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Appendix – A
Data Checking

Appendix-A: Data checking

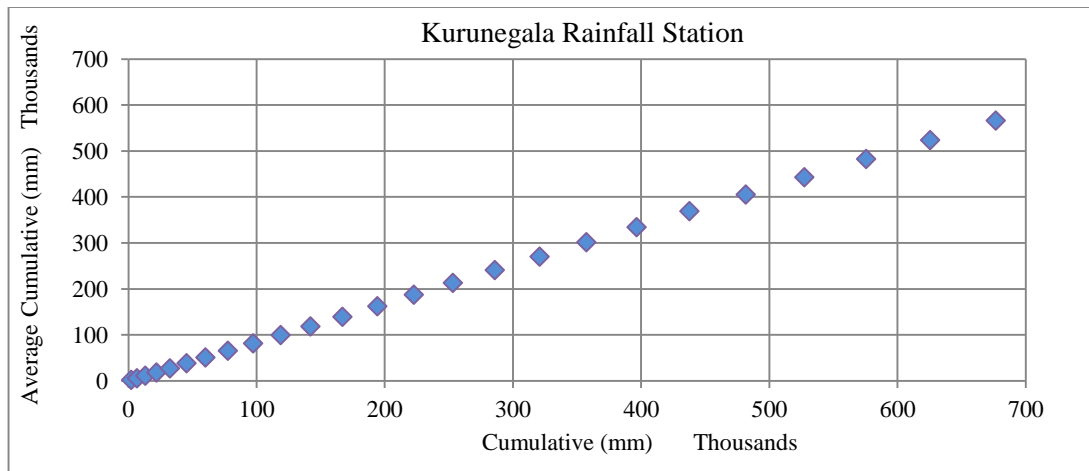


Figure A 1: Double mass curve for Kurunegala station

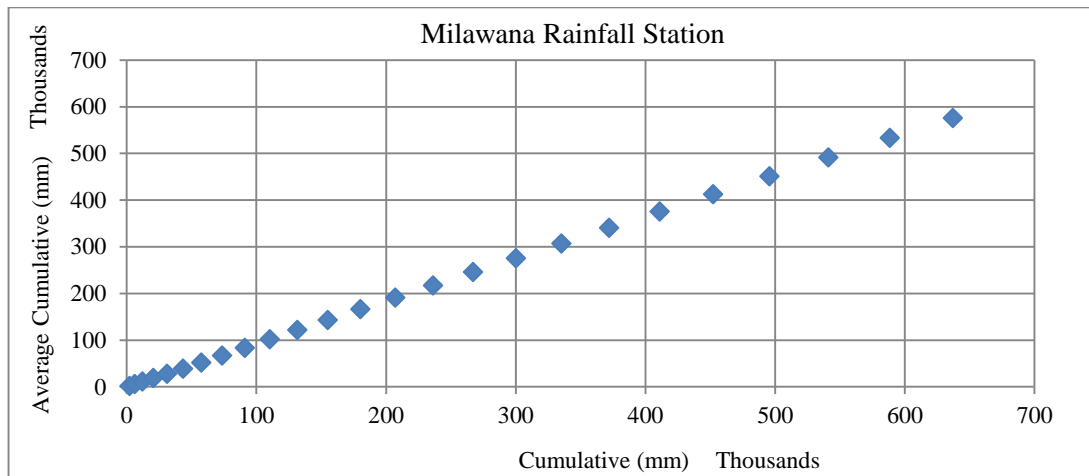


Figure A 2: Double mass curve for Milawana station

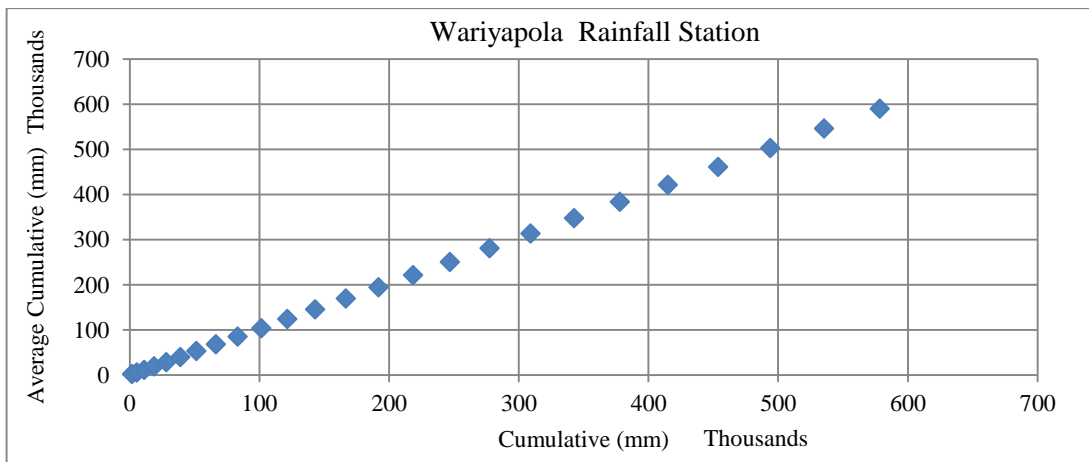


Figure A 3: Double mass curve for Wariyapola station

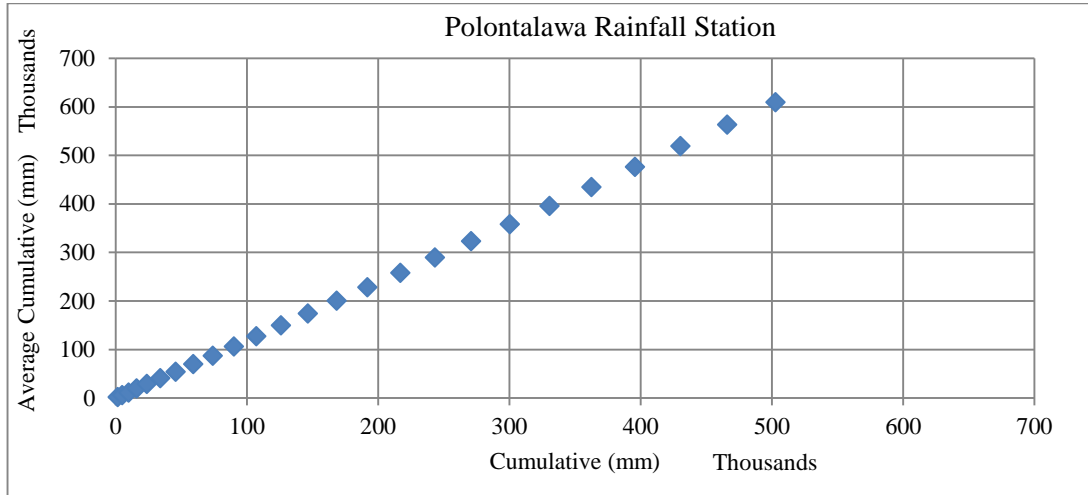


Figure A 4: Double mass curve for Polontalawa station

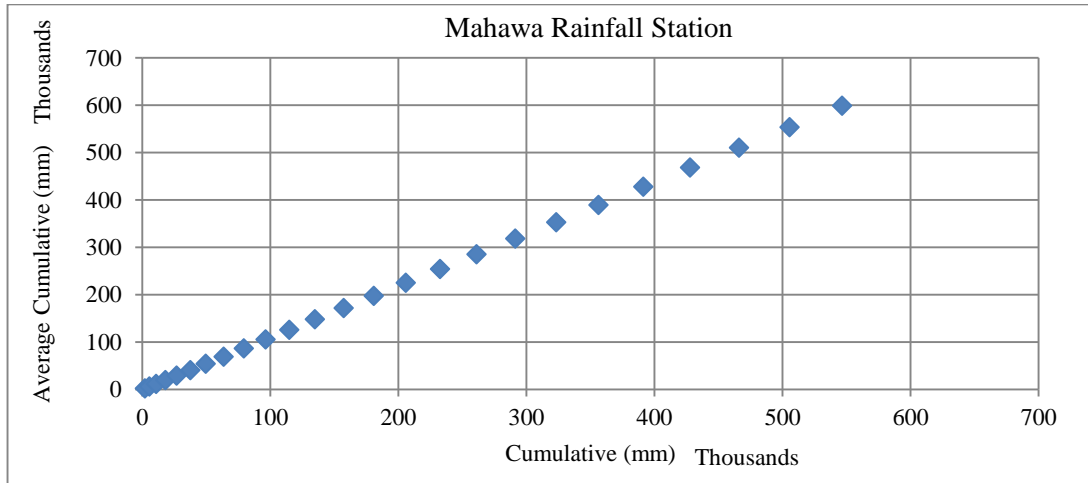


Figure A 5: Double mass curve for Mahawa station

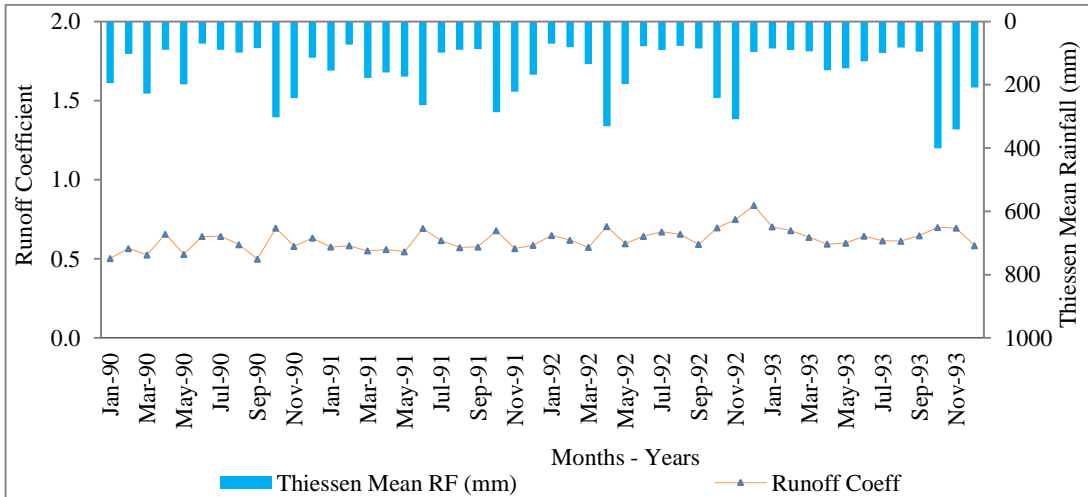


Figure A 6: Comparison of rainfall and runoff coefficient (1990 - 1993)

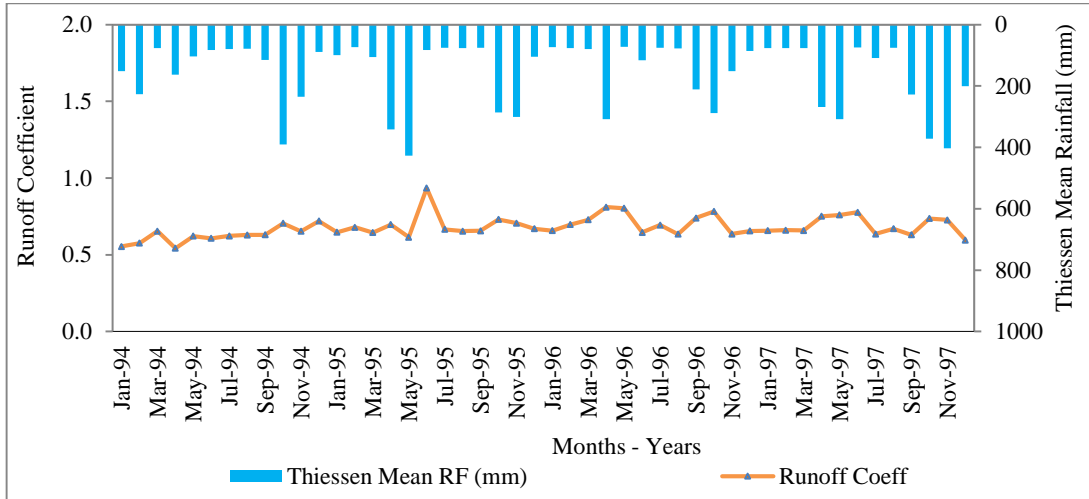


Figure A 7: Comparison of rainfall and runoff coefficient (1994 - 1997)

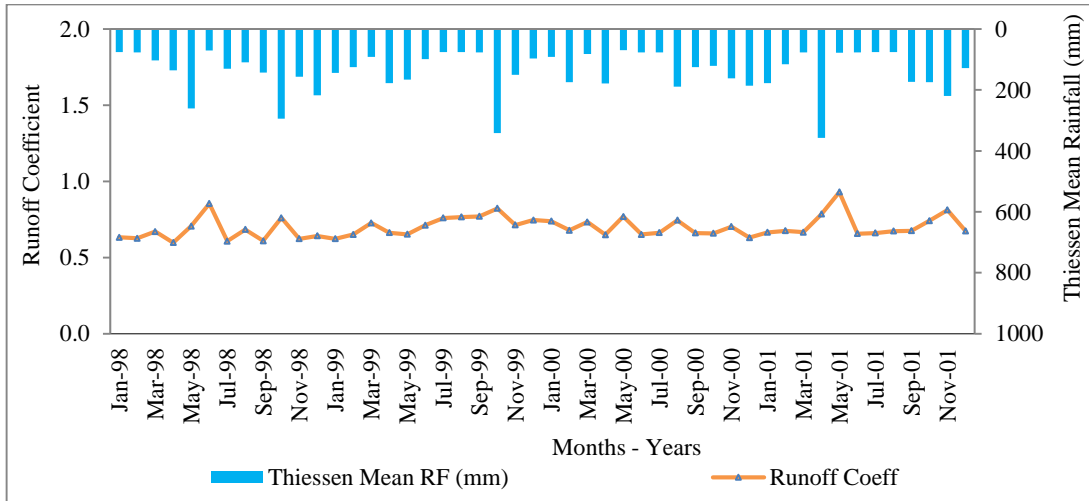


Figure A 8: Comparison of rainfall and runoff coefficient (1998 - 2001)

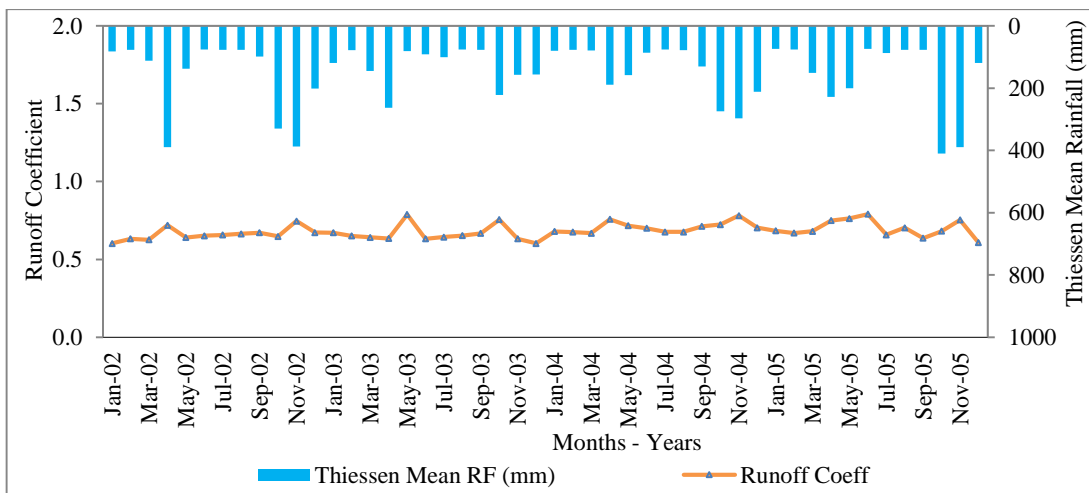


Figure A 9: Comparison of rainfall and runoff coefficient (2002 - 2005)

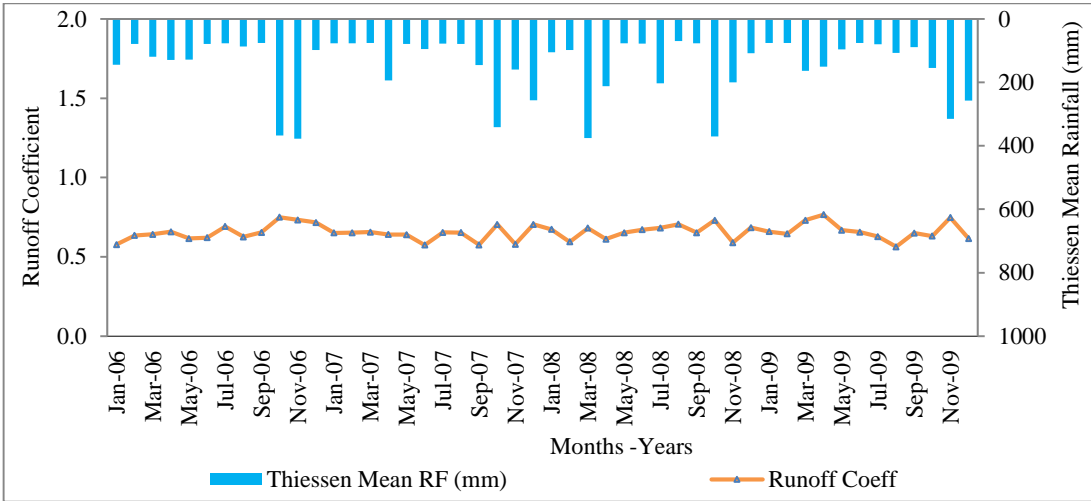


Figure A 10: Comparison of rainfall and runoff coefficient (2006 - 2009)

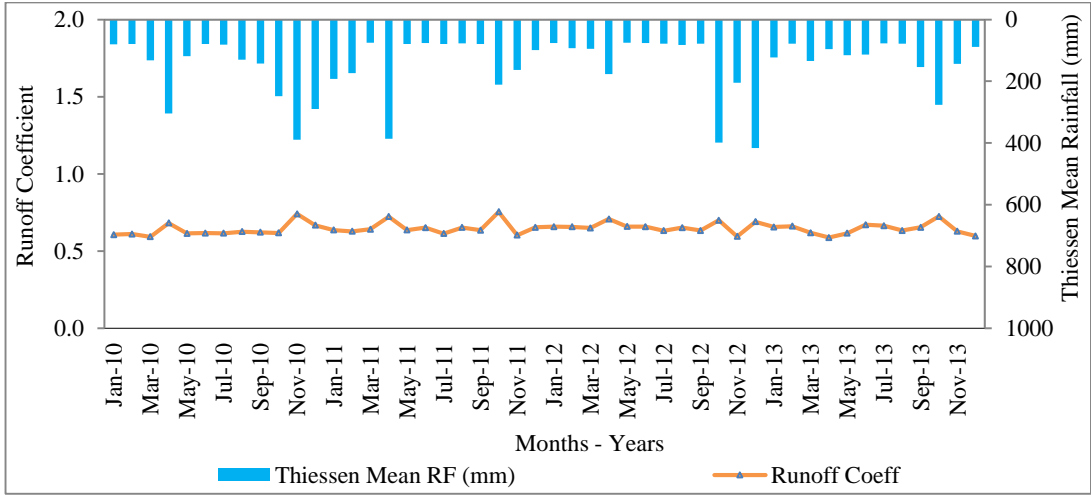


Figure A 11: Comparison of rainfall and runoff coefficient (2010 - 2013)

Appendix – B
Calibration and Validation

Appendix-B: Calibration and validation

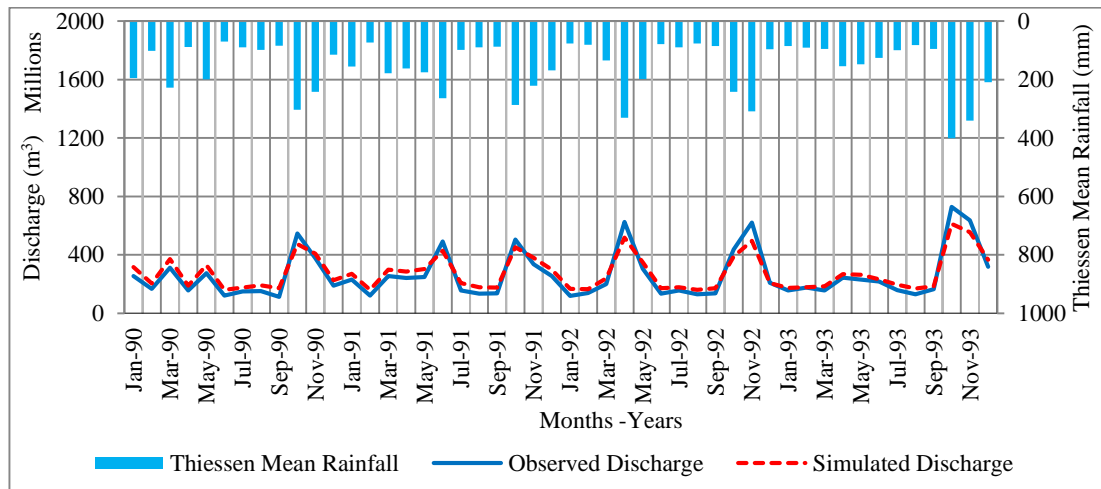


Figure B 1: Comparison of simulated and observed discharge (1990 - 1993)

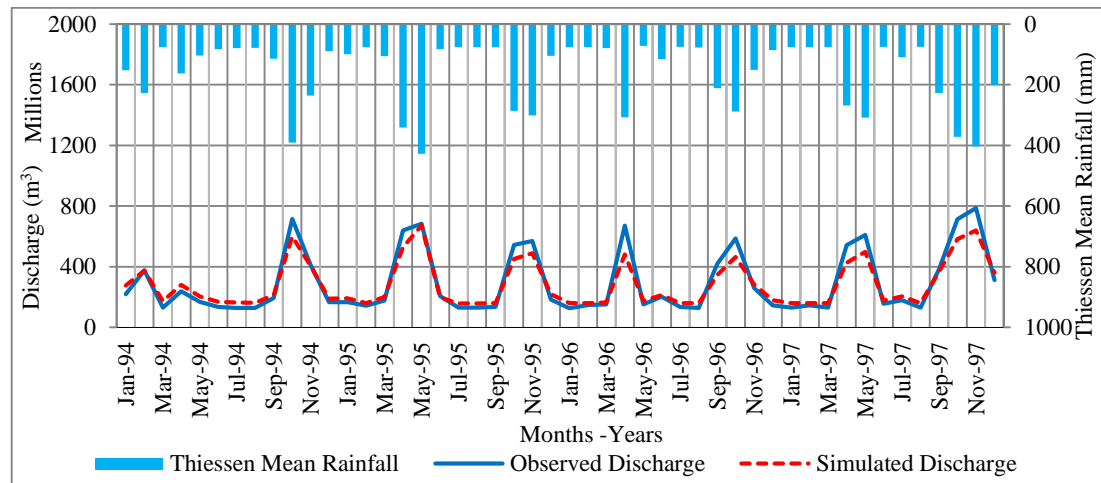


Figure B 2: Comparison of simulated and observed discharge (1994 - 1997)

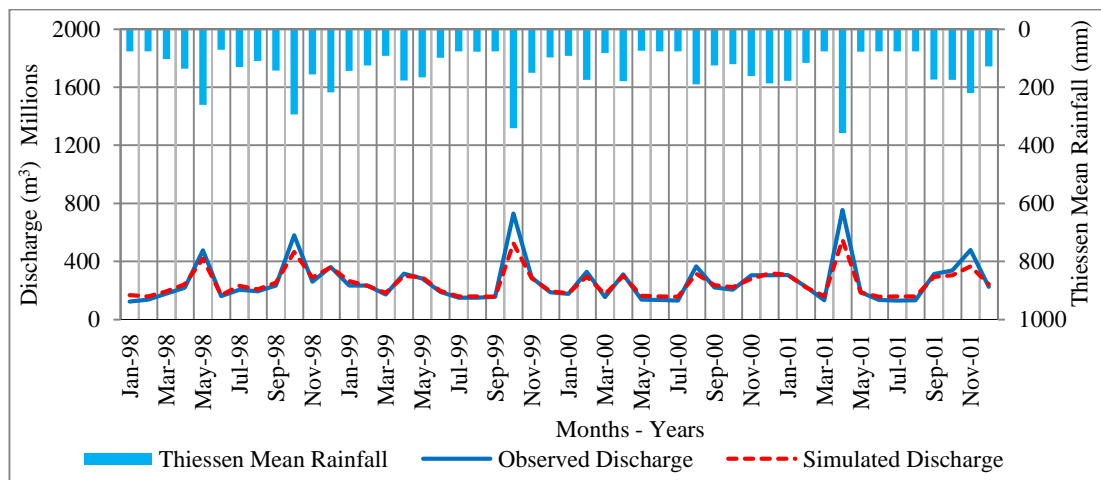


Figure B 3: Comparison of simulated and observed discharge (1998 - 2001)

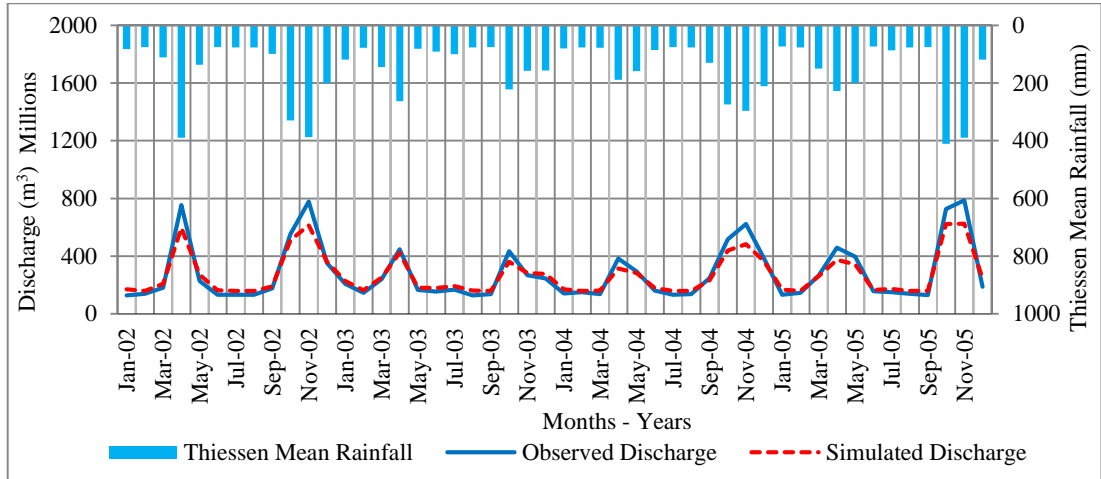


Figure B 4: Comparison of simulated and observed discharge (2002 - 2005)

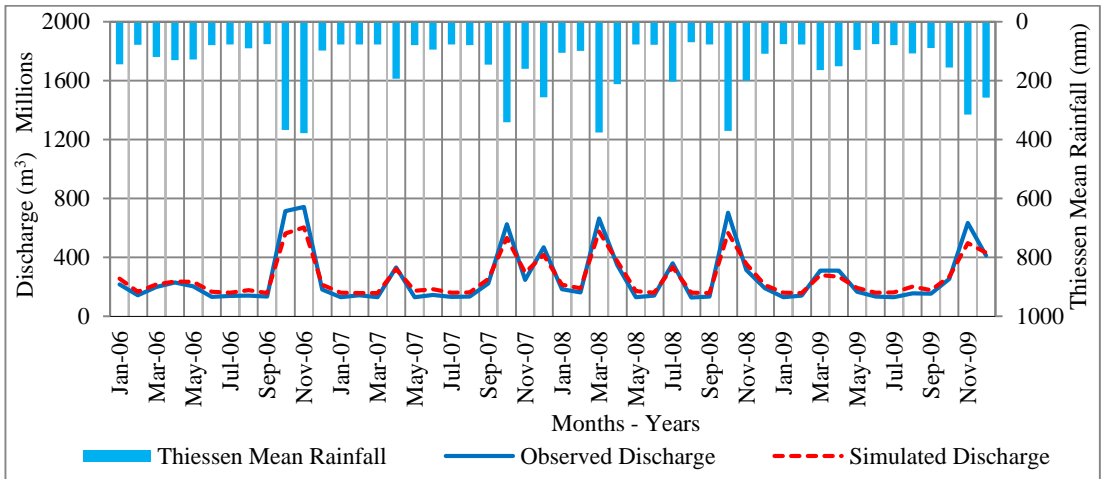


Figure B 5: Comparison of simulated and observed discharge (2006 - 2009)

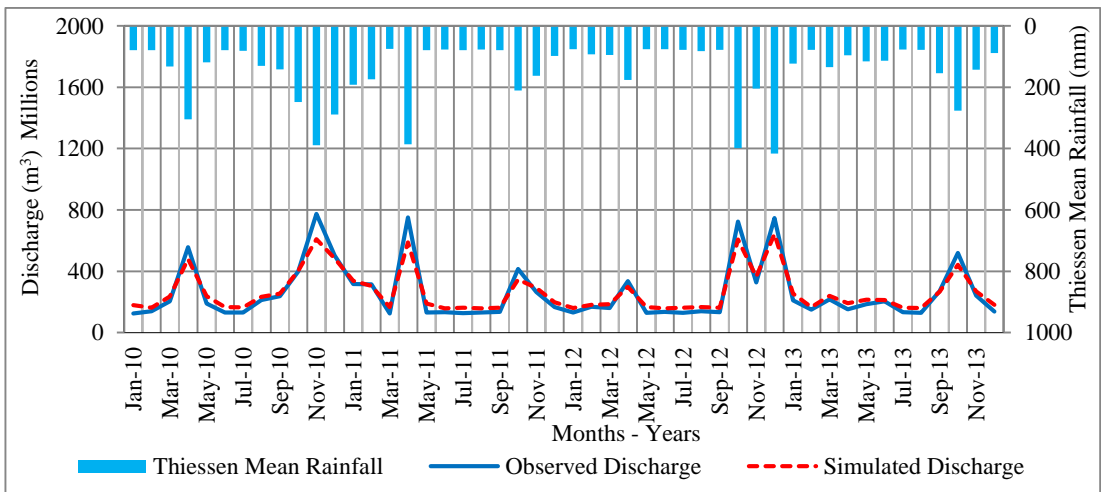


Figure B 6: Comparison of simulated and observed discharge (2010 - 2013)

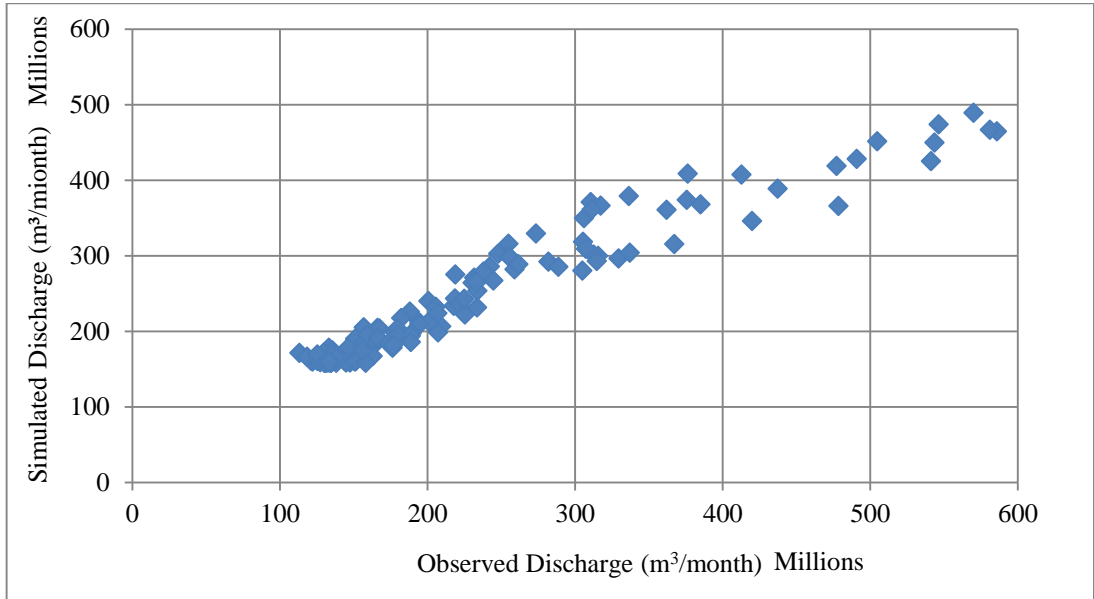


Figure B 7: Correlation between observed and simulated discharge (1990 - 2001)

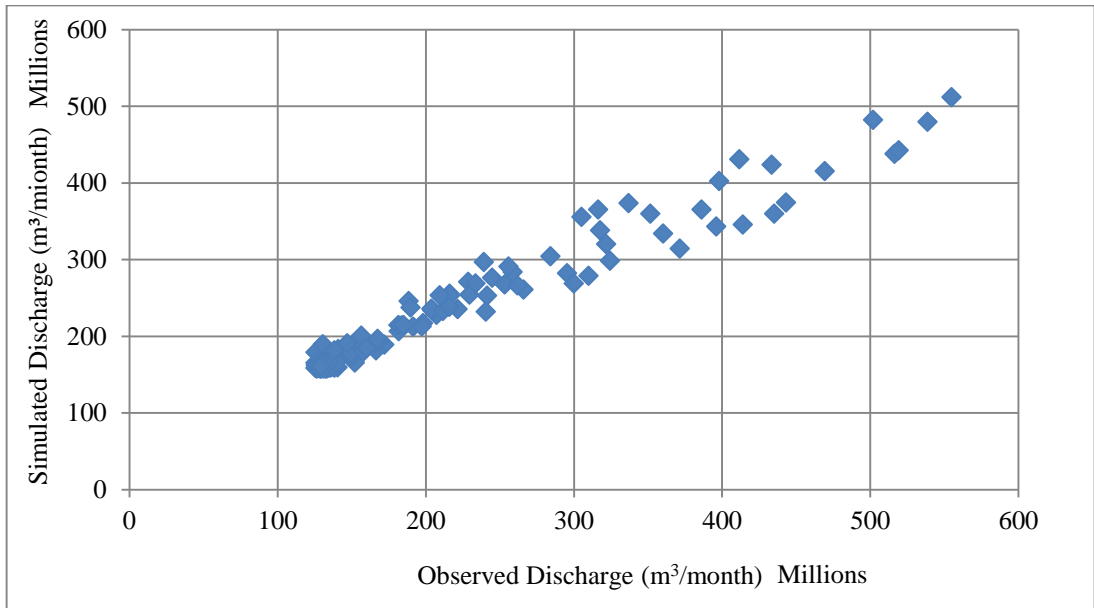


Figure B 8: Correlation between observed and simulated discharge (2002 - 2013)

Appendix – C

Discharge Simulation for Sub-catchments

Appendix-C: Discharge simulation for sub-catchments

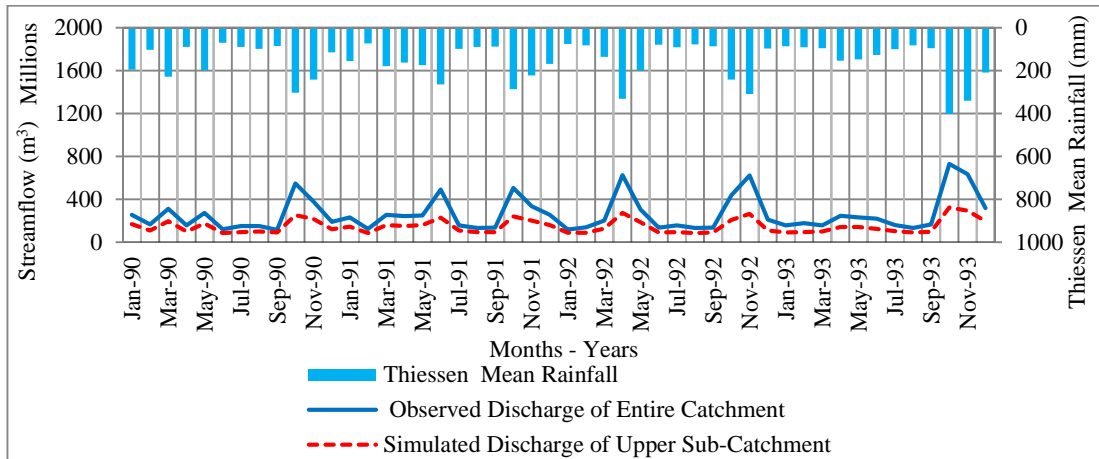


Figure C 1: Observed discharge of entire catchment & simulated discharge of upper sub-catchment (1990 - 1993)

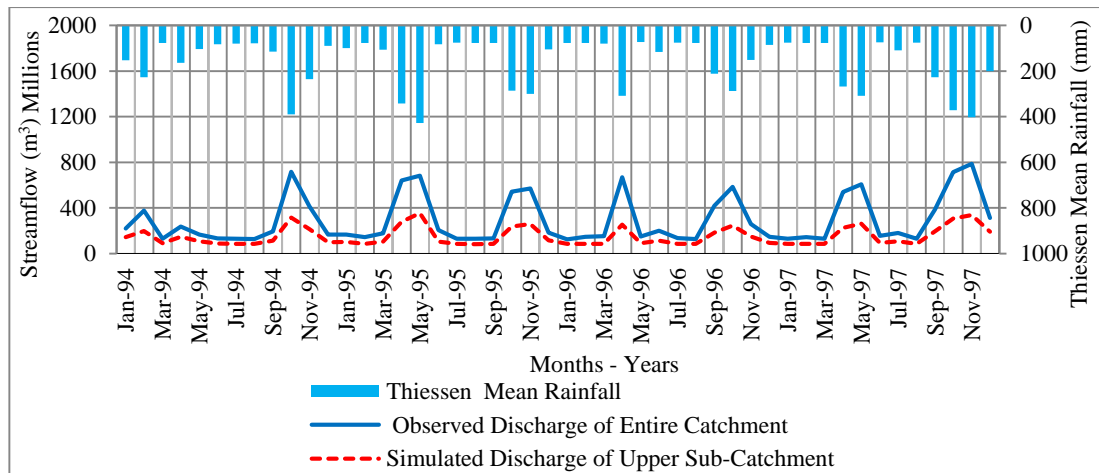


Figure C 2: Observed discharge of entire catchment & simulated discharge of upper sub-catchment (1994 - 1997)

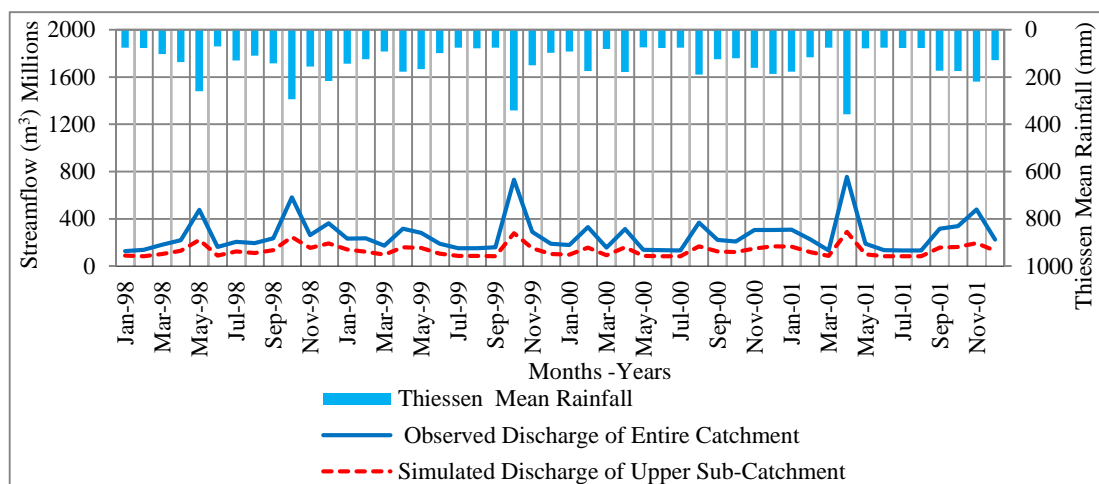


Figure C 3: Observed discharge of entire catchment & simulated discharge of upper sub-catchment (1998 - 2001)

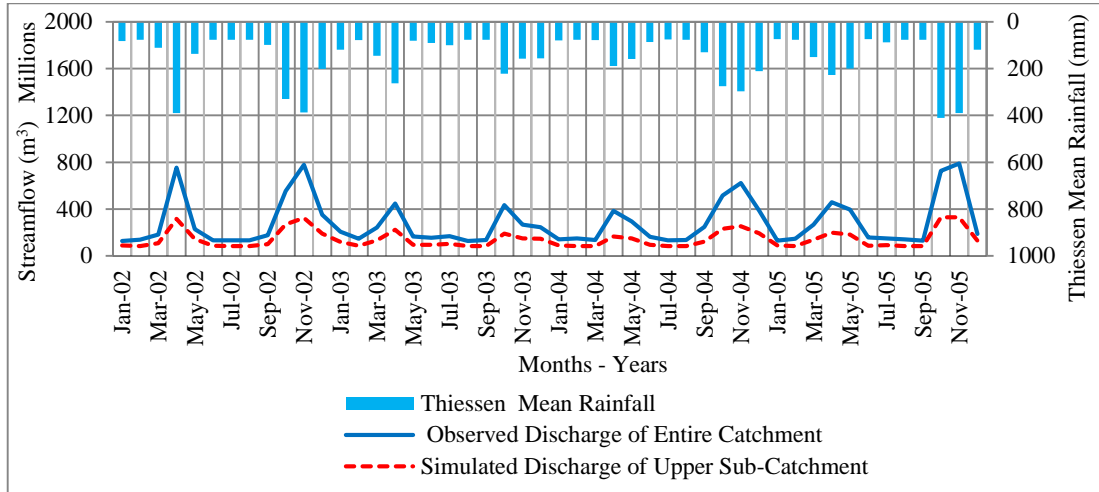


Figure C 4: Observed discharge of entire catchment & simulated discharge of upper sub-catchment (2002 - 2005)

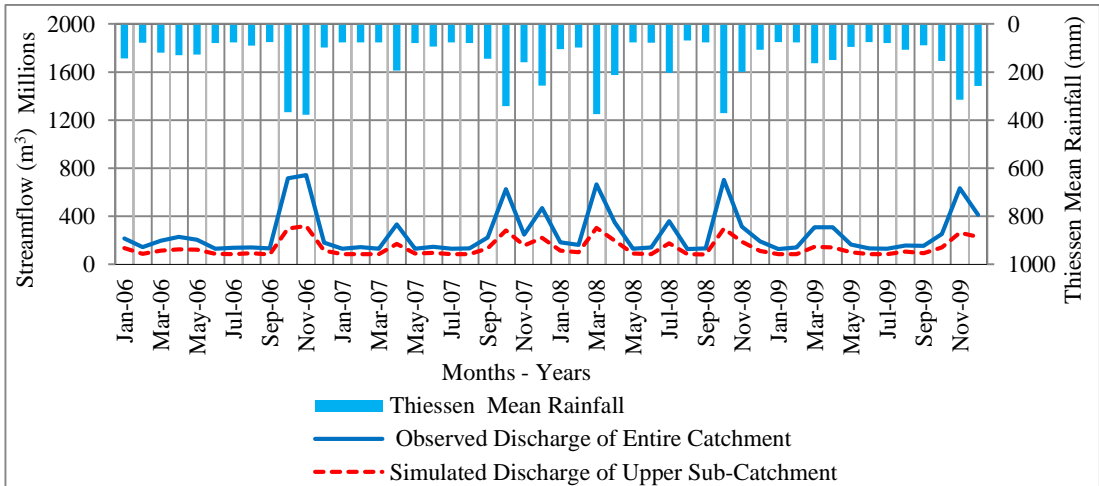


Figure C 5: Observed discharge of entire catchment & simulated discharge of upper sub-catchment (2006 - 2009)

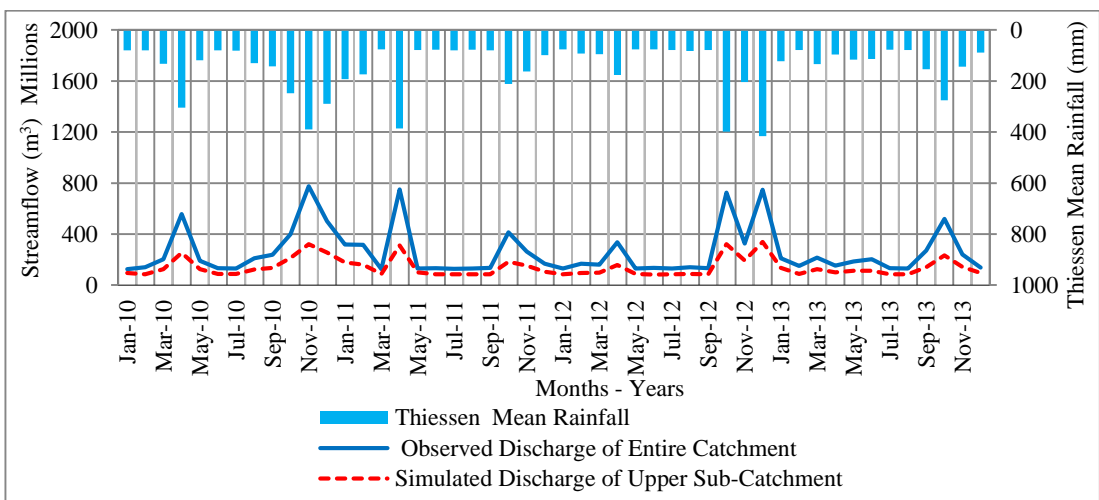


Figure C 6: Observed discharge of entire catchment & simulated discharge of upper sub-catchment (2010 - 2013)

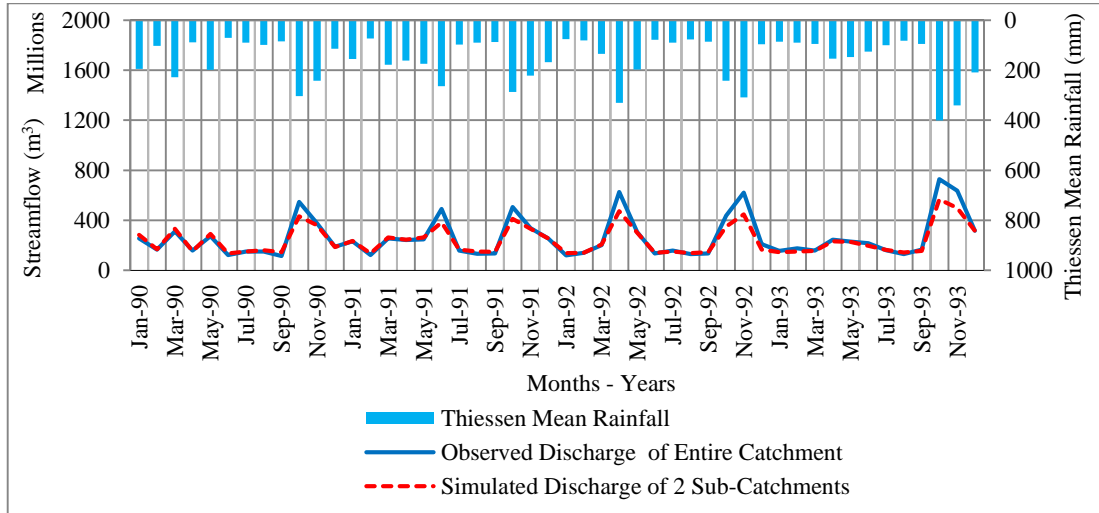


Figure C 7: Observed discharge of entire catchment & simulated discharge of 2 sub-catchment (1990 - 1993)

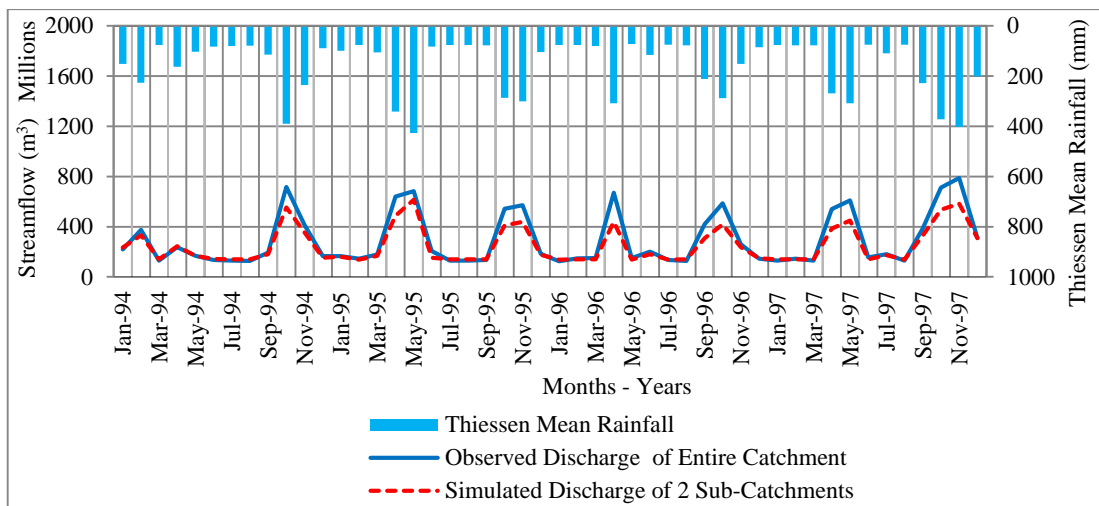


Figure C 8: Observed discharge of entire catchment & simulated discharge of upper sub-catchment (1994 - 1997)

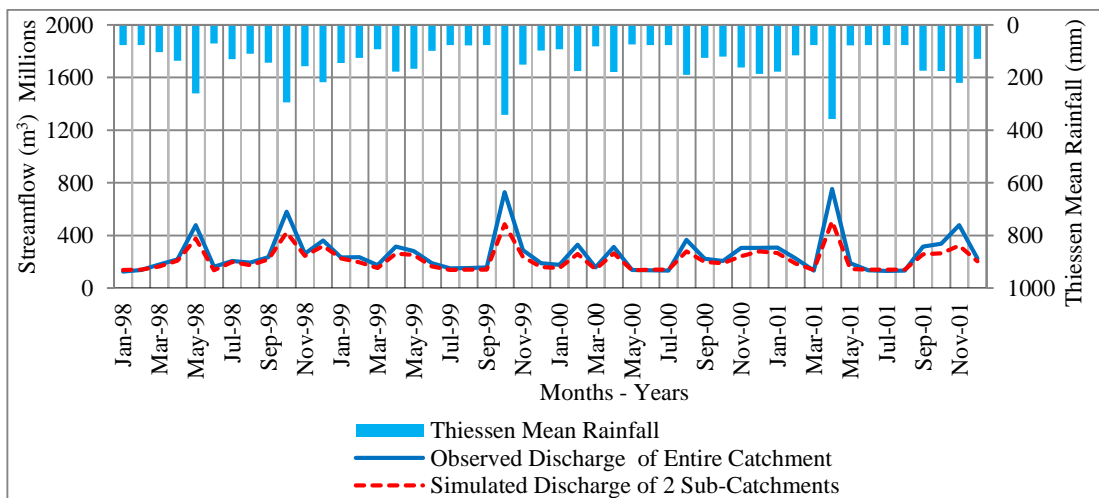


Figure C 9: Observed discharge of entire catchment & simulated discharge of upper sub-catchment (1998 - 2001)

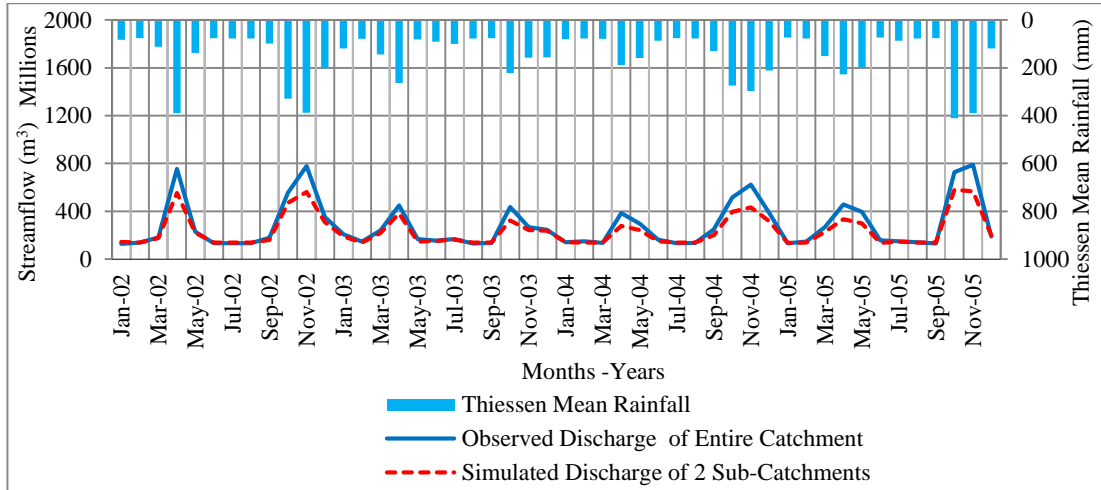


Figure C 10: Observed discharge of entire catchment & simulated discharge of upper sub-catchment (2002 - 2005)

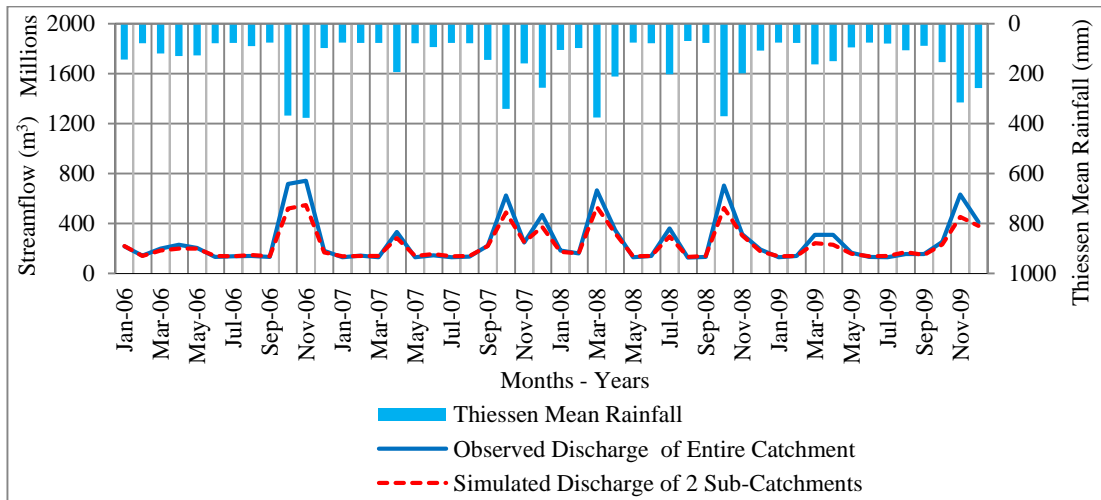


Figure C 11: Observed discharge of entire catchment & simulated discharge of upper sub-catchment (2006 - 2009)

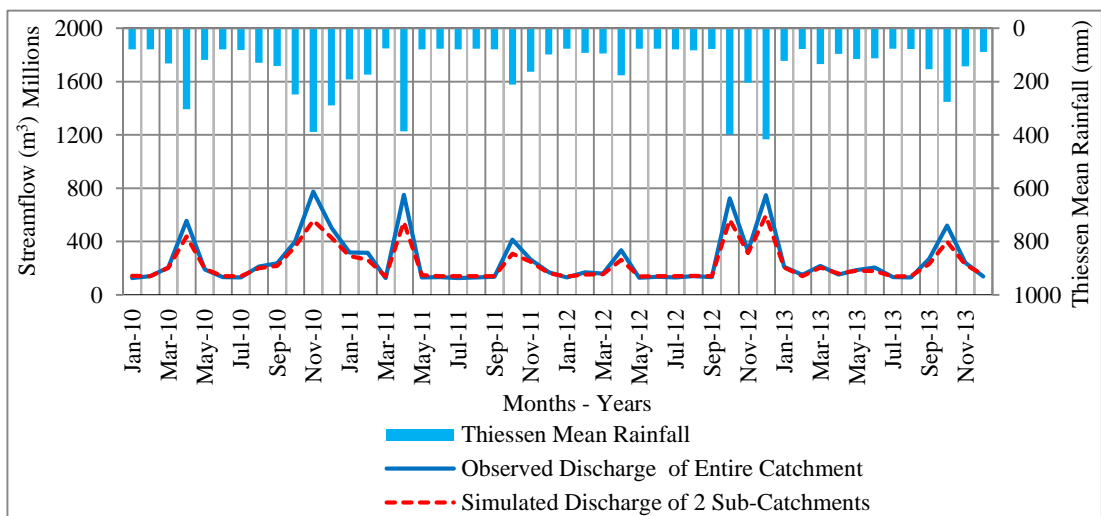


Figure C 12: Observed discharge of entire catchment & simulated discharge of upper sub-catchment (2010 - 2013)

Table C1: Observed and simulated water balance

Year	Thiessen mean rainfall (mm)	Observed discharge (mm)	Observed water balance (mm)	Simulated discharge (mm)	Simulated water balance (mm)
1990	1815.49	1065.10	750.39	1238.83	576.65
1991	1958.61	1178.13	780.48	1322.55	636.05
1992	1798.35	1215.45	582.91	1208.34	590.01
1993	1926.51	1254.85	671.67	1302.18	624.33
1994	1792.81	1132.47	660.34	1234.12	558.69
1995	2055.29	1402.27	653.02	1378.83	676.46
1996	1619.52	1177.98	441.54	1131.81	487.72
1997	2270.23	1594.66	675.57	1498.01	772.21
1998	1773.45	1192.53	580.92	1218.33	555.13
1999	1623.70	1170.62	453.08	1128.42	495.28
2000	1538.95	1051.69	487.27	1073.13	465.82
2001	1732.64	1264.51	468.14	1193.37	539.27
2002	2045.95	1393.10	652.85	1371.66	674.30
2003	1567.12	1038.81	528.31	1089.44	477.68

2004	1735.19	1251.48	483.71	1195.15	540.04
2005	1963.40	1391.52	571.88	1321.79	641.62
2006	1762.13	1200.76	561.37	1199.72	562.41
2007	1654.62	1075.98	578.64	1145.59	509.03
2008	1972.10	1315.60	656.50	1325.24	646.86
2009	1639.99	1106.42	533.56	1137.58	502.41
2010	2074.62	1359.22	715.40	1389.43	685.20
2011	1692.68	1130.52	562.16	1179.53	513.15
2012	1852.79	1238.78	614.01	1238.52	614.27
2013	1479.51	963.88	515.63	1062.81	416.70

Appendix – D

**Comparison of Rainfall, Simulated Discharge (exclusive of baseflow) and
Runoff Coefficient**

Appendix-D: Comparison of rainfall, simulated discharge (exclusive of baseflow) and runoff coefficient

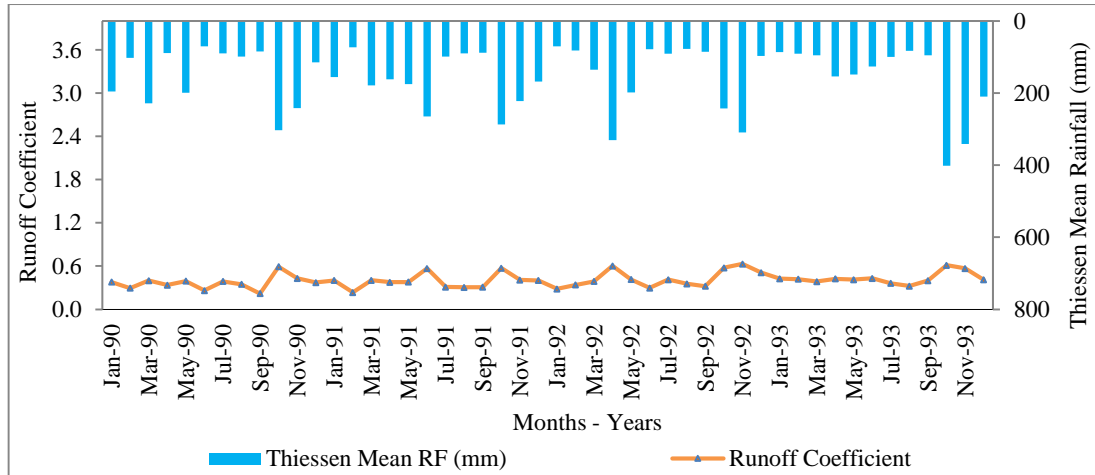


Figure D 1: Comparison of rainfall & runoff coefficient (without baseflow) (1990 - 1993)

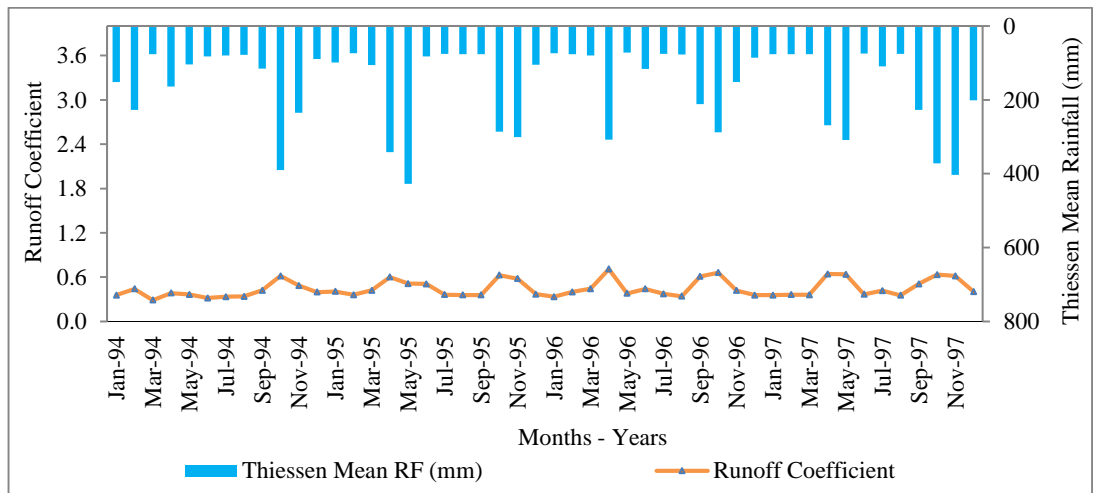


Figure D 2: Comparison of rainfall & runoff coefficient (without baseflow) (1994 - 1997)

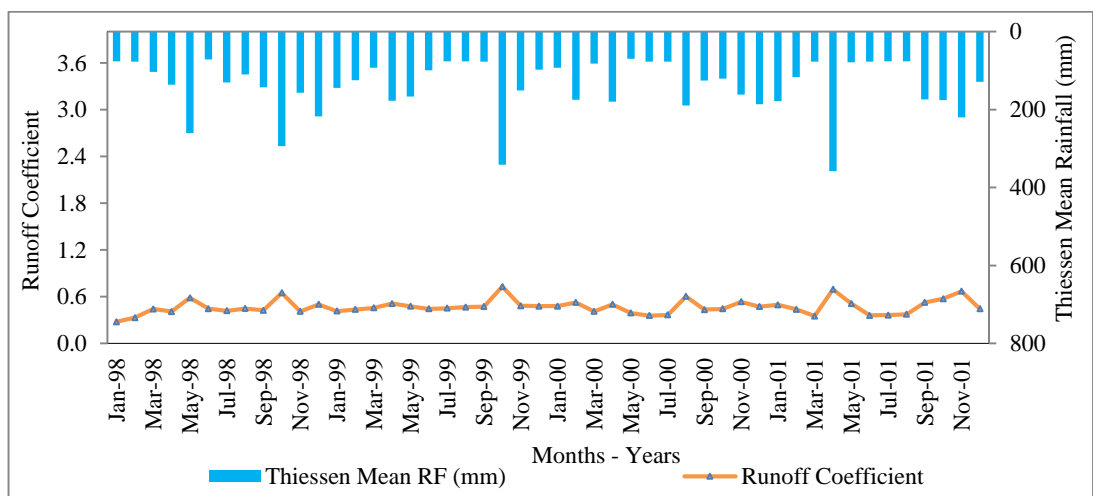


Figure D 3: Comparison of rainfall & runoff coefficient (without baseflow) (1998 - 2001)

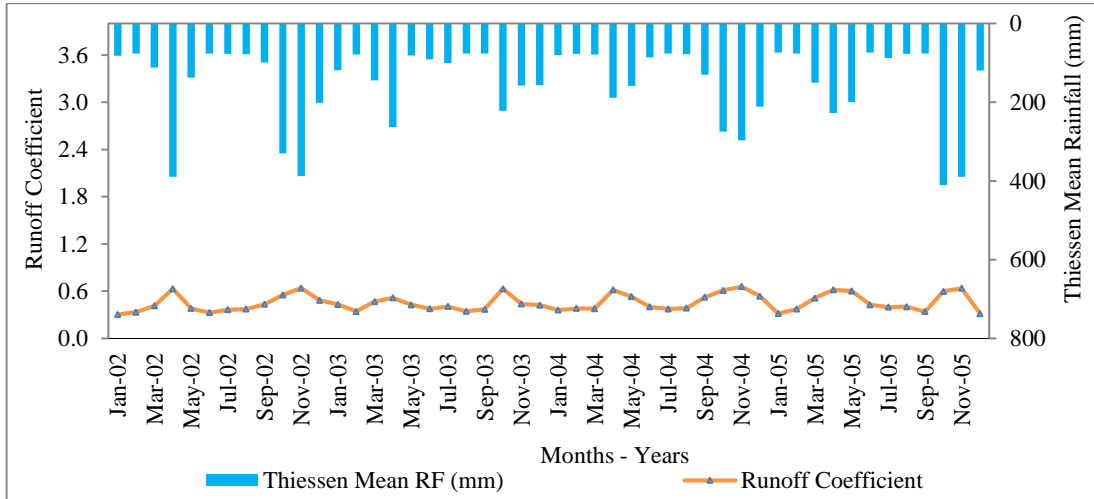


Figure D 4: Comparison of rainfall & runoff coefficient (without baseflow) (2002 - 2005)

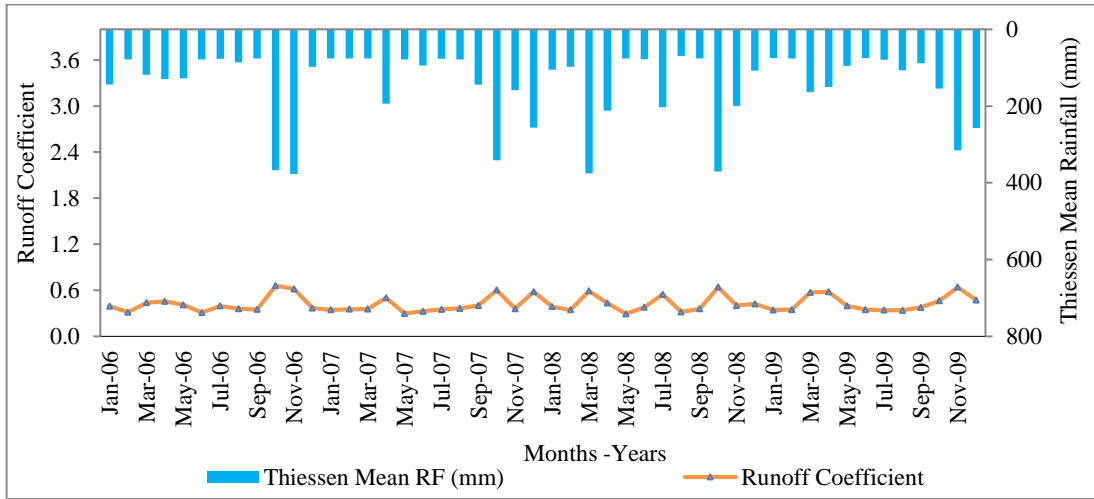


Figure D 5: Comparison of rainfall & runoff coefficient (without baseflow) (2006 - 2009)

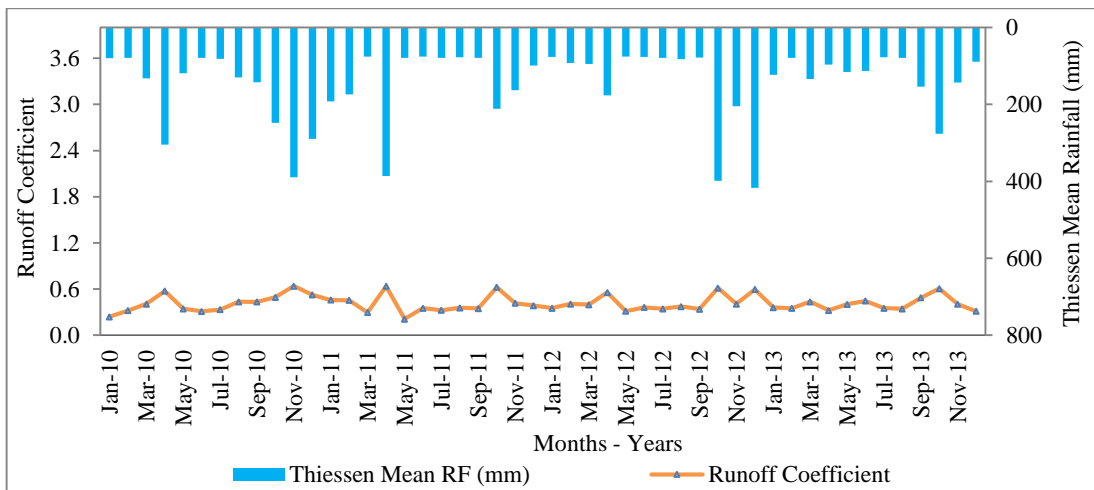


Figure D 6: Comparison of rainfall & runoff coefficient (without baseflow) (2010 - 2013)

Appendix – E
Runoff Coefficient for Land Use Type

Appendix-E: Runoff coefficient of land use types

Table E 1: Coefficient of land use type

Land Use	C	Land Use	C
Business: Downtown areas Neighborhood areas	0.70 - 0.95 0.50 - 0.70	Lawns:	
		Sandy soil, flat, 2%	0.05 - 0.10
		Sandy soil, avg., 2-7%	0.10 - 0.15
		Sandy soil, steep, 7%	0.15 - 0.20
		Heavy soil, flat, 2%	0.13 - 0.17
		Heavy soil, avg., 2-7%	0.18 - 0.22
		Heavy soil, steep, 7%	0.25 - 0.35
Residential: Single-family areas Multi units, detached Multi units, attached Suburban	0.30 - 0.50 0.40 - 0.60 0.60 - 0.75 0.25 - 0.40	Agricultural land:	
		Bare packed soil	
		*Smooth	0.30 - 0.60
		*Rough	0.20 - 0.50
		Cultivated rows	
		*Heavy soil, no crop	0.30 - 0.60
		*Heavy soil, with crop	0.20 - 0.50
		*Sandy soil, no crop	0.20 - 0.40
		*Sandy soil, with crop	0.10 - 0.25
		Pasture	
*Heavy soil	0.15 - 0.45		
*Sandy soil	0.05 - 0.25		
Woodlands	0.05 - 0.25		
Industrial: Light areas Heavy areas	0.50 - 0.80 0.60 - 0.90	Streets:	
		Asphaltic	0.70 - 0.95
		Concrete	0.80 - 0.95
		Brick	0.70 - 0.85
Parks, cemeteries	0.10 - 0.25	Unimproved areas	0.10 - 0.30
Playgrounds	0.20 - 0.35	Drives and walks	0.75 - 0.85
Railroad yard areas	0.20 - 0.40	Roofs	0.75 - 0.95

Source: The Clean Water Team Guidance Compendium for Watershed Monitoring and Assessment
State Water Resources Control Board 5.1.3 FS-(RC) 2011