

## REFERENCES

- Bates R. L. and Jackson J. A. 1984. *Dictionary of Geological Terms*. 3<sup>rd</sup> edition. The American Geological Institute. New York: An Anchor Book, 571 p.
- Bishop, P. 1989. Late Holocene Alluvial Stratigraphy and History in the Sisatchanalai Area, North Central Thailand. In Thiramongkol, N. (ed.). *Proceedings of the workshop on Correlation of Quaternary Successions in South, East, Southeast Asia*. Nov. 21-24, Bangkok, Thailand, pp. 117-134.
- Boripatkosol, S., Jindasut, S., and Sriphan, C. 1989. *Geology of Amphoe Mae Phrig and Ban Tak, with Geological map of Amphoe Ban Tak. Sheet 4843IV and 4843III, Scale 1:50,000*. Geological Survey Division, Department of Mineral Resources, Bangkok, Thailand.
- Bowles, J. E. 1992. *Engineering Properties of Soils and their Measurement*. New York: McGraw-Hill, Inc, pp. 43-69.
- Briggs, D. J. 1977. *Sources and Methods in Geography, Sediments*. London: Butterworths, 192 p.
- Bunopas, S. 1981. *Paleogeographic History of Western Thailand and Adjacent Parts of South-East Asia-A Plate Tectonics Interpretation*. Ph.D. Thesis, Victoria University of Wellington, New Zealand, 810 p. (Unpublished)
- Charusiri, P. 1989. *Lithophile Metallogenetic Epochs of Thailand: A Geological and Geochronological investigation*. Ph.D. Thesis, Queen's University, Canada, 891 p. (Unpublished)
- Charusiri, P. 1997. Tectonic evolution of Thailand: From Bunopas (1981)'s to a new scenario. In Dheeradilok, P., Hinthong, C., Chaodumrong, P., Putthapiban, P., Tansathien, W., Utha-aroon, C., Sattarak, N., Nuchanong, T. and Techawan, S. (eds.). *Proceedings of the International Conference on Stratigraphy and Tectonic Evolution of Southeast Asia and the South Pacific and the Associated Meetings of IGCP 359 and IGCP 383*. Aug. 19-24, Bangkok, Thailand, V. 1, pp. 414-420.
- Choowong, M. 1996. *Quaternary Geology Related to Gemstone Deposit in Bo Phloi Basin, Amphoe Bo Phloi, Changwat Kancharaburi*. Master Thesis, Chulalongkorn University, Bangkok, Thailand, 225 p. (Unpublished)
- Compton, R. R. 1985. *Geology in the Field*. New York: John Wiley & Sons, Inc, pp. 51.
- Das, B. M. 1994. *Principles of Geotechnical Engineering*. Boston: PWS Publishing Company, pp. 1-30.
- Eiumnoh, A. 1983. Geomorphological Units and Development of High River Terraces in a Graben in Petchabun Province. *Proceeding of the Conference on Geology and Mineral Resources of Thailand*. Nov. 19-28, Bangkok, Thailand, pp. 1-3.
- Friedman, G. M., and Sanders, J. E. 1978. *Principles of Sedimentology*. New York: John Wiley & Sons, Inc, 769 p.
- Gale, S. J. and Hoare, P. G. 1991. *Quaternary Sediments: Petrographic Methods for the Study of Unlithified Rocks*. London: Belhaven Press, 323 p.

- Kaewyana, W. 1985. Preliminary report on Quaternary Geology of Mae Tang Basin. In Nikel E. (ed.), *Geology of Surficial Deposits*. Chiang Mai, Thailand, pp. 403-411.
- Krumbein, W. C., and Pettijohn, F. J. 1938. *Manual of Sedimentary Petrography*. New York: D Appleton-Century Company Inc, pp. 135-269.
- Kukal, Z. 1971. *Geology of Recent Sediments*. London: Academic Press Inc, 490 p.
- Mayer, L. 1990. *Introduction to Quantitative Geomorphology: An Exercise Manual*. Englewood Cliffs, New Jersey: Prentice-Hall, Inc, 380 p.
- Nossin, J. J. 1959. Geomorphological Aspects of the Pisuerga Drainage Area in the Cantabrian Mountains (Spain). *Leidse Geologische Mededelingen*. Deel 24, Aflevering 1. Eduard Ijdo N.V. Leiden, pp. 286-406.
- Pettijohn, F. J. 1957. *Sedimentary rocks*. 2nd ed. New York: Harper & Brothers. pp. 13-98.
- Piyasin, S. 1974. *Geological Map of Changwat Uttaradit Sheet NE 47-11, Scale 1:250,000*. Geological Survey Division, Department of Mineral Resources, Bangkok, Thailand.
- Sarapirome, S., Hinthong, C., Phuanda, J., and Kosuwan, S. 1996. *Cenozoic Sediment of the City of Lampang and Neighbouring Areas*. Geological Survey Division, Department of Mineral Resources, Bangkok, Thailand.
- Takaya, Y. 1968. Quaternary Outcrops in the Central Plain of Thailand. In Takimoto, K. (ed.). *Geology and Mineral Resources in Thailand and Malaya. Report on Research in Southeast Asia Natural Science Series N-3*. The Center for Southeast Asian Studies. Kyoto University, pp. 7-68.
- Ten Cate, J. A. M. 1983. Geomorphological map and some of its applications. In Thiramongkol, N. and Pisutha-Armond, V. (eds.). *Proceeding of the First Symposium on Geomorphology and Quaternary Geology of Thailand*. Oct. 28-29, Bangkok, Thailand, pp. 1-5.
- Thiramongkol, N. 1975. *Geomorphological and Geological Relationships of Surficial Materials in Mula Area, Southeast Spain*. Ph.D. Thesis, University of Sheffield, England, 242 p. (Unpublished)
- Thiramongkol, N. 1983. Geomorphology of Ban Luang Muang Kong and Ban Muang Kud Basin, Northern Thailand. *Jour. Geol. Soc. Thailand*, Vol. 6, No. 1, May, 1983, pp. 31-37.
- Thiramongkol, N. 1983. Review of Geomorphology of Thailand. In Thiramongkol, N. and Pisutha-Armond, V. (eds.). *Proceeding of the First Symposium on Geomorphology and Quaternary Geology of Thailand*. Oct. 28-29, Bangkok, Thailand, pp. 6-23.
- Thiramongkol, N. 1983. Geomorphology of the lower central plain, Thailand. In Thiramongkol, N. and Ten Cate, J. A. M. (eds.). *Proceeding of the Third Meeting of the Working Group on Geomorphology of River and Coastal Plains*. Dec. 11-17, Bangkok, Thailand. pp. 13-25.
- Thongpleaw, S. 1988. *Soil map of Changwat Tak, scale 1:100,000*. Soil Survey & Classification Division, Land Development Department, Bangkok, Thailand.

## APPENDICES

Values of L (effective depth) for use in Stokes' formula for diameters of particles for ASTM soil hydrometer 152H

Original hydrometer reading (corrected for meniscus only)	Effective depth L, cm.	Original hydrometer reading (corrected for meniscus only)	Effective depth L, cm.	Original hydrometer reading (corrected for meniscus only)	Effective depth L, cm.
0	16.3	21	12.9	42	9.4
1	16.1	22	12.7	43	9.2
2	16.0	23	12.5	44	9.1
3	15.8	24	12.4	45	8.9
4	15.6	25	12.2	46	8.8
5	15.5	26	12.0	47	8.6
6	15.3	27	11.9	48	8.4
7	15.2	28	11.7	49	8.3
8	15.0	29	11.5	50	8.1
9	14.8	30	11.4	51	7.9
10	14.7	31	11.2	52	7.8
11	14.5	32	11.1	53	7.6
12	14.3	33	10.9	54	7.4
13	14.2	34	10.7	55	7.3
14	14.0	35	10.5	56	7.1
15	13.8	36	10.4	57	7.0
16	13.7	37	10.2	58	6.8
17	13.5	38	10.1	59	6.6
18	13.3	39	9.9	60	6.5
19	13.2	40	9.7		
20	13.0	41	9.6		

List of samples for morphometrical gravel analysis and pebble composition analysis.

Sample	Grid reference	Location	Remark
BT1-1	092-843	BT	TLU
BT1-2	102-850	BT	TLU
BT1-3	112-852	BT	TLU
BT1-4A	078-861	BT	TLU
BT1-4B	078-861	BT	TLU
BT1-7D	074-866	BT	TLU
BT1-7E	074-866	BT	TLU
BT1-10A	084-903	BT	TLU
BT1-10B	084-903	BT	TLU
BT1-12	074-873	BT	TLU
BT1-13A	080-865	BT	TLU
BT1-13B	080-865	BT	TLU
BT1-14	086-858	BT	TLU
BT1-15	104-876	BT	TLU
BT1-16	113-859	BT	TLU
BT1-17	116-865	BT	TLU
BT2-4	083-898	BT	TLU
BT2-5	094-893	BT	TLU
BT3-14	117-878	BT	TLU
MB2-1A	103-924	MB	TLU
MB2-1C	103-924	MB	TLU
MB2-2C	102-922	MB	TLU
MB2-3A	096-916	MB	TLU
MB2-9	112-928	MB	TLU
SNG2-21	058-061	SNG	HT
SNG2-29	081-042	SNG	HT
SNG2-31A	053-047	SNG	HT
SNG2-32A	054-047	SNG	HT
SNG2-32C	054-047	SNG	HT
TP1-36	058-013	TP	HT
PYN1-32	046-969	PYN	HT
MS2-7A	123-963	MS	HT
MS2-7E	123-963	MS	HT
MS2-8	130-966	MS	HT
MS2-13	124-973	MS	HT
MS2-14	152-973	MS	HT
MS2-11	140-975	MS	HT
MS2-18	147-980	MS	HT
MS2-19	140-997	MS	HT
MS2-20	128-000	MS	HT
PYT1-25	132-044	PYT	MT
PYT1-26	086-026	PYT	MT
PYT1-30	079-947	PYT	MT
PYT1-31	058-958	PYT	MT
TK1-18	050-862	TK	MT
TK1-18B	050-862	TK	MT
TK1-19	044-855	TK	MT
TK1-20	011-836	TK	MT
TK1-23	016-880	TK	MT
BM1-9	079-882	BM	LT
BM2-4	083-893	BM	LT
MP3-10	042-913	MP	LT
MP2-37	026-907	MP	LT

## List of samples for particle size analysis

Sample number	Grid reference	Depth (cm)
FP-3A	076-900	0-30
FP-3B	076-900	30-100
FP-3C	076-900	100-120
FP-3D	076-900	120-150
FP-3E	076-900	150-200
FP-3F	076-900	200-235
FP2-23A	139-014	0-40
FP2-23B	139-014	40-80
FP2-23C	139-014	80-250
FP2-25A	132-043	0-47
FP2-25B	132-043	47-60
FP2-25C	132-043	60-190
FP2-25D	132-043	190-290
FP3-1A	055-858	0-25
FP3-1B	055-858	25-110
FP3-1C	055-858	110-224
FP3-1D	055-858	224-475
FP3-1E	055-858	475-535
FP3-1F	055-858	535-600
FP3-2A	041-886	0-85
FP3-2B	041-886	85-120
FP3-2C	041-886	120-190
FP3-2D	041-886	190-480
FP3-2E	041-886	480-585
FP3-2F	041-886	585-600
FP3-3A	109-909	0-135
FP3-3B	109-909	135-170
FP3-3C	109-909	170-310
FP3-6A	066-959	0-90
FP3-6B	066-959	90-170
FP3-6C	066-959	170-243
FP3-6D	066-959	243-438
FP3-13A	067-993	0-47
FP3-13B	067-993	47-115
FP3-13C	067-993	115-145
FP3-13D	067-993	145-320
FP3-13E	067-993	320-395
FP3-13F	067-993	395-430
FP2-35A	081-940	0-37
FP2-35B	081-940	37-140
FP2-35C	081-940	140-270
FP2-35D	081-940	270-405
FP2-35E	081-940	405-500
FP-6A	123-842	0-50
FP-6B	123-842	50-135
NL-4A	066-916	0-50
NL-4B	066-916	50-100
NL-4C	066-916	100-220
NL-4D	066-916	220-310
NL-4E	066-916	310-355
NL-4F	066-916	355-360
NL-4G	066-916	360-410
NL2-30A	087-050	0-70
NL2-30B	087-050	70-195
NL2-30C	087-050	195-290
NL2-30D	087-050	290-500
NL3-2A	038-043	0-125
NL3-2B	038-043	125-185
NL3-2C	038-043	185-281

Sample number	Grid reference	Depth (cm)
NL3-2D	038-043	281-287
NL3-8A	098-939	0-100
NL3-8B	098-939	100-290
NL3-8C	098-939	290-395
NL3-8D	098-939	395-415
NL3-8E	098-939	415-458
PB4-1	082-962	Surface sampling
SB5-7	117-974	Surface sampling
PB5-5	084-916	Surface sampling
SB5-3	084-030	Surface sampling
SB5-2	039-050	Surface sampling
SB5-6	067-853	Surface sampling
SB5-1	061-918	Surface sampling

**BIODATA**

Mr.Sone Bhongaraya was born on March 27, 1973 in Bangkok. He finished primary and high school from Vajiravudh College and graduated a bachelor degree in geology, Department of geology, Faculty of science, Chulalongkorn university in 1996. Presently, he is studying in Master course in geology at the Department of geology, Faculty of science, Chulalongkorn university.

