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APPENDIX 1

Characteristics of Critical Dry Spells

Table A1.1: Characteristics of CDS Identified by Figure 4.10 - Anuradhapura

Characteristics	Percentageem
1. Occurrence of CDS	
(i) % of CDS1 occurred before April	91 %
(ii) % of CDS1 started and ended within first 3 months	82 %
(iii) % of CDS2 started after mid April	65 %
(iv) % of CDS2 started and ended between end April- end July	62 %
(v) % of CDS3 started and ended between end May- mid September	82 %
(vii) % of CDS4 started and ended between mid July – end October	80 %
(vii) % of CDS2 started and ended between end April- end July when CDS1 already CDS1 occurred before April	58 %
2. Lengths of CDS	
(i) % of CDS1 \geq mean CDS1	38 %
(ii) % of CDS2 \geq mean CDS2	25 %
(iii) % of CDS3 \geq mean CDS3	38 %
(iv) % of CDS4 \geq mean CDS4	44 %
3. Gap between successive CDS	
(i) Gap between CDS1 and CDS2 - % <5 weeks, <1 week % 5- 9 weeks % \geq 9 weeks	35%, 25 % 21 % 44 %
(ii) Gap between CDS2 and CDS3 - % <5 weeks, <1 week % 5- 9 weeks % \geq 9 weeks	67%, 31 % 26 % 7 %
(iii) Gap between CDS3 and CDS4 - % <5 weeks, <1 week % 5- 9 weeks % \geq 9 weeks	55%, 40 % 34% 11%
(iv) Gap between CDS4 and CDS1 next year - % <5 weeks	7%

Table A1.2: Characteristics of CDS Identified by Figure 4.11-Mahailuppalama

Characteristics	Percentage
1. Occurrence of CDS	
(i) % of CDS1 started and ended within first 3 months	83 %
(ii) % of CDS2 started and ended between mid April – end July	69 %
(iii) % of CDS3 occurred (S E)within 1 st week of June- 1 st week of Oct	80 %
(v) % of CDS4 started and ended between mid July – end October	76 %
(v) % of CDS2 started and ended between mid April- end July when CDS1 already occurred before April	54 %
2. Lengths of CDS	
(v) % of CDS1 \geq mean CDS1	41 %
(vi) % of CDS2 \geq mean CDS2	39 %
(vii) % of CDS3 \geq mean CDS3	44 %
(viii) % of CDS4 \geq mean CDS4	55 %
3. Gap between successive CDS	
(i) Gap between CDS1 and CDS2 - % <5 weeks, <1 week % 5- 9 weeks % \geq 9 weeks	28 %, 11 % 24 % 48 %
(ii) Gap between CDS2 and CDS3 - % <5 weeks, <1 week % 5- 9 weeks % \geq 9 weeks	80 %, 28 % 11 % 9 %
(iii) Gap between CDS3 and CDS4 - % <5 weeks, <1 week % 5- 9 weeks % \geq 9 weeks	67 %, 24 % 11% 22 %
(iv) Gap between CDS4 and CDS1 next year - % <5 weeks	15 %

Table A1.3: Characteristics of CDS identified by Figure 4.12- Minneriya

Characteristics	Percentage
1. Occurrence of CDS	
(i) % of CDS1 started and ended within first 3 months	76 %
(ii) % of CDS2 started and ended between mid April – end July	65 %
(iii) % of CDS3 occurred (S E) within 1 st week of June- 1 st week of Oct ks	69 %
(iv) % of CDS2 occurred (S E) within end July - 1 st week of November	75 %
(v) % of CDS2 started and ended between mid April- end July when CDS1 CDS1 occurred before April	45 %
2. Lengths of CDS	
(i) % of CDS1 \geq mean CDS1	40 %
(ii) % of CDS2 \geq mean CDS2	45 %
(iii) % of CDS3 \geq mean CDS3	40 %
(iv) % of CDS4 \geq mean CDS4	36 %
3. Gap between successive CDS	
(i) Gap between CDS1 and CDS2 - % <5 weeks, <1 week % 5- 9 weeks % \geq 9 weeks	42 %, 15% 42 % 16 %
(ii) Gap between CDS2 and CDS3 - % <5 weeks, <1 week % 5- 9 weeks % \geq 9 weeks	84 %, 45% 14 % 2 %
(iii) Gap between CDS3 and CDS4 - % <5 weeks, <1 week % 5- 9 weeks % \geq 9 weeks	82 %, 33% 9 % 9 %
(iv) Gap between CDS4 and CDS1 next year - % <5 weeks,	5 %

Table A1.4: Characteristics of CDS Identified Figure 4.13 -Polonnaruwa

Characteristics	Percentagee
1. Occurrence of CDS	
(i) % of CDS1 started and ended before April	69 %
(ii) % of CDS2 started and ended within mid April – 1 st week, July	56 %
(iii) % of CDS3 occurred within end May-end Aug	67%
(iv) % of CDS4 occurred within end July- 1 st week Nov	81 %
(v) % of CDS2 occurred within mid April – 1 st week ,Julywhen CDS1 already occurred before April	44 %
2. Lengths of CDS	
(i) % of CDS1 \geq mean CDS1	36 %
(ii) % of CDS2 \geq mean CDS2	36 %
(iii) % of CDS3 \geq mean CDS3	38 %
(iv) % of CDS4 \geq mean CDS4	44 %
3. Gap between successive CDS	
(i) Gap between CDS1 and CDS2 - % <5 weeks ,<1 week % 5- 9 weeks % \geq 9 weeks	55%, 24 % 27 % 18%
(ii) Gap between CDS2 and CDS3 - % <5 weeks ,<1 week % 5- 9 weeks % \geq 9 weeks	85% ,45 % 11 % 4%
(iii) Gap between CDS3 and CDS4 - % <5 weeks ,<1 week % 5- 9 weeks % \geq 9 weeks	71%, 35% 24 % 5 %
(iv) Gap between CDS4 and CDS1 next year- % <5 weeks	5 %

Table A1.5: Characteristics of CDS Identified by Figure 4.14 - Ampara

Characteristics	Percentage
1. Occurrence of CDS	
(i) % of CDS1 started and ended before April	71 %
(ii) % of CDS2 occurred within 1 st week April – 1 st week, July	53%
(iii) % of CDS3 occurred within end April- end July	55
(iv) % of CDS2 started after August	69 %
(v) % of CDS2 occurred within April -July when CDS1 already occurred before April	42 %
2. Lengths of CDS	
(i) % of CDS1 >= mean CDS1	35 %
(ii) % of CDS2 >= mean CDS2	36 %
(iii) % of CDS3 >= mean CDS3	40 %
(iv) % of CDS4 >= mean CDS4	36 %
3. Gap between successive CDS	
(i) Gap between CDS1 and CDS2 - % <5 weeks ,<1 week	60%, 18 %
% 5- 9 weeks	22 %
% >= 9 weeks	18 %
(ii) Gap between CDS2 and CDS3 - % <5 weeks ,<1 week	78%, 20 %
% 5- 9 weeks	11 %
% >= 9 weeks	11 %
(iii) Gap between CDS3 and CDS4 - % <5 weeks ,<1 week	64 %, 18%
% 5- 9 weeks	27 %
% >= 9 weeks	6 %

Table A1.6: Characteristics of CDS Identified by Figure 4.15- Trincomalee

Characteristics	Percentage
1. Occurrence of CDS	
(i) % of CDS1 started and ended within first 3 months	78 %
(ii) % of CDS2 occurred within 1 st week April – 1 st week, July	60 %
(iii) % of CDS3 occurred within May- end July	64 %
(iv) % of CDS4 occurred within August - mid October	67%
(v) % of CDS2 occurred within April -July when CDS1 already occurred before April	45 %
2. Lengths of CDS	
(i) % of CDS1 >= mean CDS1	40 %
(ii) % of CDS2 >= mean CDS2	42 %
(iii) % of CDS3 >= mean CDS3	42 %
(iv) % of CDS4 >= mean CDS4	35 %
3. Gap between successive CDS	
(i) Gap between CDS1 and CDS2 - % <5 weeks ,<1 week	62 %, 15 %
% 5- 9 weeks	27 %
% >= 9 weeks	11 %
(ii) Gap between CDS2 and CDS3 - % <5 weeks ,<1 week	58 %, 33 %
% 5- 9 weeks	35 %
% >= 9 weeks	7 %
(iii) Gap between CDS3 and CDS4 - % <5 weeks ,<1 week	69 %, 15 %
% 5- 9 weeks	18 %
% >= 9 weeks	13 %

Table A1.7: Characteristics of CDS Identified by Figure 4.16 - Batticaloa

Characteristics	Percentage
1. Occurrence of CDS	
(i) % of CDS1 started and ended within first 3 months	69 %
(ii) % of CDS2 occurred within 1 st week April – 1 st week, July	69 %
(iii) % of CDS3 occurred within end April- end July	64 %
(iv) % of CDS4 occurred within end July – mid Oct	67 %
(v) % of CDS2 occurred within April-July when CDS1 already occurred before April	45 %
2. Lengths of CDS	
(i) % of CDS1 >= mean CDS1	35 %
(ii) % of CDS2 >= mean CDS2	42 %
(iii) % of CDS3 >= mean CDS3	35 %
(iv) % of CDS4 >= mean CDS4	33 %
3. Gap between successive CDS	
(i) Gap between CDS1 and CDS2 - % <5 weeks, <1 week	71 %, 25 %
% 5- 9 weeks	16 %
% >= 9 weeks	13 %
(ii) Gap between CDS2 and CDS3 - % <5 weeks, <1 week	67 %, 25 %
% 5- 9 weeks	22 %
% >= 9 weeks	11 %
(iii) Gap between CDS3 and CDS4 - % <5 weeks, <1 week	64 %, 24 %
% 5- 9 weeks	12 %
% >= 9 weeks	24 %

Table A1.8 Characteristics of CDS Identified Figure 4.17- Puttalam



Characteristics	Percentage
1. Occurrence of CDS	
(i) % of CDS1 started and ended before April	71 %
(ii) % of CDS2 occurred within mid April- 1 st week July	53 %
(iii) % of CDS3 occurred within end May – mid Sep	76 %
(iv) % of CDS4 occurred within end July – mid November	62 %
(v) % of CDS2 occurred within mid April- 1 st week July when already CDS1 occurred before April	33 %
2. Lengths of CDS	
(i) % of CDS1 >= mean CDS1	42 %
(ii) % of CDS2 >= mean CDS2	43 %
(iii) % of CDS3 >= mean CDS3	31 %
(iv) % of CDS4 >= mean CDS4	38 %
3. Gap between successive CDS	
(i) Gap between CDS1 and CDS2 - % <5 weeks , <1week	58 %, 11 %
% 5- 9 weeks	7 %
% >= 9 weeks	35 %
(ii) Gap between CDS2 and CDS3 - % <5 weeks, <1week	65 %, 25 %
% 5- 9 weeks	6 %
% >= 9 weeks	29 %
(iii) Gap between CDS3 and CDS4 - % <5 weeks , <1week	58 %, 31 %
% 5- 9 weeks	13 %
% >= 9 weeks	29 %

Table A1.9: Characteristics of CDS Identified Figure 4.18 - Hambantota

Characteristics	Percentage
1. Occurrence of CDS	
(i) % of CDS1 started and ended before April	89 %
(ii) % of CDS2 occurred within end February- end May	62 %
(iii) % of CDS3 occurred within end May – mid Sep	73 %
(iv) % of CDS4 occurred within end July – end October	56 %
2. Lengths of CDS	
(i) % of CDS1 \geq mean CDS1	35 %
(ii) % of CDS2 \geq mean CDS2	39 %
(iii) % of CDS3 \geq mean CDS3	46 %
(iv) % of CDS4 \geq mean CDS4	41 %
3. Gap between successive CDS	
(i) Gap between CDS1 and CDS2 - % <5 weeks , <1week	41 % , 19 %
% 5- 9 weeks	28 %
% \geq 9 weeks	31 %
(ii) Gap between CDS2 and CDS3 - % <5 weeks , <1week	40 % , 9 %
% 5- 9 weeks	22 %
% \geq 9 weeks	38 %
(iii) Gap between CDS3 and CDS4 - % <5 weeks , <1week	36 % , 3 %
% 5- 9 weeks	37 %
% \geq 9 weeks	27 %

Table A1.10 Characteristics of CDS identified by Figure 4.19 -Tissamaharama

Characteristics	Percentage
1. Occurrence of CDS	
(i) % of CDS1 started and ended before April	84 %
(ii) % of CDS2 occurred within end April- end July	53 %
(iii) % of CDS3 occurred within beginning June – beginning Oct	73 %
(iv) % of CDS4 occurred within first week Aug – first week Nov	40 %
2. Lengths of CDS	
(i) % of CDS1 \geq mean CDS1	33 %
(ii) % of CDS2 \geq mean CDS2	35 %
(iii) % of CDS3 \geq mean CDS3	45 %
(iv) % of CDS4 \geq mean CDS4	35 %
3. Gap between successive CDS	
(i) Gap between CDS1 and CDS2 - % <5 weeks , <1week	45 % , 20 %
% 5- 9 weeks	22 %
% \geq 9 weeks	33 %
(ii) Gap between CDS2 and CDS3 - % <5 weeks , <1week	67 % , 27 %
% 5- 9 weeks	22 %
% \geq 9 weeks	11 %
(iii) Gap between CDS3 and CDS4 - % <5 weeks , <1week	71 % , 22 %
% 5- 9 weeks	9 %
% \geq 9 weeks	20 %

APPENDIX 2

Best Models Selected for Each Location

Table A2.1: Best Models Selected for Anuradhapura

Model	ROOT MSE	R ²	Estimates	Heteroscedasticity	Normality	Serial correlation
SDCDS2= a+b*(SDCDS1) ²	36.02	0.2595	a=109.597* b=0.0032*	WT=13.7* BP=9.09*	SW=0.92*	G ₁ =0.03 G ₂ =14.62* G ₃ =14.96*
SDCDS2= a+b*(SDCDS1) ² + c*AR2	30.22	0.5007	a=110.106* b=0.00277* c=0.58467*	WT =3.93 BP=2.05	SW=0.97	G ₁ =0.16 G ₂ =0.16 G ₃ =0.16
lnSDCDS3= a+b*SDCDS2	0.1201	0.6295	a=4.71069* b= 0.00370*	WT =4.13 BP=2.17	SW=0.96	G ₁ =1.27 G ₂ =4.72 G ₃ =4.77
lnSDCDS3= a+b*SDCDS2 removing outliers	0.0901	0.7833	a=4.6419* b=0.00403*	WT =3.31 BP=0.99	SW=0.96	G ₁ =3.43 G ₂ =4.52 G ₃ =4.86
lnSDCDS4= a+b*SDCDS3	0.1411	0.5575	a=4.63087* b=0.00467*	WT =2.29 BP=2.28	SW=0.87*	G ₁ =0.46 G ₂ =0.53 G ₃ =1.19
lnSDCDS4= a+b*SDCDS3 removing outliers	0.0766	0.7404	a=4.71906* b=0.00388*	WT =1.48 BP=0.24	SW=0.95	G ₁ =0.98 G ₂ =1.39 G ₃ =1.71

* - significant at 5% level
SW –Shapiro Wilk W test

WT -White's test
BP-Breusch Pagan test

G₁, G₂, G₃ – Godfrey's serial correlation test

Table A2.2: Correlations Between Starting Dates of CDS

Location	Correlations	SDCDS2	SDCDS3	SDCDS4
Anuradhapura	SDCDS1	0.495 0.000*	0.413 0.000*	0.152 0.297
	SDCDS2		0.784 0.000*	0.533 0.000*
	SDCDS3			0.709 0.000*
Mahalluppalla	SDCDS1	0.548 0.000*	0.370 0.000*	0.017 0.908
	SDCDS2		0.596 0.000*	0.194 0.187
	SDCDS3			0.615 0.000*
Minneriya	SDCDS1	0.704 0.000*	0.544 0.000*	0.373 0.005*
	SDCDS2		0.733 0.000*	0.393 0.003*
	SDCDS3			0.573 0.000*
Polonnaruwa	SDCDS1	0.598 0.000*	0.543 0.000*	0.208 0.124
	SDCDS2		0.727 0.000*	0.458 0.000*
	SDCDS3			0.591 0.000*
Ampara	SDCDS1	0.609 0.000*	0.384 0.003*	0.187 0.167
	SDCDS2		0.755 0.000*	0.324 0.015*
	SDCDS3			0.424 0.001*
Trincomalee	SDCDS1	0.561 0.000*	0.442 0.001*	0.318 0.017*
	SDCDS2		0.742 0.000*	0.491 0.000*
	SDCDS3			0.751 0.000*
Batticaloa	SDCDS1	0.516 0.000*	0.378 0.004*	0.053 0.700
	SDCDS2		0.696 0.000*	0.176 0.195
	SDCDS3			0.531 0.000*
Puttalam	SDCDS1	0.651 0.000*	0.456 0.001*	0.282 0.047*
	SDCDS2		0.670 0.000*	0.610 0.015*
	SDCDS3			0.646 0.001*
Hambantota	SDCDS1	0.562 0.000*	0.330 0.014*	0.217 0.112
	SDCDS2		0.640 0.000*	0.343 0.010*
	SDCDS3			0.674 0.000*
Tissamaharam	SDCDS1	0.501 0.000*	0.341 0.015*	0.145 0.315
	SDCDS2		0.761 0.000*	0.516 0.000*
	SDCDS3			0.613 0.000*

*significant at p=0.05

Table A2.3: Best Models Selected for Mahailuppallama

Model	ROOT MSE	R ²	Estimates	Heteroscedasticity	Normality	Serial correlation
SDCDS2= a+b*lnSDCDS1	35.935	0.3545	a=15.7932 b=33.4632*	WT =4.42 BP=4.35*	SW=0.97	G ₁ =0.06 G ₂ =3.58 G ₃ =3.76
SDCDS2= b*lnSDCDS1 removing outliers	23.218	0.6196	b=39.334*	WT =0.96 BP=0.80	SW=0.98	G ₁ =0.50 G ₂ =0.52 G ₃ =1.37
SDCDS3= a+b*(SDCDS2) ²	29.242	0.3880	a=145.093* b=0.00211*	WT =13.4* BP=8.72*	SW=0.87*	G ₁ =0.13 G ₂ =0.86 G ₃ =3.25
SDCDS3= a+b*(SDCDS2) ² REMOVING OUTLIERS	12.678	0.8231	a=129.921* b=0.00257*	WT =4.33 BP=4.30	SW=0.98	G ₁ =1.92 G ₂ =2.30 G ₃ =3.33
SDCDS4= a+b*SDCDS3	44.003	0.4274	a=188.614* b=9.83E-6*	WT =2.40 BP=0.03	SW=0.89*	G ₁ =0.70 G ₂ =0.5069 G ₃ =0.6891
SDCDS4= a+b*(SDCDS3) ³ +c*SDCDS2 removing outliers	25.933	0.7012	a=203.697* b=0.00001* c=-0.26493*	WT =5.62 BP=3.94	SW=0.95	G ₁ =0.28 G ₂ =1.24 G ₃ =1.78

* - significant at 5% level
SW –Shapiro Wilk W test

WT-White's test
BP-Breusch Pagan test

G₁, G₂, G₃ – Godfrey's serial correlation test

Table A2.4: Best Models Selected for Minneriya

Model	ROOT MSE	R ²	Estimates	Heteroscedasticity	Normality	Serial correlation
SDCDS2= a+b*SDCDS1	27.990	0.4924	a=79.6535* b=0.79851*	WT =11.4* BP=8.22*	SW=0.97	G ₁ =0.87 G ₂ =0.95 G ₃ =0.98
SDCDS2= exp(a+b*SDCDS1)	28.186	0.4853	a=4.47788* b=0.00576*	WT =17.3* BP=15.14*	SW=0.96	G ₁ =1.45 G ₂ =1.48 G ₃ =1.49
SDCDS2= a+b*SDCDS1 SDS1 WEIGHTED	20.7	0.6307	a=81.5471* b=0.78206*	WT =3.55 BP=2.95	SW=0.98	G ₁ =0.98 G ₂ =0.98 G ₃ =0.98
lnSDCDS3= a+b*SDCDS2	15.57	0.5759	a=4.62165* b= 0.0046*	WT =2.96 BP=2.96	SW=0.97	G ₁ =2.13 G ₂ =4.51 G ₃ =6.24
lnSDCDS3= a+b*SDCDS2 removing outliers	0.1157	0.6975	a=4.62556* b=0.00439*	WT =0.66 BP=0.65	SW=0.96	G ₁ =5.05 G ₂ =8.09 G ₃ =8.13
SDCDS4= a+b*(SDCDS3) ³	41.289	0.3057	a=217.499* b=4.95E-6*	WT =5.26 BP=3.04	SW=0.92*	G ₁ =0.92 G ₂ =3.64 G ₃ =5.70
SDCDS4= a+b*(SDCDS3) ³ removing outliers	25.495	0.6153	a=203.628* b=5.67E-6*	WT =3.10 BP=0.75	SW=0.95	G ₁ =0.16 G ₂ =1.33 G ₃ =1.85

* - significant at 5% level
SW –Shapiro Wilk W test

WT-White's test
BP-Breusch Pagan test

G₁, G₂, G₃ – Godfrey's serial correlation test

Table A2.5: Best Models Selected for Polonnaruwa

Model	ROOT MSE	R ²	Estimates	Heteroscedasticity	Normality	Serial correlation
SDCDS2= a+b*SDCDS1	26.676	0.3741	a=87.0733* b=0.60205*	WT =8.88* BP=5.05*	SW=0.95	G ₁ =0.06 G ₂ =2.24 G ₃ =2.35
SDCDS2= exp(a+b*SDCDS1)	26.754	0.3704	a=4.52078* b=0.00466*	WT =8.71 BP=4.12	SW=0.95	G ₁ =0.00 G ₂ =2.26 G ₃ =2.32
SDCDS2= exp(a+b*SDCDS1) SDCDS1 WEIGHTED	179.4	0.4353	a=4.53955* b=0.00444*	WT =9.85 BP=4.33	SW=0.95	G ₁ =0.40 G ₂ =0.89 G ₃ =0.96
SDCDS3= a+b*SDCDS2	25.450	0.5197	a=13.631* b=0.1089 *	WT =1.63 BP=0.07	SW=0.95	G ₁ =0.16 G ₂ =0.19 G ₃ =3.55
SDCDS3= exp(a+b*SDCDS2)	25.388	0.5221	a=4.62829* b=0.00447 *	WT =3.42 BP=2.31	SW=0.95*	G ₁ =0.03 G ₂ =0.15 G ₃ =3.69
lnSDCDS3= a+b*SDCDS2	0.1412	0.5429	a=4.60194* b=0.00456 *	WT =2.43 BP=0.52	SW=0.96	G ₁ =0.10 G ₂ =0.11 G ₃ =4.26
SDCDS3= a+b*SDCDS2 +c*SDCDS1 removing outliers	19.636	0.6637	a=92.0559* b=0.53574* c=0.31927*	WT =1.55 BP=0.79	SW=0.95	G ₁ =0.67 G ₂ =0.68 G ₃ =1.43
SDCDS4= a+b*(SDCDS3) ³	35.530	0.4273	a=199.360* b=7.85E-6*	WT =0.36 BP=0.15	SW=0.91*	G ₁ =1.62 G ₂ =1.76 G ₃ =3.90
SDCDS4= a+b*(SDCDS3) ³ +c*(SDCDS3) ² +d*S DCDS2 removing outliers	18.247	0.7536	a=278.094* b=0.00003* c=-0.00951* d=0.32954*	WT =12.79 BP=2.55	SW=0.95	G ₁ =3.49 G ₂ =3.54 G ₃ =3.55

* - significant at 5% level
SW –Shapiro Wilk W test

WT-White's test
BP-Breusch Pagan test

G₁, G₂, G₃ – Godfrey's serial correlation test

Table A2.6: Best Models Selected for Ampara

Model	ROOT MSE	R ²	Estimates	Heteroscedasticity	Normality	Serial correlation
SDCDS2= a+b*SDCDS1	31.015	0.3792	a=76.9606* b=0.68664*	W=11.39* BP=8.52*	SW=0.95	G ₁ =0.13 G ₂ =0.93 G ₃ =2.92
SDCDS2= exp(a+b*SDCDS1)	31.242	0.3700	a=4.43171* b=0.00536*	W=17.60* BP=9.69*	SW= 0.85*	G ₁ =0.17 G ₂ =1.27 G ₃ =3.04
SDCDS2= a+b*SDCDS1 removing outliers	22.729	0.6628	a=56.7493* b=0.90777*	W=2.62 BP=2.31	SW= 0.96	G ₁ =0.94 G ₂ =1.45 G ₃ =1.78
SDCDS3= a+b*(SDCDS2) ²	21.187	0.5768	a=126.708* b=0.00281*	WT=3.24 BP=3.12	SW=0.98	G ₁ =6.91* G ₂ = 6.91* G ₃ =7.19
SDCDS3= exp(a+b*SDCDS2)	21.467	0.5655	a=4.674656* b=0.003819*	WT=4.57 BP=3.19	SW=0.97	G ₁ =6.55* G ₂ =6.55* G ₃ =6.78
SDCDS3= a+b*(SDCDS2) ² + AR1 removing outliers	15.881	0.7562	a=123.534* b=0.0028* AR1=- 0.47073*	WT=5.06 BP=4.78	SW=0.97	G ₁ =1.16 G ₂ =1.24 G ₃ =2.84
SDS4= a+b*cubicDS3	38.069	0.2274	a=192.312* b=7.13E-6 *	WT=7.48* BP=6.91*	SW=0.89*	G ₁ =2.24 G ₂ =2.39 G ₃ =3.31
lnSDCDS4= a+b*(SDCDS3) ³	1.4226	0.5876	a=5.15445* b=4.36E-8*	WT=5.11 BP=4.68	SW=0.95	G ₁ =0.18 G ₂ =0.25 G ₃ =0.52

* - significant at 5% level
SW –Shapiro Wilk W test

WT-White's test
BP-Breusch Pagan test

G₁, G₂, G₃ – Godfrey's serial correlation test

Table A2.7: Best Models Selected for Trincomalee

Model	ROOT MSE	R ²	Estimates	Heteroscedasticity	Normality	Serial correlation
$\ln\text{SDCDS2} = a + b * \ln\text{SDCDS1}$	0.3114	0.3784	a=3.63853 * b=0.27445*	WT=8.37* BP=6.52*	SW=0.97	G ₁ =0.000 G ₂ = 1.38 G ₃ =5.51
$\ln\text{SDCDS2} = a + b * \ln\text{SDCDS1}$ removing	0.1970	0.6504	a=3.63039* b=0.28943*	WT=1.76 BP=2.52	SW=0.95	G ₁ =0.07 G ₂ =4.74 G ₃ =5.00
$\text{SDCDS3} = a + b * (\text{SDCDS2})^2$	24.467	0.5661	a=114.211* b=0.00364*	WT=0.07 BP=0.06	SW=0.95*	G ₁ =0.19 G ₂ =0.44 G ₃ =0.54
$\text{SDCDS3} = a + b * (\text{SDCDS2})^2$	15.052	0.7442	a=111.569* b=0.00329*	WT=0.67 BP= 0.67	SW=0.98	G ₁ =0.01 G ₂ =2.52 G ₃ =2.53
$\ln\text{SDCDS4} = a + b * \ln\text{DCDS3}$	0.1392	0.6226	a=1.68106* b=0.73510*	WT=0.17 BP=0.15	SW=0.91*	G ₁ =1.04 G ₂ =4.37 G ₃ =4.62
$\ln\text{SDCDS4} = a + b * \ln\text{SDCDS3}$	0.0833	0.8138	a=1.74858* b=0.71126*	WT=2.49 BP=1.78	SW=0.96	G ₁ =0.50 G ₂ =1.60 G ₃ =1.60

* - significant at 5% level
SW –Shapiro Wilk W test

WT-White's test
BP-Breusch Pagan test

G₁, G₂, G₃ – Godfrey's serial correlation test

Table A2.8: Best Models Selected for Batticaloa

Model	ROOT MSE	R ²	Estimates	Heteroscedasticity	Normality	Serial correlation
SDCDS2= a+b*(SDCDS1) ²	30.070	0.3433	a=98.4057* b=0.00417*	WT=11.83 * BP=5.81*	SW=0.95	G ₁ =0.05 G ₂ =0.18 G ₃ =0.37
SDCDS2= a+b*(SDCDS1) ³	30.026	0.3452	a=104.012* b=0.00003*	WT=6.83 * BP=5.21*	SW=0.97	G ₁ =0.24 G ₂ =0.29 G ₃ =0.38
SDCDS2= a+b*(SDCDS1) ² removing outliers	17.589	0.7313	a=83.9582* b=0.00537*	WT=3.97 BP= 1.23	SW=0.96	G ₁ =0.45 G ₂ =0.96 G ₃ =1.06
SDCDS3= a+b*(SDCDS2) ²	24.492	0.5488	a=128.353* b=0.00295*	WT=5.99 BP=2.91	SW=0.93	G ₁ =0.14 G ₂ =0.87 G ₃ =1.30
SDCDS3= a+b*(SDCDS2) ³	24.781	0.5349	a=142.677* b=0.000014*	WT=3.31 BP=0.21	SW=0.95	G ₁ =0.04 G ₂ =0.50 G ₃ =0.56
SDCDS3= a+b*SDCDS2+c* (SDCDS2) ² +d*(SDCDS2) ³	19.215	0.7209	a=488.537* b=-10.771* c=0.10163* d=-0.0003*	WT=9.11 BP=4.38	SW=0.95	G ₁ =0.35 G ₂ =-1.61 G ₃ =1.78
lnSDCDS4= a+b*lnSDCDS3	0.1632	0.3301	a=2.72956* b=0.53668*	WT=0.39 BP=0.09	SW=0.96	G ₁ =1.72 G ₂ =3.16 G ₃ =3.57
SDCDS4= a*(sDCDS3) ^b	42.490	0.2904	a=16.978** b=0.51935*	WT=2.82 BP=2.12	SW=0.89*	G ₁ =2.27 G ₂ =4.10 G ₃ =4.74
SDCDS4= a*(SDCDS3) ^b *(SDCDS2) ^c removing outliers	31.269	0.4452	a=17.4667* b=0.64657* c=-0.15065*	WT=10.79 BP=2.32	SW=0.97	G ₁ =0.13 G ₂ =0.24 G ₃ =0.53

* - significant at 5% level
SW -Shapiro Wilk W test

WT-White's test
BP-Breusch Pagan test

G₁, G₂, G₃ – Godfrey's serial correlation test

Table A2.9: Best Models Selected for Puttalam

Model	ROOT MSE	R ²	Estimates	Heteroscedasticity	Normality	Serial correlation
SDCDS2= a+b*SDCDS1	38.725	0.4341	a=84.3770* b=0.16178*	WT=6.29* BP=6.27*	SW=0.94	G ₁ =0.01 G ₂ =4.86 G ₃ =5.53
SDCDS2= a*(SDCDS1) ^b	36.952	0.4847	a=42.231* b=0.29343*	WT=7.38 BP=6.21	SW=0.95	G ₁ =0.33 G ₂ =4.45 G ₃ =4.45
SDCDS2= a+b*SDCDS1 removing outliers	29.444	0.6413	a=70.4795* b=0.85771*	WT=8.86 BP= 7.52	SW=0.95	G ₁ =3.06 G ₂ =4.34 G ₃ =4.88
SDCDS3= a+b*(SDCDS2) ²	27.115	0.4761	a=151.544* b=0.00205*	WT=13.2* BP=8.77*	SW=0.97	G ₁ =0.17 G ₂ =2.84 G ₃ =2.90
SDCDS3= a+b*(SDCDS2) ³	26.992	0.4809	a=160.461* b=9.86E-6*	WT=12.1* BP=6.15*	SW=0.97	G ₁ =0.07 G ₂ =1.78 G ₃ =1.93
SDCDS3= a+b*(SDCDS2) ² removing outliers	17.782	0.7128	a=143.820* b=0.00232*	WT=5.93 BP=3.21	SW=0.96	G ₁ =0.05 G ₂ =0.84 G ₃ =1.20
lnSDCDS4= a+b*sDCDS3	0.1869	0.4314	a=4.74970* b=0.00434*	WT=5.98 BP=4.24*	SW=0.94	G ₁ =0.13 G ₂ =5.44 G ₃ =5.69
SDCDS4= a+b*SDCDS3+c* SDCDS2+d*SDC DS1 removing outliers	0.1075	0.7530	a=4.56667* b=0.00427* c=0.00177* d=-0.0011*	WT=11.94 BP= 3.32	SW=0.97	G ₁ =1.74 G ₂ =1.98 G ₃ =2.34

* - significant at 5% level
SW –Shapiro Wilk W test

WT-White's test
BP-Breusch Pagan test

G₁, G₂, G₃ – Godfrey's serial correlation test

Table A2.10: Best Models Selected for Hambantota

Model	ROOT MSE	R ²	Estimates	Heteroscedasticity	Normality	Serial correlation
SDCDS2= a+b*SDCDS1	41.752	0.3244	a=80.6706* b=0.86379*	WT=0.19* BP=0.17*	SW=0.94*	G ₁ =1.28 G ₂ =2.94 G ₃ =2.83
SDCDS2= a+b*SDCDS1+c* (SDCDS1) ² +d*ln SDCDS1 removing outliers	34.782	0.4621	a=127.756* b=3.17907* c=-0.0106* d=-34.07**	WT=13.20 BP=1.21	SW=0.95	G ₁ =0.33 G ₂ =2.18 G ₃ =2.18
SDCDS3= a+b*SDCDS2	38.491	0.4702	a=110.841* b=0.71379*	WT=8.81* BP=7.49*	SW=0.98	G ₁ =0.36 G ₂ =0.37 G ₃ =1.71
SDCDS3= a+b*SDCDS2	39.335	0.4467	a=148.736* b=0.0.0028*	WT=5.31 BP=3.23	SW=0.98	G ₁ =0.00 G ₂ =0.01 G ₃ =0.64
SDCDS3= a+b*(SDCDS2) ² removing outliers	28.828	0.5110	a=159.307* b=0.00229*	WT=0.88 BP= 0.87	SW=0.96	G ₁ =0.01 G ₂ =0.39 G ₃ =0.50
lnSDCDS4= a+b*sDCDS3	0.134	0.6522	a=4.88478* b=0.00344*	WT=1.76* BP=0.47*	SW=0.92*	G ₁ =0.18 G ₂ =2.64 G ₃ =3.41
lnSDCDS4= a+b*SDCDS3 removing outliers	0.1060	0.7522	a=4.86983* b=0.00336*	WT=1.34 BP= 1.32	SW=0.94	G ₁ =1.58 G ₂ =1.84 G ₃ =1.95

* - significant at 5% level
SW -Shapiro Wilk W test

WT-White's test
BP-Breusch Pagan test

G₁, G₂, G₃ – Godfrey's serial correlation test

Table A2.11: Best Models Selected for Tissamaharama

Model	ROOT MSE	R ²	Estimates	Heteroscedasticity	Normality	Serial correlation
SDCDS2= a+b*lnSDCDS1	34.569	0.2798	a=38.1096* b=23.5568*	WT=5.25 BP=2.82	SW=0.97	G ₁ =0.95 G ₂ =1.69 G ₃ =3.88
SDCDS2= a+b*lnSDCDS1 removing outliers	25.782	0.5839	a=30.984** b=25.2135*	WT=4.09 BP= 0.85	SW=0.96	G ₁ =0.31 G ₂ =0.51 G ₃ =1.73
SDCDS3= a+b*SDCDS2	25.559	0.5796	a=93.4272* b=0.73671*	WT=4.69 BP=4.68*	SW=0.97	G ₁ =2.08 G ₂ =2.38 G ₃ =10.41*
SDCDS3= a+b*SDCDS2+ removing outliers	24.548	0.6061	a=92.0017* b=0.73973*	WT=5.90 BP=5.61*	SW=0.94*	G ₁ =2.06 G ₂ =2.06 G ₃ =8.58*
lnSDCDS4= a+b*lnSDCDS3	0.1694	0.4421	a=4.83109* b=0.00382*	WT=2.85 BP=2.39	SW=0.88*	G ₁ =1.15 G ₂ =1.47 G ₃ =1.56
lnSDCDS4= a+b*(SDCDS3) removing outliers	0.1121	0.7335	a=4.62149* b=0.00476*	WT=1.31 BP=1.27	SW=0.94*	G ₁ =0.49 G ₂ =1.05 G ₃ =2.70

* - significant at 5% level
SW –Shapiro Wilk W test

WT-White's test
BP-Breusch Pagan test

G₁,G₂,G₃ – Godfrey's serial correlation test