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Chapter-5

Discussion and Conclusions

5 DISCUSSION AND CONCLUSIONS.

5.1 Outcomes and conclusions.

The two major outcomes of the study are the “corrosion map”, which is a representation of corrosion levels of steel, copper and aluminum in the atmospheric environment of Sri Lanka and the calculation of energy conservation through preventing steel corrosion by galvanizing.

The “corrosion map” provides the corrosion rate in $\mu\text{m}/\text{annum}$ for zinc or galvanized steel exposed to the atmosphere. If the district and divisional secretariat is known then a value for zinc corrosion and the corrosion category as per ISO 9224 can be known. The corrosion category and the zinc corrosion rate in $\mu\text{m}/\text{a}$, are presented in appendix A with a map of each district. Once the atmospheric category is known it is a simple matter to find out the corrosion rates of copper and aluminum just by referring Table 12: Guiding corrosion values for corrosion rates (r_{av} , r_{lin}) of carbon steel, weathering steel, zinc, copper and aluminum in atmospheres of various Corrosivity categories.[19].

Once corrosion rates are known from the map, predictions can be made on the lifetime of the galvanized coating. Suitable metals can be selected using the corrosion rates in $\mu\text{m}/\text{a}$. Appropriate corrosion prevention can be specified.

The “Corrosion Map” will be very useful for major uses of steel in the country when specifying steel structures. Electrical and telecommunication utilities having a network of steel structures to distribute power or telecommunication signals, can use the map to predict the lifetime, and prepare maintenance plans for the steel structures in its network.

The wind map of Sri Lanka was completed recently and a huge potential of wind energy was predicted at various sites round the country. The harnessing of wind energy involves a lot of steel work. The corrosion map can be effectively used to calculate the life time of structures and specification of corrosion prevention methods in the areas identified as good wind sites.

The commercial capital Colombo is the most corrosive part in the island mainly due to its location close to the sea, the high rainfall and population density. Most of the buildings in the Colombo metropolitan area face severe corrosion problems reflecting the results predicted by the study. If Colombo had been a 2 km further to the coast, the cost of corrosion in Colombo would have come down by a huge amount. By analyzing the corrosion map it could be seen that areas within 1km from the coast has the highest corrosion rates. This matter should be taken up by town planners and engineers when deciding on the location of new cities. A steel structure 1km from the coast and 3km from the coast will have a very big difference in the lifetime of its steel work. Though the chloride deposition rate has a lower impact on corrosion than SO_2 it is advisable to build away from the coast as much as possible because chloride deposition rates rise exponentially when coming near to the sea coast (Figure 15).

The study does an analysis on the energy related with galvanizing. This method of analyzing processes through energy will justify whether the process is economical in the aspect of energy. This kind of analysis was done because galvanizing will sacrifice one material which is zinc to prevent the corrosion of another, which is steel. The study simply reveals that the rate of corrosion of zinc is around 25 times slower than that of steel (at the atmosphere taken for the case study) hence the energy released by the corrosion of the total un protected steel mass will be around eight times the energy released by the mass of zinc sacrificed to protect the steel. This is reflected by the EROI being 7.7.

The energy analysis can be used to calculate the saving on carbon dioxide emissions by protecting steel using galvanizing. Knowing the corrosion rates of the island, a galvanizing plant can calculate the tonnage of steel salvaged through galvanizing and the tonnage of zinc sacrificed. If the total amount of CO_2 emission for producing a tone of steel and Zinc is known, the tonnage of CO_2 emission reduced can be calculated. The analysis has to be done in a detailed manner by owners of galvanizing plants or even construction companies using galvanized steel for its structures.

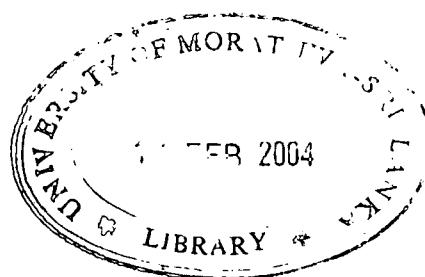
5.2 Limitations and Assumptions

The atmospheric factors such as rain fall, chloride and SO₂ concentration levels and humidity has been collected to predict the corrosion rates. One limitation is that the atmospheric factors will not reflect the local effects. One other limitation is that the SO₂ concentration in the atmosphere was not present for the whole country and the concentration of SO₂ has been predicted proportionate to the population density of the area. This prediction overlooks SO₂ emitting utilities in the area such as a large power plant. When predicting corrosion for a large area not taking in to account local effects could give inaccurate results. In situations when precise results for the corrosion rate is needed a more detailed study should be carried out. Being able to assign a corrosivity category as per ISO 9224 has given the opportunity to predict corrosion of copper, aluminum and steel in addition to zinc.

The assigning of corrosion categories could be done only with an assumption. In Table 11 the corrosivity category is given for the first year. In Table 12 the corrosivity category is given for the first ten years separately and over ten years separately. For zinc, the corrosion rates for each category whether it is the initial year, the initial 10 years or the time over 10 years are quite similar which can be referred in Table 11 and Table 12. Hence it is assumed that irrespective of the corrosion rate of zinc, is in the first year, first 10 years or over 10 years, each corrosivity category has the same corrosion rates. This assumption has given the liberty to assign a corrosivity category for an area just by looking at the corrosion rate of zinc without considering the age of the exposure. Due to this reason it is very straight forward to predict the service life of a zinc coating which is, just by dividing the coating thickness by the corrosion rate.

The energy conservation is calculated taking the figure of embedded energy of steel being 34 MJ/kg, but this figure varies when taking differently processed steel. For instance recycled steel has about one third the value of steel processed from the cradle. This applies to zinc as well. Hence in this case we talk only about material with embedded energy values given in the study.

Finally with all assumptions and limitations, this study shows how a simple phenomenon like corrosion could affect the society by wastage of energy and even link to global warming through contributing to CO₂ emissions in indirect ways.





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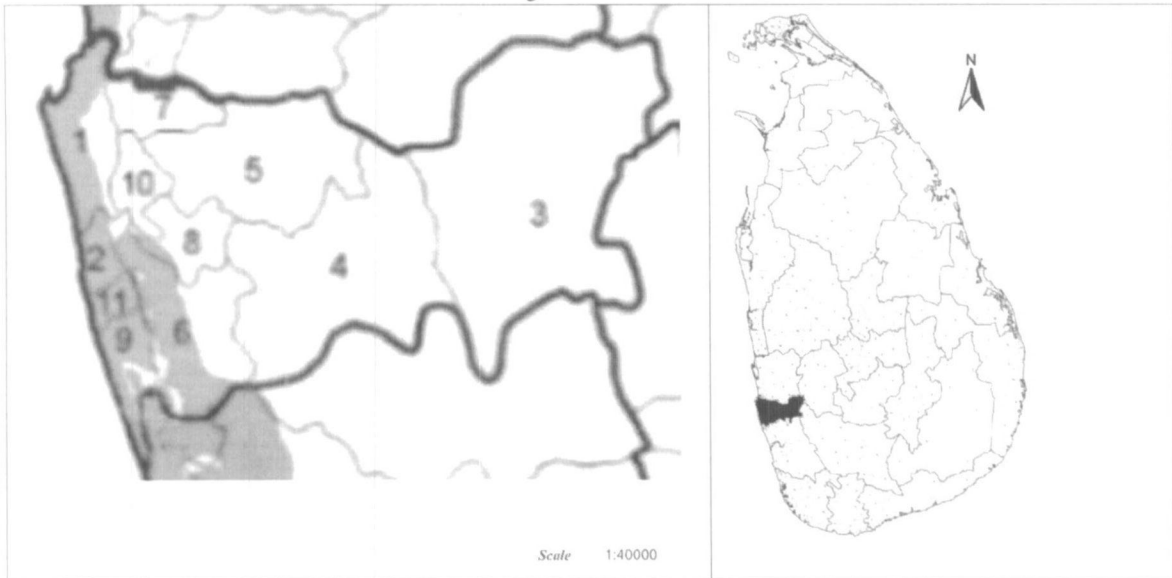


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APPENDIX-A

Corrosion values by District

Corrosion in the district of Colombo

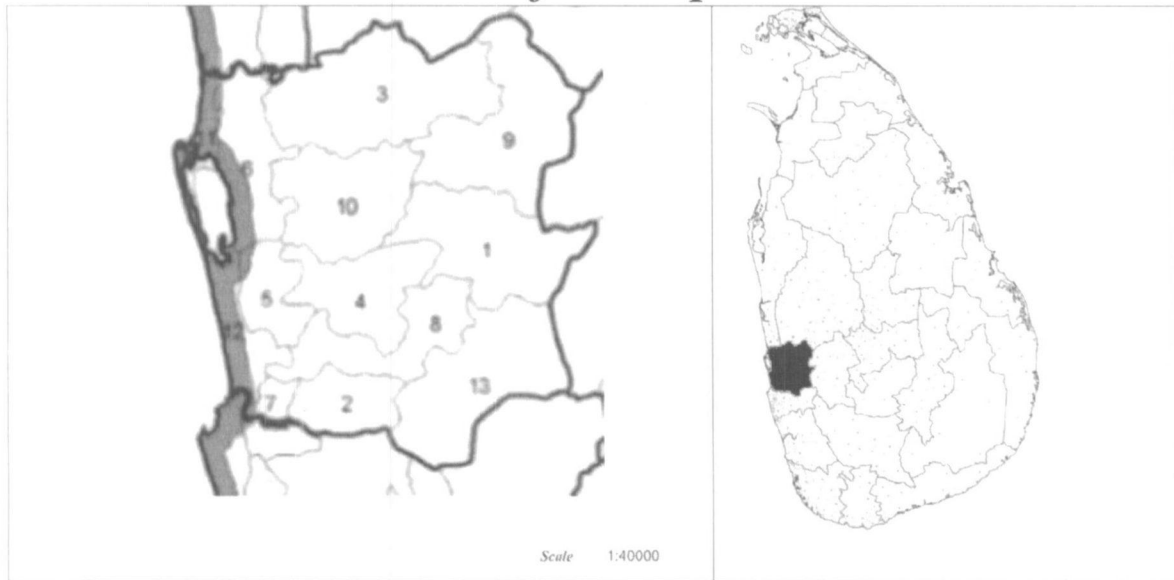


Crowded City

Normal City

Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp °C	So2 $\mu\text{g}/\text{m}^3$	Corrosion rates ($\mu\text{m}/\text{a}$) and corrosivity category as per ISO 9223 with various distances from the sea			So2 $\mu\text{g}/\text{m}^3$	Corrosion rates ($\mu\text{m}/\text{a}$) and corrosivity category as per ISO 9223 with various distances from the sea		
						500m	1000m	More than 2000m		500m	1000m	More than 2000m
COLOMBO	1	2500	80	27	279.7	5.8 c5	6.9 c5	2.9 c4	96	4.5 c5	6.1 c5	2.4 c4
IWALA - MOUNT LAVINIA	2	2500	80	27	168.5	5.8 c5	6.9 c5	2.9 c4	58	2.9 c4	2.2 c4	1.7 c3
HANWELLA	3	3000	80	27	3.9	N/A	N/A	1.7 c3	1	N/A	N/A	1.6 c3
HOMAGAMA	4	3000	80	27	11.8	N/A	N/A	1.6 c3	4	N/A	N/A	1.7 c3
KADUWELA	5	2750	80	27	23.8	N/A	N/A	1.3 c3	8	N/A	N/A	1.7 c3
KESBEWA	6	3000	80	27	34.2	N/A	N/A	1.4 c3	12	N/A	N/A	1.5 c3
KOLONNAWA	7	2400	80	27	67.1	3.6 c4	2.4 c4	1.8 c3	23	4.1 c4	1.7 c3	1.3 c3
MAHARAGAMA	8	2800	80	27	92.2	N/A	N/A	2.2 c4	32	N/A	N/A	1.4 c3
MORATUWA	9	2500	80	27	94.9	4.4 c5	6.0 c5	2.3 c4	33	2.4 c4	1.8 c3	1.4 c3
Nugegoda	10	2500	80	26	19.7	N/A	N/A	1.3 c3	7	N/A	N/A	1.7 c3
Ratmalana	11	2500	80	27	161.9	5.8 c5	6.9 c5	2.8 c4	56	2.8 c4	2.1 c3	1.6 c3

Corrosion in the district of Gampaha

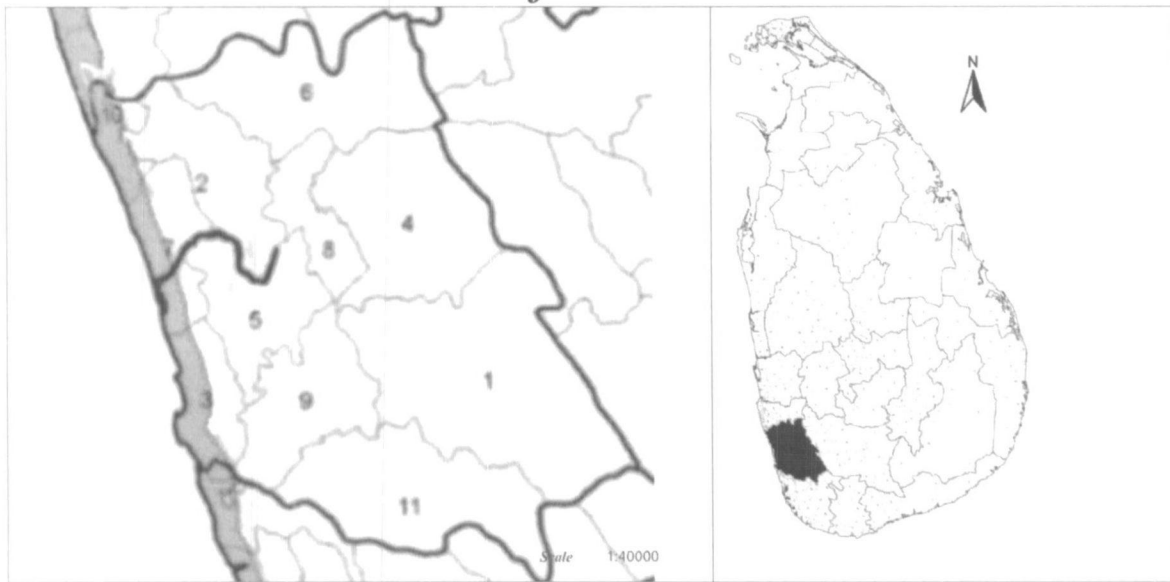


Crowded City

Normal City

Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp 0C	Corrosion rates (μ m/a) and corrosivity category as per ISO 9223 with various distances from the sea			So ₂ μ g/m ³	Corrosion rates (μ m/a) and corrosivity category as per ISO 9223 with various distances from the sea			
					500m	1000m	More than 2000m		500m	1000m	More than 2000m	
ATTANAGALLA	1	2750	80	27	10.2	N/A	N/A	1.6 c3	3	N/A	N/A	1.6 c3
BIYAGAMA	2	2750	80	27	26.6	N/A	N/A	1.4 c3	9	N/A	N/A	1.7 c3
DIVULAPITIYA	3	1750	80	27	6.6	N/A	N/A	0.9 c3	2	N/A	N/A	0.8 c3
GAMPAHA	4	2500	80	27	18.4	N/A	N/A	1.3 c3	6	N/A	N/A	1.7 c3
JA-ELA	5	2250	80	27	23.9	N/A	N/A	1.4 c3	8	N/A	N/A	1.3 c3
KATANA	6	2250	80	27	100.7	N/A	N/A	3.0 c4	35	N/A	N/A	1.5 c3
KELANIYA	7	2250	80	27	61.6	N/A	N/A	1.8 c3	21	N/A	N/A	1.3 c3
MAHARA	8	2750	80	27	18.8	N/A	N/A	1.3 c3	6	N/A	N/A	1.7 c3
MINUWANGODA	10	2250	80	27	11.7	N/A	N/A	1.3 c3	4	N/A	N/A	1.2 c3
MIRIGAMA	9	2750	80	27	7.8	N/A	N/A	1.7 c3	3	N/A	N/A	1.6 c3
NEGOMBO	11	1750	80	27	11.5	3.8 c4	1.6 c3	0.9 c3	4	3.6 c4	1.5 c3	0.9 c3
WATTALA	12	2250	80	27	35.7	3.4 c4	2.0 c3	1.4 c3	12	3.4 c4	1.7 c3	1.3 c3
Weke	13	3000	80	27	8.1	N/A	N/A	1.7 c3	3	N/A	N/A	1.6 c3

Corrosion in the district of Kalutara

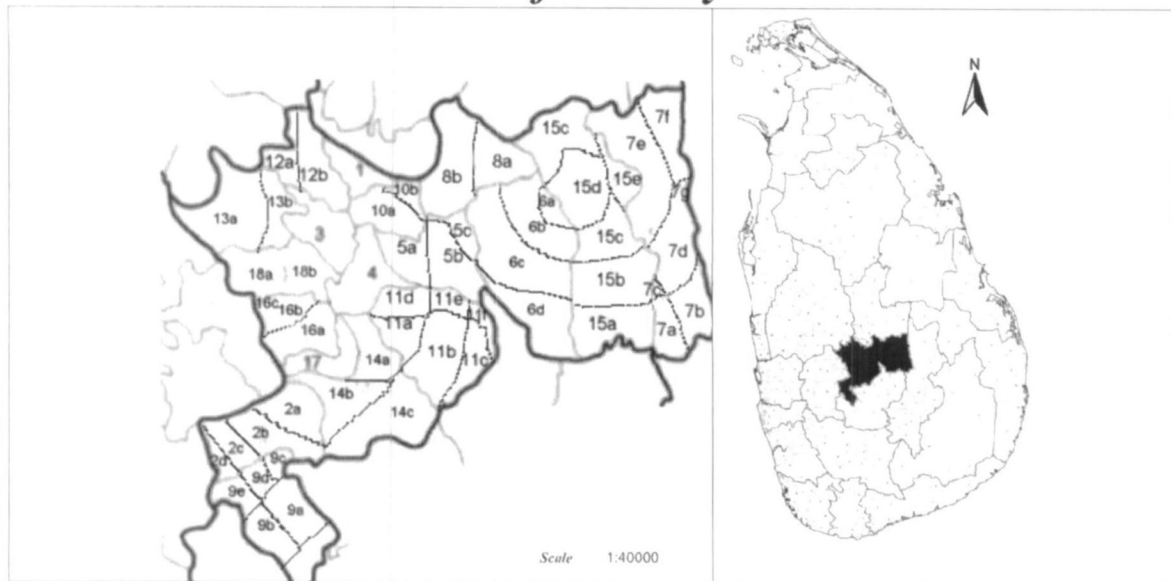


Crowded City

Normal City

Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp °C	So2 μg/m3	Corrosion rates (μ m/a) and corrosivity category as per ISO 9223 with various distances from the sea			So2 μg/m3	Corrosion rates (μ m/a) and corrosivity category as per ISO 9223 with various distances from the sea		
						500m	1000m	More than 2000m		500m	1000m	More than 2000m
AGALAWATTA	1	4250	80	26.3	1.0	N/A	N/A	2.0 c3	0	N/A	N/A	2.0 c3
BANDARAGAMA	2	3000	80	27	10.4	N/A	N/A	1.8 c3	4	N/A	N/A	1.8 c3
BERUWELA	3	3000	80	27	20.2	2.1 c3	1.6 c3	1.3 c3	7	2.6 c4	1.9 c3	1.7 c3
BULATHSINHALA	4	3000	80	27	2.6	N/A	N/A	2.0 c3	1	N/A	N/A	2.0 c3
DODANGODA	5	3000	80	27	5.2	N/A	N/A	1.7 c3	2	N/A	N/A	1.6 c3
HORANA	6	3000	80	27	3.6	N/A	N/A	1.7 c3	1	N/A	N/A	1.6 c3
KALUTARA	7	2900	80	27	18.6	2.1 c3	1.9 c3	1.6 c3	6	2.5 c4	1.9 c3	1.7 c3
MADURAWALA	8	3750	80	26.3	1.7	N/A	N/A	1.7 c3	1	N/A	N/A	1.6 c3
MATHUGAMA	9	4000	80	27	5.5	N/A	N/A	2.0 c3	2	N/A	N/A	2.0 c3
PANADURA	10	3000	80	27	28.9	2.4 c4	1.9 c3	1.4 c3	10	2.3 c4	1.7 c3	1.4 c3
WALALLAWITA	11	3000	80	27	2.4	N/A	N/A	2.0 c3	1	N/A	N/A	2.0 c3

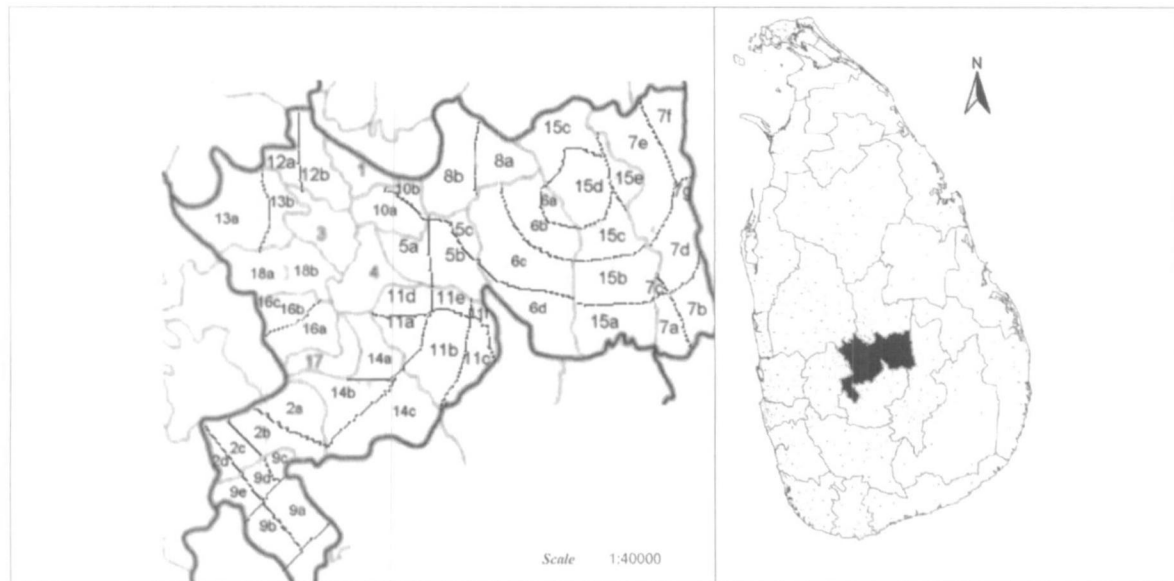
Corrosion in the district of Kandy



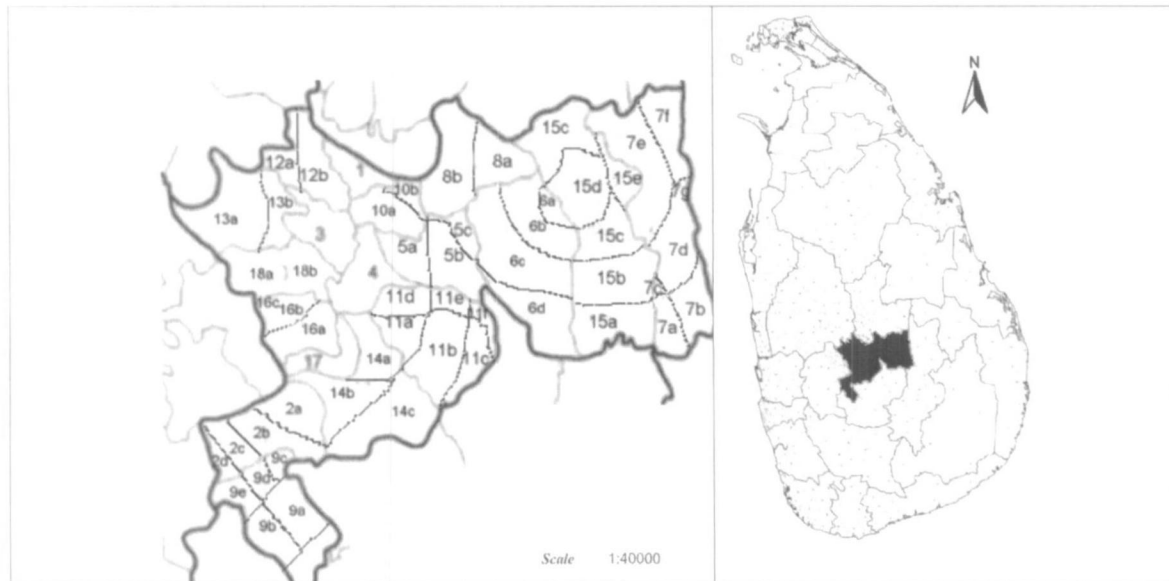
Crowded City

Normal City

Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp °C	So ₂ μg/m ³	Corrosion rates (μm/a) and corrosivity category as per ISO 9223 with various distances from the sea			So ₂ μg/m ³	Corrosion rates (μm/a) and corrosivity category as per ISO 9223 with various distances from the sea		
						500m	1000m	More than 2000m		500m	1000m	More than 2000m
AKURANA	1	1750	80	23.8	14.1	N/A	N/A	1.1 c3	5	N/A	N/A	0.8 c3
GANGAIHALA KORALE	2 a	2250	80	23.8	2.3	N/A	N/A	1.2 c3	1	N/A	N/A	1.2 c3
	2 b	3000	80	23.8	2.3	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3
HARISPATTUWA	3	1750	80	23.8	6.0	N/A	N/A	0.9 c3	2	N/A	N/A	0.8 c3
KUNDASALA	5 a	1750	80	23.8	13.0	N/A	N/A	1.0 c3	4	N/A	N/A	0.8 c3
	5 b	1750	80	21.3	13.0	N/A	N/A	1.0 c3	4	N/A	N/A	0.8 c3
	5 c	2250	80	21.3	13.0	N/A	N/A	1.3 c3	4	N/A	N/A	1.2 c3
MEDADUMBARA	6 a	3250	80	18.8	7.1	N/A	N/A	1.7 c3	2	N/A	N/A	1.6 c3
	6 b	2750	80	18.8	7.1	N/A	N/A	1.7 c3	2	N/A	N/A	1.6 c3
	6 c	2250	80	18.8	7.1	N/A	N/A	1.2 c3	2	N/A	N/A	1.2 c3
	6 d	1750	80	18.8	7.1	N/A	N/A	0.8 c3	2	N/A	N/A	0.8 c3
MINIPE	7 a	1750	80	18.8	2.2	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
	7 b	1750	80	21.3	2.2	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
	7 c	2250	80	18.8	2.2	N/A	N/A	1.2 c3	1	N/A	N/A	1.2 c3
	7 d	2250	80	21.3	2.2	N/A	N/A	1.2 c3	1	N/A	N/A	1.2 c3
	7 e	2750	80	21.3	2.2	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3
	7 f	2750	80	23.8	2.2	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3
	7 g	2250	80	23.8	2.2	N/A	N/A	1.2 c3	1	N/A	N/A	1.2 c3
SATHARA & GANGAWATA	4	1750	80	23.7	25.8	N/A	N/A	1.2 c3	9	N/A	N/A	0.9 c3
PAHATHA HEWAHATA	11 b	2250	0	21.3	3.4	N/A	N/A	1.2 c3	1	N/A	N/A	1.2 c3

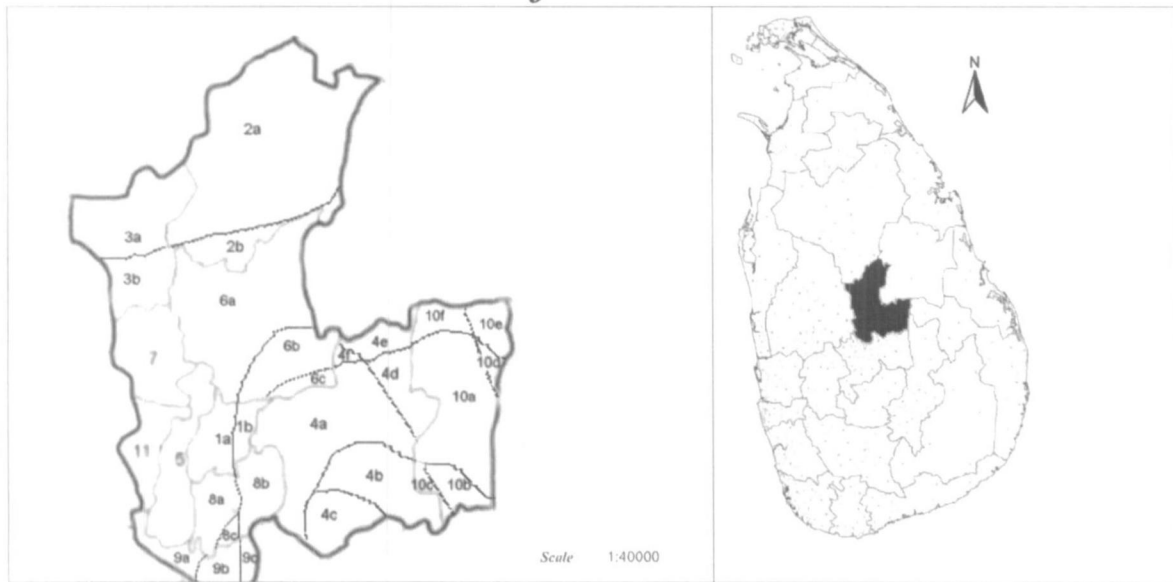


Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp 0C	So2 $\mu\text{g}/\text{m}^3$	Crowded City			Normal City			
						Corrosion rates ($\mu\text{m}/\text{a}$) and corrosivity category as per ISO 9223 with various distances from the sea			Corrosion rates ($\mu\text{m}/\text{a}$) and corrosivity category as per ISO 9223 with various distances from the sea			
						500m	1000m	More than 2000m	500m	1000m	More than 2000m	
	11 c	2250	80	18.8	3.4	N/A	N/A	1.2 c3	1	N/A	N/A	1.2 c3
	11 d	1750	80	23.8	3.4	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
	11 e	1750	80	21.3	3.4	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
	11 f	1750	80	18.8	3.4	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
PAHATHADUMBARA												
	10 a	1750	80	23.8	18.2	N/A	N/A	1.2 c3	6	N/A	N/A	0.9 c3
	10 b	2250	80	23.8	18.2	N/A	N/A	1.4 c3	6	N/A	N/A	1.2 c3
PAHATHAHEWAHATA												
	11 a	2250	80	23.8	3.4	N/A	N/A	1.2 c3	1	N/A	N/A	1.2 c3
PANWILA												
	8 a	2750	80	18.8	2.8	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3
	8 b	2250	80	21.3	2.8	N/A	N/A	1.2 c3	1	N/A	N/A	1.2 c3
PASBAGEKORALA												
	9 a	3750	80	21.3	4.9	N/A	N/A	1.7 c3	2	N/A	N/A	1.6 c3
	9 b	4250	80	21.3	4.9	N/A	N/A	2.5 c4	2	N/A	N/A	2.4 c4
	9 c	3250	80	23.8	4.9	N/A	N/A	1.7 c3	2	N/A	N/A	1.6 c3
	9 d	3750	80	23.8	4.9	N/A	N/A	1.7 c3	2	N/A	N/A	1.6 c3
	9 e	4250	80	23.8	4.9	N/A	N/A	2.5 c4	2	N/A	N/A	2.4 c4
	9 f	4250	80	18.8	4.9	N/A	N/A	1.7 c3	2	N/A	N/A	1.6 c3
	9 g	3750	80	18.8	4.9	N/A	N/A	1.7 c3	2	N/A	N/A	1.6 c3
POOJAPITIYA												
	12 a	1750	80	26.3	3.8	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
	12 b	1750	80	23.8	3.8	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
THUMPANE												
	13 a	2250	80	26.3	3.2	N/A	N/A	1.2 c3	1	N/A	N/A	1.2 c3
	13 b	1750	80	26.3	3.2	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
UDAPALATHA												
	15 a	1750	80	18.8	4.9	N/A	N/A	0.8 c3	2	N/A	N/A	0.8 c3
	15 b	2250	0	18.8	4.9	N/A	N/A	1.2 c3	2	N/A	N/A	1.2 c3
	15 c	2750	0	18.8	4.9	N/A	N/A	1.6 c3	2	N/A	N/A	1.6 c3



Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp 0C	So2 $\mu\text{g}/\text{m}^3$	Crowded City			Normal City			
						Corrosion rates ($\mu\text{m}/\text{a}$) and corrosivity category as per ISO 9223 with various distances from the sea			Corrosion rates ($\mu\text{m}/\text{a}$) and corrosivity category as per ISO 9223 with various distances from the sea			
						500m	1000m	More than 2000m	500m	1000m	More than 2000m	
	15 d	3000	0	18.8	4.9	N/A	N/A	1.7 c3	2	N/A	N/A	1.6 c3
	15 e	2750	0	18.8	4.9	N/A	N/A	1.6 c3	2	N/A	N/A	1.6 c3
	15 f	2750	0	18.8	4.9	N/A	N/A	1.6 c3	2	N/A	N/A	1.6 c3
UDU-DUMBARA												
	14 a	2250	80	23.8	0.8	N/A	N/A	1.2 c3	0	N/A	N/A	1.2 c3
	14 b	2750	0	23.8	0.8	N/A	N/A	1.6 c3	0	N/A	N/A	1.6 c3
	14 c	2750	0	21.3	0.8	N/A	N/A	1.6 c3	0	N/A	N/A	1.6 c3
UDUNUWARA												
	16 a	2250	80	23.8	15.3	N/A	N/A	1.3 c3	5	N/A	N/A	1.2 c3
	16 b	1750	80	23.8	15.3	N/A	N/A	1.1 c3	5	N/A	N/A	0.8 c3
	16 c	1750	80	26.3	15.3	N/A	N/A	1.1 c3	5	N/A	N/A	0.9 c3
WELIGALLA												
	17	2250	80	23.8	14.2	N/A	N/A	1.3 c3	5	N/A	N/A	1.3 c3
YATINUWARA												
	18 a	1750	80	26.3	14.2	N/A	N/A	1.0 c3	5	N/A	N/A	0.9 c3
	18 b	1750	80	23.8	14.2	N/A	N/A	1.0 c3	5	N/A	N/A	0.8 c3

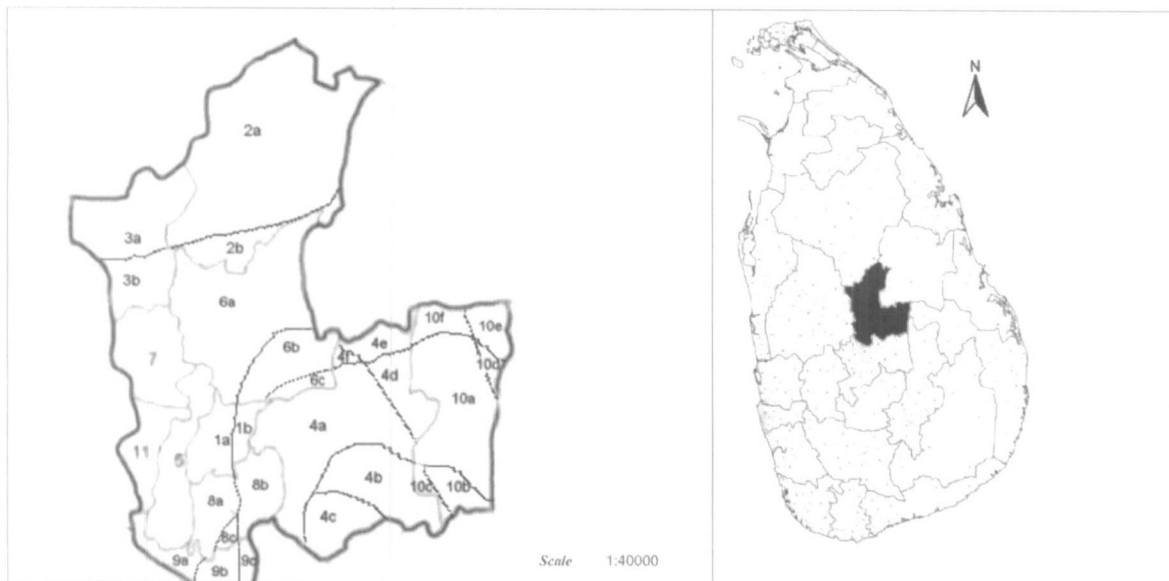
Corrosion in the district of Matale



Crowded City

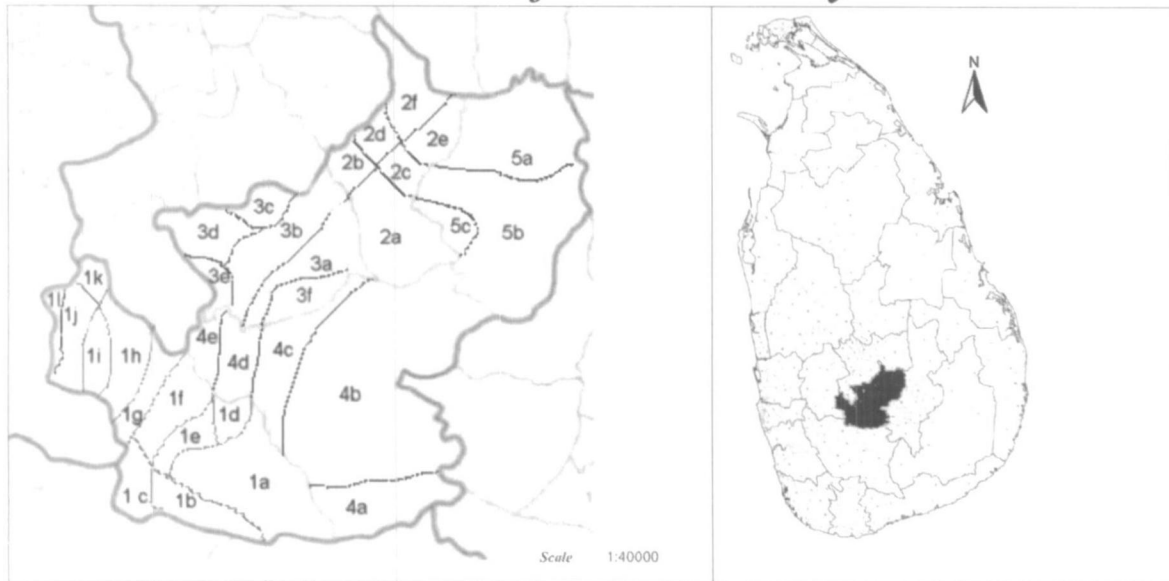
Normal City

Divisional Secretariat Division	Map ID	Rain fall mm	RH	Temp °C	So ₂ μg/m ³	Corrosion rates (μ m/a) and corrosivity category as per ISO 9223 with various distances from the sea			So ₂ μg/m ³	Corrosion rates (μ m/a) and corrosivity category as per ISO 9223 with various distances from the sea		
						500m	1000m	More than 2000m		500m	1000m	More than 2000m
AMBANGANGAKORALE	1 a	1750	80	23.8	3.1	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
	1 b	1750	80	21.3	3.1	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
DAMBULLA	2 a	1250	80	23.8	1.4	N/A	N/A	1.1 c3	0	N/A	N/A	1.0 c3
	2 b	1750	80	23.8	1.4	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3
GALEWELA	3 a	1250	80	23.8	2.4	N/A	N/A	1.0 c3	1	N/A	N/A	1.0 c3
	3 b	1750	80	23.8	2.4	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
LAGGALA	4 a	2250	80	21.3	0.4	N/A	N/A	N/A	0	N/A	N/A	N/A
	4 b	2750	80	21.3	0.4	N/A	N/A	1.2 c3	0	N/A	N/A	1.2 c3
	4 c	2750	80	18.8	0.4	N/A	N/A	1.6 c3	0	N/A	N/A	1.6 c3
	4 d	2250	80	23.8	0.4	N/A	N/A	1.2 c3	0	N/A	N/A	1.2 c3
	4 e	1750	80	23.8	0.4	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3
	4 f	1750	80	21.3	0.4	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3
MATALE	5	1750	80	23.8	4.6	N/A	N/A	0.9 c3	2	N/A	N/A	0.8 c3
NAULA	6 a	1750	80	21.3	0.9	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3
	6 b	1750	80	21.3	0.9	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3
	6 c	2250	80	23.8	0.9	N/A	N/A	1.2 c3	0	N/A	N/A	1.2 c3
PALLEPOLA	7	1750	80	23.8	1.6	N/A	N/A	0.8 c3	1	N/A	N/A	0.7 c2
RATTOTA	8 a	1750	80	23.8	5.8	N/A	N/A	0.9 c3	2	N/A	N/A	0.8 c3
	8 b	2250	80	21.3	5.8	N/A	N/A	1.2 c3	2	N/A	N/A	1.2 c3



Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp 0C	So2 $\mu\text{g}/\text{m}^3$	Crowded City			Normal City				
						Corrosion rates ($\mu\text{m}/\text{a}$) and corrosivity category as per ISO 9223 with various distances from the sea							
						500m	1000m	More than 2000m	500m	1000m	More than 2000m		
	8 c	2250	80	23.8	5.8	N/A	N/A	1.2 c3	2	N/A	N/A	1.2 c3	
University of Moratuwa, Sri Lanka Electronic Thesis & Dissertations www.lib.mrt.ac.lk													
UKUWELA	9 a	1750	80	23.8	10.0	N/A	N/A	0.9 c3	3	N/A	N/A	0.8 c3	
	9 b	2250	80	23.8	10.0	N/A	N/A	1.3 c3	3	N/A	N/A	1.2 c3	
	9 c	2250	80	21.3	10.0	N/A	N/A	1.3 c3	3	N/A	N/A	1.2 c3	
WILGAMUWA	10 a	2250	80	23.8	1.0	N/A	N/A	1.2 c3	0	N/A	N/A	1.2 c3	
	10 b	2750	80	23.8	1.0	N/A	N/A	1.6 c3	0	N/A	N/A	1.6 c3	
	10 c	2750	80	21.3	1.0	N/A	N/A	1.6 c3	0	N/A	N/A	1.6 c3	
	10 d	2250	80	26.3	1.0	N/A	N/A	1.2 c3	0	N/A	N/A	1.2 c3	
	10 e	1750	80	26.3	1.0	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3	
	10 f	1750	80	23.8	1.0	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3	
YATAWATTA	11	1750	80	23.8	2.1	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3	

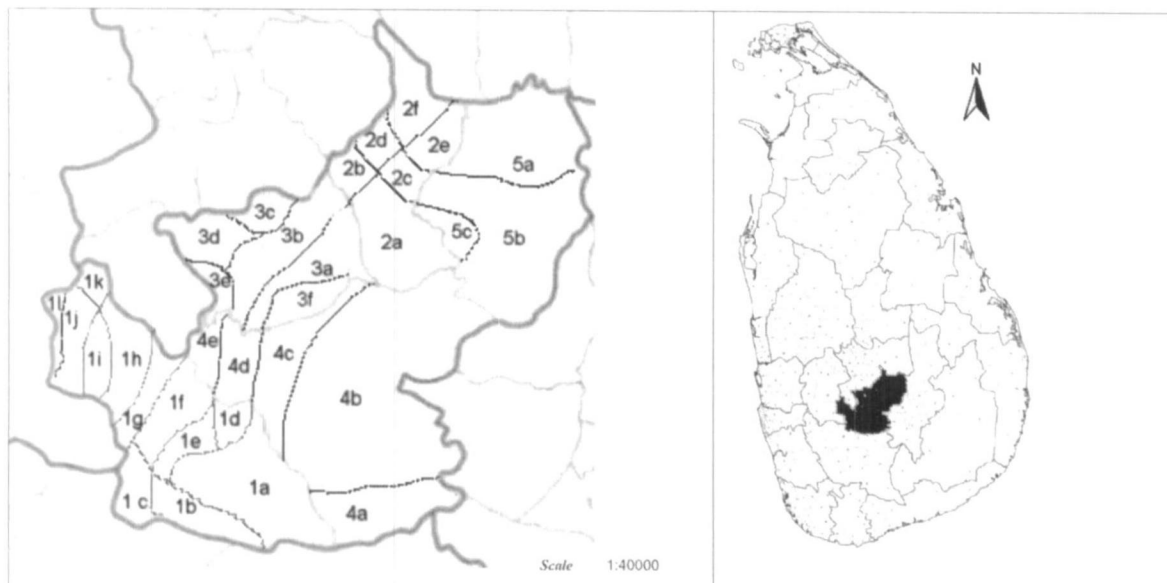
Corrosion in the district of Nuwara Eliya



Crowded City

Normal City

Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp °C	So ₂ μg/m ³	Corrosion rates (μm/a) and corrosivity category as per ISO 9223 with various distances from the sea			So ₂ μg/m ³	Corrosion rates (μm/a) and corrosivity category as per ISO 9223 with various distances from the sea		
						500m	1000m	More than 2000m		500m	1000m	More than 2000m
AMBAGAMUWA												
	1 a	2750	80	17	4.3	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3
	1 b	3250	80	18.8	4.3	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3
	1 c	3750	80	18.8	4.3	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3
	1 d	3250	80	18.8	4.3	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3
	1 e	3250	80	18.8	4.3	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3
	1 f	3750	80	18.8	4.3	N/A	N/A	1.8 c3	1	N/A	N/A	1.8 c3
	1 g	4250	80	18.8	4.3	N/A	N/A	1.8 c3	1	N/A	N/A	1.8 c3
	1 h	4750	80	18.8	4.3	N/A	N/A	1.8 c3	1	N/A	N/A	1.8 c3
	1 i	5000	80	21.3	4.3	N/A	N/A	1.9 c3	1	N/A	N/A	1.9 c3
	1 j	5000	80	23.8	4.3	N/A	N/A	1.9 c3	1	N/A	N/A	1.9 c3
	1 k	4750	80	23.8	4.3	N/A	N/A	1.9 c3	1	N/A	N/A	1.9 c3
	1 l	4750	80	23.8	4.3	N/A	N/A	1.9 c3	1	N/A	N/A	1.9 c3
HANGURANKETHA												
	2 a	2750	80	18.8	3.9	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3
	2 b	2750	80	18.8	3.9	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3
	2 c	2250	80	16.3	3.9	N/A	N/A	1.2 c3	1	N/A	N/A	1.2 c3
	2 d	2250	80	18.8	3.9	N/A	N/A	1.2 c3	1	N/A	N/A	1.2 c3
	2 e	1750	80	16.3	3.9	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
	2 f	1750	80	18.8	3.9	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
KOTMALE												
	3 a	3250	80	16.3	4.6	N/A	N/A	1.6 c3	2	N/A	N/A	1.6 c3
	3 b	3250	80	18.8	4.6	N/A	N/A	1.7 c3	2	N/A	N/A	1.6 c3
	3 c	2750	80	21.3	4.6	N/A	N/A	1.7 c3	2	N/A	N/A	1.6 c3
	3 d	3250	80	21.3	4.6	N/A	N/A	1.7 c3	2	N/A	N/A	1.6 c3
	3 e	3750	80	18.8	4.6	N/A	N/A	1.7 c3	2	N/A	N/A	1.6 c3
	3 f	2750	80	16.3	4.6	N/A	N/A	1.6 c3	2	N/A	N/A	1.6 c3
NUWARA ELIYA												

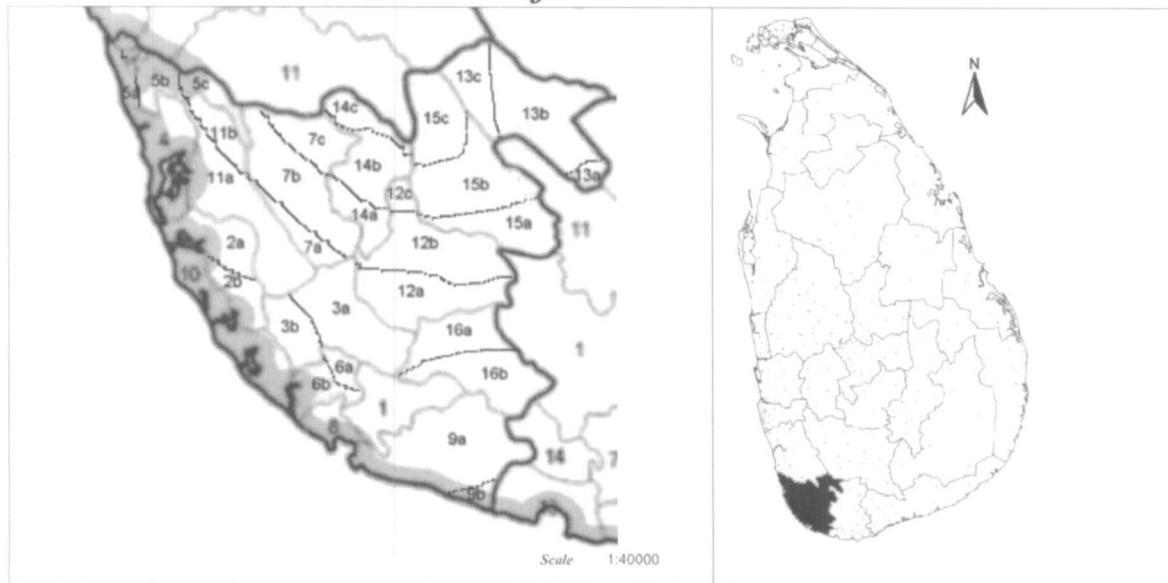


Crowded City

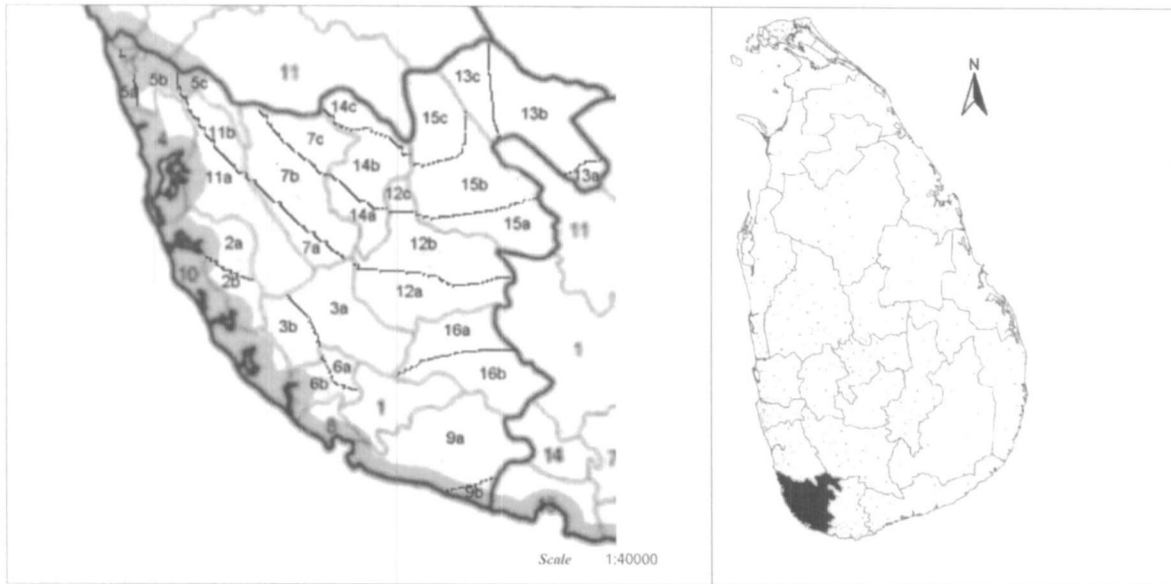
Normal City

Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp 0C	Corrosion rates (μ m/a) and corrosivity category as per ISO 9223 with various distances from the sea			Corrosion rates (μ m/a) and corrosivity category as per ISO 9223 with various distances from the sea				
					So2 μ g/m ³	500m	1000m	More than 2000m	So2 μ g/m ³	500m	1000m	More than 2000m
	4 a	2250	80	18.8	4.4	N/A	N/A	1.2 c3	2	N/A	N/A	1.2 c3
	4 b	2250	80	16.3	4.4	N/A	N/A	1.2 c3	2	N/A	N/A	1.2 c3
	4 c	2750	80	16.3	4.4	N/A	N/A	1.6 c3	2	N/A	N/A	1.6 c3
	4 d	3250	80	16.3	4.4	N/A	N/A	1.6 c3	2	N/A	N/A	1.6 c3
	4 e	3750	80	18.8	4.4	0.0 c1	0.0 c1	1.6 c3	2	0.0 c1	0.0 c1	1.6 c3
WALAPANE												
	5 a	1750	80	16.3	3.6	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
	5 b	2250	80	16.3	3.6	N/A	N/A	1.2 c3	1	N/A	N/A	1.2 c3
	5 c	2750	80	16.3	3.6	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3

Corrosion in the district of Galle



Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp °C	So ₂ μg/m ³	Crowded City			Normal City			
						Corrosion rates (μ m/a) and corrosivity category as per ISO 9223 with various distances from the sea						
						500m	1000m	More than 2000m	500m	1000m	More than 2000m	
AKMEEMANA	1	3000	80	26.3	10.7	N/A	1.8 c3	1.7 c3	4	N/A	1.8 c3	1.7 c3
AMBALANGODA	2 a	3250	80	26.3	9.6	2.5 c4	1.9 c3	1.6 c3	3	2.5 c4	1.8 c3	1.6 c3
	2 b	2750	80	26.3	9.6	2.8 c4	1.8 c3	1.7 c3	3	2.8 c4	1.8 c3	1.6 c3
BADDEGAMA	3 a	2750	80	26.3	6.2	N/A	N/A	1.7 c3	2	N/A	N/A	1.6 c3
	3 b	3250	80	26.3	6.2	N/A	N/A	1.7 c3	2	N/A	N/A	1.6 c3
BALAPITIYA	4	3250	80	26.3	8.9	2.6 c4	1.9 c3	1.7 c3	3	2.5 c4	1.8 c3	1.6 c3
BENTOTA	5 a	2750	80	26.3	6.1	2.8 c4	1.8 c3	1.7 c3	2	2.8 c4	1.8 c3	1.6 c3
	5 b	3250	80	26.3	6.1	2.6 c4	1.8 c3	0.0 c1	2	2.5 c4	1.8 c3	1.6 c1
	5 c	3750		26.3	6.1	N/A	N/A	1.6 c3	2	N/A	N/A	1.6 c3
BOPE-PODDELA	6 b	2750	80	26.3	11.6	2.8 c4	1.8 c3	1.5 c3	4	2.8 c4	1.8 c3	1.5 c3
ELPITIYA	7 a	3250	80	26.3	3.7	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3
	7 b	3750	80	26.3	3.7	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3
	7 c	4250	80	26.3	3.7	N/A	N/A	1.8 c3	1	N/A	N/A	1.8 c3
GALLE	8	2750	80	26.3	47.5	2.8 c4	2.0 c3	1.6 c3	16	2.8 c4	1.7 c3	1.3 c3
HABARADUWA	9 a	2750	80	26.3	6.1	2.8 c4	1.8 c3	1.7 c3	2	2.8 c4	1.8 c3	1.6 c3
	9 b	2250	80	26.3	6.1	2.8 c4	1.7 c3	1.2 c3	2	2.8 c4	1.6 c3	1.2 c3
HIKKADUWA	10	2750	80	26.3	6.0	2.8 c4	1.8 c3	1.7 c3	2	2.8 c4	1.8 c3	1.6 c3
KARANDENIYA												



Crowded City

Normal City

Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp °C	So2 $\mu\text{g}/\text{m}^3$	Corrosion rates ($\mu\text{m}/\text{a}$) and corrosivity category as per ISO 9223 with various distances from the sea			Corrosion rates ($\mu\text{m}/\text{a}$) and corrosivity category as per ISO 9223 with various distances from the sea			
						500m	1000m	More than 2000m	500m	1000m	More than 2000m	
						So2 $\mu\text{g}/\text{m}^3$	So2 $\mu\text{g}/\text{m}^3$	So2 $\mu\text{g}/\text{m}^3$	So2 $\mu\text{g}/\text{m}^3$	So2 $\mu\text{g}/\text{m}^3$	So2 $\mu\text{g}/\text{m}^3$	
NAGODA	11 a	3250	80	26.3	4.2	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3
	11 b	3750	80	26.3	4.2	N/A	N/A	1.6 c3	1	2.5 c4	1.8 c3	1.7 c3
	12 a	3750	80	26.3	3.1	N/A	N/A	1.7 c3	1	N/A	N/A	1.7 c3
NELUWA	12 b	4250	80	26.3	3.1	N/A	N/A	1.8 c3	1	N/A	N/A	1.8 c3
	12 c	4250	80	26.3	3.1	N/A	N/A	1.8 c3	1	N/A	N/A	1.8 c3
	13 b	3250	80	23.8	1.8	N/A	N/A	1.7 c3	1	N/A	N/A	1.7 c3
NIYAGAMA	13 c	4250	80	26.3	1.8	N/A	N/A	1.8 c3	1	N/A	N/A	1.8 c3
	14 b	4250	80	26.3	3.2	N/A	N/A	1.8 c3	1	N/A	N/A	1.8 c3
THAWALAMA	15 b	4250	80	26.3	1.8	N/A	N/A	1.8 c3	1	N/A	N/A	1.8 c3
YAKKALAMULLA	16 a	3750	80	26.3	4.0	N/A	N/A	1.7 c3	1	N/A	N/A	1.7 c3
	16 b	4250	80	26.3	4.0	N/A	N/A	1.8 c3	1	N/A	N/A	1.8 c3

Corrosion in the district of Matara



Crowded City

Normal City

Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp °C	Corrosion rates (μ m/a) and corrosivity category as per ISO 9223 with various distances from the sea			Corrosion rates (μ m/a) and corrosivity category as per ISO 9223 with various distances from the sea				
					500m	1000m	More than 2000m	500m	1000m	More than 2000m		
AKURESSA	1 a	3750	80	26.3	2.4	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3
	1 b	3250	80	26.3	2.4	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3
DEVINUWARA	2	1750	80	26.3	11.7	N/A	N/A	1.0 c3	4	N/A	N/A	0.8 c3
DIKWELLA	3	1750	80	26.3	11.7	3.9 c4	1.6 c3	1.0 c3	4	3.6 c4	1.5 c3	0.8 c3
HAKMANA	4 a	2250	80	26.3	5.9	N/A	N/A	1.2 c3	2	N/A	N/A	1.2 c3
	4 b	1750	80	26.3	5.9	N/A	N/A	0.9 c3	2	N/A	N/A	0.8 c3
KAMBURUPITIYA	5 c	1750	80	26.3	4.1	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
KOTAPOLA	6 a	4250	80	23.8	2.1	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3
	6 b	3750	80	23.8	2.1	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3
MALIMBADA	7 a	2250	80	26.3	7.2	N/A	N/A	1.2 c3	2	N/A	N/A	1.2 c3
	7 b	2750	80	26.3	7.2	N/A	N/A	1.7 c3	2	N/A	N/A	1.6 c3
MATARA	8 a	2250	80	26.3	11.0	3.2 c4	1.7 c3	1.3 c3	4	2.8 c4	1.6 c3	1.2 c3
	8 b	1750	80	26.3	11.0	3.8 c4	1.6 c3	0.9 c3	4	3.6 c4	1.5 c3	0.8 c3
MULATIYANA	9 c	2250	80	26.3	4.1	N/A	N/A	1.2 c3	1	N/A	N/A	1.2 c3
PASGODA	10 c	2750	80	23.8	3.9	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3
PITABEDDARA	11 d	3250	80	23.8	3.0	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3
THIHAGODA												

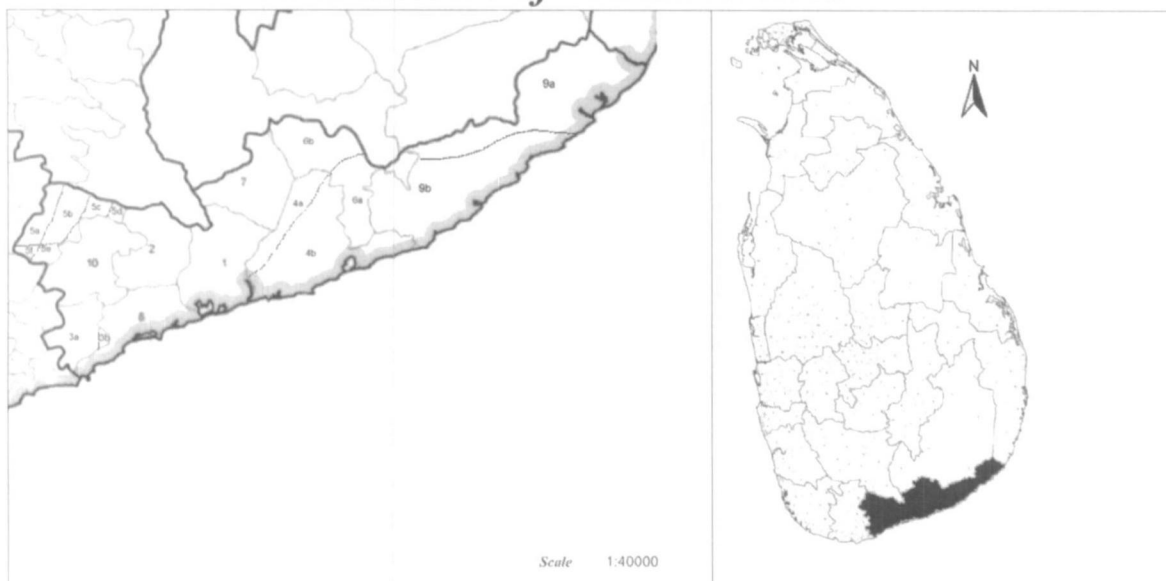


Crowded City

Normal City

Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp °C	So2 $\mu\text{g}/\text{m}^3$	Corrosion rates ($\mu\text{m}/\text{a}$) and corrosivity category as per ISO 9223 with various distances from the sea			So2 $\mu\text{g}/\text{m}^3$	Corrosion rates ($\mu\text{m}/\text{a}$) and corrosivity category as per ISO 9223 with various distances from the sea		
						500m	1000m	More than 2000m		500m	1000m	More than 2000m
	12 a	2250	80	26.3	7.0	N/A	N/A	1.3 c3	2	N/A	N/A	1.3 c3
	12 b	1750	80	26.3	7.0	N/A	N/A	0.9 c3	2	N/A	N/A	0.8 c3
WELIGAMA	18	2250	80	26.3	6.3	2.8 c4	1.7 c3	1.2 c3	2	2.8 c4	1.7 c3	1.2 c3
WELIPITIYA	14 a	2750	80	26.3	10.5	N/A	N/A	1.6 c3	4	N/A	N/A	1.6 c3
	14 b	2250	80	26.3	10.5	N/A	N/A	1.6 c3	4	N/A	N/A	1.2 c3

Corrosion in the district of Hambantota

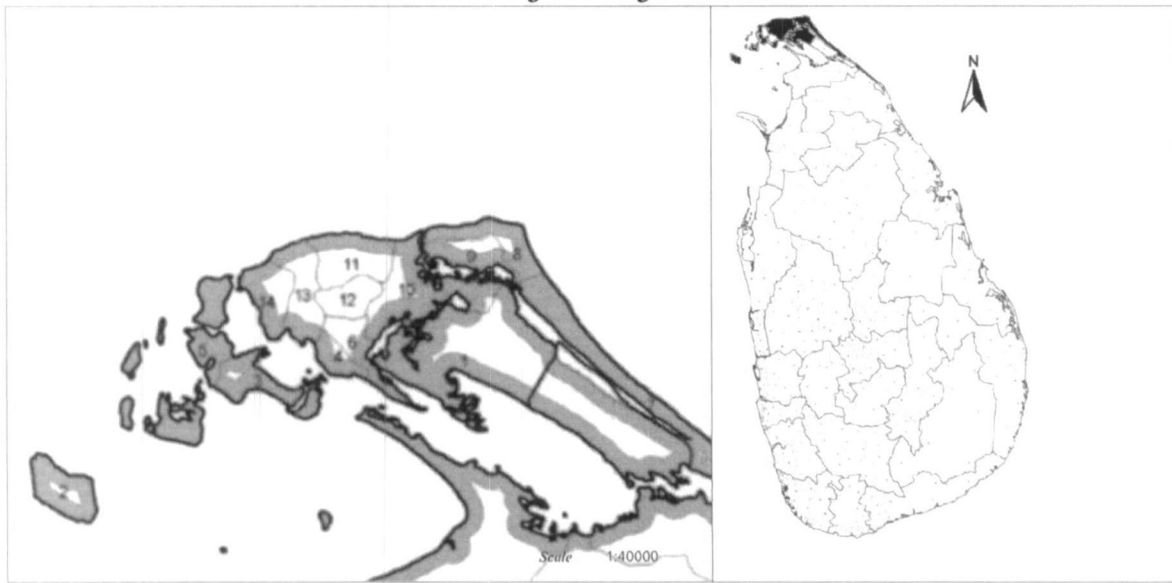


Crowded City

Normal City

Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp °C	Corrosion rates (μ m/a) and corrosivity category as per ISO 9223 with various distances from the sea			Corrosion rates (μ m/a) and corrosivity category as per ISO 9223 with various distances from the sea				
					500m	1000m	More than 2000m	500m	1000m	More than 2000m		
AMBALANTOTA	1	1250	80	26.3	2.8	3.5 c4	3.1 c4	1.1 c3	1	3.5 c4	3.2 c4	1.0 c3
ANGUNAKOLAPALASSA	2	1250	80	26.3	2.5	N/A	N/A	1.0 c3	1	N/A	N/A	1.0 c3
BELIATTA	3 a	1250	80	26.3	5.3	N/A	N/A	1.1 c3	2	N/A	N/A	1.0 c3
	3 b	1750	80	26.3	5.3	N/A	N/A	0.9 c3	2	N/A	N/A	0.8 c3
HAMBANTOTA	4 a	750	80	26.3	1.0	2.5 c4	7.1 c5	1.0 c3	0	2.4 c4	7.1 c5	1.0 c3
	4 b	1250	80	26.3	1.0	3.5 c4	3.1 c4	1.0 c3	0	3.5 c4	3.1 c4	1.0 c3
KATUWENA	5 f	2750	80	26.3	3.9	N/A	N/A	1.7 c3	1	N/A	N/A	1.6 c3
LUNUGAMVEHERA	6 a	1250	80	26.3	1.6	N/A	N/A	1.1 c3	1	N/A	N/A	1.0 c3
	6 b	750	80	26.3	1.6	N/A	N/A	1.0 c3	1	N/A	N/A	1.0 c3
Sooriyawewa	7	1250	80	27.5	1.9	N/A	N/A	1.0 c3	1	N/A	N/A	1.0 c3
TANGALLE	8	1250	80	27.5	4.2	3.5 c4	3.2 c4	1.0 c3	1	3.5 c4	3.2 c4	1.0 c3
TISSAMARAMA	9 a	750	80	27.5	5.2	2.5 c4	7.2 c5	1.1 c3	2	2.5 c4	7.2 c5	1.0 c3
	9 b	1250	80	27.5	5.2	3.6 c4	3.2 c4	1.1 c3	2	3.5 c4	3.2 c4	1.1 c3
WEERAKETIYA	10	1750	80	27.5	2.9	3.6 c4	1.5 c3	0.8 c3	1	3.6 c4	1.5 c3	0.8 c3

Corrosion in the district of Jafna



Crowded City

Normal City

Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp °C	So ₂ μg/m ³			So ₂ μg/m ³	So ₂ μg/m ³			
					500m	1000m	More than 2000m		500m	1000m	More than 2000m	
Island South (Vellnai)	2	1250	80	27.7	4.6	3.6 c ⁴	3.2 c ⁴	1.1 c ³	2	3.5 c ⁴	3.2 c ⁴	1.0 c ³
DELFT	1	1250	80	27.5	1.2	3.5 c ⁴	3.2 c ⁴	1.0 c ³	0	3.5 c ⁴	3.2 c ⁴	1.0 c ³
JAFFNA	3	1250	80	27.5	65.5	4.0 c ⁴	3.1 c ⁴	2.8 c ⁴	22	4.2 c ⁴	1.7 c ³	1.2 c ³
KAYTS	4	1250	80	27.5	7.0	3.6 c ⁴	3.3 c ⁴	1.1 c ³	2	3.5 c ⁴	3.2 c ⁴	1.0 c ³
NALLUR	5	1250	80	27.5	16.9	4.1 c ⁴	3.6 c ⁴	N/A	6	3.6 c ⁴	3.2 c ⁴	N/A
Thenamarachchi	6	1250	80	27.5	3.5	3.5 c ⁴	3.2 c ⁴	1.1 c ³	1	3.5 c ⁴	3.2 c ⁴	1.1 c ³
ADAMARACHCHI - EAST	7	1250	80	27.5	2.8	3.5 c ⁴	3.2 c ⁴	1.1 c ³	1	3.5 c ⁴	3.2 c ⁴	1.1 c ³
CHI NORTH POINT PEDRO	8	1250	80	27.5	2.8	3.5 c ⁴	3.2 c ⁴	1.1 c ³	1	3.5 c ⁴	3.2 c ⁴	1.1 c ³
ARACHCHI SOUTH WEST	9	1250	80	27.5	6.9	3.6 c ⁴	3.3 c ⁴	1.1 c ³	2	3.5 c ⁴	3.2 c ⁴	1.0 c ³
VALIKAMAM EAST	10	1250	80	27.5	7.1	3.6 c ⁴	3.3 c ⁴	1.1 c ³	2	3.5 c ⁴	3.2 c ⁴	1.0 c ³
VALIKAMAM NORTH	11	1250	80	27.5	13.1	4.0 c ⁴	3.8 c ⁴	1.1 c ³	4	3.6 c ⁴	3.2 c ⁴	1.0 c ³
VALIKAMAM SOUTH	12	1250	80	27.5	19.5	N/A	N/A	1.2 c ³	7	N/A	N/A	1.1 c ³
ALIKAMAN SOUTH WEST	13	1250	80	27.5	7.7	3.7 c ⁴	3.3 c ⁴	1.1 c ³	3	3.5 c ⁴	3.2 c ⁴	1.0 c ³
VALOKAMAN WEST	14	1250	80	27.5	10.4	3.8 c ⁴	3.6 c ⁴	1.1 c ³	4	2.6 c ⁴	3.2 c ⁴	1.1 c ³

Corrosion in the district of Mannar



Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp 0C	So2 $\mu\text{g}/\text{m}^3$	Crowded City			So2 $\mu\text{g}/\text{m}^3$	Normal City								
						Corrosion rates ($\mu\text{m/a}$) and corrosivity category as per ISO 9223 with various distances from the sea						Corrosion rates ($\mu\text{m/a}$) and corrosivity category as per ISO 9223 with various distances from the sea						
						500m	1000m	More than 2000m		500m	1000m	More than 2000m						
MADHU	1	1250	80	26.3	0.2	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3						
MANNAR	2 a	750	80	27.5	2.0	2.4 c4	7.1 c5	1.0 c3	1	2.4 c4	7.2 c5	1.0 c3						
	2 b	1250	80	27.5	2.0	3.5 c4	3.2 c4	1.1 c3	1	3.5 c4	3.2 c4	1.0 c3						
MANTHI WEST	3	1250	80	27.5	0.2	3.5 c4	3.2 c4	1.0 c3	0	3.5 c4	3.2 c4	1.0 c3						
MUSALAI	4 a	750	80	27.5	0.3	2.5 c4	7.2 c5	1.0 c3	0	2.5 c4	7.2 c5	1.0 c3						
	4 b	750	80	26.3	0.3	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3						
	4 c	1250	80	26.3	0.3	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3						
	4 d	1250	80	27.5	0.3	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3						
NANATHDAN	5 a	750	80	27.5	0.8	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3						
	5 b	1250	80	27.5	0.8	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3						

Corrosion in the district of Vavuniya



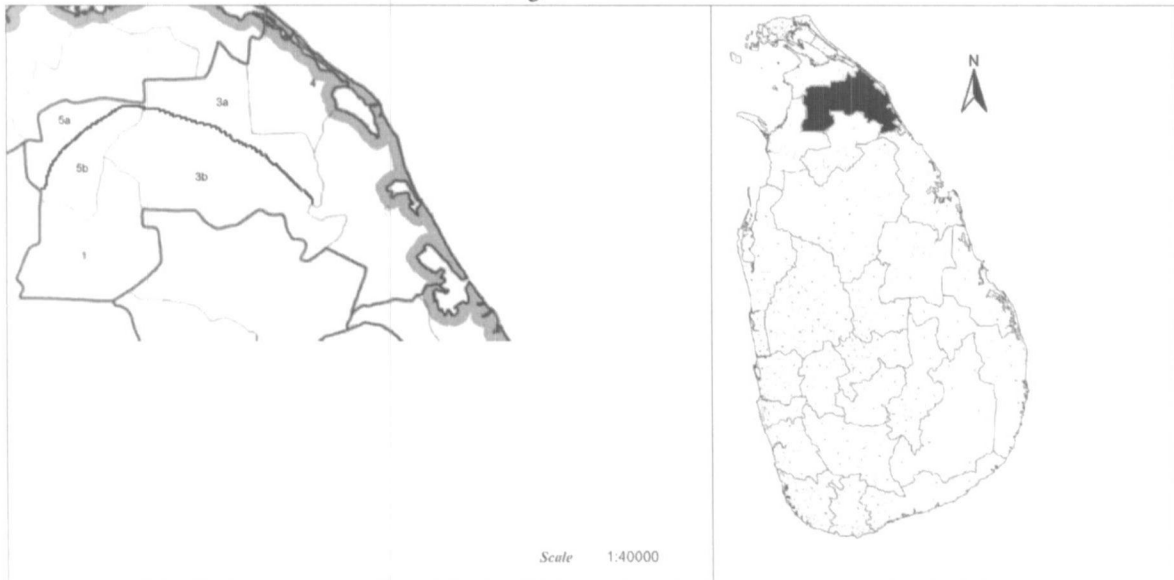
Crowded City

Normal City

Divisional Secretariat Division	Map ID	Rain fall mm	RH	Temp °C	So2 μg/m ³	Corrosion rates (μ m/a) and corrosivity category as per ISO 9223 with various distances from the sea			So2 μg/m ³	Corrosion rates (μ m/a) and corrosivity category as per ISO 9223 with various distances from the sea		
						500m	1000m	More than 2000m		500m	1000m	More than 2000m
VAVUNIA	1	1250	80	26.3	3.5	N/A	N/A	1.0 c3	1	N/A	N/A	1.0 c3
VAVUNIYA NORTH	2	1250	80	26.3	0.2	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3
VAVUNIYA SOUTH	3	1250	80	26.3	0.1	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3
ENGALACHEDDIKULAM	4	1250	80	26.3	0.5	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3



Corrosion in the district of Mullaitivu



Crowded City

Normal City

Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp °C	So2 $\mu\text{g}/\text{m}^3$	Corrosion rates ($\mu\text{m}/\text{a}$) and corrosivity category as per ISO 9223 with various distances from the sea			So2 $\mu\text{g}/\text{m}^3$	Corrosion rates ($\mu\text{m}/\text{a}$) and corrosivity category as per ISO 9223 with various distances from the sea		
						500m	1000m	More than 2000m		500m	1000m	More than 2000m
MANTHAI EAST	1	1250	80	26.3	0.1	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3
MARITIMEPATTU	2	1250	80	27.5	0.4	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3
ODDUSUDAN	3 a	1250	80	26.3	0.3	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3
	3 b	1250	80	27.5	0.3	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3
PUTHUKUDIRIPPU	4	1250	80	27.5	0.3	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3
THANUKKAI	5 a	1250	80	26.3	0.2	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3
	5 b	1250	80	26.3	0.2	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3

Corrosion in the district of Kilinochchi



Crowded City

Normal City

Divisional Secretariat Division	Map ID	Rain fall mm	RH	Temp °C	Corrosion rates (μ m/a) and corrosivity category as per ISO 9223 with various distances from the sea			So2 μ g/m ³	Corrosion rates (μ m/a) and corrosivity category as per ISO 9223 with various distances from the sea			
					500m	1000m	More than 2000m		500m	1000m	More than 2000m	
Karachchi	1	1250	80	27.5	1.1	3.5 c4	3.1 c4	1.0 c3	0	3.5 c4	3.1 c4	1.0 c3
KILLINOCHCHI	2	1250	80	27.5	1.1	3.5 c4	3.1 c4	1.0 c3	0	3.5 c4	3.1 c4	1.0 c3
PACHCHILEIPALLEI	3	1250	80	27.5	1.2	3.5 c4	3.1 c4	1.0 c3	0	3.5 c4	3.1 c4	1.0 c3
PUNAKARI	4	1250	80	27.5	0.1	3.5 c4	3.1 c4	1.0 c3	0	3.5 c4	3.1 c4	1.0 c3

Corrosion in the district of Batticaloa

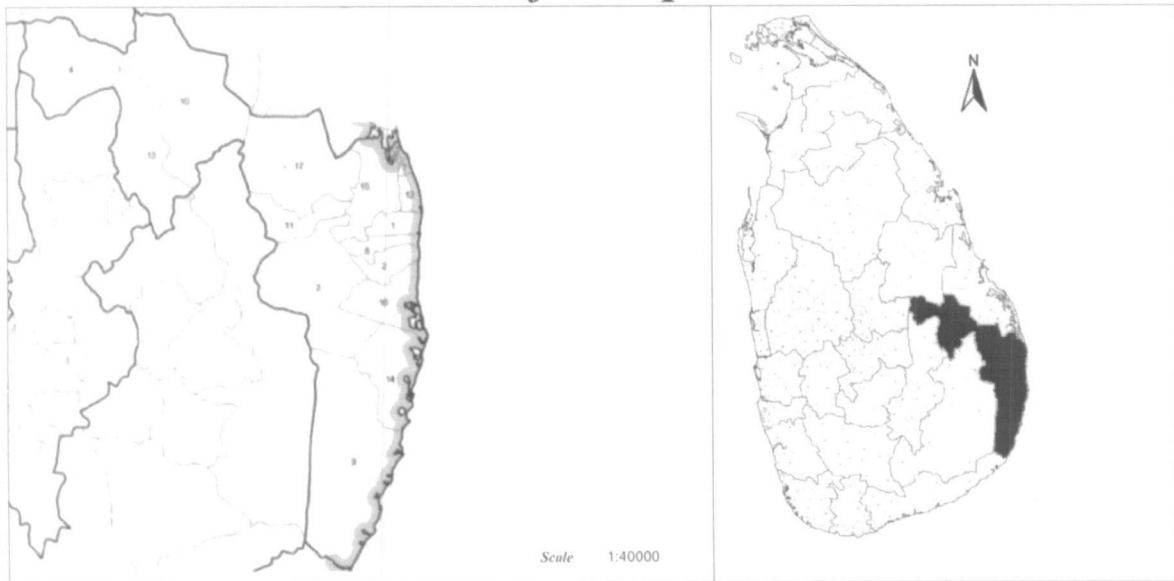


Crowded City

Normal City

Divisional Secretariat Division	Map ID	Rain fall mm	RH	Temp °C	Corrosion rates (μ m/a) and corrosivity category as per ISO 9223 with various distances from the sea			So2 μ g/m ³	Corrosion rates (μ m/a) and corrosivity category as per ISO 9223 with various distances from the sea			
					500m	1000m	More than 2000m		500m	1000m	More than 2000m	
BATTICALOA												
	10	1750	80	26.3	2.6	3.5 c ⁴	1.5 c ³	0.8 c ³	1	3.5 c ⁴	1.5 c ³	0.8 c ³
ERAVUR TOWN												
	1	1250	80	27.5	4.0	3.5 c ⁴	3.1 c ⁴	1.0 c ³	1	3.5 c ⁴	3.1 c ⁴	1.0 c ³
ERAVURPATTU												
	2	1250	80	26.3	0.8	N/A	N/A	1.0 c ³	0	N/A	N/A	1.0 c ³
KATHANKUDI												
	3	1750	80	27.5	3.5	3.6 c ⁴	1.5 c ³	0.8 c ³	1	3.6 c ⁴	1.5 c ³	0.8 c ³
KORALEPATHTHU WEST												
	5	1750	80	27.5	1.3	2.5 c ⁴	1.5 c ³	0.8 c ³	0	2.5 c ⁴	1.5 c ³	0.8 c ³
KORALEPATTU												
	4	1750	80	27	0.9	2.5 c ⁴	1.5 c ³	0.8 c ³	0	2.5 c ⁴	1.5 c ³	0.8 c ³
KORALEPATTU NORTH												
	6	1750	80	27	0.3	2.5 c ⁴	1.5 c ³	0.8 c ³	0	2.5 c ⁴	1.5 c ³	0.8 c ³
MAANMUNAI												
	7	1750	80	26.3	1.3	3.5 c ⁴	1.5 c ³	0.8 c ³	0	3.5 c ⁴	1.5 c ³	0.8 c ³
NAI SOUTH ERUVILPATT												
	11	1750	80	26.3	10.5	N/A	N/A	1.1 c ³	4	N/A	N/A	0.8 c ³
MAANMUNAI SOUTH WEST												
	8	1750	80	27.5	0.0	3.5 c ⁴	1.5 c ³	0.8 c ³	0	3.5 c ⁴	1.5 c ³	0.8 c ³
MAANMUNAI WEST												
	9	1750	80	26.3	0.7	3.5 c ⁴	1.5 c ³	0.8 c ³	0	3.5 c ⁴	1.5 c ³	0.8 c ³
PORATHIVUPATTU												
	12	1750	80	26.3	1.7	N/A	N/A	0.8 c ³	1	N/A	N/A	0.8 c ³

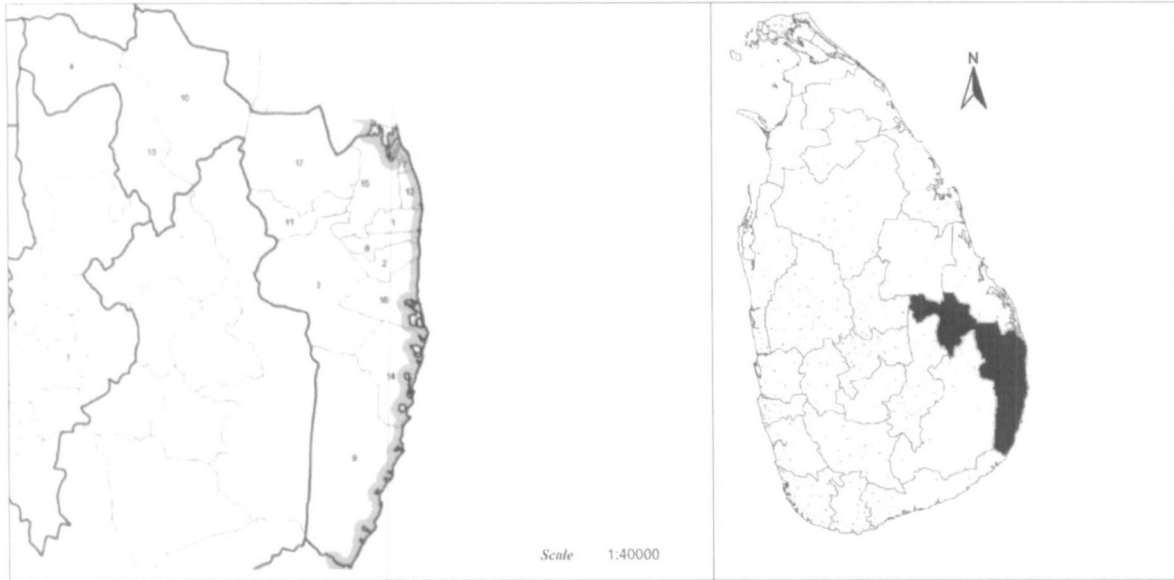
Corrosion in the district of Ampara



Crowded City

Normal City

Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp 0C	So2 $\mu\text{g}/\text{m}^3$	Corrosion rates ($\mu\text{m}/\text{a}$) and corrosivity category as per ISO 9223 with various distances from the sea			So2 $\mu\text{g}/\text{m}^3$	Corrosion rates ($\mu\text{m}/\text{a}$) and corrosivity category as per ISO 9223 with various distances from the sea		
						500m	1000m	More than 2000m		500m	1000m	More than 2000m
AALAYADIWEMBU	3	1750	80	26.3	0.3	N/A	N/A	N/A	0	N/A	N/A	N/A
ADDALACHENA	1	1500	80	26.3	6.5	N/A	N/A	1.0 c3	2	N/A	N/A	0.9 c3
AKKARAI PATTU	2	1750	80	26.3	1.3	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3
AMPARA TOWN	4	1750	80	26.3	2.6	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
DAMANA	5	1750	80	26.3	1.7	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
DEHIATTAKANDIYA	6	1750	80	26.3	1.7	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
KALMUNAI	7	1250	80	26.3	2.0	N/A	N/A	1.1 c3	1	N/A	N/A	1.1 c3
KALMUNAI TAMIL DIVISION	8	1750	80	26.3	1.3	0.0 c1	0.0 c1	0.8 c3	0	0.0 c1	0.0 c1	0.8 c3
KARATHIVU	9	1750	80	26.3	1.3	0.0 c1	0.0 c1	0.8 c3	0	0.0 c1	0.0 c1	0.8 c3
LAHUGALA	10	1750	80	26.3	0.1	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3
MAHA OYA	11	1750	80	26.3	0.3	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3
NAAMAL OYA						N/A	N/A	N/A		N/A	N/A	N/A
NINDAVURPATTU	12	1250	80	26.3	5.8	N/A	N/A	1.1 c3	2	N/A	N/A	1.0 c3
PADIYATHALAWA	13	1750	80	26.3	0.2	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3



Crowded City

Normal City

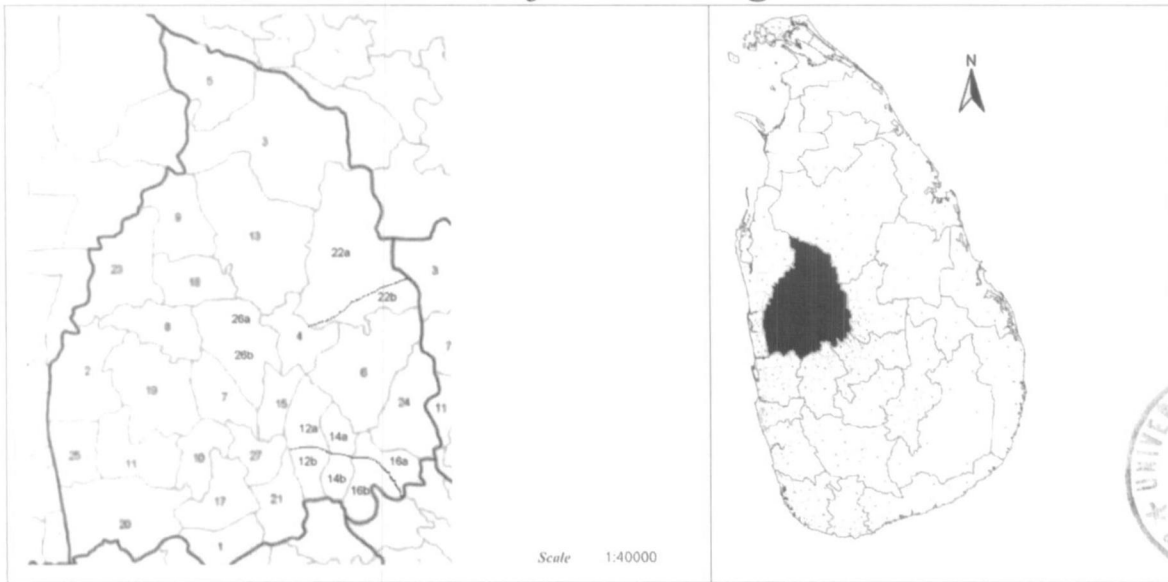
Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp 0C	So2 $\mu\text{g}/\text{m}^3$	Corrosion rates ($\mu\text{m/a}$) and corrosivity category as per ISO 9223 with various distances from the sea			So2 $\mu\text{g}/\text{m}^3$	Corrosion rates ($\mu\text{m/a}$) and corrosivity category as per ISO 9223 with various distances from the sea		
						500m	1000m	More than 2000m		500m	1000m	More than 2000m
<i>POTTUVIL</i>												
	14	1250	80	26.3	1.1	N/A	N/A	0.8 c3	0	N/A	N/A	1.1 c3
<i>SAMMANTHURAI</i>												
	15	1750	80	26.3	2.1	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
<i>THAARUNKODITHIVU</i>												
						N/A	N/A	N/A		N/A	N/A	N/A
<i>THIRUKKOVIL</i>												
	16	1750	80	26.3	1.3	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3
<i>UHANA</i>												
	17	1750	80	26.3	0.8	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3

Corrosion in the district of Trincomalee



Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp °C	So ₂ μg/m ³	Crowded City			So ₂ μg/m ³	Normal City		
						Corrosion rates (μ m/a) and corrosivity category as per ISO 9223 with various distances from the sea				Corrosion rates (μ m/a) and corrosivity category as per ISO 9223 with various distances from the sea		
						500m	1000m	More than 2000m		500m	1000m	More than 2000m
GOMARANKADAWELA	1	1700	80	27	0.1	N/A	N/A	0.9 c3	0	N/A	N/A	0.9 c3
KANTALAE	2	1500	80	26.3	0.9	N/A	N/A	0.9 c3	0	N/A	N/A	0.9 c3
KINNIYA	3	1250	80	27.5	3.7	N/A	N/A	1.0 c3	1	N/A	N/A	1.0 c3
KUCHCHEVELI	4	1750	80	27.5	0.7	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3
MORAWEA	5	1500	80	27	0.2	N/A	N/A	0.9 c3	0	N/A	N/A	0.9 c3
MUTTUR	6	1250	80	27.5	2.0	N/A	N/A	1.0 c3	1	N/A	N/A	1.0 c3
PADAVIYA SRIPURA	7	1500	80	27.5	0.9	N/A	N/A	0.9 c3	0	N/A	N/A	0.9 c3
SERUWILA	8	1750	80	27.5	0.2	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3
THAMBALAGAMUWA	9	1250	80	26.3	0.9	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3
TRINCOMALEE TOWN	10	1750	80	27.5	5.5	N/A	N/A	0.9 c3	2	N/A	N/A	0.8 c3
VERUGAL	11	1250	80	26.3	1.7	N/A	N/A	1.2 c3	1	N/A	N/A	1.2 c3

Corrosion in the district of Kurunegala



Crowded City

Normal City

Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp °C	So2 µg/m3	Corrosion rates (µm/a) and corrosivity category as per ISO 9223 with various distances from the sea			So2 µg/m3	Corrosion rates (µm/a) and corrosivity category as per ISO 9223 with various distances from the sea		
						500m	1000m	More than 2000m		500m	1000m	More than 2000m
ALAWWA	1	1750	80	26.3	2.5	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
BINGIRIYA	2	1500	80	26.3	1.7	N/A	N/A	0.9 c3	1	N/A	N/A	0.8 c3
GALGAMUWA	3	1250	80	26.3	0.9	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3
GANEWATTA	4	1750	80	26.3	0.9	0.0 c1	0.0 c1	0.8 c3	0	0.0 c1	0.0 c1	0.8 c3
GIRIBAWA	5	1750	80	26.3	1.5	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
IBBAGAMUWA	7	1750	80	26.3	2.2	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
KATUPOTHA	7	1750	80	26.3	2.2	0.0 c1	0.0 c1	0.8 c3	1	0.0 c1	0.0 c1	0.8 c3
KOBEIGANE	8	1250	80	26.3	2.5	N/A	N/A	1.0 c3	1	N/A	N/A	1.0 c3
KOTAWEHERA	9	1250	80	26.3	2.5	N/A	N/A	1.0 c3	1	N/A	N/A	1.0 c3
KULIYAPITIYA EAST	10	1750	80	26.3	2.5	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
KULIYAPITIYA-WEST	11	1750	80	26.3	2.5	N/A	N/A	0.8 c3	1	N/A	N/A	1.0 c3
KURUNEGALA	12 a	1750	80	26.3	3.8	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
	12 b	2250	80	26.3	3.8	N/A	N/A	1.2 c3	1	N/A	N/A	1.2 c3
MAHO	13	1250	80	26.3	1.3	N/A	N/A	1.2 c3	0	N/A	N/A	1.2 c3
MALLAWAPITIYA												

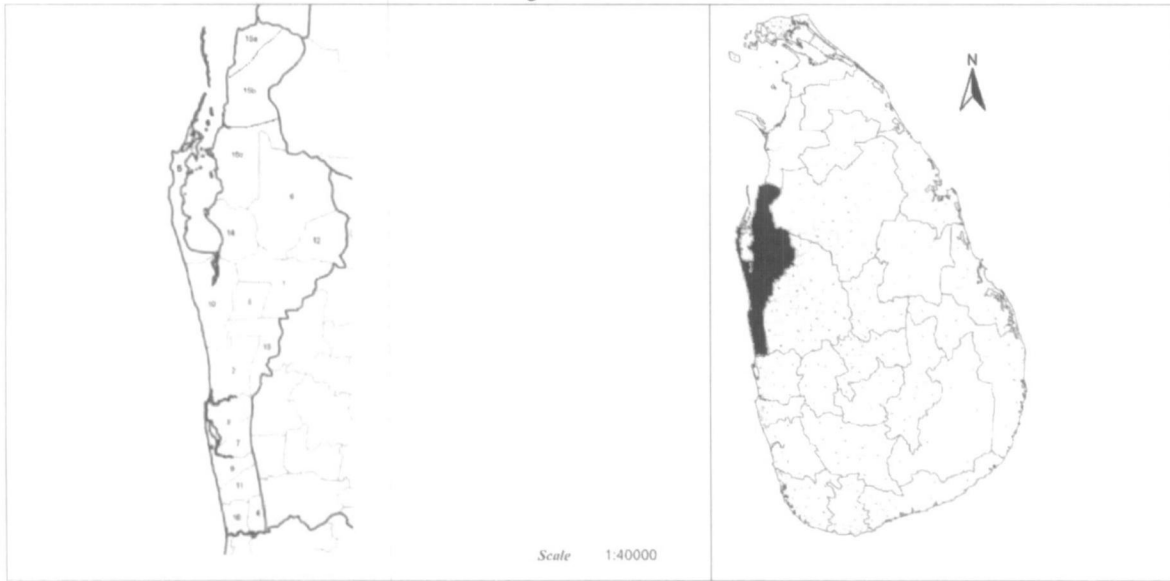


Crowded City

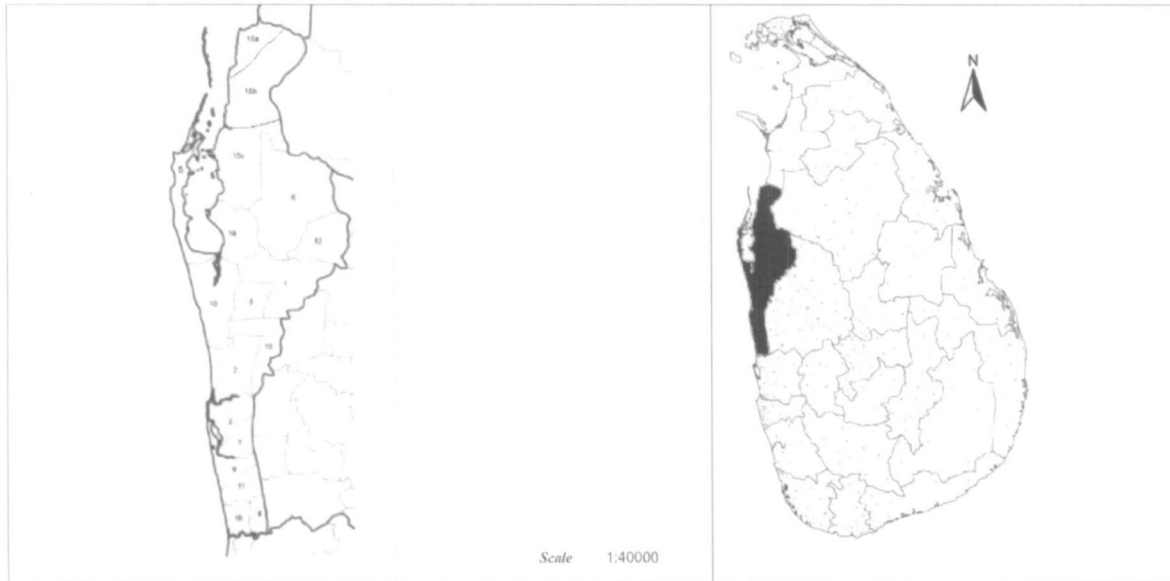
Normal City

Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp 0C	So2 $\mu\text{g}/\text{m}^3$	Corrosion rates ($\mu\text{m}/\text{a}$) and corrosivity category as per ISO 9223 with various distances from the sea			So2 $\mu\text{g}/\text{m}^3$	Corrosion rates ($\mu\text{m}/\text{a}$) and corrosivity category as per ISO 9223 with various distances from the sea		
						500m	1000m	More than 2000m		500m	1000m	More than 2000m
	14 b	2250	80	26.3	1.3	N/A	N/A	1.2 c3	0	N/A	N/A	1.2 c3
MAWATTAGAMA	16 a	1750	80	26.3	5.4	N/A	N/A	0.8 c3	2	N/A	N/A	0.8 c3
	16 b	2250	80	26.3	5.4	N/A	N/A	1.2 c3	2	N/A	N/A	1.2 c3
NIKAWERATIYA	18	1250	80	26.3	0.8	N/A	N/A	1.1 c3	0	N/A	N/A	1.0 c3
PANDUWASNUWARA	19	1750	80	26.3	2.6	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
PANNALA	20	1750	80	26.3	4.2	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
POLGAHAWELA	21	2250	80	26.3	3.1	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
POLPITIGAMA	22 a	1250	80	26.3	1.7	N/A	N/A	1.0 c3	1	N/A	N/A	1.0 c3
	22 b	1750	80	26.3	2.5	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
RIDIGAMA	24	1750	80	26.3	3.9	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
UDABADDAWA	25	1750	80	26.3	1.7	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
WARIYAPOLA	26 a	1250	80	26.3	3.4	N/A	N/A	1.1 c3	1	N/A	N/A	1.0 c3
	26 b	1750	80	26.3	1.9	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
WEERAMBUGEDARA	27	2000	80	26.3	1.3	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3

Corrosion in the district of Puttalam



Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp °C	So ₂ μg/m ³	Crowded City			So ₂ μg/m ³	Normal City		
						Corrosion rates (μ m/a) and corrosivity category as per ISO 9223 with various distances from the sea				Corrosion rates (μ m/a) and corrosivity category as per ISO 9223 with various distances from the sea		
						500m	1000m	More than 2000m		500m	1000m	More than 2000m
ANAMADUWA	1	1250	80	26.3	1.3	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3
ARACHCHIKATTUWA	2	1250	80	26.3	2.2	3.5 c4	3.1 c4	1.0 c3	1	3.5 c4	3.1 c4	1.0 c3
CHILAW	3	1250	80	26.3	2.5	3.5 c4	3.1 c4	1.0 c3	1	3.5 c4	3.1 c4	1.0 c3
KALPITIYA	5	1250	80	26.3	1.7	3.5 c4	3.1 c4	1.0 c3	1	3.5 c4	3.1 c4	1.0 c3
KARUWEELAGAS WEWA	6	1250	80	26.3	0.3	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3
MADAMPE	7	1750	80	26.3	1.7	3.6 c4	1.5 c3	0.8 c3	1	3.6 c4	1.5 c3	0.8 c3
HAKUMBUKKADUWELA	8	1250	80	26.3	1.7	N/A	N/A	1.0 c3	1	N/A	N/A	1.0 c3
MANDEL	10	1250	80	26.3	1.7	3.5 c4	3.1 c4	1.0 c3	1	3.5 c4	3.1 c4	1.0 c3
NATHTHANDIYA	11	1750	80	26.3	3.6	3.6 c4	1.5 c3	0.8 c3	1	3.6 c4	1.5 c3	0.8 c3
NAWAGATHEGAMA	12	1250	80	26.3	0.8	N/A	N/A	N/A	0	N/A	N/A	N/A
PALLAMA	13	1250	80	26.3	1.3	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3
PUTTALAM	14	1250	80	26.3	1.4	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3
WANATHAWILLUWA	15 a	750	80	27.5	1.2	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3
	15 b	1250	80	26.3	1.2	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3

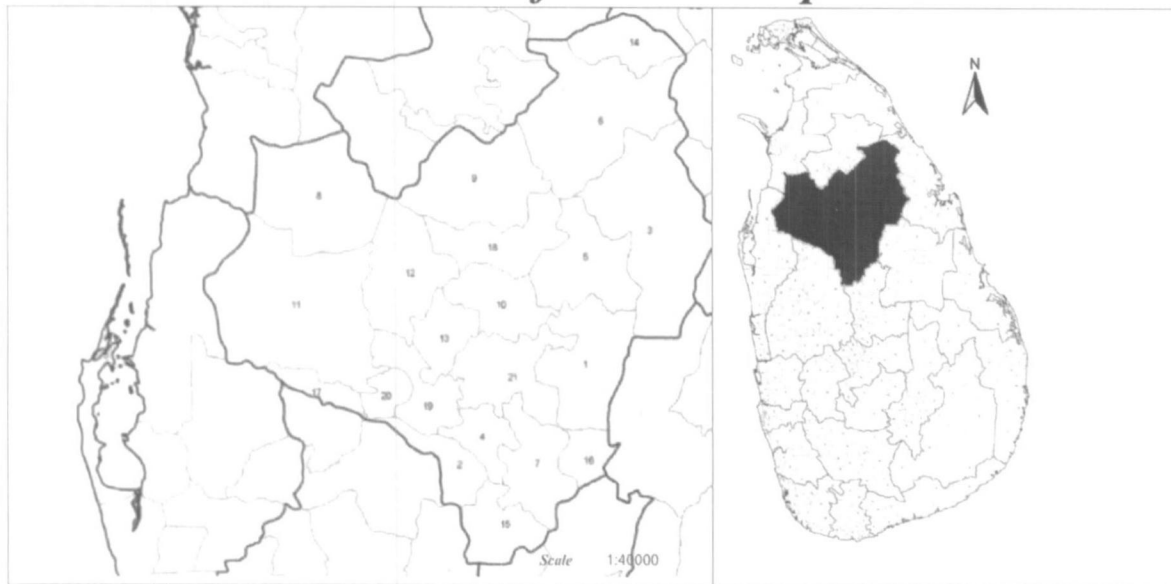


Crowded City

Normal City

Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp 0C	Corrosion rates (μ m/a) and corrosivity category as per ISO 9223 with various distances from the sea			Corrosion rates (μ m/a) and corrosivity category as per ISO 9223 with various distances from the sea				
					So2 μ g/m ³	500m	1000m	More than 2000m	So2 μ g/m ³	500m	1000m	More than 2000m
	15 c	1250	80	26.3	1.2	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3
WENAPPUWA	16	1750	80	26.3	3.5	3.6 c4	1.5 c3	0.8 c3	1	3.6 c4	1.5 c3	0.8 c3

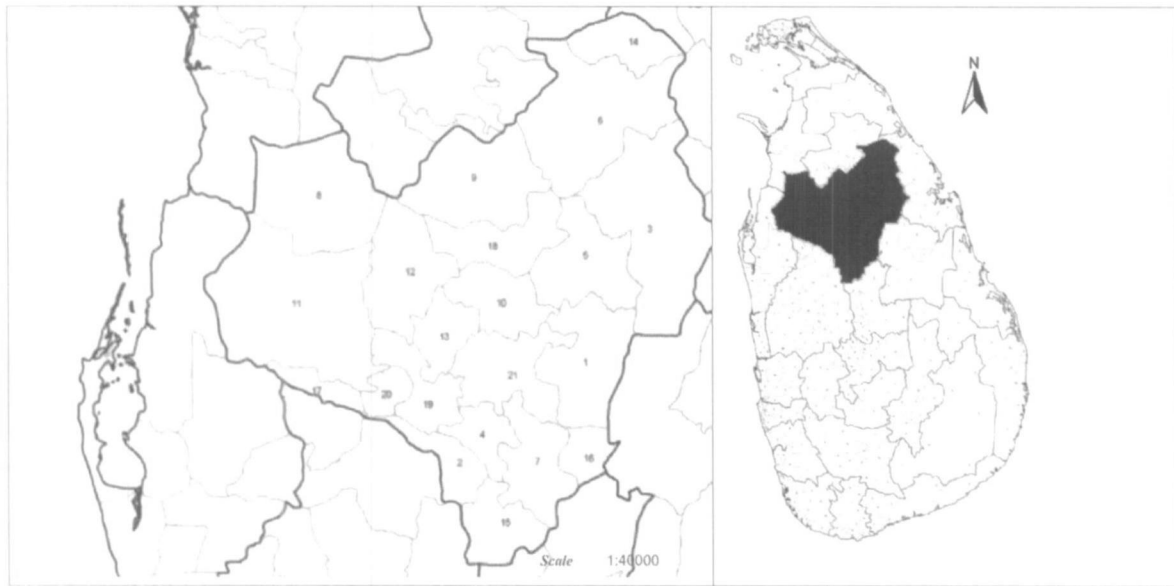
Corrosion in the district of Anuradhapura



Crowded City

Normal City

Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp °C	So ₂ μg/m ³	Corrosion rates (μm/a) and corrosivity category as per ISO 9223 with various distances from the sea			So ₂ μg/m ³	Corrosion rates (μm/a) and corrosivity category as per ISO 9223 with various distances from the sea		
						500m	1000m	More than 2000m		500m	1000m	More than 2000m
GALENBINDUNUWEWA	1 a	1250	80	26.3	1.6	N/A	N/A	1.0 c3	1	N/A	N/A	1.0 c3
	1 b	1250	80	23.8	1.6	N/A	N/A	1.0 c3	1	N/A	N/A	1.0 c3
GALNEWA	2	1250	80	26.3	1.7	N/A	N/A	1.0 c3	1	N/A	N/A	1.0 c3
HOROVPATHANA	3	1250	80	26.3	0.3	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3
IPALOGAMA	4	1250	80	26.3	2.3	N/A	N/A	1.0 c3	1	N/A	N/A	1.0 c3
KABITHIGOLLAWA	6	1500	80	26.3	0.4	N/A	N/A	0.9 c3	0	N/A	N/A	0.9 c3
KAHATAGASDIGILIYA	5	1250	80	26.3	0.7	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3
KEKIRAWA	7	1250	80	26.3	1.9	N/A	N/A	1.0 c3	1	N/A	N/A	1.0 c3
MADAWACHCHIYA	9	1250	80	26.3	0.8	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3
MAHALIADHACHCHIYA	8	1200	80	26.3	0.8	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3
MIHINTALE	10	1250	80	26.3	0.9	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3
NOCHCHIYAGAMA	11	1200	80	26.3	0.4	N/A	N/A	0.9 c3	0	N/A	N/A	0.9 c3
GAMPALATHA-CENTRAL	12	1250	80	26.3	1.4	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3
GAMPALATHA-EASTERN	13	1250	80	26.3	1.4	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3
PADAVIYA												

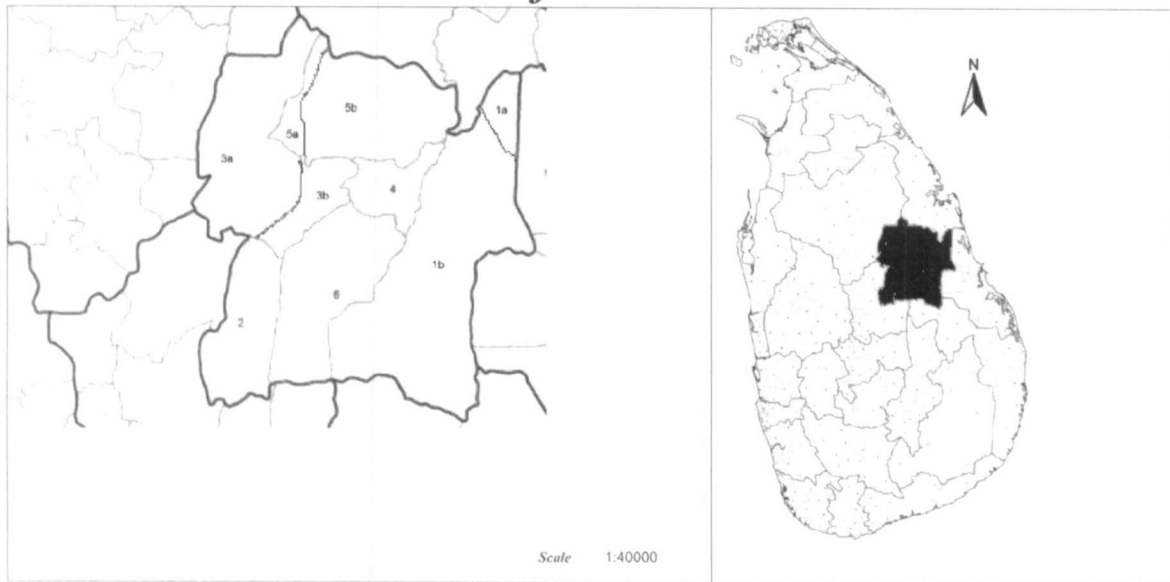


Crowded City

Normal City

Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp 0C	So2 $\mu\text{g}/\text{m}^3$	Corrosion rates ($\mu\text{m/a}$) and corrosivity category as per ISO 9223 with various distances from the sea			So2 $\mu\text{g}/\text{m}^3$	Corrosion rates ($\mu\text{m/a}$) and corrosivity category as per ISO 9223 with various distances from the sea		
						500m	1000m	More than 2000m		500m	1000m	More than 2000m
	14	1500	80	26.3	0.8	N/A	N/A	0.9 c3	0	N/A	N/A	0.9 c3
PALAGALA	15	1500	80	26.3	1.8	N/A	N/A	0.9 c3	1	N/A	N/A	0.9 c3
PALUGASWEWA	16	1250	80	26.3	1.7	N/A	N/A	1.0 c3	1	N/A	N/A	1.0 c3
RAJANGANAYA	17	1250	80	26.3	3.0	N/A	N/A	1.0 c3	1	N/A	N/A	1.0 c3
RAMBEWA	18	1250	80	26.3	1.1	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3
THALAWA	19	1250	80	26.3	2.2	N/A	N/A	1.0 c3	1	N/A	N/A	1.0 c3
THAMBUTHHEGAMA	20	1250	80	26.3	0.8	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3
THIRAPPANE	21	1250	80	26.3	0.9	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3

Corrosion in the district of Polonnaruwa



Crowded City

Normal City

Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp 0C	So2 $\mu g/m^3$	Corrosion rates ($\mu m/a$) and corrosivity category as per ISO 9223 with various distances from the sea			So2 $\mu g/m^3$	Corrosion rates ($\mu m/a$) and corrosivity category as per ISO 9223 with various distances from the sea		
						500m	1000m	More than 2000m		500m	1000m	More than 2000m
DIBULAGALA	1 a	1750	80	27.5	1.7	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
	1 b	1750	80	26.3	1.7	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
ELAHERA	2	1750	80	23.8	1.1	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3
HINGURAKGODA	3 a	1250	80	26.3	1.4	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3
	3 b	1750	80	26.3	1.4	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3
LANKAPURA	4	1750	80	26.3	1.3	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3
MEDIRIGIRIYA	5 a	1250	80	26.3	1.7	N/A	N/A	1.0 c3	1	N/A	N/A	1.0 c3
	5 b	1750	80	26.3	0.7	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3
THAMANKADUWA	6	1750	80	26.3	1.0	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3

Corrosion in the district of Badulla



Divisional Secretariat Division	Map ID	Rain fall mm	RH	Temp °C	So2 µg/m3	Crowded City			So2 µg/m3	Normal City		
						Corrosion rates (µ m/a) and corrosivity category as per ISO 9223 with various distances from the sea				Corrosion rates (µ m/a) and corrosivity category as per ISO 9223 with various distances from the sea		
						500m	1000m	More than 2000m		500m	1000m	More than 2000m
BADULLA	1	2250	80	21.3	7.6	N/A	N/A	1.3 c3	3	N/A	N/A	1.2 c3
BANDARAWELA	2 a	1750	80	16.3	8.7	N/A	N/A	0.8 c3	3	N/A	N/A	0.8 c3
	2 b	1750	80	18.8	8.7	N/A	N/A	0.9 c3	3	N/A	N/A	0.8 c3
	2 c	1750	80	21.3	8.7	N/A	N/A	0.9 c3	3	N/A	N/A	0.8 c3
ELLA	3 a	2250	80	20	4.1	N/A	N/A	1.2 c3	1	N/A	N/A	1.2 c3
	3 b	1750	80	20	4.1	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
HALDUMULLA	4 a	2250	80	18.8	0.9	N/A	N/A	1.2 c3	0	N/A	N/A	1.2 c3
	4 b	2250	80	21.3	0.9	N/A	N/A	1.2 c3	0	N/A	N/A	1.2 c3
	4 c	2250	80	23.8	0.9	N/A	N/A	1.2 c3	0	N/A	N/A	1.2 c3
	4 d	2250	80	23.8	0.9	N/A	N/A	1.2 c3	0	N/A	N/A	1.2 c3
	4 e	1750	80	23.8	0.9	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3
HALI-ELA	5 a	2250	80	18.8	0.7	N/A	N/A	1.2 c3	0	N/A	N/A	1.2 c3
	5 b	2250	80	16.3	0.7	N/A	N/A	1.2 c3	0	N/A	N/A	1.2 c3
	5 c	1750	80	16.3	0.7	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3
	5 d	1750	80	18.8	0.7	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3
	5 e	2250	80	21.3	0.7	N/A	N/A	1.2 c3	0	N/A	N/A	1.2 c3
	5 f	1750	80	21.3	0.7	N/A	N/A	1.2 c3	0	N/A	N/A	1.2 c3
	5 g	2250	80	18.8	0.7	N/A	N/A	1.2 c3	0	N/A	N/A	1.2 c3
HAPUTALE	6	1750	80	20	11.8	N/A	N/A	0.9 c3	4	N/A	N/A	0.8 c3
KANDEKETIYA	7 a	1750	80	16.3	1.5	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3
	7 b	1750	80	18.8	1.5	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3



Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp °C	So2 $\mu\text{g}/\text{m}^3$	Crowded City			So2 $\mu\text{g}/\text{m}^3$	Normal City		
						Corrosion rates ($\mu\text{m}/\text{a}$) and corrosivity category as per ISO 9223 with various distances from the sea						
						500m	1000m	More than 2000m		500m	1000m	More than 2000m
	7 c	1750	80	21.3	1.5	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3
	7 d	2250	80	16.3	1.5	N/A	N/A	1.2 c3	0	N/A	N/A	1.2 c3
	7 e	2250	80	18.8	1.5	N/A	N/A	1.2 c3	0	N/A	N/A	1.2 c3
	7 f	2250	80	21.3	1.5	N/A	N/A	1.2 c3	0	N/A	N/A	1.2 c3
MAHIYANGANA												
	8 a	1750	80	26.3	1.1	N/A	N/A	1.6 c3	0	N/A	N/A	1.6 c3
	8 b	2250	80	26.3	1.1	N/A	N/A	1.2 c3	0	N/A	N/A	1.2 c3
	8 c	2250	80	23.8	1.1	N/A	N/A	1.2 c3	0	N/A	N/A	1.2 c3
	8 d	1750	80	26.3	1.1	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3
	8 e	1750	80	26.3	1.1	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3
	8 f	2750	80	23.8	1.1	N/A	N/A	1.6 c3	0	N/A	N/A	1.6 c3
MEEGAHAKIVULA												
	9 a	1750	80	23.8	1.9	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
	9 b	2250	80	23.8	1.9	N/A	N/A	1.2 c3	1	N/A	N/A	1.2 c3
PASSARA												
	10 a	2250	80	23.8	1.8	N/A	N/A	1.2 c3	1	N/A	N/A	1.2 c3
	10 b	2250	80	20.3	1.8	N/A	N/A	1.2 c3	1	N/A	N/A	1.2 c3
	10 c	2250	80	18.8	1.8	N/A	N/A	1.2 c3	1	N/A	N/A	1.2 c3
RIDIMALLIYADDA												
	11	1750	80	25	1.1	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3
SORANTOTA												
	12	2250	80	22.5	3.4	N/A	N/A	1.2 c3	1	N/A	N/A	1.2 c3
UVAPARANAGAMMA												
	13 a	2250	80	16.3	5.8	N/A	N/A	1.3 c3	2	N/A	N/A	1.2 c3
	13 b	1750	80	16.3	5.8	N/A	N/A	0.9 c3	2	N/A	N/A	0.8 c3
WELIMADE												
	14 a	1250	80	17.5	5.3	N/A	N/A	1.2 c3	2	N/A	N/A	1.2 c3
	14 b	1750	80	17.5	5.3	N/A	N/A	0.8 c3	2	N/A	N/A	0.8 c3
	14 c	2250	80	17.5	5.3	N/A	N/A	1.3 c3	2	N/A	N/A	1.2 c3

Corrosion in the district of Moneragala

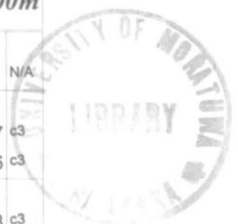


Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp °C	So ₂ μg/m ³	Crowded City			Normal City			
						Corrosion rates (μ m/a) and corrosivity category as per ISO 9223 with various distances from the sea						
						500m	1000m	More than 2000m	500m	1000m	More than 2000m	
BADALKUMBURA	1 a	2250	80	22.5	1.5	N/A	N/A	1.2 c3	1	N/A	N/A	1.2 c3
	1 b	1750	80	22.5	1.5	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3
BIBILE	2 a	1250	80	25	0.7	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3
	2 b	1750	80	25	0.7	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3
BUTTALA	3	2250	80	25	0.4	N/A	N/A	1.2 c3	0	N/A	N/A	1.2 c3
KATARAGAMA	4	1250	80	26.3	0.2	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3
MADULLA	5	1750	80	26.3	0.4	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3
MEDAGAMA	6	1500	80	25	0.1	N/A	N/A	0.9 c3	0	N/A	N/A	0.9 c3
MONARAGALA	7	1500	80	25	1.7	N/A	N/A	0.9 c3	1	N/A	N/A	0.9 c3
SIYAMBALADUWA	8 a	1750	80	26.3	0.5	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3
	8 b	1250	80	26.3	0.5	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3
THANAMALWILA	9 a	1750	80	23.8	0.2	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3
	9 b	1250	80	26.3	0.2	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3
WELLAWAYA	10 a	1750	80	21.3	0.7	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3
	10 b	1750	80	23.8	0.7	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3
	10 c	1250	80	26.3	0.7	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3
	10 d	1250	80	26.3	0.7	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3

Corrosion in the district of Ratnapura



Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp °C	So ₂ μg/m ³	Crowded City			So ₂ μg/m ³	Normal City								
						Corrosion rates (μm/a) and corrosivity category as per ISO 9223 with various distances from the sea						Corrosion rates (μm/a) and corrosivity category as per ISO 9223 with various distances from the sea						
						500m	1000m	More than 2000m		500m	1000m	More than 2000m						
ATAKALANPANNA																		
AYAGAMA																		
	1 a	4250	80	26.3	1.9	N/A	N/A	1.7 c3	1	N/A	N/A	1.7 c3						
	1 b	3750	80	26.3	1.9	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3						
BALANGOADA																		
	2 a	1750	80	23.8	2.9	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3						
	2 b	2250	80	23.8	2.9	N/A	N/A	1.2 c3	1	N/A	N/A	1.2 c3						
	2 c	2750	80	23.8	2.9	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3						
	2 d	3250	80	23.8	2.9	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3						
	2 e	3750	80	23.8	2.9	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3						
EHELIYAGADA																		
	3 a	4250	80	26.3	5.0	N/A	N/A	1.9 c3	2	N/A	N/A	1.7 c3						
	3 b	3750	80	26.3	5.0	N/A	N/A	1.7 c3	2	N/A	N/A	1.6 c3						
ELAPATHA																		
	4 a	4250	80	26.3	2.8	N/A	N/A	1.9 c3	1	N/A	N/A	1.9 c3						
	4 b	3750	80	26.3	2.8	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3						
EMBILIPITIYA																		
	5 a	1250	80	23.8	2.2	N/A	N/A	1.0 c3	1	N/A	N/A	1.0 c3						
	5 b	1750	80	23.8	2.2	N/A	N/A	0.8 c3	1	N/A	N/A	0.8 c3						
	5 c	2250	80	26.3	2.2	N/A	N/A	1.2 c3	1	N/A	N/A	1.2 c3						
GODAKAWELA																		
	6	3250	80	23.8	1.7	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3						
IMBULPE																		
	7 a	2250	80	22.5	2.4	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3						
	7 b	2750	80	22.5	2.4	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3						
	7 c	3250	80	22.5	2.4	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3						
	7 d	3750	80	22.5	2.4	N/A	N/A	1.7 c3	1	N/A	N/A	1.7 c3						





Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp 0C	So2 $\mu\text{g}/\text{m}^3$	Crowded City			Normal City			
						Corrosion rates ($\mu\text{m}/\text{a}$) and corrosivity category as per ISO 9223 with various distances from the sea						
						500m	1000m	More than 2000m	500m	1000m	More than 2000m	
KAHAWATTA	8	2750	80	23.8	2.0	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3
KALAWANA	9	3200	80	25	1.0	N/A	N/A	1.6 c3	0	N/A	N/A	1.6 c3
KOLONNE	10 a	1750	80	23.8	0.8	N/A	N/A	0.8 c3	0	N/A	N/A	0.8 c3
	10 b	2250	80	23.8	0.8	N/A	N/A	1.2 c3	0	N/A	N/A	1.2 c3
	10 c	2750	80	23.8	0.8	N/A	N/A	1.6 c3	0	N/A	N/A	1.6 c3
	10 d	3250	80	23.8	0.8	N/A	N/A	1.6 c3	0	N/A	N/A	1.6 c3
KURUWITA	11	4500	80	25	3.4	N/A	N/A	1.7 c3	1	N/A	N/A	1.7 c3
NIVITHIGALA	12	3250	80	25	2.4	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3
OPANAYAKA	13	3000	80	23.8	2.6	N/A	N/A	1.6 c3	1	N/A	N/A	1.6 c3
PELMADULLA	14	3000	80	25	6.0	N/A	N/A	1.7 c3	2	N/A	N/A	1.6 c3
RATNAPURA	15	4250	80	25	3.7	N/A	N/A	1.7 c3	1	N/A	N/A	1.7 c3
WELIGEPOLA	16	1400	80	23.8	1.0	N/A	N/A	1.0 c3	0	N/A	N/A	1.0 c3

Corrosion in the district of Kegalle



Crowded City

Normal City

Divisional Secretariat Division	Map ID	Rain fall mm	RH %	Temp °C	So ₂ μg/m ³	Corrosion rates (μ m/a) and corrosivity category as per ISO 9223 with various distances from the sea			So ₂ μg/m ³	Corrosion rates (μ m/a) and corrosivity category as per ISO 9223 with various distances from the sea			
						500m	1000m	More than 2000m		500m	1000m	More than 2000m	
ARANAYAKE													
	1 a	1750	80	26.3	6.5	N/A	N/A	0.9 c3	2	N/A	N/A	0.8 c3	
	1 b	2250	80	26.3	6.5	N/A	N/A	1.3 c3	2	N/A	N/A	1.2 c3	
	1 c	2750	80	26.3	6.5	N/A	N/A	1.7 c3	2	N/A	N/A	1.6 c3	
	1 d	3250	80	26.3	6.5	N/A	N/A	1.7 c3	2	N/A	N/A	1.6 c3	
	1 e	3750	80	26.3	6.5	N/A	N/A	1.7 c3	2	N/A	N/A	1.6 c3	
	1 f	4250	80	26.3	6.5	N/A	N/A	1.9 c3	2	N/A	N/A	1.9 c3	
DEHIOWITA													
	2	4000	80	26.3	4.1	N/A	N/A	1.9 c3	1	N/A	N/A	1.9 c3	
DERANYAGALA													
	3	4500	80	26.3	2.1	N/A	N/A	1.9 c3	1	N/A	N/A	1.9 c3	
GALIGAMUWA													
	4	3000	80	26.3	4.7	N/A	N/A	1.7 c3	2	N/A	N/A	1.6 c3	
KEGALLE													
	5	3000	80	26.3	7.5	N/A	N/A	1.7 c3	3	N/A	N/A	1.6 c3	
MAWANELLA													
	6	1300	80	26	9.5	N/A	N/A	1.5 c3	3	N/A	N/A	1.5 c3	
RAMBUKKANA													
	7	2250	80	26.3	5.9	N/A	N/A	1.3 c3	2	N/A	N/A	1.2 c3	
RUWANWELLA													
	8	3500	80	26.3	4.1	N/A	N/A	1.7 c3	1	N/A	N/A	1.6 c3	
WARAKAPOLA													
	9	3000	80	26.3	5.5	N/A	N/A	1.7 c3	2	N/A	N/A	1.6 c3	
YATIYANTOTA													
	10	4000	80	26	2.0	N/A	N/A	1.7 c3	1	N/A	N/A	1.6 c3	



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APPENDIX-B

Analysis results of case study

APPENDIX -B
Table 16: Analysis Of the 79 Galvanized Towers

Location	Area m2	Total Weight	Decay of Zinc Per Year Kg/year	Energy Loss of zinc MJ/year	Decay of steel kg/year	Energy loss of bare steel MJ/year	Loss of Energy Used For Galvanizing	Energy Saving by Zinc coating MJ/year	Energy Saving by Zinc coating kwh/year
1	436.3236	10449.036.11		311.54	152.71	5,192.25	290.16	4,749.38	1,319.27
2	234.61	5248.863.28		167.51	82.11	2,791.86	156.02	2,553.73	709.37
3	276.9	6678.563.88		197.71	96.92	3,295.11	184.14	3,014.06	837.24
4	234.61	5248.863.28		167.51	82.11	2,791.86	156.02	2,553.73	709.37
5	150.55	3588.332.11		107.49	52.69	1,791.55	100.12	1,638.74	455.20
6	150.55	3588.332.11		107.49	52.69	1,791.55	100.12	1,638.74	455.20
7	234.61	5248.863.28		167.51	82.11	2,791.86	156.02	2,553.73	709.37
8	234.61	5248.863.28		167.51	82.11	2,791.86	156.02	2,553.73	709.37
9	234.61	5248.863.28		167.51	82.11	2,791.86	156.02	2,553.73	709.37
10	234.61	5248.863.28		167.51	82.11	2,791.86	156.02	2,553.73	709.37
11	276.9	6678.563.88		197.71	96.92	3,295.11	184.14	3,014.06	837.24
12	276.9	6678.563.88		197.71	96.92	3,295.11	184.14	3,014.06	837.24
13	234.61	5248.863.28		167.51	82.11	2,791.86	156.02	2,553.73	709.37
14	150.55	3588.332.11		107.49	52.69	1,791.55	100.12	1,638.74	455.20
15	150.55	3588.332.11		107.49	52.69	1,791.55	100.12	1,638.74	455.20
16	276.9	6678.563.88		197.71	96.92	3,295.11	184.14	3,014.06	837.24
17	150.55	3588.332.11		107.49	52.69	1,791.55	100.12	1,638.74	455.20
18	150.55	3588.332.11		107.49	52.69	1,791.55	100.12	1,638.74	455.20
19	150.55	3588.332.11		107.49	52.69	1,791.55	100.12	1,638.74	455.20
20	276.9	6678.563.88		197.71	96.92	3,295.11	184.14	3,014.06	837.24
21	234.61	5248.863.28		167.51	82.11	2,791.86	156.02	2,553.73	709.37

			3.28						
22	234.61	5248.86	3.28	167.51	82.11	2,791.86	156.02	2,553.73	709.37
23	276.9	6678.56	3.88	197.71	96.92	3,295.11	184.14	3,014.06	837.24
24	234.61	5248.86	3.28	167.51	82.11	2,791.86	156.02	2,553.73	709.37
25	234.61	5248.86	3.28	167.51	82.11	2,791.86	156.02	2,553.73	709.37
26	150.55	3588.33	2.11	107.49	52.69	1,791.55	100.12	1,638.74	455.20
27	276.9	6678.56	3.88	197.71	96.92	3,295.11	184.14	3,014.06	837.24
28	150.55	3588.33	2.11	107.49	52.69	1,791.55	100.12	1,638.74	455.20
29	150.55	3588.33	2.11	107.49	52.69	1,791.55	100.12	1,638.74	455.20
30	234.61	5248.86	3.28	167.51	82.11	2,791.86	156.02	2,553.73	709.37
31	234.61	5248.86	3.28	167.51	82.11	2,791.86	156.02	2,553.73	709.37
32	150.55	3588.33	2.11	107.49	52.69	1,791.55	100.12	1,638.74	455.20
33	150.55	3588.33	2.11	107.49	52.69	1,791.55	100.12	1,638.74	455.20
34	150.55	3588.33	2.11	107.49	52.69	1,791.55	100.12	1,638.74	455.20
35	276.9	6678.56	3.88	197.71	96.92	3,295.11	184.14	3,014.06	837.24
36	150.55	3588.33	2.11	107.49	52.69	1,791.55	100.12	1,638.74	455.20
37	150.55	3588.33	2.11	107.49	52.69	1,791.55	100.12	1,638.74	455.20
38	276.9	6678.56	3.88	197.71	96.92	3,295.11	184.14	3,014.06	837.24
39	234.61	5248.86	3.28	167.51	82.11	2,791.86	156.02	2,553.73	709.37
40	150.55	3588.33	2.11	107.49	52.69	1,791.55	100.12	1,638.74	455.20
41	234.61	5248.86	3.28	167.51	82.11	2,791.86	156.02	2,553.73	709.37
42	276.9	6678.56	3.88	197.71	96.92	3,295.11	184.14	3,014.06	837.24
43	150.55	3588.33	2.11	107.49	52.69	1,791.55	100.12	1,638.74	455.20
44	150.55	3588.33	2.11	107.49	52.69	1,791.55	100.12	1,638.74	455.20
45	234.61	5248.86	3.28	167.51	82.11	2,791.86	156.02	2,553.73	709.37
46	234.61	5248.86	3.28	167.51	82.11	2,791.86	156.02	2,553.73	709.37
47	234.61	5248.86		167.51	82.11	2,791.86	156.02	2,553.73	709.37

b

			3.28						
48	234.61	5248.86	3.28	167.51	82.11	2,791.86	156.02	2,553.73	709.37
49	234.61	5248.86	3.28	167.51	82.11	2,791.86	156.02	2,553.73	709.37
50	234.61	5248.86	3.28	167.51	82.11	2,791.86	156.02	2,553.73	709.37
51	234.61	5248.86	3.28	167.51	82.11	2,791.86	156.02	2,553.73	709.37
52	150.55	3588.33	2.11	107.49	52.69	1,791.55	100.12	1,638.74	455.20
53	150.55	3588.33	2.11	107.49	52.69	1,791.55	100.12	1,638.74	455.20
54	150.55	3588.33	2.11	107.49	52.69	1,791.55	100.12	1,638.74	455.20
55	234.61	5248.86	3.28	167.51	82.11	2,791.86	156.02	2,553.73	709.37
56	234.61	5248.86	3.28	167.51	82.11	2,791.86	156.02	2,553.73	709.37
57	150.55	3588.33	2.11	107.49	52.69	1,791.55	100.12	1,638.74	455.20
58	234.61	5248.86	3.28	167.51	82.11	2,791.86	156.02	2,553.73	709.37
59	150.55	3588.33	2.11	107.49	52.69	1,791.55	100.12	1,638.74	455.20
60	234.61	5248.86	3.28	167.51	82.11	2,791.86	156.02	2,553.73	709.37
61	234.61	5248.86	3.28	167.51	82.11	2,791.86	156.02	2,553.73	709.37
62	150.55	3588.33	2.11	107.49	52.69	1,791.55	100.12	1,638.74	455.20
63	234.61	5248.86	3.28	167.51	82.11	2,791.86	156.02	2,553.73	709.37
64	234.61	5248.86	3.28	167.51	82.11	2,791.86	156.02	2,553.73	709.37
65	234.61	5248.86	3.28	167.51	82.11	2,791.86	156.02	2,553.73	709.37
66	234.61	5248.86	3.28	167.51	82.11	2,791.86	156.02	2,553.73	709.37
67	234.61	5248.86	3.28	167.51	82.11	2,791.86	156.02	2,553.73	709.37
68	150.55	3588.33	2.11	107.49	52.69	1,791.55	100.12	1,638.74	455.20
69	276.9	6678.56	3.88	197.71	96.92	3,295.11	184.14	3,014.06	837.24
70	150.55	3588.33	2.11	107.49	52.69	1,791.55	100.12	1,638.74	455.20
71	234.61	5248.86	3.28	167.51	82.11	2,791.86	156.02	2,553.73	709.37
72	150.55	3588.33	2.11	107.49	52.69	1,791.55	100.12	1,638.74	455.20

73	150.55	3588.33	2.11	107.49	52.69	1,791.55	100.12	1,638.74	455.20
74	150.55	3588.33	2.11	107.49	52.69	1,791.55	100.12	1,638.74	455.20
75	234.61	5248.86	3.28	167.51	82.11	2,791.86	156.02	2,553.73	709.37
76	234.61	5248.86	3.28	167.51	82.11	2,791.86	156.02	2,553.73	709.37
77	234.61	5248.86	3.28	167.51	82.11	2,791.86	156.02	2,553.73	709.37
78	234.61	5248.86	3.28	167.51	82.11	2,791.86	156.02	2,553.73	709.37
79	436.3236	10449.03	6.11	311.54	152.71	5,192.25	290.16	4,749.38	1,319.27
Totals 16,965.07 392,631.61 237.51 12,113.06 5,937.77 201,884.30 11,281.77 184,664.76 51,295.77									



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