear	196	T = 25.1 deg	0
XD-4	13-Oct-98 9:39	Hand Dug	11.95	1989	582805	2329536	9.75	0.54	9.21	5.54	83.7	146	5.6	clear	197	T = 24.8 deg	+++
XD-5	13-Oct-98 9:51	Hand Dug	10.72	1984	582677	2329644	8.40	0.50	7.90	6.55	123.8	142	6.3	clear	198	T = 25.2 deg public well used by 2 families	+++
XD-6	13-Oct-98 10:04	Tube	24.00	1993	582548	2329613	-	-	-	5.95	102.5	141	5.5	clear	199	T = 27.3 deg Many people use this well because no water	+++
XD-7	13-Oct-98 10:15	Tube	30.00	1990	582417	2330040	-	-	-	5.08	6.75	159	5.4	clear	200	T = 26.3 deg	0
XD-8	13-Oct-98 10:25	Tube	24.00	1991	582378	2330380	-	-	-	5.33	8.31	162	5.8	clear	201	T = 26.3 deg	4
XD-9	13-Oct-98 10:41	Tube	20.00	1994	583421	2329722	-	-	-	5.35	13.26	163	5.5	clear	202	T = 26.3 deg	0
XD-10	13-Oct-98 10:53	Tube	26.00	1996	583790	2329717	-	-	-	5.44	14.51	178	5.5	clear	203	T = 25.5 deg	0

Data Sheet for Hydrogeological Survey in Northern Part of Vietnam

Province: Ha Noi Commune: Dong Ngac (1/1)

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Year Const.	UTM-E (m)	UTM-N (m)	GWL from MP (m)	MP Height (m)	GWL from GL (m)	pH	EC (ms/m)	ORP (mV)	DO (mg/l)	Color & smell	Water Sample No.	Remarks	Coliform
DN-1	13-Oct-98 12:17	Tube	18.00	1995	582479	2331992	-	-	-	6.99	47.9	218	5.5	clear	204	T = 26.6 deg	0
DN-2	13-Oct-98 12:31	Tube	20.00	1993	582680	2331911	-	-	-	7.00	56.5	236	6.4	clear	205	T = 26.6 deg	0
DN-3	13-Oct-98 12:44	Tube	19.50	1996	582180	2332060	-	-	-	6.72	72.6	240	6.6	clear	208	T = 26.0 deg feel smell from one month ago	3
DN-4	13-Oct-98 12:53	Tube	21.00	1995	582209	2331856	-	-	-	7.15	31.9	250	6.8	clear	207	T = 27.5 deg	0
DN-5	13-Oct-98 13:13	Hand Dug	10.00	1993	581331	2332139	1.40	0.56	0.84	7.15	170.1	257	6.6	slight yellow	208	T = 28.9 deg only for washing drink rain water	38+
DN-6	13-Oct-98 13:24	Hand Dug	8.00	1973	581379	2332320	1.53	0.72	0.81	7.04	134.1	269	6.9	clear	209	T = 28.0 deg no drink, drink rain water	49
DN-7	13-Oct-98 13:40	Tube	15.00	1995	581436	2332188	-	-	-	6.42	125.5	275	7.0	clear	210	T = 25.4 deg	18
DN-8	13-Oct-98 13:48	Tube	18.50	1992	581480	2332245	-	-	-	7.02	73.4	271	6.8	clear	211	T = 27.0 deg	0
DN-9	13-Oct-98 13:57	Tube	18.00	1993	581651	2332077	-	-	-	6.72	64.6	270	6.5	clear	212	T = 25.5 deg	0
DN-10	13-Oct-98 14:08	Tube	18.00	1996	582044	2332046	-	-	-	6.95	56.1	276	6.8	yellowish brown	213	T = 25.7 deg only one day before color becomes bad	0

Data Sheet for Hydrogeological Survey in Northern Part of Vietnam

Province: Ninh Binh Commune: Yen Thang (1/2)

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Year Const.	UTM-E (m)	UTM-N (m)	GWL from MP (m)	MP Height (m)	GWL from GL (m)	pH	EC (ms/m)	ORP (mV)	DO (mg/l)	Color & smell	Water Sample No.	Remarks	Coliform
YT-1	24-Sep-98 8:18	Hand Dug	-	-	601189	2227855	2.50	0.90	1.60	-	-	-	-	-	-	abandoned well Lowest W.L. 0.5m lower	no test
YT-2	24-Sep-98 9:25	Hand Dug	3.63	1998	602184	2226724	1.15	0.38	0.77	7.18	128	119	1.8	clear	46	Temp. = 28.0 deg User feels salty	++
YT-3	24-Sep-98 9:37	Hand Dug	2.65	1994	602130	2227019	1.35	0.60	0.75	6.85	198.5	187	3.4	brown	47	Temp. = 27.7 deg for everything water surface dirty	++
YT-4	24-Sep-98 10:03	Hand Dug	2.94	-	601482	2226982	1.40	0.48	0.92	6.92	84	189	3.3	clear	48	near G-2 limestone Temp. = 27.6 deg colour no change	+++
YT-5	24-Sep-98 10:15	Hand Dug	3.90	1995	601191	2227357	0.93	0.47	0.46	7.14	180.1	190	2.5	slight brown	-	Temp. = 27.7 deg only washing, drink rain water	++
YT-6	24-Sep-98 10:28	Hand Dug	3.90	1998 May	600715	2227555	1.36	0.28	1.08	6.77	154.00	84	2.5	very brown	50	Temp. = 28.1 deg only washing, drink rain water	+
YT-7	24-Sep-98 10:48	Hand Dug	4.85	1998 Mar	600806	2228517	1.35	0.66	0.67	6.62	206.00	13	1.9	very brown	49	Temp. = 27.7 deg only washing & bathing, drink rain water	+
YT-8	24-Sep-98 11:04	Hand Dug	3.90	1998 Jan	600530	2228987	1.79	0.80	0.99	6.75 (7.15)	213.00 (207)	-80 (+57)	3	brown	-	Temp. = 27.8 deg with filter (filtered value) for everything	+
YT-9	24-Sep-98 11:19	Hand Dug	3.45	1998	600197	2229391	1.45	0.63	0.82	6.41	103.1	128	3.4	very brown	51	Temp. = 27.9 deg with filter, dry season more brown	++
YT-10	24-Sep-98 11:33	Hand Dug	3.10	-	600713	2229216	0.72	0.16	0.54	7.18	89.7	132	2.5	slight brown	52	Temp. = 28.0 deg drink rain water only washing, cleaning	++
YT-11	24-Sep-98 11:45	Hand Dug	5.25	1996	601093	2228893	2.30	0.48	1.82	6.76	536	102	4	brown	-	Temp. = 26.8 deg with filter only for toilet	++++
YT-12	24-Sep-98 13:40	Hand Dug	5.93	-	598582	2227275	2.85	0.37	2.48	5.93	6.13	216	6.2	clear	-	Temp. = 27.6 deg hilly area, reddish brown weathered rock	0
YT-13	24-Sep-98 13:55	Hand Dug	2.93	1993	599443	2226988	1.61	0.52	1.09	7.05	52.3	147	3.9	clear	54	Temp. = 28.6 deg from shale, less calc. HCl bubble little	0
YT-S-1	24-Sep-98 14:17	Natural Spring			599299	2227096			0.00	6.88	36.3	139	4.3	clear	55	Temp. = 27.3 deg permanent spring about 20l/min	8
YT-14	24-Sep-98 14:28	Hand Dug	3.15	1995	599321	2227139	1.65	0.60	1.05	7.18	42.3	168	3.9	clear	-	Temp. = 27.7 deg hardrock at 2m depth used TNT to dig	+

Data Sheet for Hydrogeological Survey in Northern Part of Vietnam

Provinces: Ninh Binh
Commune: Yen Thang (2/2)

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Year Const.	UTM-E (m)	UTM-N (m)	GWL from MP (m)	MP Height (m)	GWL from GL (m)	pH	EC (ms/m)	ORP (mV)	DO (mg/l)	Color & smell	Water Sample No.	Remarks	Coliform
YT-15	24-Sep-98 15:24	Hand Dug	3.05	1987	598340	2228408	1.10	0.48	0.64	7.11	148.4	110	3.6	slight brown	56	Temp. = 28.7 deg no drinking, many fish pond near the well	23
YT-16	24-Sep-98 15:43	Hand Dug	4.05	1990	600073	2228261	1.60	0.65	0.95	7	98.3	173	3.7	slight grey	-	Temp. = 28.4 deg drink rain water only washing & bathing.	5
YT-17	24-Sep-98 15:56	Hand Dug	2.24	1990	600398	2228787	1.05	0.10	0.95	7.47	101.7	156	4.5	slight dark	-	Temp. = 28.6 deg Public well Dia. = 6m	no test
YT-18	24-Sep-98 16:12	Hand Dug	3.32	1994	601268	2229528	0.98	0.45	0.53	7.18	135.1	191	4.5	slight turbid	57	Temp. = 28.6 deg	41
YT-19	24-Sep-98 16:35	Hand Dug	4.15	-	602273	2229020	1.49	0.48	1.01	7.03	178.3	165	3.4	clear	58	Temp. = 28.2 deg drink rain water top-2m. clay	25

Data Sheet for Hydrogeological Survey in Northern Part of Vietnam

Province: Ninh Binh Commune: Dong Phong

(1/2)

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Year Const.	UTM-E (m)	UTM-N (m)	GWL from MP (m)	MP Height (m)	GWL from GL (m)	pH	EC (ms/m)	ORP (mV)	DO (mg/l)	Color & smell	Water Sample No.	Remarks	Coliform
DP-1	25-Sep-98 9:30	Hand Dug	2.45	1993	577157	2246763	0.97	0.34	0.63	7.19	43.7	219	4.2	clear	59	T = 28.2 deg	0
DP-2	25-Sep-98 9:50	Hand Dug	2.34	1997	575764	2246597	1.40	0.53	0.87	7.05	105.9	178	2.1	clear	60	T = 27.4 deg	0
DP-3	25-Sep-98 10:01	Hand Dug	2.43	1989	576110	2246810	1.03	0.48	0.55	6.92	87.9	193	3.3	clear	-	T = 28.4 deg	1
DP-4	25-Sep-98 10:13	Hand Dug	1.95	1997	577382	2246061	1.06	0.26	0.80	6.98	73.0	182	3.6	clear	61	T = 28.9 deg	0
DP-5	25-Sep-98 10:33	Hand Dug	2.02	1998	577392	2245700	1.20	0.48	0.72	6.97	82.5	215	2.4	clear	-	T = 28.4 deg	+
DP-6	25-Sep-98 10:55	Hand Dug	3.65	1997	577732	2246051	1.92	0.54	1.38	6.91	86.8	195	4.0	slight turbid	-	T = 28.4 deg	++
DP-7	25-Sep-98 11:12	Hand Dug	2.47	1988	578117	2246115	1.00	0.17	0.83	6.88	56.2	170	4.2	clear	62	T = 28.2 deg W.L. fluct = 10 - 20cm	+
DP-8	25-Sep-98 11:26	Hand Dug	3.65	1996	577914	2246590	1.19	0.51	0.68	6.71	74.8	124	4.8	clear	63	T = 28.8 deg	3
DP-9	25-Sep-98 11:47	Hand Dug	4.75	1996	578743	2246549	2.32	0.71	1.61	7.09	100.6	52	4.6	clear	64	T = 28.6 deg	14
DP-10	25-Sep-98 13:39	Hand Dug	4.70	1958	578806	2245951	1.80	0.75	1.05	6.72	60.6	182	4.1	clear	65	T = 28.6 deg	1
DP-11	25-Sep-98 13:55	Hand Dug	4.30	-	579140	2245784	1.37	0.64	0.73	7.01	103.9	183	4.0	slight gray	-	T = 28.1 deg dry seas. more salty	+++
DP-12	25-Sep-98 14:14	Hand Dug	4.40	1988	578447	2247304	1.94	0.60	1.34	6.62	75.7	157	4.0	slight gray	66	T = 29.4 deg	30
DP-13	25-Sep-98 14:27	Hand Dug	2.30	1989	577635	2247299	0.96	0.50	0.46	7.13	58.8	178	4.0	slight gray	-	T = 29.4 deg for everthing no encountered bedrock	15
DP-14	25-Sep-98 14:40	Hand Dug	5.10	-	577161	2247973	1.82	0.48	1.34	6.53	42.0	175	3.5	clear	67	T = 28.7 deg	+++
DP-15	25-Sep-98 15:00	Hand Dug	5.00	1986	577820	2247506	1.53	0.75	0.78	7.21	47.1	168	3.0	clear	-	T = 27.8 deg	++

Data Sheet for Hydrogeological Survey in Northern Part of Vietnam

Province: Ninh Binh Commune: Dong Phong (2/2)

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Year Const.	UTM-E (m)	UTM-N (m)	GWL from MP (m)	MP Height (m)	GWL from GL (m)	pH	EC (ms/cm)	ORP (mV)	DO (mg/l)	Color & smell	Water Sample No.	Remarks	Coliform
DP-16	25-Sep-98 15:18	Hand Dug	6.15	1970	577694	2248042	3.15	0.45	2.70	6.22	33.5	148	4.8	clear	68	T = 27.2 deg	++
DP-17	25-Sep-98 16:10	Hand Dug	3.90	1994	577052	2247557	1.29	0.50	0.79	7.12	53.7	190	4.8	clear	69	T = 28.7 deg	32
DP-18	25-Sep-98 16:21	Hand Dug	2.80	1992	576131	2247860	2.44	0.36	2.08	7.27	69.8	159	4.3	clear	70	T = 28.8 deg	50

Data Sheet for Hydrogeological Survey in Northern Part of Vietnam

Province: Ninh Binh Commune: Quang Son (1/2)

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Year Const.	UTM-E (m)	UTM-N (m)	GWL from MP (m)	MP Height (m)	GWL from GL (m)	pH	EC (ms/m)	ORP (mV)	DO (mg/l)	Color & smell	Water Sample No.	Remarks	Coliform
QS-1	26-Sep-98 8:55	Hand Dug	9.90	1997	591959	2228735	2.31	0.70	1.91	6.69	59.3	249	4.5	clear	71	T = 27.5 deg	+
QS-2	26-Sep-98 9:22	Hand Dug	15.40	1997	590950	2229050	4.00	0.30	3.70	6.82	97.4	226	4.2	clear	72	T = 27.1 deg Tuff. silt w/ plant fossil HCl bubble, near coal	++
QS-3	26-Sep-98 9:48	Hand Dug	12.90	1994	590280	2229397	3.00	0.60	2.40	6.22	30.8	230	6.0	clear	-	T = 27.1 deg	++
QS-4	26-Sep-98 10:07	Hand Dug	12.50	-	589088	2227977	5.66	0.56	5.10	6.14	58.4	256	3.1	clear	-	T = 25.4 deg	+
QS-5	26-Sep-98 10:16	Hand Dug	11.60	1994	589111	2227660	8.75	0.35	8.40	6.55	122.0	190	3.5	clear	73	T = 25.7 deg CaCO3 scale Dry seas. 0.5m w. dep	++
QS-6	26-Sep-98 10:30	Cave			589093	2227769				7.34	36.1	237	4.0	slight blue	74	T = 26.0 deg before 2 pumps Dry seas. 2.5m lower	++
QS-7	26-Sep-98 11:04	Hand Dug	13.90	1997	587890	2230346	5.34	0.69	4.65	7.28	11.03	225	5.3	clear	75	T = 26.1 deg reddish yellow soil botm: limestone	++
QS-8	26-Sep-98 11:20	Hand Dug	17.80	1998	588434	2231500	12.15	0.52	11.63	6.90	42.6	230	2.7	clear	76	T = 25.8 deg botm: reddish brown weathered shale	+
QS-9	26-Sep-98 12:19	Hand Dug	25.25	1995	590454	2230435	12.19	0.58	11.61	6.79	24.2	255	5.6	clear	77	T = 25.5 deg Const. cost: 4 mil. Don	++
QS-10	26-Sep-98 12:37	Hand Dug	4.32	1983	592045	2230990	3.59	0.92	2.67	6.97	50.1	177	4.5	clear	78	T = 27.4 deg Botm: laminated i.s.	++
QS-11	26-Sep-98 12:54	Hand Dug	19.50	1998	592330	2229604	13.52	0.52	13.00	7.32	25.9	196	4.8	slight turbid	79	T = 25.7 deg no bedrock encountered	+
QS-12	26-Sep-98 14:41	Hand Dug	10.50	1998	594107	2228226	4.56	0.35	4.21	7.89	25.8	205	5.2	clear	80	T = 28.4 deg semi-confined by 7.5m clay, then i.s.	+++
QS-13	26-Sep-98 14:54	Hand Dug	11.92	1995	593510	2228366	4.67	0.64	4.03	6.83	28.6	235	5.2	clear	-	T = 26.3 deg semi-confined in dry season (March)	++
QS-14	26-Sep-98 15:10	Hand Dug	17.00	1996	593125	2228409	10.63	0.82	9.81	6.94	47.3	230	6.2	clear	-	T = 25.9 deg Drilling time used TNT because hardrock	++
QS-15	26-Sep-98 15:25	Hand Dug	12.00	1998	592514	2228655	3.74	0.70	3.04	7.51	37.8	231	5.9	clear	-	T = 25.8 deg botm: i.s. TNT used	++

Data Sheet for Hydrogeological Survey in Northern Part of Vietnam

Province: Ninh Binh Commune: Quang Son

(2/2)

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Year Const.	UTM-E (m)	UTM-N (m)	GWL from MP (m)	MP Height (m)	GWL from GL (m)	pH	EC (ms/m)	ORP (mV)	DO (mg/l)	Color & smell	Water Sample No.	Remarks	Coliform
QS-16	26-Sep-98 15:49	Hand Dug	9.52	1995	592035	2228303	1.84	0.65	1.19	7.35	37.3	204	5.7	clear	81	T = 28.5 deg	+
QS-17	26-Sep-98 16:02	Hand Dug	14.95	1991	591777	2228304	4.44	0.65	3.79	5.84	17.6	266	4.8	clear	-	T = 26.2 deg yellow clay 5m, green clay 5m, botm: rock	+++
QS-18	26-Sep-98 16:17	Hand Dug	10.50	1989	591513	2227889	2.90	0.60	2.30	6.86	24.6	214	6.1	clear	82	T = 26.3 deg	+++

Data Sheet for Hydrogeological Survey in Northern Part of Vietnam

Province: Thanh Hoa Commune: Vinh Thanh (1/1)

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Year Const.	UTM-E (m)	UTM-N (m)	GWL from MP (m)	MP Height (m)	GWL from GL (m)	pH	EC (ms/m)	ORP (mV)	DO (mg/l)	Color & smell	Water Sample No.	Remarks	Coliform
VT-1	07-Oct-98 9:21	Hand Dug	5.80	1989	563956	2217937	1.90	0.00	1.90	7.07	187.5	412	3.8	slight turbid	124	T = 26.2 deg drink river water only for washing	+
VT-2	07-Oct-98 9:37	Hand Dug	9.40	1993	564331	2217867	6.75	0.74	6.01	6.58	55.5	428	4.6	clear	125	T = 26.1 deg drink well water	12+
VT-3	07-Oct-98 9:50	Hand Dug	9.20	1976	564638	2217432	3.42	0.43	2.99	7.36	71.1	407	4.0	slight turbid	126	T = 26.4 deg for everything	30+
VT-4	07-Oct-98 10:01	Hand Dug	10.22	1988	564663	2217341	6.70	0.63	6.07	6.85	108.5	421	4.6	clear	127	T = 25.8 deg for everything	15
VT-5	07-Oct-98 10:15	Hand Dug	5.45	1993	564978	2217012	1.52	0.62	0.90	7.16	117.3	400	3.7	clear	128	T = 27.1 deg for everything	15+
VT-6	07-Oct-98 10:28	Hand Dug	4.78	1987	564819	2216118	1.88	0.52	1.36	7.06	70.5	383	3.5	slight brown	129	T = 26.1 deg for everything	4
VT-7	07-Oct-98 10:39	Hand Dug	5.90	1998	564820	2216291	2.04	0.87	1.17	7.17	92.4	395	4.2	clear	130	T = 26.2 deg for everything	0
VT-8	07-Oct-98 10:53	Hand Dug	3.60	1969	564801	2216394	0.94	0.58	0.36	6.94	84.4	367	4.4	slight turbid	131	T = 26.2 deg for everything	50+
VT-9	07-Oct-98 11:05	Hand Dug	7.05	1978	565311	2215689	2.94	0.60	2.34	6.36	53.6	454	3.5	clear	132	T = 25.6 deg limestone below 4m some dryeas. dry up	28
VT-10	07-Oct-98 11:27	Hand Dug	8.05	1996	565487	2215367	2.13	0.76	1.37	6.58	62.4	439	4.2	clear	133	T = 26.2 deg for everything	5

Data Sheet for Hydrogeological Survey in Northern Part of Vietnam

Province: Thanh Hoa Commune: Vinh Loc Town (1/1)

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Year Const.	UTM-E (m)	UTM-N (m)	GWL from MP (m)	MP Height (m)	GWL from GL (m)	pH	EC (ms/m)	ORP (mV)	DO (mg/l)	Color & smell	Water Sample No.	Remarks	Coliform
VL-1	07-Oct-98 12:42	Tube	14.50	1996	585145	2217374	-	-	-	6.14	39.2	140	3.8	clear	134	T = 25.3 deg no bedrock only sand	8+
VL-2	07-Oct-98 13:42	Hand Dug	5.82	1992	585347	2216929	2.40	0.75	1.65	6.88	47.9	444	4.9	clear	135	T = 26.6 deg drink well water inside Temple	+
VL-3	07-Oct-98 14:14	Hand Dug	5.05	1998	585313	2216425	2.43	0.62	1.81	6.85	52.1	452	4.7	clear	136	T = 26.6 deg for everything	+
VL-4	07-Oct-98 14:23	Hand Dug	8.65	1998	585051	2216436	2.90	1.03	1.87	7.36	82.3	405	4.9	clear but some materials	137	T = 26.2 deg botm: weathered shale	+
VL-5	07-Oct-98 14:38	Tube	28.00	1998	585097	2216829	-	-	-	7.11	51.2	43	4.6	slight turbid	138	T = 26.2 deg for everything 600 th. VND	0
VL-6	07-Oct-98 14:46	Hand Dug	5.37	1996	585209	2217157	1.25	0.82	0.43	7.13	57.2	-95	4.8	very brown	139	T = 26.0 deg 3 step filter, Fe rich in District Bank	20++
VL-7	07-Oct-98 15:01	Tube	17.00	1987	584878	2217589	-	-	-	5.79	59.1	479	5.0	clear	140	T = 25.7 deg no bedrock	23+
VL-8	07-Oct-98 15:10	Hand Dug	8.15	1996	584475	2218413	3.05	0.40	2.65	6.46	35.3	454	5.5	clear	141	T = 25.8 deg for only washing	3+
VL-9	07-Oct-98 15:17	Tube	15.00	1997	584475	2218413	-	-	-	6.31	33.0	481	5.1	clear	142	T = 25.8 deg for drinking & cooking some dryeas. dry up	
VL-10	07-Oct-98 15:27	Hand Dug Tube	5.40 20.00	1981 1996	584732	2218138	1.27 -	0.57 -	0.70 -	5.80	5.6	531	5.4	clear	143	T = 25.6 deg TB well and HD well in the house	3+

Data Sheet for Hydrogeological Survey in Northern Part of Vietnam

Provinces: Thanh Hoa Commune: Dinh Tuong (1/1)

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Year Const.	UTM-E (m)	UTM-N (m)	GWL from MP (m)	MP Height (m)	GWL from GL (m)	pH	EC (ms/m)	ORP (mV)	DO (mg/l)	Color & smell	Water Sample No.	Remarks	Coliform
DT-1	08-Oct-98 9:14	Tube	30.00	1986	568223	2207121	-	-	-	6.98	35.9	273	2.9	clear	144	T = 26.4 deg in PC	
DT-2	08-Oct-98 9:46	Hand Dug	5.90	1976	568037	2205817	3.96	0.70	3.26	6.43	35.2	290	4.0	clear	145	T = 26.4 deg for everything	
DT-3	08-Oct-98 10:01	Hand Dug	6.95	1993	568668	2205487	6.75	0.70	6.05	7.00	45.8	247	5.2	slight yellow	146	T = 26.4 deg for everything	
DT-4	08-Oct-98 10:28	Tube	30.00	1988	568133	2208354	-	-	-	6.72	33.9	29	4.4	clear	147	T = 26.2 deg only Quaternary Sedi.	
DT-5	08-Oct-98 10:55	Hand Dug	4.52	1997	568225	2208340	2.19	0.63	1.56	6.82	128.1	287	3.8	very brown	148	T = 26.6 deg with filter everything after filter	
DT-6	08-Oct-98 11:11	Hand Dug	4.50	1983	568195	2207770	2.50	0.39	2.11	6.63	57.6	239	5.1	yellow	149	T = 26.3 deg for everything with filter	
DT-7	08-Oct-98 11:23	Hand Dug	5.75	1974	567627	2207617	3.70	0.56	3.14	6.49	70.0	269	5.6	slight turbid	150	T = 26.5 deg	
DT-8	08-Oct-98 11:34	Hand Dug	5.03	1989	567348	2207443	3.35	0.71	2.64	6.37	94.0	431	5.3	slight yellow	151	T = 26.6 deg	
DT-9	08-Oct-98 11:44	Hand Dug	5.50	1985	567611	2207013	4.20	0.69	3.51	6.58	22.7	432	5.6	yellow	152	T = 26.9 deg	
DT-10	08-Oct-98 11:55	Tube	31.00	1992	567659	2208959	-	-	-	7.11	40.3	53	5.0	clear	153	T = 27.3 deg	

Data Sheet for Hydrogeological Survey in Northern Part of Vietnam

Province: Thanh Hoa Commune: Thieu Hung (1/1)

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Year Const.	UTM-E (m)	UTM-N (m)	GWL from MP (m)	MP Height (m)	GWL from GL (m)	pH	EC (ms/m)	ORP (mV)	DO (mg/l)	Color & smell	Water Sample No.	Remarks	Coliform
TH-1	09-Oct-98 8:19	Tube	27.00	1997	571295	2198989	-	-	-	6.95	37.6	-7	4.5	slight turbid	154	T = 26.0 deg in PC	++
TH-2	09-Oct-98 8:26	Hand Dug	7.00	1976	571342	2198880	4.60	0.80	3.80	6.57	86.6	71	4.7	brown	155	T = 25.0 deg with filter	++++
TH-3	09-Oct-98 8:37	Hand Dug	6.80	1975	571359	2198756	4.46	0.72	3.74	6.44	64.6	149	4.3	slight brown	156	T = 25.6 deg	+++
TH-4	09-Oct-98 8:51	Hand Dug	5.95	1996	571073	2198846	5.25	0.95	4.30	6.34	55.6	141	4.5	brown	157	T = 26.0 deg for everything	++
TH-5	09-Oct-98 9:03	Hand Dug	6.80	1977	571050	2198554	5.56	0.80	4.76	6.48	54.4	54	4.9	brown	158	T = 26.1 deg	++++
TH-6	09-Oct-98 9:12	Hand Dug	6.70	1989	571155	2198496	5.80	0.74	5.06	6.45	64.5	84	5.6	slight brown	159	T = 26.0 deg	++
TH-7	09-Oct-98 9:28	Hand Dug	6.67	1993	571446	2198368	5.40	0.60	4.80	7.04	90.7	168	6.4	slight yellow	160	T = 26.1 deg	+++
TH-8	09-Oct-98 10:07	Hand Dug	6.90	1974	571795	2198729	5.30	0.67	4.63	6.16	75.3	184	4.9	slight yellow	161	T = 25.6 deg	+++
TH-9	09-Oct-98 10:17	Hand Dug	6.05	-	571902	2198755	4.85	0.63	4.32	6.39	98.1	188	5.0	slight yellow	162	T = 25.5 deg	++++
TH-10	09-Oct-98 10:26	Hand Dug	5.60	1979	571973	2198764	2.48	0.78	1.70	6.92	167.2	189	4.6	slight brown	163	T = 26.6 deg	++++

Data Sheet for Hydrogeological Survey in Northern Part of Vietnam

(1/1)

Province: Thanh Hoa

Commune: Thieu Do

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Year Const.	UTM-E (m)	UTM-N (m)	GWL from MP (m)	MP Height (m)	GWL from GL (m)	pH	EC (ms/m)	ORP (mV)	DO (mg/l)	Color & smell	Water Sample No.	Remarks	Coliform
TD-1	09-Oct-98 13:25	Tube	25.00	1998	572204	2197586	-	-	-	7.42	83.3	67	4.7	slight yellow	164	T = 27.2 deg next of PC	3
TD-2	09-Oct-98 14:11	Hand Dug	7.20	1994	571908	2197725	2.58	0.74	1.84	6.99	158.8	221	5.5	clear	165	T = 27.6 deg only for washing drink river water	++
TD-3	09-Oct-98 14:23	Hand Dug	7.60	1975	572099	2197647	1.98	0.59	1.39	7.00	162.5	258	5.5	slight turbid	166	T = 27.9 deg drink river water	++
TD-4	09-Oct-98 14:35	Hand Dug	4.70	1981	572463	2197461	2.62	0.70	1.92	6.93	140.4	250	5.6	yellow	167	T = 27.0 deg only for washing drink river water	+
TD-5	09-Oct-98 14:45	Hand Dug	4.25	1977	572795	2197171	1.06	0.55	0.51	7.03	153.4	256	5.5	clear	168	T = 27.4 deg drink river water	+++
TD-6	09-Oct-98 14:56	Tube	33.00	1998	573020	2197250	-	-	-	6.93	68.4	46	5.8	slight yellow	169	T = 25.8 deg for everything	+
TD-7	09-Oct-98 15:09	Hand Dug	5.60	1990	571681	2197765	4.26	0.38	3.88	7.16	128.6	296	6.1	slight turbid	170	T = 26.9 deg	++
TD-8	09-Oct-98 15:21	Hand Dug	3.02	1985	571505	2196570	1.96	0.56	1.40	6.71	75.9	225	5.5	very brown	171	T = 26.4 deg for everything	++
TD-9	09-Oct-98 15:30	Hand Dug	2.90	1983	571632	2196335	1.37	0.58	0.79	7.13	120.1	205	6.5	slight turbid	172	T = 26.3 deg	+
TD-10	09-Oct-98 15:38	Hand Dug	3.30	1984	571764	2195938	1.03	0.59	0.44	7.55	34.7	201	6.3	slight turbid	173	T = 26.3 deg for everything	+

Data Sheet for Hydrogeological Survey in Northern Part of Vietnam

Province: Thanh Hoa Commune: Van Thanh (1/1)

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Year Const.	UTM-E (m)	UTM-N (m)	GWL from MP (m)	MP Height (m)	GWL from GL (m)	pH	EC (ms/m)	ORP (mV)	DO (mg/l)	Color & smell	Water Sample No.	Remarks	Coliform
VT-1	10-Oct-98 8:34	Hand Dug	3.80	1988	564334	2169918	1.60	0.78	0.82	6.45	14.1	257	5.0	slight yellow	174	T = 26.3 deg	++
VT-2	10-Oct-98 8:55	Hand Dug	3.45	-	563854	2170306	1.66	0.60	1.06	7.22	90.4	256	4.7	slight turbid	175	T = 26.1 deg dry season dry up	+
VT-3	10-Oct-98 9:11	Hand Dug	4.25	1997	563171	2170483	0.93	0.67	0.26	7.02	77.3	261	5.1	slight yellow	176	T = 26.6 deg drink another well only for washing	+
VT-4	10-Oct-98 9:35	Hand Dug	3.20	1989	563579	2167702	0.96	0.62	0.34	7.12	61.0	233	5.7	clear	177	T = 26.9 deg for everything	+
VT-5	10-Oct-98 9:51	Hand Dug	2.80	1988	564377	2168842	1.30	0.64	0.66	6.96	63.4	252	5.7	gray	178	T = 26.1 deg dry season dry up	+
VT-6	10-Oct-98 10:06	Tube	28.00	1988	564780	2169180	-	-	-	6.00	23.8	263	5.9	slight turbid	179	T = 27.0 deg bottle shows strong iron color	+++
VT-7	10-Oct-98 10:25	Hand Dug	4.25	1975	565925	2170098	0.97	0.67	0.30	6.95	141.6	372	6.0	slight turbid	180	T = 27.3 deg	++
VT-8	10-Oct-98 10:35	Hand Dug	4.07	1986	565664	2169965	1.37	0.64	0.73	7.23	52.0	385	7.2	slight turbid	181	T = 27.1 deg	++
VT-9	10-Oct-98 10:56	Hand Dug	3.40	1982	565641	2168717	0.97	0.52	0.45	5.79	10.3	322	6.7	milky	182	T = 26.5 deg	++
VT-10	10-Oct-98 11:18	Hand Dug	4.80	1990	565281	2170376	1.34	0.54	0.80	7.09	59.6	337	6.4	milky	183	T = 26.0 deg one time flooding when dyke broken	++

Data Sheet for Hydrogeological Survey in Northern Part of Vietnam

Province: Thanh Hoa Commune: Nong Cong Town (1/1)

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Year Const.	UTM-E (m)	UTM-N (m)	GWL from MP (m)	MP Height (m)	GWL from GL (m)	pH	EC (ms/m)	ORP (mV)	DO (mg/l)	Color & smell	Water Sample No.	Remarks	Coliform
NC-1	10-Oct-98 14:02	Hand Dug	4.50	1995	589268	2170536	0.95	0.67	0.28	7.73	58.0	309	7.5	slight turbid	184	T = 28.0 deg	+++
NC-2	10-Oct-98 14:13	Tube	27.00	1996	589125	2170393	-	-	-	6.31	239.0	330	6.8	clear	185	T = 26.6 deg for everything	++
NC-3	10-Oct-98 14:23	Tube	28.00	1993	589005	2170166	-	-	-	6.30	239.0	360	6.5	clear	186	T = 26.8 deg sometimes drink rain water	++
NC-4	10-Oct-98 14:36	Hand Dug	4.75	1972	588772	2170092	1.04	0.60	0.38	7.35	98.1	354	7.3	clear	187	T = 30.4 deg in District PC	+
NC-5	10-Oct-98 14:50	Tube	24.00	1998	588578	2170008	-	-	-	7.08	156.1	325	5.5	slight turbid	188	T = 27.5 deg with filter for everything	+++
NC-6	10-Oct-98 15:02	Tube	30.00	1996	588740	2169801	-	-	-	6.32	416.0	384	6.2	clear	189	T = 27.0 deg only for washing in PC chairman's house	+
NC-7	10-Oct-98 15:08	Hand Dug	3.15	1975	588741	2169660	0.72	0.34	0.38	7.38	136.6	391	5.8	turbid	190	T = 26.9 deg dry season yellow color	++
NC-8	10-Oct-98 15:25	Tube	34.00	1972	588444	2169632	-	-	-	6.89	160.3	365	6.5	clear	191	T = 26.4 deg	+++
NC-9	10-Oct-98 15:35	Hand Dug	5.27	1994	588318	2169303	1.03	0.59	0.44	7.24	77.6	358	5.7	clear	192	T = 26.5 deg for everything	++
NC-10	10-Oct-98 15:44	Tube	32.00	1995	588104	2169763	-	-	-	6.84	56.5	390	5.5	clear	193	T = 26.2 deg water for market	++

Data Sheet for Hydrogeological Survey in Northern Part of Vietnam

Province: Ha Tinh Commune: Duc Yen (1/1)

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Year Const.	UTM-E (m)	UTM-N (m)	GWL from MP (m)	MP Height (m)	GWL from GL (m)	pH	EC (ms/m)	ORP (mV)	DO (mg/l)	Color & smell	Water Sample No.	Remarks	Coliform
DY-1	01-Oct-98 9:10	Hand Dug	6.40	1995	563524	2048310	3.00	0.77	2.23	6.62	120.3	-92	4.3	slight turbid	83	T = 25.8 deg with filter	++++
DY-2	01-Oct-98 9:30	Hand Dug	5.19	1985	563640	2048150	2.65	0.77	1.88	7.33	87.5	93	5.5	clear	84	T = 27.1 deg	+++
DY-3	01-Oct-98 9:52	Hand Dug	5.50	1990	563280	2048975	3.79	0.75	3.04	6.76	43.8	169	5.2	yellowish brown	85	T = 26.5 deg near river, flood sanitary bad	+++
DY-4	01-Oct-98 10:11	Hand Dug	5.15	1976	562995	2048831	3.80	0.69	3.11	6.41	27.2	61	4.1	clear	86	T = 26.3 deg public well quality said to be good	++
DY-5	01-Oct-98 10:25	Hand Dug	5.40	1978	562868	2049101	3.60	0.68	2.92	7.12	33.4	83	5.4	clear	87	T = 27.2 deg no filter	++
DY-6	01-Oct-98 10:41	Hand Dug	9.56	1982	562625	2048968	2.62	0.86	1.76	6.42	105.8	-102	3.2	clear	88	T = 26.6 deg with filter	++++
DY-7	01-Oct-98 11:12	Hand Dug	5.80	1998	562746	2048628	1.24	0.60	0.64	7.34	57.8	31	3.7	clear	89	T = 27.6 deg botm; silt w/ plant fossil in school near PC	+++
DY-8	01-Oct-98 11:41	Hand Dug	6.20	1990	562903	2048604	3.18	0.74	2.44	6.29	129.9	100	3.7	clear	90	T = 27.2 deg house of chairman of P&I	+++
(DY-9)	01-Oct-98 11:58	Hand Dug	-	-	563271	2048412	-	-	-	-	-	-	-	-	-	collect rain water, then keep in the well	
DY-9	01-Oct-98 12:01	Hand Dug	6.70	1998	563313	2048399	2.13	0.26	1.87	7.09	178.5	126	4.8	clear	91	T = 27.2 deg	++
DY-10	01-Oct-98 12:24	Hand Dug	4.67	1998	562537	2048931	2.40	0.68	1.72	6.83	53.5	65	3.9	brown	92	T = 26.5 deg	+

Data Sheet for Hydrogeological Survey in Northern Part of Vietnam

Provinces: Ha Tinh

Commune: Bui Xa

(1/1)

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Year Const.	UTM-E (m)	UTM-N (m)	GWL from MP (m)	MP Height (m)	GWL from GL (m)	pH	EC (ms/m)	ORP (mV)	DO (mg/l)	Color & smell	Water Sample No.	Remarks	Coliform
BX-1	01-Oct-98 14:14	Hand Dug	5.60	1994	566255	2049031	3.10	0.60	2.50	6.80	198.1	158	3.7	slight brown	93	T = 27.4 deg dry seas, dried up flood 2 months/y	++
BX-2	01-Oct-98 14:32	Hand Dug	5.20	1988	565791	2049013	2.85	0.65	2.20	6.72	118.3	132	4.1	very yellowish brown	94	T = 27.4 deg no drink due to Fe	+++
BX-3	01-Oct-98 14:44	Hand Dug	5.90	1972	565636	2048936	5.60	0.69	4.91	7.07	182.6	-14	4.8	turbid	95	T = 26.3 deg dirty, no drink well water	++
BX-4	01-Oct-98 14:57	Hand Dug	6.00	1988	565760	2048741	2.40	0.30	2.10	7.45	239.0	112	3.7	clear	96	T = 27.2 deg no drink this water	84
BX-5	01-Oct-98 15:10	Hand Dug	4.60	1976	565198	2048390	2.00	0.76	1.24	6.92	74.7	141	4.6	slight brown	97	T = 26.3 deg	+
BX-6	01-Oct-98 15:30	Hand Dug	4.90	1990	565243	2048063	2.23	0.69	1.54	6.78	45.3	126	6.5	slight turbid	98	T = 27.9 deg drink river water dry seas, dried up	+
BX-7	01-Oct-98 15:44	Hand Dug	5.50	1988	564562	2048101	3.85	0.79	3.06	6.50	92.6	163	5.5	slight turbid	99	T = 27.2 deg no drink this water	++
BX-8	01-Oct-98 15:58	Hand Dug	5.10	1985	564455	2047966	2.90	0.94	1.96	7.18	49.3	155	6.2	clear	100	T = 27.2 deg near canal	++
BX-9	01-Oct-98 16:14	Hand Dug	6.45	1974	563869	2048095	2.45	0.68	1.77	6.38	225.0	195	5.5	slight brown	101	T = 27.4 deg drink river water dry seas, dried up	+
BX-10	01-Oct-98 16:27	Hand Dug	5.20	1996	563930	2047831	2.26	0.74	1.52	6.96	151.9	187	5.5	clear	102	T = 25.9 deg	++

Data Sheet for Hydrogeological Survey in Northern Part of Vietnam

Province: Ha Tinh Commune: Trung Lo (1/1)

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Year Const.	UTM-E (m)	UTM-N (m)	GWL from MP (m)	MP Height (m)	GWL from GL (m)	pH	EC (ms/m)	ORP (mV)	DO (mg/l)	Color & smell	Water Sample No.	Remarks	Coliform
TL-1	02-Oct-98 8:48	Tube Hand Dug	24 6	1997	567328	2046940	2.28	0.78	1.50	5.17	213.0	140	4.3	slight turbid	103	T = 25.8 deg T.B.: 1m soil, 20m clay & sand, then granule	+
TL-2	02-Oct-98 8:59	Hand Dug	about 2.50	about 1978	567390	2046965	-	-	-	6.62	20.3	106	5.8	dark gray	104	T = 27.0 deg public well used by about 30 houses	+
TL-3	02-Oct-98 9:11	Hand Dug	6.00	1993	567098	2047114	3.45	0.70	2.75	7.05	195.8	116	5.9	clear	105	T = 26.1 deg	++
TL-4	02-Oct-98 9:22	Hand Dug	6.50	1995	566939	2047147	2.05	0.66	1.39	7.72	58.9	102	4.9	yellowish brown	106	T = 26.0 deg no drink this water dry season dry up	++
TL-5	02-Oct-98 9:41	Hand Dug	4.35	1988	566498	2047182	1.90	0.76	1.14	6.26	131.5	159	3.9	slight brown	107	T = 25.5 deg only for washing drink rain water	+
TL-6	02-Oct-98 9:49	Hand Dug	4.75	1984	566545	2047012	1.78	0.80	0.98	6.91	54.1	134	4.0	slight brown	108	T = 26.6 deg	+
TL-7	02-Oct-98 10:03	Hand Dug	6.15	1988	566590	2046844	2.34	0.75	1.59	7.05	144.9	140	4.5	slight brown	109	T = 26.2 deg	++
TL-8	02-Oct-98 10:16	Hand Dug	5.75	1990	566729	2046844	3.79	0.43	3.36	6.55	51.8	102	6.2	clear	110	T = 25.3 deg	++
TL-9	02-Oct-98 10:28	Hand Dug	7.80	1987	566817	2046748	3.63	0.83	2.80	7.01	159.5	120	4.5	slight brown	111	T = 25.9 deg	+++
TL-10	02-Oct-98 10:43	Tube	34.00	1997	566865	2046230	-	-	-	5.43	197.6	150	3.5	clear	112	T = 25.6 deg	+++

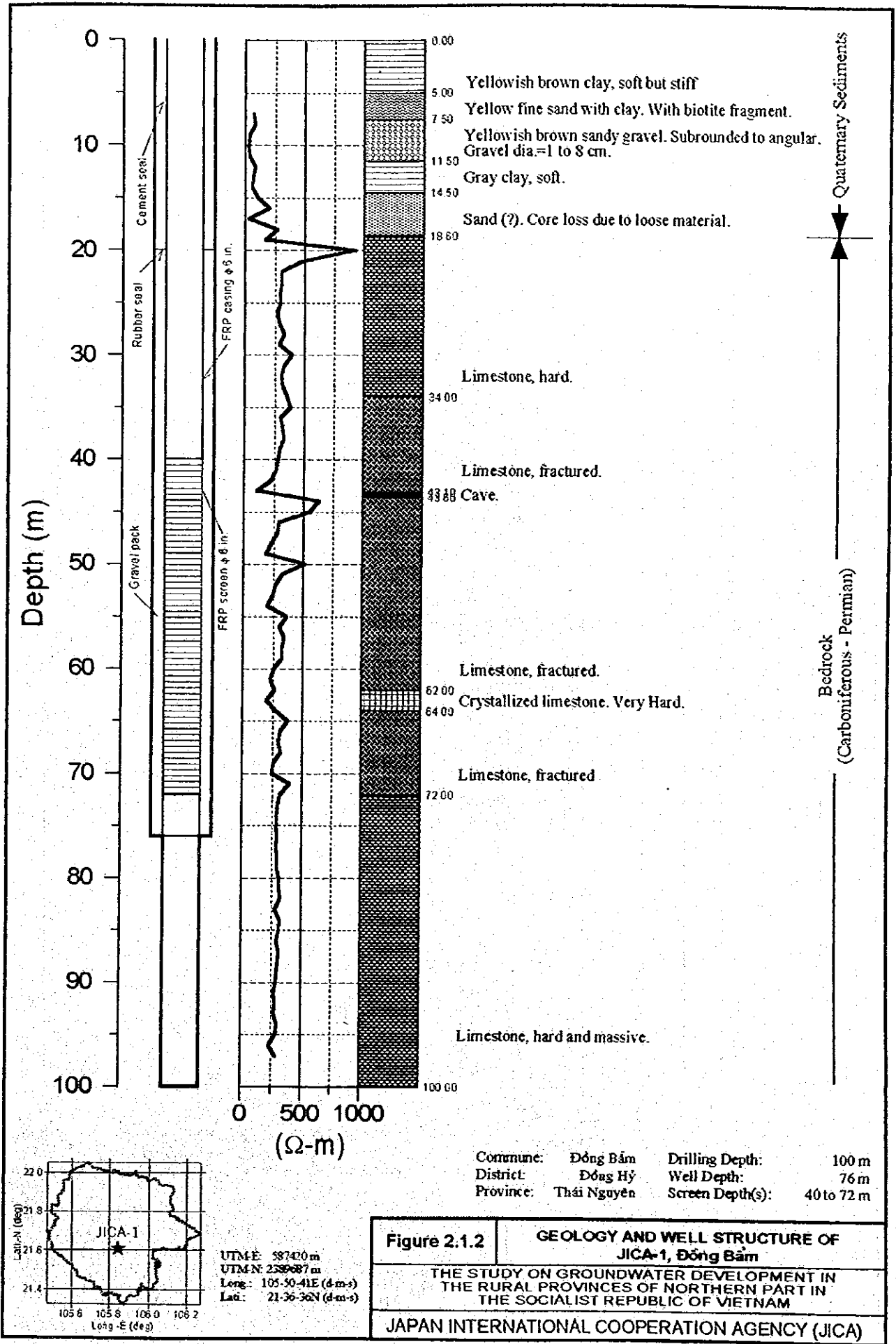
Data Sheet for Hydrogeological Survey in Northern Part of Vietnam

Province: Ha Tinh

Commune: Yen Ho

(1/1)

Well No.	Date (dd-mm-yy)	Well Type	Well Depth (m)	Year Const.	UTM-E (m)	UTM-N (m)	GWL from MP (m)	MP Height (m)	GWL from GL (m)	pH	EC (ms/m)	ORP (mV)	DO (mg/l)	Color & smell	Water Sample No.	Remarks	Coliform
YH-1	02-Oct-98 13:29	Hand Dug	3.65	1995	568523	2050704	2.80	0.58	2.22	6.08	31.6	194	3.3	brown	113	T = 26.9 deg no drink this water dry season dry up	+++
YH-2	02-Oct-98 13:52	Hand Dug	4.00	-	568490	2050981	3.00	0.80	2.20	6.30	75.8	193	4.0	brown	114	T = 26.3 deg with filter dry season dry up	+
YH-3	02-Oct-98 14:03	Hand Dug	4.27	1994	568402	2051159	2.18	0.78	1.40	4.18	101.7	415	4.3	slight brown	115	T = *** deg dry season dry up drink rain water	+
YH-4	02-Oct-98 14:24	Hand Dug	4.80	1992	567817	2050389	3.58	0.64	2.94	6.27	28.9	-53	3.7	slight brown	116	T = 25.9 deg dry season dry up	++++
YH-5	02-Oct-98 14:39	Hand Dug	4.70	1992	568972	2050759	1.28	0.70	0.58	6.75	92.5	111	4.2	brown	117	T = 26.9 deg	++
YH-6	02-Oct-98 15:13	Hand Dug	3.30	1981	568270	2050828	1.93	0.42	1.51	6.04	54.9	144	4.7	clear	118	T = 26.5 deg	+
YH-7	02-Oct-98 15:28	Hand Dug	about	very old	569850	2050850	-	-	-	6.77	36.7	178	7.0	green	119	T = 27.2 deg public well used by 60 houses T = 26.4 deg	+++
YH-8	02-Oct-98 15:41	Hand Dug	4.55	-	569703	2050948	1.80	0.66	0.94	6.81	108.2	156	4.3	slight brown	120	T = 26.6 deg dry season dry up	+++
YH-9	02-Oct-98 15:51	Hand Dug	3.65	1980	570093	2050713	1.97	0.65	1.32	5.93	111.6	223	4.8	yellowish brown	121	T = 27.3 deg	++
YH-10	02-Oct-98 16:08	Hand Dug	5.20	1994	570942	2050429	2.48	0.49	2.00	6.88	146.0	28	5.3	yellowish brown	122	T = 27.4 deg	+
YH-11	02-Oct-98 16:41	Hand Dug	3.40	1980	570145	2050950	1.92	0.66	1.26	5.58	46.1	103	4.2	yellowish brown	123		



Commune: **Đông Bám** Drilling Depth: **100 m**
 District: **Đông Hỷ** Well Depth: **76 m**
 Province: **Thái Nguyên** Screen Depth(s): **40 to 72 m**

Figure 2.1.2 **GEOLOGY AND WELL STRUCTURE OF JICA-1, ĐÔNG BẨM**
 THE STUDY ON GROUNDWATER DEVELOPMENT IN THE RURAL PROVINCES OF NORTHERN PART IN THE SOCIALIST REPUBLIC OF VIETNAM
 JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

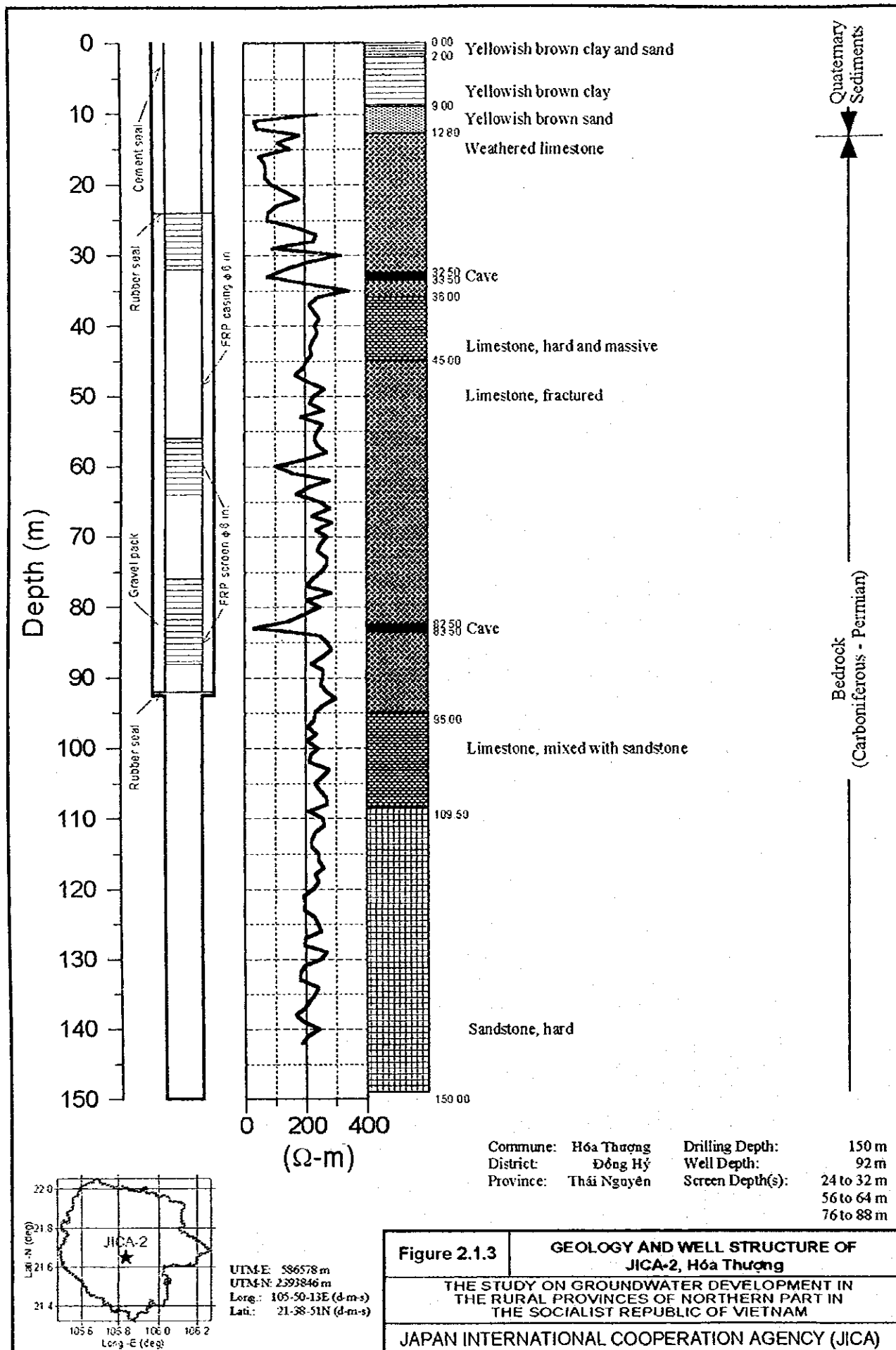


Figure 2.1.3 GEOLOGY AND WELL STRUCTURE OF JICA-2, Hoa Thuong

THE STUDY ON GROUNDWATER DEVELOPMENT IN THE RURAL PROVINCES OF NORTHERN PART IN THE SOCIALIST REPUBLIC OF VIETNAM

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)