Soil degradation and conservation farming (Quick soil survey in Madagascar)



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Introduction

There are so many organizations to work on the environment issues now in Madagascar. But, organization which focuses on soil conservation is relatively few. So it is difficult for local people to understand the soil condition and how to conserve the soil. Therefore I made quick soil survey by using simple survey (Weight, EC, PH, Hardiness, potential of erosion).











Methodology **Sampling areas**





 We investigated how the slope land use had an influence on the soil •We examined a characteristic of each soil. (EC, PH, Hardiness, potential of erosion...

Stable terrace









Result1 The result focused on EC and Weight

PCA -scaling=2



Result2 Simple erosion test

This is the simple erosion test that just mix soil and water in the plastic bottle. This experiment show the risk of erosion.



PC1 •When I focus on EC and compare it, I confirmed that a value is high in order of Slash and burn, Agroforestry, Secondary forest, Natural forest.

•When I focus on Weight and compare it, I confirmed that a value is also high in other of Slash and burn, Agroforestry, Secondary forest, Natural forest.

•When I focus on the potential of erosion, the result shows that Terrace, Agroforestry, Slash and burn tillage are easy to dissolve in water, so outflow of the soil easily happens.

This indicates that the soil condition clearly reflected land use.

Comparison of the characteristic of each soil			
Method	Slash and Burn Non tillage	Slash and Burn Tillage	Terrace
		<image/>	<image/>
Benefit	 Low Erosion Nutrient (short-term) Low Labor 	 Soft surface 	 Production (short-term) Diversity Low Erosion
Weakness	 Recovery takes long time (20~30yaers) Increasing soil carbon loss 	 Erosion Labor Recovery takes long time (20~30yaers) Increasing soil carbon 	 Outflow of nutrient Hard labor Fertilization

Suggestion as conclusion

"Soil " Conservation farming is effective for the management of the slope It's simple method that require only cut the glass regularly. (Easy to accept to local people) It's can keep organic matter richness (litter, root, exudates) Keeping nourishment of the soil continuously

Preventing soil erosion.

These method have both of the benefit and weakness. But, each benefits can continue only short time.

loss

Difficulties to introduce "Soil " Conservation farming in Madagascar. The lack of information

• To give the local people opportunity to access the information at first. • To keep training as long as possible.