



Philippine Soil Resources

Classification according to parent rock material/origin, soil distribution and orders

Alluvial Soils





Shales and Sandstone Soils





**Limestone
Soils**



Chocolate Hills: Limestone formation

Andesite and Basalt Soils



Mountain Soils



SOIL ORDER

Soil Order	Location	Position	Land Use	Relief
Alfisol	Ilocos Sur, Ilocos Norte, Occidental Mindoro, Batanes, Quezon, Cagayan	old river, levees, plateaus, hilly areas	fruit trees, banana	nearly level to level moderately steep lands
Andisol	Mayon, Isarog, Zambales, Matutum, Kanlaon	alluvial terraces, fans formed from mixed alluvium of volcanic and sedimentary materials	fruit trees, banana, pineapple	undulating steep to very steep and complex slopes
Entisol	Surigao, Leyte, Zambales, Bicol, Ilocos Sur, Ilocos Norte, Palawan, Pangasinan, Samar, Iloilo, Agusan	floodplain, rough broken land, and along coastal area	diversified crops in the alluvial plain, fruit trees, paddy rice, coconuts under pasture on the hilly to mountainous landscape	nearly level plain to complex slopes on rough terrain

Soil Order	Location	Position	Land Use	Relief
Histosol	Hundred Islands, Leyte, Cotabato, Samar, Agusan Valley, Bicol	along coastal area, lakes, inland marshes and mangroves	nipa palm, mangroves, mashes, some areas in Mindanao are successful for oil palm production	generally flat
Inceptisol	Samar, Agusan, Iloilo, Pangasinan, Zambales, Mindoro, Palawan	level to nearly level alluvial plain, terraces, fans, hilly and nearly mountainous	paddy rice, diversified crops, fruit trees	nearly level to moderate rugged landscape
Mollisol	Tagaytay, Negros Oriental, Bicol Region, Bohol, Ilocos Norte	alluvial terraces, fans formed from mixed alluvium of volcanic and sedimentary materials	coffee, banana and diversified crops	hilly to moderately steep, and flat lands

Soil Order	Location	Position	Land Use	Relief
Oxisol	Rizal, Northern Quezon, Palawan	undulating, rolling hilly to mountainous and other stable landscape	generally under cogon, talahib, second growth bushes and shrubs and tree type species	elevated plains, fans hilly to moderately steep to steep mountainous areas
Ultisol	Rizal, Laguna, Zambales, Cavite, Bulacan, Misamis Oriental, Zamboanga, Davao, Mindoro Oriental	elevated terraces, piedmont hills and mountains	pineapple, cassava, sugarcane, banana and forest tree species	elevated piedmont plains, moderately steep, rolling hills and mountain landscape
Vertisol	Bulacan, Cavite, Bataan, Cagayan, Zambales, Nueva Ecija, La Union, Tarlac	alluvial plains, and alluvial terraces	rice, some vegetables	nearly level to level

SOIL DISTRIBUTION

❑ The distribution of soils in the Philippines is largely controlled by parent material, relief, and vegetation. In general, Philippine soils are younger than the tropical soils in mainland Asia, Central and South America, and Africa. This is because most Philippine islands are geologically young since they were the result of, just like much of Southeast Asia, recent Cenozoic tectonic events and have emerged from the sea recently (Hall, 2002).

❑ Philippine soils maybe grouped based on geomorphology and for practical purposes, into: soils in lowland areas, soils in young and unstable uplands, and soils in old and stable uplands.

❑ ***Arenosols (Entisols)***. These are weakly developed sandy soils common in alluvial plains and coastal areas.

❑ ***Gleysols (Entisols, Inceptisols)***. These are the poorly developed wet soils in alluvial plains and marshes. They are used chiefly for lowland rice production. Together with Histosols, Gleysols are the dominant soils of wetlands.

❑ ***Cambisols (Inceptisols)***. These are weakly developed soils showing poor horizon B development. They occur in association with Gleysols although they can also be found in mountainous areas.

❑ ***Fluvisols (Entisols)***. These are the undeveloped soils commonly found along rivers. Periodic deposition of river sediments retard soil development.

❑ ***Vertisols (Vertisols)***. These are the clayey soils in lowland areas that produce large cracks on the surface during the dry season. They are very fertile and are widely used for lowland rice production

❑ ***Histosols***. These are found in swamps, marshes, shallow lakes, and depressions. The saturated condition favors the accumulation of organic materials. Large areas are found in Leyte, Samar and Surigao.

Soils in lowland areas

❑ ***Leptosols (Entisols, Inceptisols)***. These are the shallow soils (less than 50 cm deep) in rocky areas. Soils derived from limestone in various islands

❑ ***Andosols (Andisols)***. These are the poorly developed soils on young volcanic landscapes in the mountains of Negros, Leyte, Bicol, Taal and other volcanic areas of the country. The soil is soft and very friable and appears dark due to the high organic matter content. These soils are generally favorable for crop production.

❑ ***Chernozems (Mollisols)***. These are very fertile soils due to their organic matter-rich topsoil. They can be found in limestone areas in Leyte, Bohol and other islands.

Soils in young and unstable uplands

Uplands are undulating as well as hilly lands ranging in elevation from near sea level to about 1000 meters. Many upland areas around the country are the result of recent volcanic activity or geologic uplift. These are young landscapes underlain by young volcanic deposits or reef limestone and thus have also poorly developed soils.

❑ ***Ferralsols (Oxisols)***. These are the very deep, red, acidic and very infertile soils found in old landscapes in Palawan, Mindanao, and Samar.

❑ ***Acrisols and Alisols (Ultisols)***. These are the reddish, clayey, acidic soils widespread in hilly and mountainous areas throughout the archipelago.

❑ ***Luvisols (Alfisols)***. These are the well-developed soils with high base saturation (fertile) found in old alluvial terraces in various areas in the Philippines.

Soils in old and stable uplands

Old uplands were formed by volcanism or geologic uplift millions of years ago. They typically occur on the lower slopes of volcanic mountains. Soils in these areas are well-developed or highly weathered.

ALFISOLS — Soils with subsurface horizons of clay accumulation and medium to high base supply; either usually moist or moist for 90 consecutive days during a period when temperature is suitable for plant growth.



ENTISOLS — Soils without pedogenic horizons; either usually wet, usually moist or usually dry.



INCEPTISOLS — Soils with pedogenic horizons or alteration or concentration but without accumulation of translocated materials other than carbonate or silica; usually moist or moist for 90 consecutive days during a period when temperature is suitable for plant growth.



OXISOLS — Soils with pedogenic horizons that are mixtures principally of kaolin, hydrated oxides, and quartz, and are low in weatherable minerals.



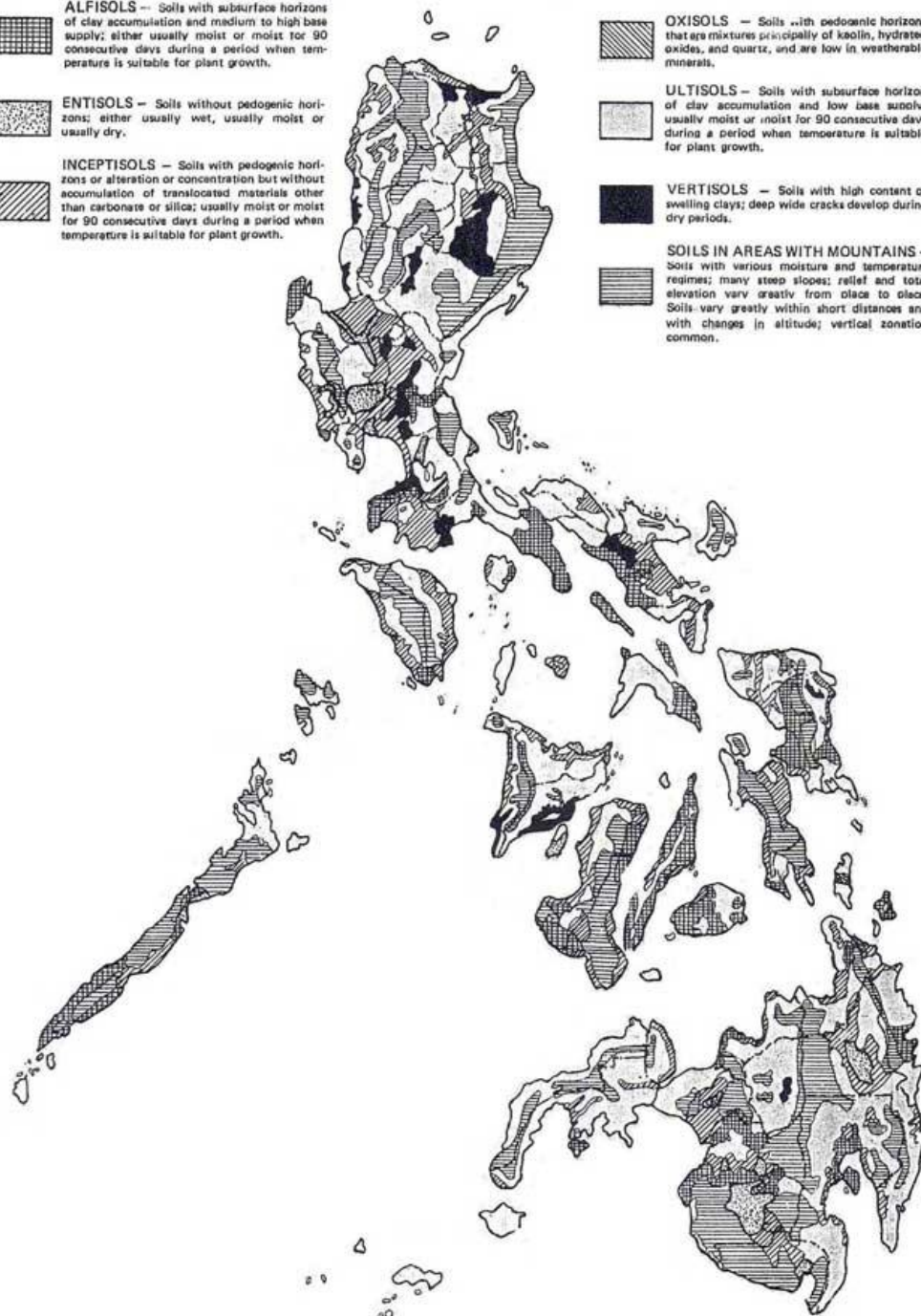
ULTISOLS — Soils with subsurface horizon of clay accumulation and low base supply usually moist or moist for 90 consecutive days during a period when temperature is suitable for plant growth.



VERTISOLS — Soils with high content of swelling clays; deep wide cracks develop during dry periods.



SOILS IN AREAS WITH MOUNTAINS — Soils with various moisture and temperature regimes; many steep slopes; relief and total elevation vary greatly from place to place. Soils vary greatly within short distances and with changes in altitude; vertical zonation common.



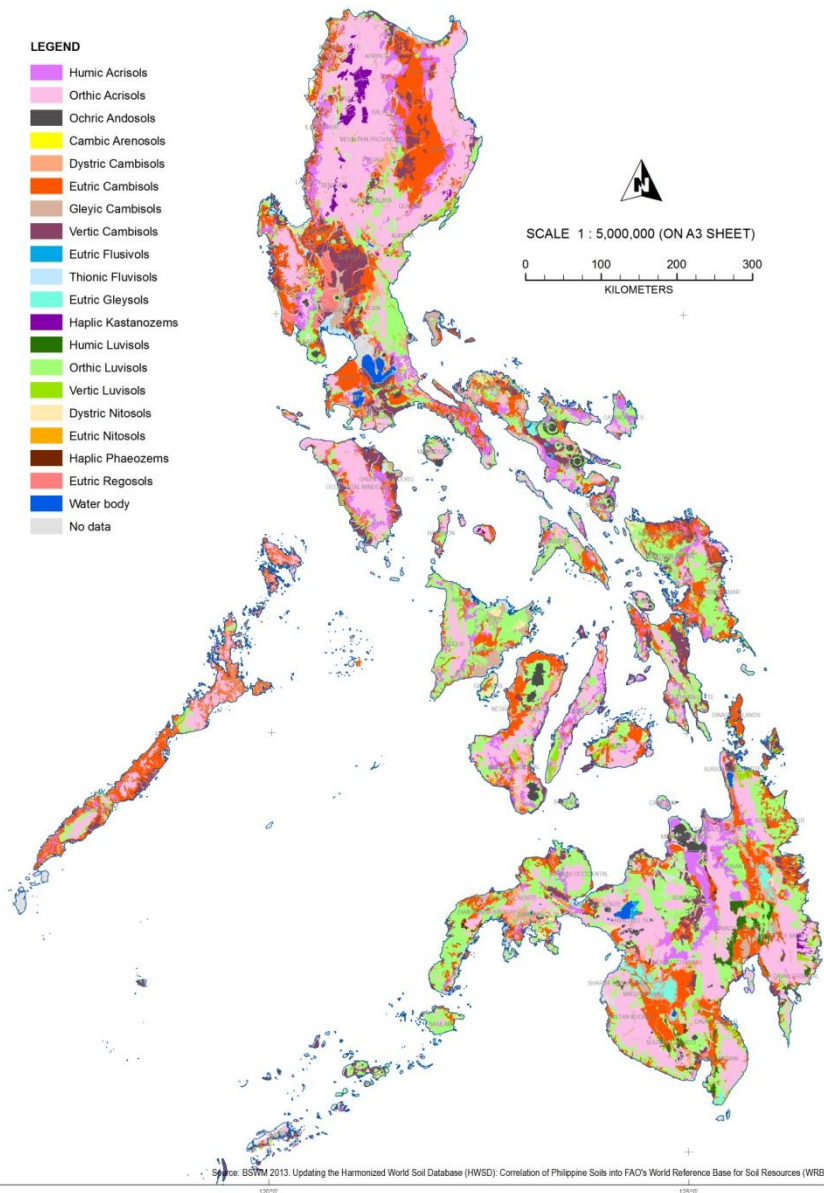
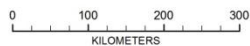
FAO SOIL MAP **Philippines**

LEGEND

- Humic Acrisols
- Orthic Acrisols
- Ochric Andosols
- Cambic Arenosols
- Dystric Cambisols
- Eutric Cambisols
- Gleyic Cambisols
- Vertic Cambisols
- Eutric Fluvisols
- Thionic Fluvisols
- Eutric Gleysols
- Haplic Kastanozems
- Humic Luvisols
- Orthic Luvisols
- Vertic Luvisols
- Dystric Nitosols
- Eutric Nitosols
- Haplic Phaeozems
- Eutric Regosols
- Water body
- No data



SCALE 1 : 5,000,000 (ON A3 SHEET)



Source: BSWM 2013. Updating the Harmonized World Soil Database (HWSD): Correlation of Philippine Soils into FAO's World Reference Base for Soil Resources (WRB).