

APPENDICES

Appendix I

Brief Description of the Soil Series (1:50,000) of Upper Kasai Watershed

Soil Series	Description	Soil Taxonomy
Murguma	Very shallow, excessively drained, gravelly sandy loam surface textured, skeletal soils, with severe erosion on steeply sloping (30 – 50%) hills with surface pH 4.7.	Loamy-skeletal, Lithic Ustorthents
Lohadungri	Shallow, excessively drained, gravelly sandy loam surface textured soils with severe erosion on steeply sloping (30-50%) hills with surface pH 4.8.	Loamy,Lithic Ustorthents
Bhtsabera	Shallow, somewhat excessively drained, sandy clay loam surface textured soils with very severe erosion on moderately steeply sloping.(15-30 %) pediment with surface pH 6.4	Coarse - loamy, Typic Ustorthents
Panrua	Shallow, well-drained, sandy clay loam surface textured, skeletal soils with moderate to severe erosion on gently sloping (3–8%) pediments with surface pH 4.8.	Loamy-skeletal, Typic Haplustepts
Chhatni	Moderately shallow, well-drained, sandy loam surface textured soils with moderate to severe erosion on moderately steeply sloping (15-30%) hills with surface pH 5.3.	Coarse - loamy, Typic Haplustepts
Dhan Chhatani	Deep, well-drained, sandy loam textured soils with slight erosion on moderately sloping (8-15%) hills with surface pH 6.1.	Fine-loamy, Typic Haplustalfs
Chakidabad	Shallow, somewhat excessively drained, sandy loam surface textured soils with severe erosion on moderately sloping (3–8%) hills slope with surface pH 5.4.	Loamy-skeletal, Lithic Ustorthents
Jhilinglahar	Deep, imperfectly drained, sandy loam surface textured soils with moderate erosion on very gently sloping (1-3%) pediments with surface pH 6.0.	Coarse - loamy, Typic Haplustalfs
Oldih	Deep, well-Drained, clayey loam surface textured soils with very slight erosion on gently sloping (3-8%) upper reaches of dissected upland with surface pH 5.5.	Fine-loamy, Typic Haplustepts
Jaipur	Moderately shallow, well-Drained, sandy loam surface textured soils with moderate erosion on very gently sloping (1-3%) upland with surface pH 5.1.	Fine - loamy, Typic Haplustepts
Podlara	Moderately shallow, well-Drained, sandy loam surface textured soils with moderate erosion on gently sloping (3 – 8%) middle reaches of dissected upland with surface pH 5.4.	Coarse-loamy, Typic Haplustepts
Shalgram	Deep, well-Drained, loamy surface textured soils with slight erosion on gently sloping (3 – 8%), upper reaches of dissected upland with surface pH 6.0.	Fine-loamy, Typic Haplustalfs
Dumdumi	Shallow, somewhat excessively drained, sandy loam surface textured, skeletal soils with severe erosion on moderately steeply sloping (15-30%), upper reaches of dissected upland with surface pH of 4.9.	Loamy-skeletal, Typic Haplustepts

Soil Series	Description	Soil Taxonomy
Ledabera	Very deep, moderately well-drained, sandy clay loam surface textured soils with moderate erosion on moderately sloping (8-15%) valley with surface pH 5.4.	Fine – loamy, Typic Endoaquepts
Tanasi	Deep, moderately well-drained, clay loam surface textured soils with slight erosion on gently sloping (3 – 8%), upper reaches of dissected upland with surface pH 7.7.	Fine-loamy, Typic Haplustepts
Dumurdihi	Deep, poorly drained, silty clay loam soils with very slight erosion, very gently sloping (1 – 3%) upper reaches of dissected upland with surface pH 7.5.	Fine, Typic Endoaquepts
Bongaon	Shallow, excessively drained, sandy loam surface textured, skeletal soils with severe erosion on moderately steeply sloping (15-30%), residual hillocks with surface pH 5.7.	Loamy-skeletal, Lithic Haplustepts
Jambad	Deep, imperfectly drained, loamy surface textured soils, with slight erosion on gently sloping (3–8%) upland with surface pH 6.2.	Fine – loamy, Typic Endoaqualfs
Sitalpur	Very deep, poorly drained, sandy loam surface textured soils with very slight erosion on very gently sloping (1-3%) undulating and rolling upland with surface pH 5.8.	Fine - loamy, Typic Haplustepts
Bharatdih	Deep, well-drained sandy loam surface textured soils with very slight erosion on moderately steeply sloping (15-30%) upland with surface pH 6.8.	Fine - loamy, Typic Haplustepts
Hariharpur	Shallow, excessively drained, sandy loam surface textured, fragmental soils with moderate to severe erosion on moderately steeply sloping (15-30%) upper reaches of dissected upland with surface pH 4.7.	Fragmental Lithic Ustorthents
Gopalpur	Moderately shallow, well-drained, sandy loam surface textured, skeletal soils with moderate erosion on moderately steeply sloping (15-30%) ridge with surface pH 5.2.	Loamy-skeletal, Typic Haplustepts
Dhatki	Very deep, poorly drained, loamy surface textured soils with very slight erosion on nearly level (0-1%) broad valley with surface pH 6.7.	Fine-loamy, Typic Haplustalfs
Sindurpur	Shallow, well-drained, loamy surface textured skeletal soils with moderate to severe erosion, on gently sloping (3 – 8%), crest with surface pH 4.8.	Loamy-skeletal, Lithic Haplustepts
Mukundapur	Deep, poorly drained, sandy loam surface textured soils with very slight erosion on very gently sloping (1-3%) valley with surface pH 6.6.	Fine – loamy, Aquic Haplustepts

Series Association is mentioned in table 1.

Appendix II

Critical Limits of Six Parameters Proposed as Per Local Knowledge Base

PARAMETERS	CRITICAL LIMITS CONSIDERED
Slope	Less than 15 % was kept within normal soil zone
Soil Depth	More than 75 cm. was kept within normal soil zone
Drainage	Excessively and Poorly drained soil conditions were critical
Surface Texture	Sand, loamy sand and clayey textures or gravelly soils were considered as critical
Erosion	Severe or moderate to severe erosion classes were critical
Surface Soil Acidity/ Alkalinity	pH <5.5 or pH >8.0 were critical pH <5.0 = Strong pH 5.0-5.5 = Moderate

Appendix III

Level of Significance

Degrees of Freedom	Level of Significance (5%)	Level of Significance (1%)
30	0.349	0.449
10 (Vide Table: 27)	0.576	0.708
Symbols Used →	*	**

Appendix IV

Scientific Names of the selected crops

CROPS	SCIENTIFIC NAME
Rice	<i>Oryza sativa</i>
Wheat	<i>Triticum aestivum</i>
Groundnut	<i>Arachis hypogaea</i>
Maize	<i>Zea mais</i>
Potato	<i>Solanum tuberosum</i>