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Modelling for a land suitability analysis of rice terraces on the upland area using the geographic information system (GIS) and analytical hierarchical process (AHP)

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ELECTRONIC SUPPLEMENTARY MATERIAL (ESM)

The authors are fully responsible for both the content and the formal aspects of the electronic supplementary material. No editorial adjustments were made.

Table S1. Soil properties' range of land unit LTCA

Parameter		Min	Max
Surface texture	texture (USDA)	clay	sand
	general texture	fine	coarse
Depth to impermeable layer (cm)		30	> 100
Drainage class		very poorly drained	well drained
pH_{H_2O}		5.50	7.90
pH_{KCl}		4.50	6.70
N (%)		0.06	1.40
C (%)		0.95	17.54
C/N		2.30	22.00
P_2O_5 (extract HCl 25%) (%)		0.01	28.50
K_2O (extract HCl 25%) (%)		0.02	27.00
Pav (ppm)		0.10	9.00
CEC (meq·100 g^{-1})		7.00	38.00
K (meq·100 g^{-1})		0.06	1.91
Ca (meq·100 g^{-1})		0.16	5.60
Mg (meq·100 g^{-1})		0.08	4.64
Na (meq·100 g^{-1})		0.02	1.10
BS (%)		4.00	68.37

LTCA – Lake Toba catchment area; Pav – phosphorus availability; CEC – cation exchange capacity; source: Nasution (2009)

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Table S2. Land use and land cover in the LTCA

Land use	Region (ha)			
	APL	forest areas	total	(%)
Forest	6 933.8	37 053.8	43 987.6	20.13
Shrub	24 947.1	29 053.8	54 000.9	24.71
Swamp	169.0	0.0	169.0	0.08
Dry land farming	46 051.7	22 570.0	68 621.7	31.40
Mixed dry land farming	12 932.0	8 782.1	21 714.1	9.94
Other cultivation vegetation	5.0	0.0	5.0	0.00
Rice field	25 659.8	1 842.5	27 502.3	12.59
Pond	26.8	13.8	40.6	0.02
Settlement	2 048.6	126.6	2 175.1	1.00
Water body	239.6	49.8	289.4	0.13
Total	119 013.4	99 492.4	218 505.8	–
(%)	54.5	45.5	–	100.00

LTCA – Lake Toba catchment area; APL – Areal Penggunaan Lain (other use area); based on GIS calculations on the land use map of Badan Informasi Geospasial (BIG)