

EVALUATION OF SOIL PROPERTIES ON TSUNAMI AGRICULTURAL LAND IN ACEH

Achmad Rachman and Deddy Erfandi



Soil chemistry analysis 1 and 7 months after Tsunami in Lampineung, Aceh Besar

Soil parameters	Value				
	Mud sedimenta	1 month		7 months ¹⁾	
		Soil 0-10 cm	Soil 10-20 cm	Soil 0-10 cm	Soil 10-20 cm
pH	-	-	-	7,0	6,8
DHL (dS/m) ²⁾	9,77	1,038	0,769	0,87	0,88
Salinitas (ppm)	5380	499	369	422	425
Ca (cmol/kg)	18,57	11,36	14,81	16,44	15,67
Mg (cmol/kg)	26,22	7,91	8,07	15,10	16,09
K (cmol/kg)	2,85	0,44	0,21	0,89	0,68
Na (cmol/kg)	56,93	7,33	3,1	6,94	6,47
KTK	28,05	17,18	17,77	22,37	21,96
KB (%)	100	100	100	100	100
ESP (%)	100	43	17	42	17

* Mud and soil had been mixed

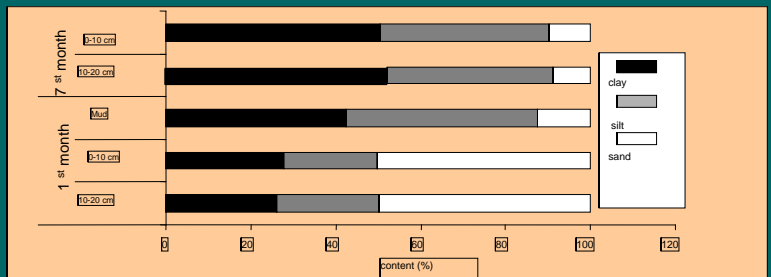
Heavy metal analysis 1,7, and 12 months after tsunami in Lampineung, Aceh Besar

Heavy metal	Mud sedimentation (1 month)	Soil (7 months)	Soil (12 months)
Mn	-	2203	1403
Cu	34,2	50,4	44
Zn	100	-	-
Pb	14,4	15,9	14
Cd	0,16	0,22	0,18
Co	116,7	-	-
Cr	72,7	55,9	80
Ni	72,0	-	-
Se	7,3	-	-
As	10,5	-	-
Sn	3,3	-	-

Soil physical properties 1 and 7 months after tsunami in Lampineung, Aceh Besar

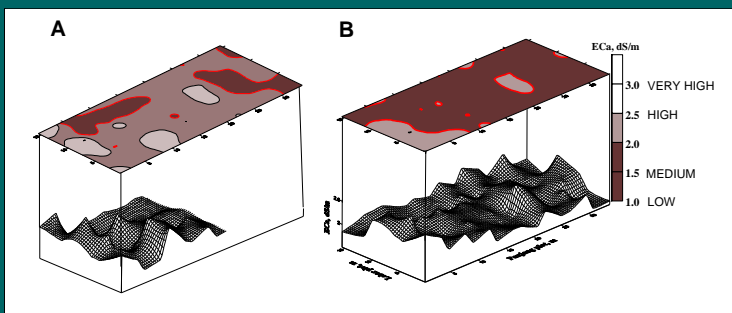
Soil physical properties	Soil analysis			
	1 months		7 months	
	0-10 cm	10-20 cm	0-10 cm	10-20 cm
BD (g/cc)	1,28	1,34	1,15	1,24
Aeration Pore (% vol)	18,4	10,7	16,0	12,2
Available water Pore (% vol)	12,6	5,5	11,5	10,9

Texture of mud soil 1 and 7 months after tsunami in Lampineung, Aceh Besar

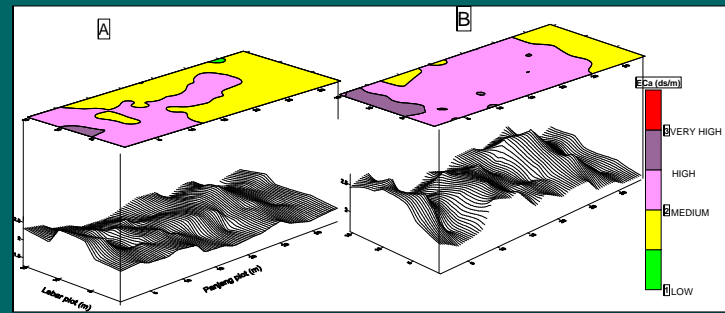


Methods:

- Soil sampling at 1 and 7 months after tsunami (January and August 2005)
- Laboratory analysis
- Data analysis



A) Average electric conductivity (ECa) 0 to 20 cm depth, and B) 0 to 60 cm depth in rainy season in Lampineung, Aceh Besar



A) 0 to 20 cm depth in Average electric conductivity (ECa) on 0 to 20 cm depth, and B) dry season in Lampineung, Aceh Besar

Conclusion:

- Mud chemical properties 7 month after tsunami: EC is about 9.77 dS/m and heavy metal content (Zn and Co are at very high level).
- Salt moved upward reaching the root zone during dry season and downward below root zone during wet season.