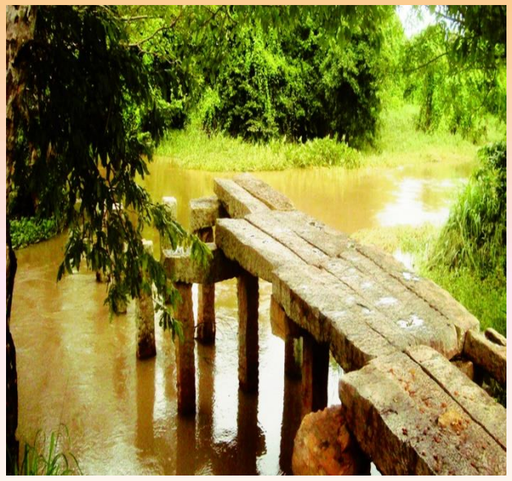
INUNDATED AREA MAPS OF THE MALWATHU OYA BASIN

FLOOD IN FEBRUARY 2011



HYDROLOGY AND DISASTER MANAGEMENT DIVISION
IRRIGATION DEPARTMENT
SRI LANKA

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Contents

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Remarks:

The inundated areas were marked according to the field observations taken with the Global Positioning System (GPS) instruments after the flood event (in September 2015).

Inundation Maps of Malwathu Oya Flood in February 2011

1. Introduction

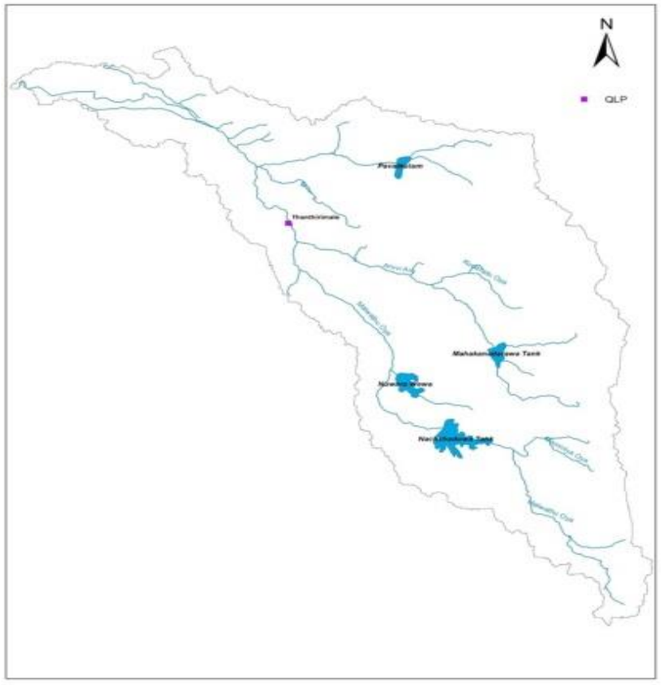

Figure I. The Malwathu Oya Basin with the Locations of Hydro-Meteorological Stations

Malwathu Oya is a medium size river, bears the Number 90, in the River Basin Atlas of Sri Lanka. It is situated in between the Kal Aru and Kala Oya to the south, and Maa Oya, Parangi Aru and Nay Aru to the north. The catchment area of the river is 3291 km^2, which is situated entirely in the Dry Zone of the country. The average annual rainfall of the catchment is around 1350 mm and the average discharge to the sea has been estimated as 260 MCM per annum.

Malwathu Oya discharges into Mannar Lagoon after passing through Anuradhapura, Vavuniya and Mannar districts.The Malwathu Oya water has been extensively harnessed for irrigation since ancient era, by means of reservoirs and diversion structures across the river. Four major Reservoirs Yoda Wewa, Nuwarawewa, Nachchaduwa Wewa and Mahakanadara Wewa and many diversion anicuts have been constructed in the Malwathu Oya basin for the purpose of Irrigation. These ancient works have been renovated and upgraded during the recent past (during the colonial period and after independence). In addition there are many medium and minor irrigation works in the river basin.

2. Hydrometric Stations in Malwathu Oya

River gauging history of the Malwathu Oya goes back to January 1943 when Kappachchi hydrometric station was established. Water levels had been recorded, 8.00 am to 5.00 pm (hourly) every week day at the beginning. However the station had been closed for 22 year period from 1983 to 2005 due to some reason. Twelve-hour recording (hourly) had been practiced from January 2013 to up to date. However, there are some periods of missing data during this period. Layout of these stations is shown in Figure 1. The recorded highest flood levels at two hydrometric stations are summarized in Table 1.

Table 1. Recorded highest flood levels at two hydrometric Stations.

Station Name	Location/Station Type	Period of records available	Highest W.L recorded (m)	Date of Highest Flood
Tantirimale	145251*375883, (QLP)	1943 to 1983 2005 to date	10.93	December 2014

3. Classification of Flood Levels.

Flood Levels of the river gauging stations have been classified into four categories according to the damages experienced during the floods as explained in **Table 2**.

Table 2. Criteria for Classifying Flood Levels

Classification	Definition
Alert Level	The Level which needs the attention of flood control authorities to make aware their field level officer and the public to be vigilant on river stage
Minor Flood Level	The level of Inundation of paddy field, farm areas and minor roads. This may cause inconvenience to people by isolating the pockets of residential areas due to inundation of access roads. major roads and isolated building may also be inundated for few hours interrupting to schools, work place etc.
Major Flood Level	The level of Inundation of houses and major roads for longer periods, permanent damaged to houses and public utilities and other infrastructure facilities, interruption of highly important services for the safety of life such as electricity, water, medical facilities etc.
Critical Level	May cause loss of lives due to drowning or collapsing of building or landslides, serious damages to houses, industrial and commercial building, important public utilities, main highways and railways etc.

As per the above classification, following levels have been fixed at Tantirimale (Earlier known as Kappachchi) gauging station with the long term experience of Hydrology Division. These levels may

be subjected to change in time to time with the conditions prevailed in the flood prone area.

Table 3. Classified Flood Levels (with reference to the gauge zero values)

Station	Coordinates	Catchment Area km^2	Alert Level m	Minor Flood Level m	Major Flood Level m
Tantirimale	145251, 375883	2116	6.75	7.25	-

According to past records, the Malwathu Oya is flooded frequently. During the recent 12-year period, it has faced 14 minor floods. It seems to get minor floods every year causing crop damages and inconvenience to the people.

4. The Flood in February 2011.

4.1 Extreme Rainfalls Caused Flooding

Extreme rainfalls observed at Tantirimale that caused February 2011 flood are presented in Table 4. These Rainfall stations are maintained by the Hydrology Division (HD) of Irrigation Department or some other organizations. Rainfalls are recorded at 1 day interval at Tantirimale while the other stations record daily rainfalls only.

Table 4. Extreme Rainfalls caused February 2011 Flood (from 9.00 am to 9.00 am)

Station	30/1/2011	31/1/2011	1/2/2011	2/2/2011	3/2/2011	4/2/2011	5/2/2011	6/2/2011	7/2/2011	Total mm
Tantirimale	12.9	2.5	0	40.3	78.4	0	14.3	14.6	4.8	**167.8**
Murunkan	5.1	6.3	5.1	17	17.5	0	0	26.7	0	**77.7**
Vavunia	60	44.3	1	46	102	46	9.3	40	12	**360.6**
Kalawewa	23.1	11.5	9.9	89.1	90.7	29.7	8.2	13.2	28	**303.4**

According to above, the catchment has recorded moderate rainfalls on 31st January and 1st February and fairly high rainfalls on 2nd February. The extreme rainfalls causing floods were experienced on 3rd February.

5. Flood Level Variation at Tantirimale Hydrometric Station

Even though there is one river gauging station in the Malwathu Oya, only Tantirimale station has continuous water levels. The station recorded the highest flood level (10.93 m) in December 2014 since it was established in 1943.

6. Flood Frequency Analysis using Annual Extremes

Only one hydrometric station located in the Malwathu Oya, only Tantirimale river gauge has continuous record of water levels. However the recorded period is only 12 years from 2005/06 and hardly sufficient for frequency analysis.

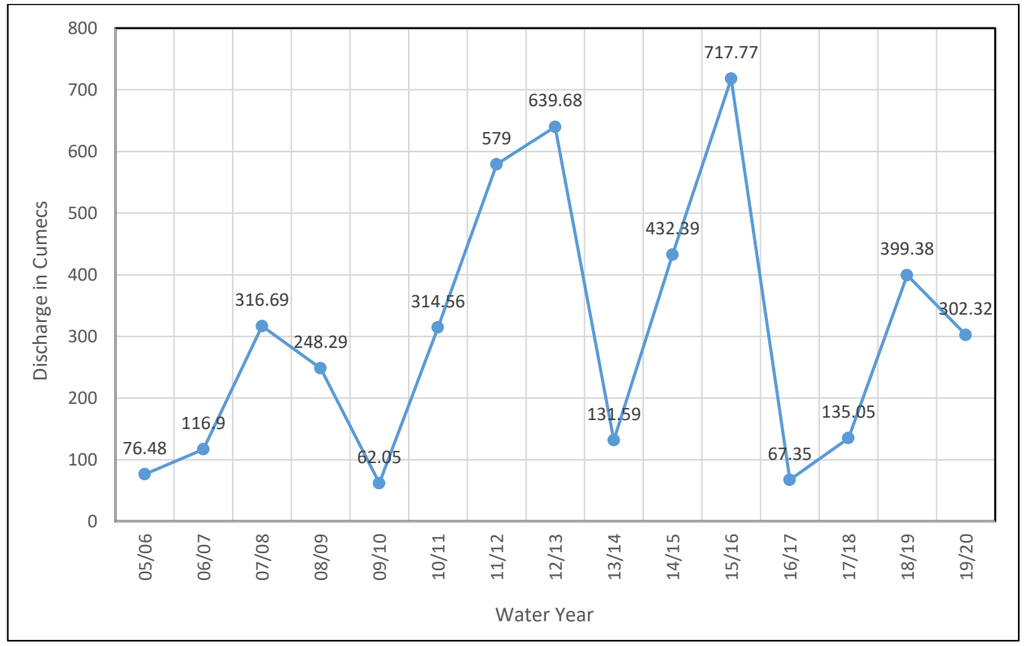

Figure 3. Annual Maximum Discharges at Tantirimale Gauging Station

This data series (Figure 3) is characterized with three flood peaks in January 2013, November 2015 and December 2019. These two events show somewhat similar nature but the latter is higher with respect to the duration of inundation and the damages experienced.

Using the limited values of discharge data, flood frequency analysis was carried out using Gumbel Distribution. The data series is fairly fit to the mathematical function as shown in figure 4.

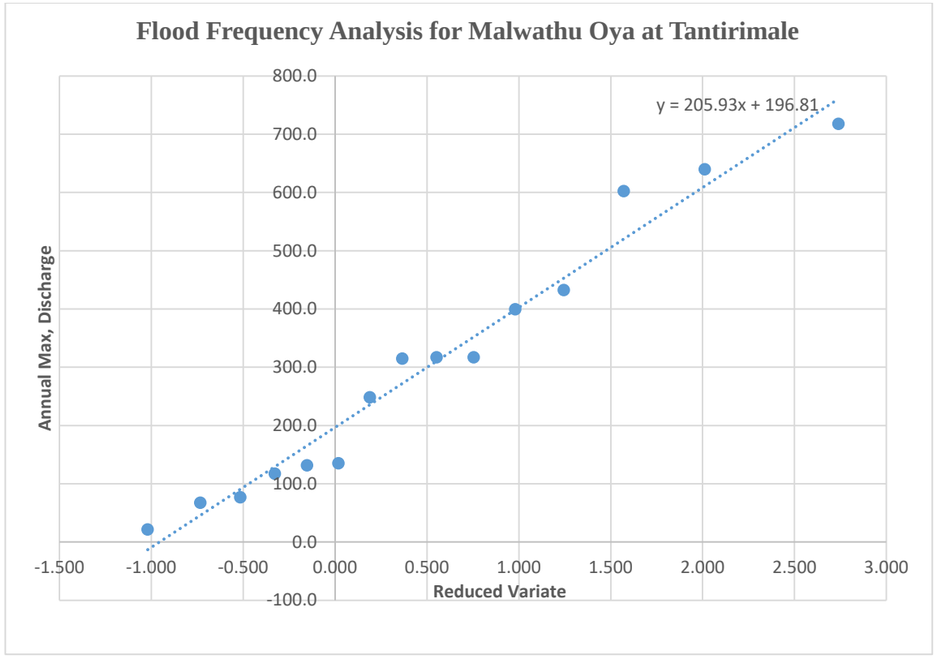

Figure 4. Gumbel Distribution with Annual Maximum Flood Discharges

Table 5 shows the flood discharges with respect to selected return periods from 2 year to 100 year. However the discharge values computed for higher return periods are of less confidence since the data period is short. According to this computation, the extreme events in 2008 and 2016 can be considered as the flood of 10 year return periods.

Return Period	P=1/T	q=1-p	Y=-Ln(-Ln(q))	Q cumec
2	0.50	0.50	0.37	272.286
5	0.20	0.80	1.50	505.693
10	0.10	0.90	2.25	660.228
25	0.04	0.96	3.20	855.484
50	0.02	0.98	3.90	1000.336
75	0.01	0.99	4.31	1084.530
100	0.01	0.99	4.60	1144.119

Table 5. Discharge values at Tantirimale with respect to different Return Periods

7. Areas Inundated and Damages Experienced

2011 Flood was the highest recorded flood in the Malwathu Oya basin. The total flood plain was inundated including the residential areas. Agricultural losses were most prominent among the flood damages. No deaths were reported due to drowning or collapsing of buildings.

7.1 Divisional Secretary Areas Affected

Mainly the low lying areas of Nuwaragam Palatha East, Nuwaragam Palatha Central, Medawachchiya, Nachchaduwa, Mahawilachchiya, Musalai, Madhu, Nanaddan and Vengalacheddikulam Divisional Secretary divisions were affected by the flood.

8. Flood Mapping

Flood inundation survey was carried out in September 2015, nearly 4 years after the flood event, by a group of Hydrological Assistants attached to Hydrology Division. Boundaries of the inundated areas were observed with GPS (Global Positioning System) instruments based on the flood marks and the information provided by the residents of the area.

GPS coordinates taken along the boundary of inundated area were overlaid with and digitized on 1:50000 maps using the ArcGIS software to develop the flood maps. These maps are provided in hard and soft copies at different scales, in order to facilitate various parties carrying out flood relief activities and rescue operations. Accuracy of these maps may not be sufficient for more precise works but can be used as an initial guide for such activities. The residents in the flood prone areas can use these maps to have some idea whether their houses and properties are in danger in future cases of flooding and take necessary precautions for securing them. However it should be mentioned that the behavior of one flood may differ from another due to spatial distribution of rainfalls and also with the other climatic factors and catchment characteristics.

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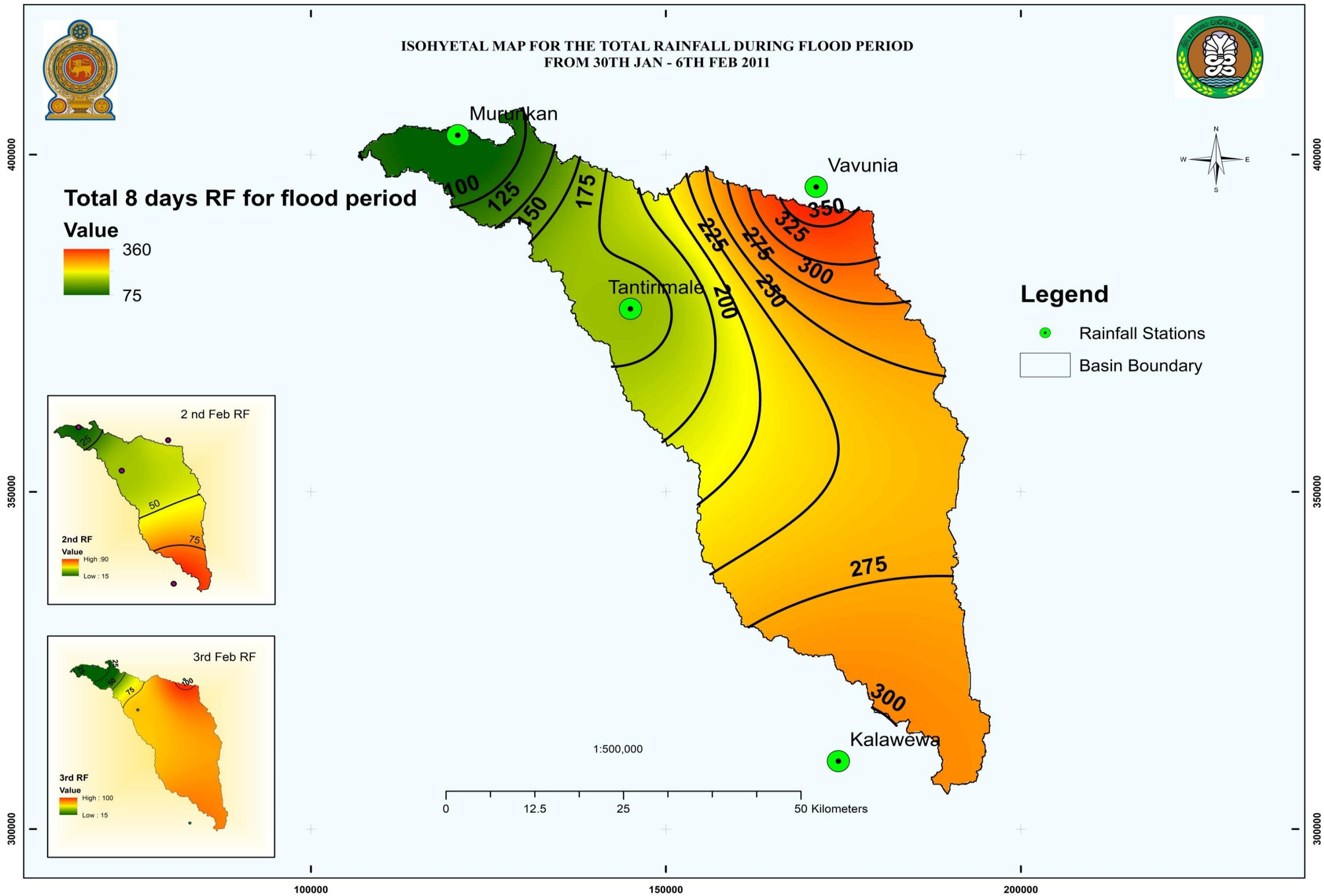
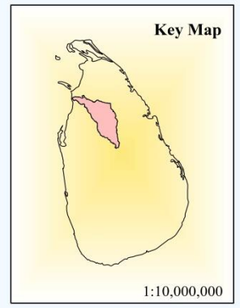
Director of Irrigation (Hydrology & Disaster Management)

SPATIAL AND TEMPORAL VARIATION OF RAINFALL DURING FLOOD PERIOD



INUNDATION AREA MAP - MALWATHU OYA BASIN IN FEBRUARY 2011 FLOOD

ID FLOOD MAP



LEGEND

- Malwathu Oya Basin
- Inundated Area
- DSD Boundary

Coordinate System: Kandawala Sri Lanka Grid
Projection: Transverse Mercator
Datum: Kandawala
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False Northing: 200,000.0000
Central Meridian: 80.7717
Scale Factor: 0.9999
Latitude Of Origin: 7.0005
Units: Meter

Scale : 1:400,000

The inundated areas were marked according to the field observations taken with GPS instruments after the flood event (in Sept 2015).

Compiled by :	Checked by :	Approved by :
K.A.Amarasiri Hydrological Data Supdt.	Eng. J.D.Amarasekara C.E.(Hydrology)	Eng.(Mrs) P.Hettiarachchi D.I.(Hydrology)

IRRIGATION DEPARTMENT

HYDROLOGY AND DISASTER MANAGEMENT DIVISION

MALWATHU OYA BASIN
INUNDATED AREA MAP
FLOOD IN FEBRUARY 2011

Date : 2015.09.24	Sheet No :	Map no : **IDFM/RB/90/2011**

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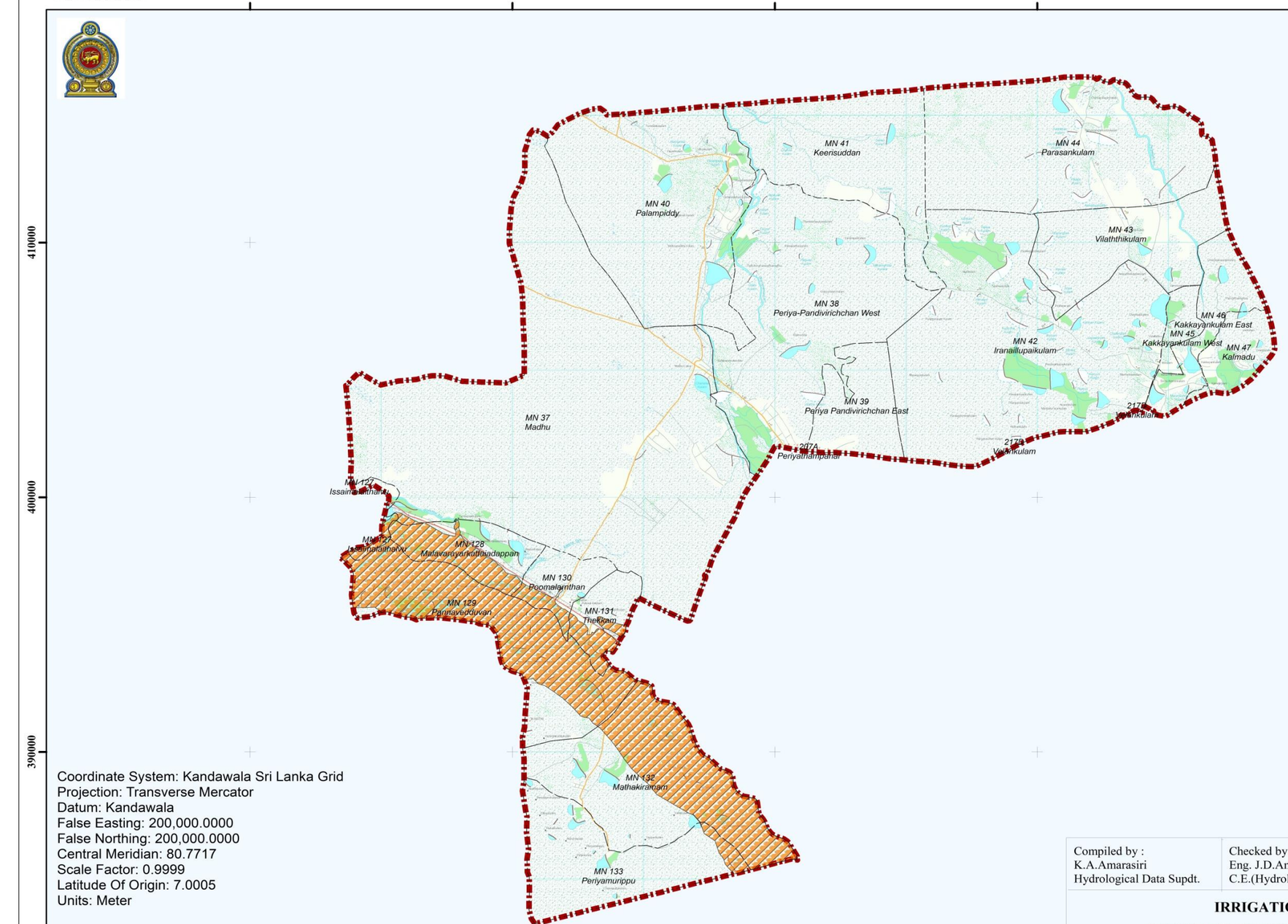
Table 01

INUNDATED AREAS IN MALWATHU OYA BASIN IN FEBRUARY 2011

DS Division	DS Division Area Sq Km	Inundated Area Sq Km	Percentage %
Vavuniya South	202.72	0.024	0.01
Vengalacheddiculam	410.90	47.709	11.61
Musalai	478.82	27.945	5.84
Madhu	554.60	55.136	9.94
Nanaddan	147.61	26.775	18.14
Maha Vilachchiya	624.83	32.519	5.20
Medawachchiya	492.11	1.540	0.31
Nuwaragam Palatha East	90.66	7.066	7.79
Nachchadoowa	116.88	7.181	6.14
Nuwaragam Palatha Central	389.50	46.166	11.85
Total	**3508.63**	**252.06**	**7.18**

INUNDATION AREA MAP - MADHU DS DIVISION IN FEBRUARY 2011 FLOOD

ID FLOOD MAP



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HYDROLOGY AND DISASTER MANAGEMENT DIVISION

MALWATHU OYA BASIN

INUNDATED AREA MAP – MADHU DS DIVISION

FLOOD IN FEBRUARY 2011

Date : 2015.09.24	Sheet No : 01	Map no : **IDFM/RB/90/2011**

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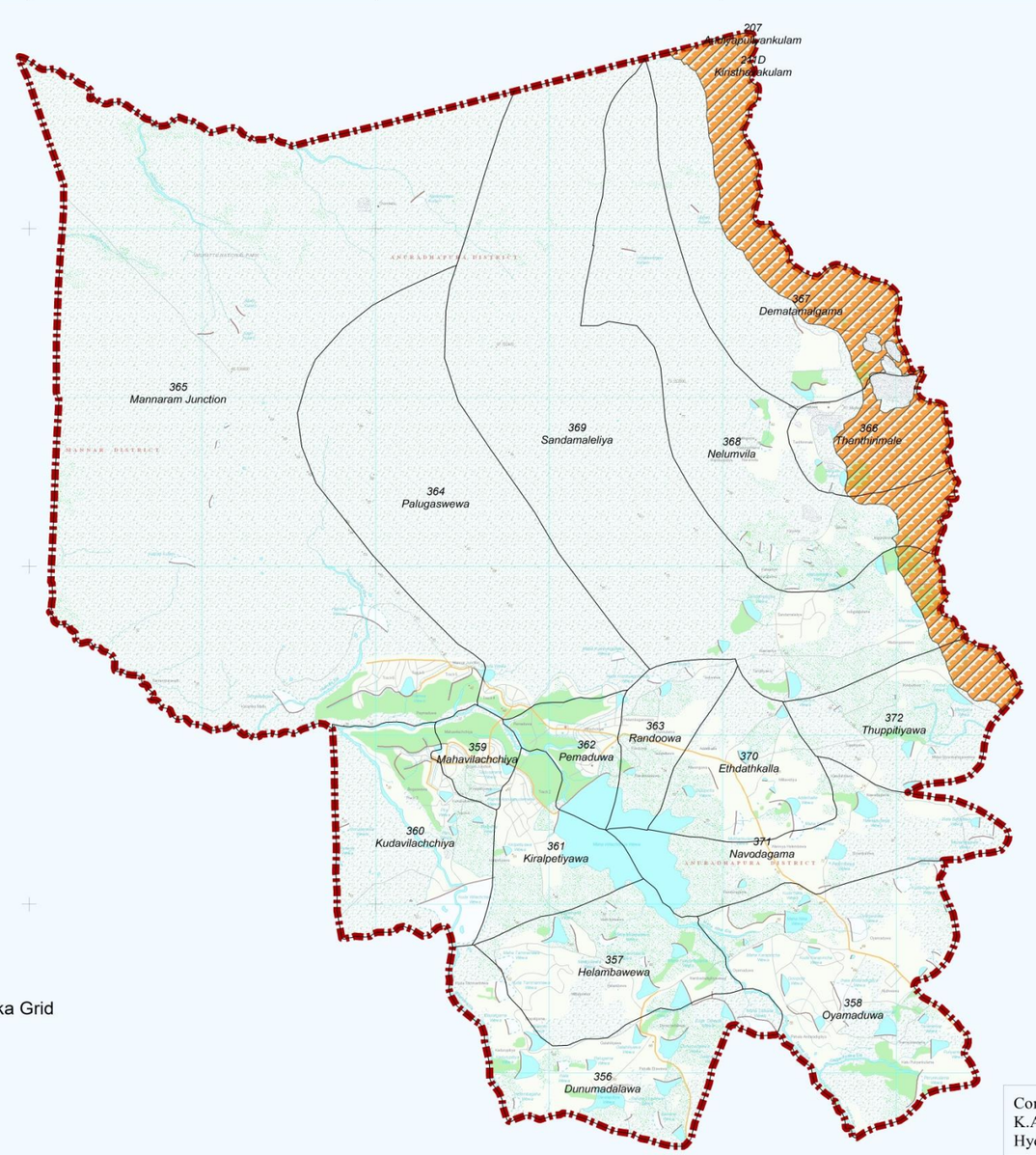
Table 02

Inundated Areas in Madhu Divisional Secretariat Division in December 2011 flood					
Nothern Province					
Mannar District					
DS Division	**GN Division NO**	**GN Division Name**	**Area Sq.Km.**	**Inundated Area Sq.Km.**	**Percentage %**
MADHU	MN 132	Mathakiramam	34.39	18.73	54.45
MADHU	MN 133	Periyamurippu	23.43	1.19	5.09
MADHU	MN 129	Pannavedduvan	40.97	26.58	64.88
MADHU	MN 128	Malavarayarkattaiadappan	10.07	5.75	57.13
MADHU	MN 131	Thekkam	6.54	2.38	36.35
MADHU	MN 130	Poomalarnthan	6.29	1.45	23.10
MADHU	MN 37	Madhu	129.38	0.24	0.19
Total			**251.07**	**56.32**	**22.43**

INUDATED AREA MAP - MAHAVILACHCHIYA DS DIVISION IN FEBRUARY 2011 FLOOD

ID FLOOD MAP



380000
370000
360000
350000

110000 120000 130000 140000 150000 160000

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Key Map

1:10,000,000

LEGEND

- Inundated Area
- Mahavilachchiya DS Division
- GND Boundaries

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False Northing: 200,000.0000
Central Meridian: 80.7717
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Latitude Of Origin: 7.0005
Units: Meter

Scale : 1:150,000

The inundated areas were marked according to the field observations taken with GPS instruments after the flood event (in Sept 2015).

0 2.5 5 10 Kilometers

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HYDROLOGY AND DISASTER MANAGEMENT DIVISION

MALWATHU OYA BASIN

INUNDATED AREA MAP – MAHAWILACHCHIYA DS DIVISION
FLOOD IN FEBRUARY 2011

Date : 2015.09.24	Sheet No : 02	Map no : **IDFM/RB/90/2011**

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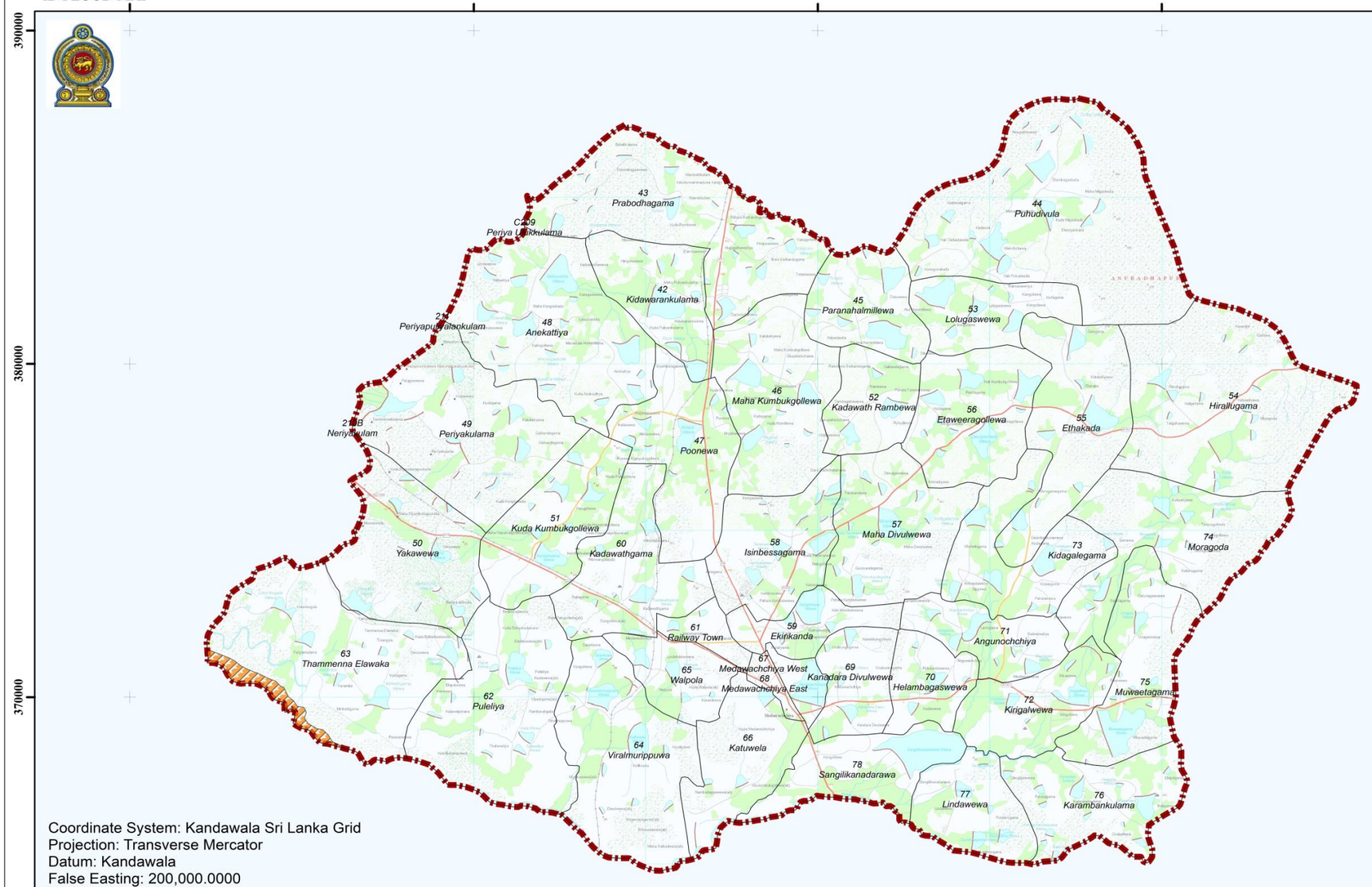
Table 03

Inundated Areas in Mahavilachchiya Divisional Secretariat Division in December 2011 flood					
North Central Province					
Anuradhapura District					
DS Division	**GN Division NO**	**GN Division Name**	**Area Sq.Km.**	**Inundated Area Sq.Km.**	**Percentage %**
MAHAVILACHCHIYA	372	Thuppitiyawa	18.69	2.83	15.12
MAHAVILACHCHIYA	366	Thanthirimale	12.46	7.47	59.96
MAHAVILACHCHIYA	367	Dematamalgama	37.59	16.10	42.82
MAHAVILACHCHIYA	368	Nelumvila	46.14	3.47	7.51
MAHAVILACHCHIYA	369	Sandamaleliya	94.91	2.66	2.81
Total			**209.79**	**32.52**	**15.50**

INUNDATION AREA MAP - MEDAWACHCHIYA DS DIVISION IN FEBRUARY 2011 FLOOD

ID FLOOD MAP



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Key Map

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LEGEND

- Inundated Area
- Medawachchiya DS Division
- GND Boundaries

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Latitude Of Origin: 7.0005
Units: Meter

Scale : 1:125,000

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0 2.5 5 10 Kilometers

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HYDROLOGY AND DISASTER MANAGEMENT DIVISION

MALWATHU OYA BASIN

INUNDATED AREA MAP –MEDAWACHCHIYA DS DIVISION
FLOOD IN FEBRUARY 2011

Date : 2015.09.24	Sheet No : 03	Map no : **IDFM/RB/90/2011**

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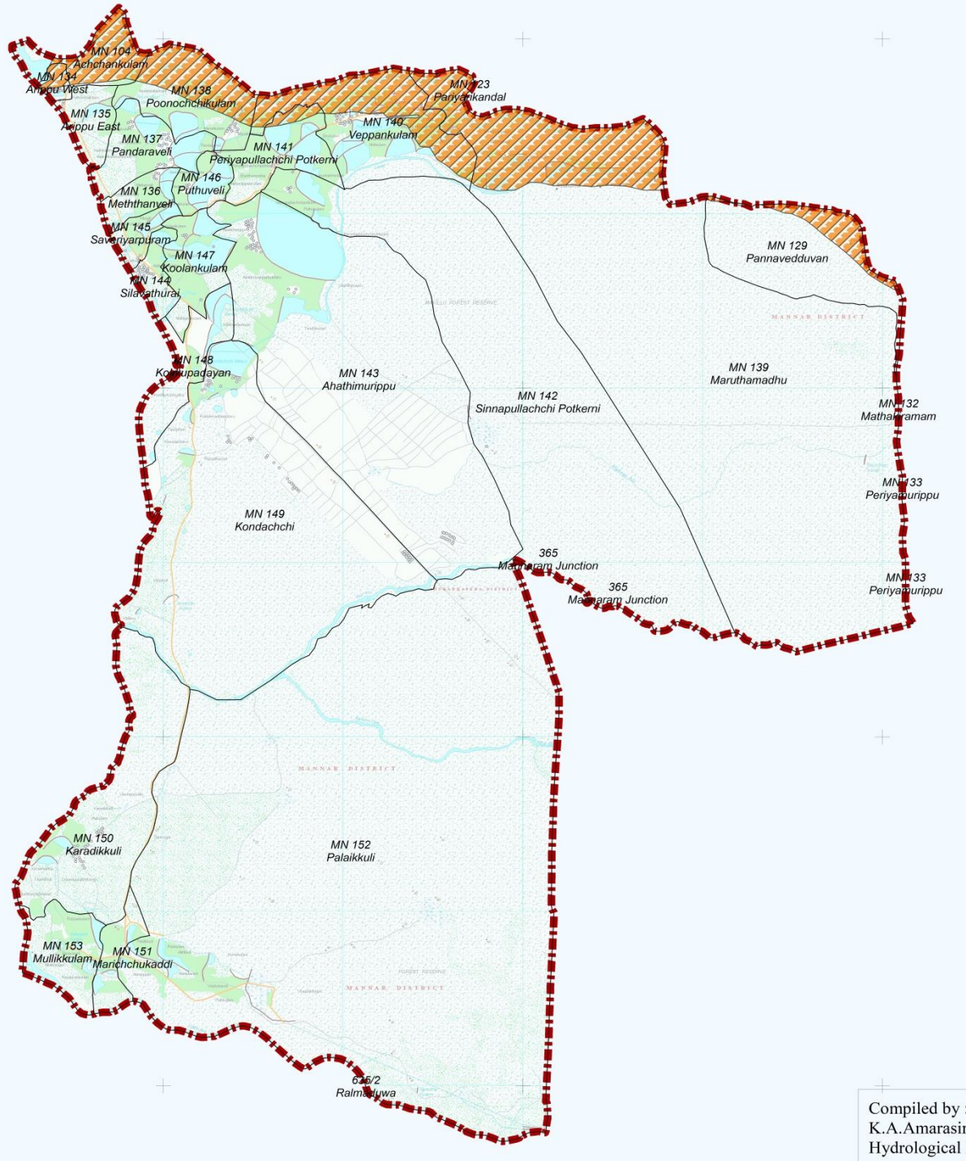
Table 04

Inundated Areas in Medawachchiya Divisional Secretariat Division in December 2011 flood					
North Central Province					
Anuradhapura District					
DS Division	**GN Division NO**	**GN Division Name**	**Area Sq.Km.**	**Inundated Area Sq.Km.**	**Percentage %**
MEDAWACHCHIYA	63	Thammenna Elawaka	25.83	1.54	5.96
Total			**25.83**	**1.54**	**5.96**

INUNDATION AREA MAP - MUSALAI DS DIVISION IN FEBRUARY 2011 FLOOD

ID FLOOD MAP



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Key Map

1:10,000,000

LEGEND

- Inundated Area
- Musalai DS Division
- GND Boundaries

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False Northing: 200,000.0000
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Latitude Of Origin: 7.0005
Units: Meter

Scale : 1:150,000

The inundated areas were marked according to the field observations taken with GPS instruments after the flood event (in Sept 2015).

0 2 4 8 Kilometers

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HYDROLOGY AND DISASTER MANAGEMENT DIVISION

MALWATHU OYA BASIN

INUNDATED AREA MAP –MUSALAI DS DIVISION
FLOOD IN FEBRUARY 2011

Date : 2015.09.24	Sheet No : 04	Map no : **IDFM/RB/90/2011**

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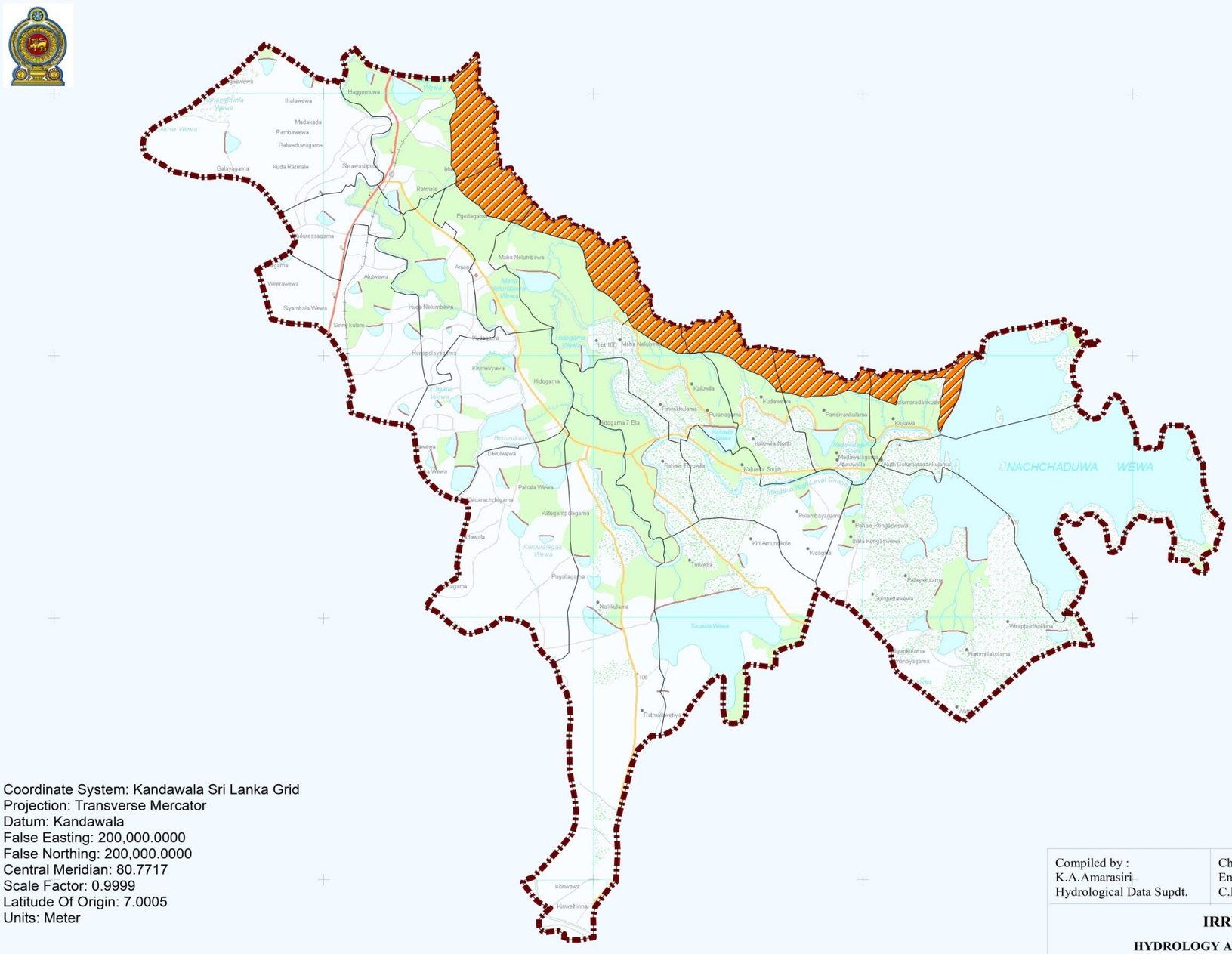
Table 05

Inundated Areas in Musalai Divisional Secretariat Division in December 2011 flood					
Nothern Province					
Mannar District					
DS Division	**GN Division NO**	**GN Division Name**	**Area Sq.Km.**	**Inundated Area Sq.Km.**	**Percentage %**
MUSALAI	MN 139	Maruthamadhu	98.11	12.08	12.31
MUSALAI	MN 138	Poonochchikulam	7.12	3.87	54.38
MUSALAI	MN 134	Arippu West	0.70	0.39	56.34
MUSALAI	MN 140	Veppankulam	11.58	6.31	54.47
MUSALAI	MN 141	Periyapullachchi Potkerni	4.97	0.50	10.07
Total			**122.48**	**23.15**	**18.90**

ID FLOOD MAP

INUNDATION AREA MAP - NACHCHADUWA DS DIVISION IN FEBRUARY 2011 FLOOD



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MALWATHU OYA BASIN

INUNDATED AREA MAP – NACHCHADUWA DS DIVISION

FLOOD IN FEBRUARY 2011

Date : 2015.09.24	Sheet No : 05	Map no : **IDFM/RB/90/2011**

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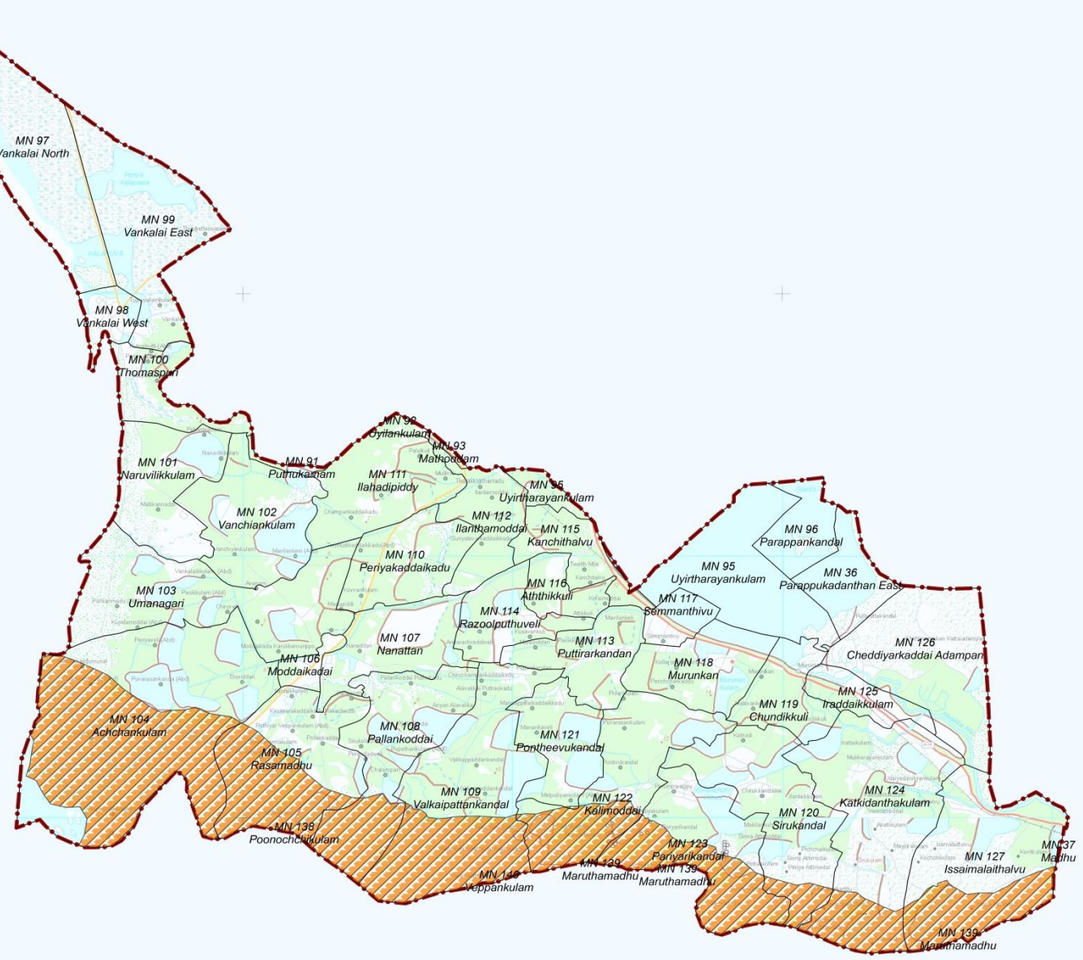
Table 06

Inundated Areas in Nachchaduwa Divisional Secretariat Division in December 2011 flood					
North Central Province					
Anuradhapura District					
DS Division	**GN Division NO**	**GN Division Name**	**Area Sq.Km.**	**Inundated Area Sq.Km.**	**Percentage %**
NACHCHADUWA	274	Kaluvila North	3.37	1.03	30.41
NACHCHADUWA	265	Kudanelubewa	3.11	0.95	30.41
NACHCHADUWA	259	Shrawasthipura	5.32	1.45	27.20
NACHCHADUWA	266	Mahanelubewa	5.25	1.55	29.55
NACHCHADUWA	267	Pawakkulama	3.28	0.48	14.56
NACHCHADUWA	273	Madawalagama	3.01	0.94	31.17
NACHCHADUWA	535	Nachchaduwa	5.95	0.79	13.31
Total			**29.30**	**7.18**	**24.51**

INUNDATION AREA MAP - NANADDAN DS DIVISION IN FEBRUARY 2011 FLOOD

ID FLOOD MAP



Coordinate System: Kandawala Sri Lanka Grid
Projection: Transverse Mercator
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False Northing: 200,000.0000
Central Meridian: 80.7717
Scale Factor: 0.9999
Latitude Of Origin: 7.0005
Units: Meter

Scale : 1:100,000

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0 2.5 5 10 Kilometers

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IRRIGATION DEPARTMENT

HYDROLOGY AND DISASTER MANAGEMENT DIVISION

MALWATHU OYA BASIN

INUNDATED AREA MAP – NANADDAN DS DIVISION
FLOOD IN FEBRUARY 2011

Date : 2015.09.24	Sheet No : 06	Map no : **IDFM/RB/90/2011**

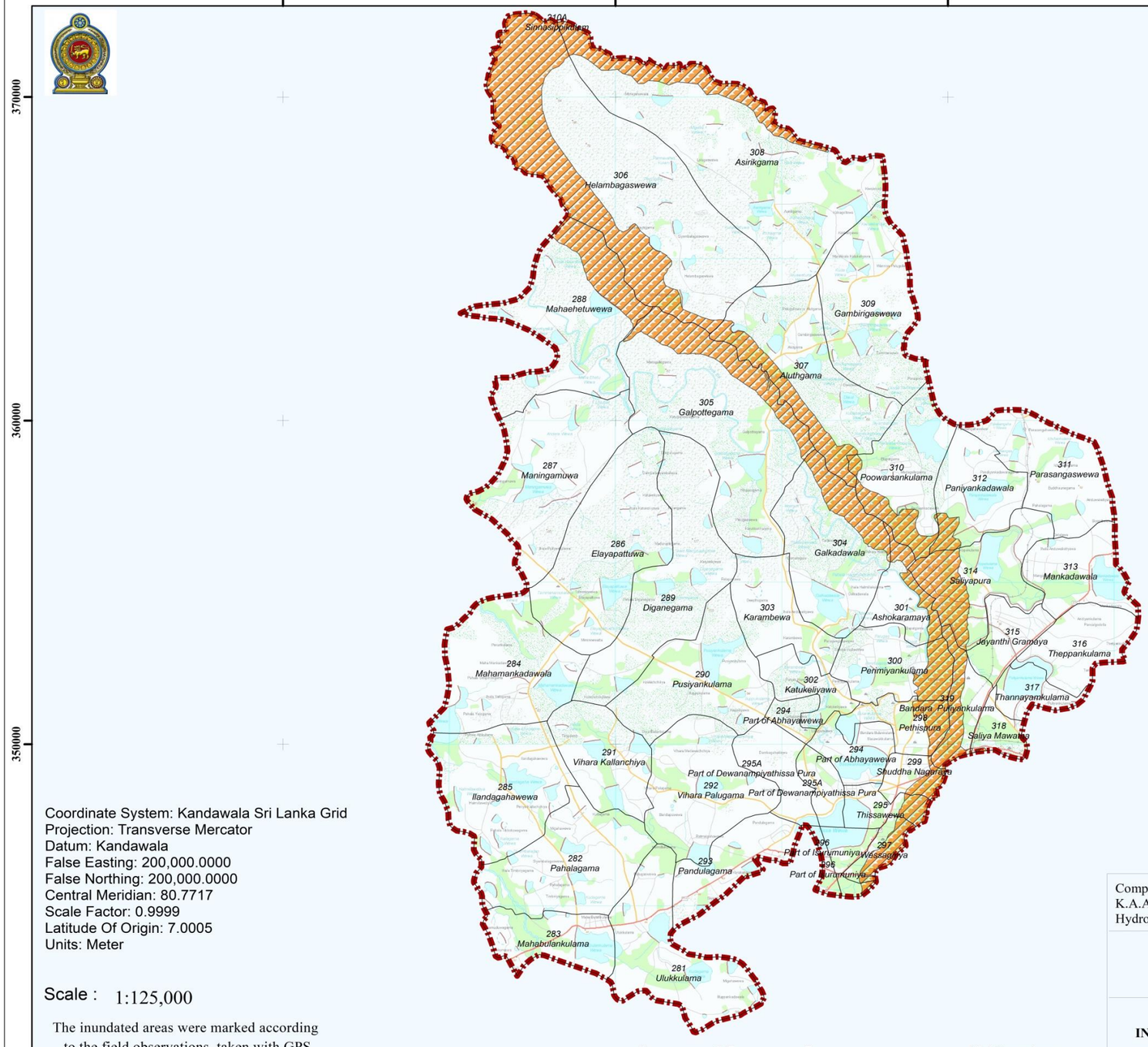
Printed - March 2021

Table 07

Inundated Areas in Nanaddan Divisional Secretariat Division in December 2011 flood					
Nothern Province					
Mannar District					
DS Division	**GN Division NO**	**GN Division Name**	**Area Sq.Km.**	**Inundated Area Sq.Km.**	**Percentage %**
NANADDAN	MN 122	Kalimoddai	5.39	1.96	36.40
NANADDAN	MN 123	Pariyarikandal	5.41	3.01	55.64
NANADDAN	MN 120	Sirukandal	5.54	0.62	11.19
NANADDAN	MN 104	Achchankulam	18.04	11.18	61.98
NANADDAN	MN 124	Katkidanthakulam	8.46	1.56	18.40
NANADDAN	MN 108	Pallankoddai	5.51	1.78	32.27
NANADDAN	MN 121	Pontheevukandal	2.82	0.01	0.35
NANADDAN	MN 109	Valkaipattankandal	8.67	3.85	44.38
NANADDAN	MN 105	Rasamadhu	6.08	3.27	53.86
NANADDAN	MN 127	Issaimalaithalvu	8.60	3.14	36.53
Total			**58.17**	**24.78**	**42.61**

ID FLOOD MAP

INUNDATION AREA MAP - NUWARAGAMPALATHA CENTRAL DS DIVISION IN FEBRUARY 2011 FLOOD



LEGEND

- Inundated Area
- DSD Boundary
- GND Boundaries

Coordinate System: Kandawala Sri Lanka Grid
Projection: Transverse Mercator
Datum: Kandawala
False Easting: 200,000.0000
False Northing: 200,000.0000
Central Meridian: 80.7717
Scale Factor: 0.9999
Latitude Of Origin: 7.0005
Units: Meter

Scale : 1:125,000

The inundated areas were marked according to the field observations taken with GPS instruments after the flood event (in Sept 2015).

Compiled by :	Checked by :	Approved by :
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IRRIGATION DEPARTMENT

HYDROLOGY AND DISASTER MANAGEMENT DIVISION

MALWATHU OYA BASIN

INUNDATED AREA MAP –NUWARAGAM PALATHA CENTRAL DS DIVISION FLOOD IN FEBRUARY 2011

Date : 2015.09.24	Sheet No : 07	Map no : **IDFM/RB/90/2011**

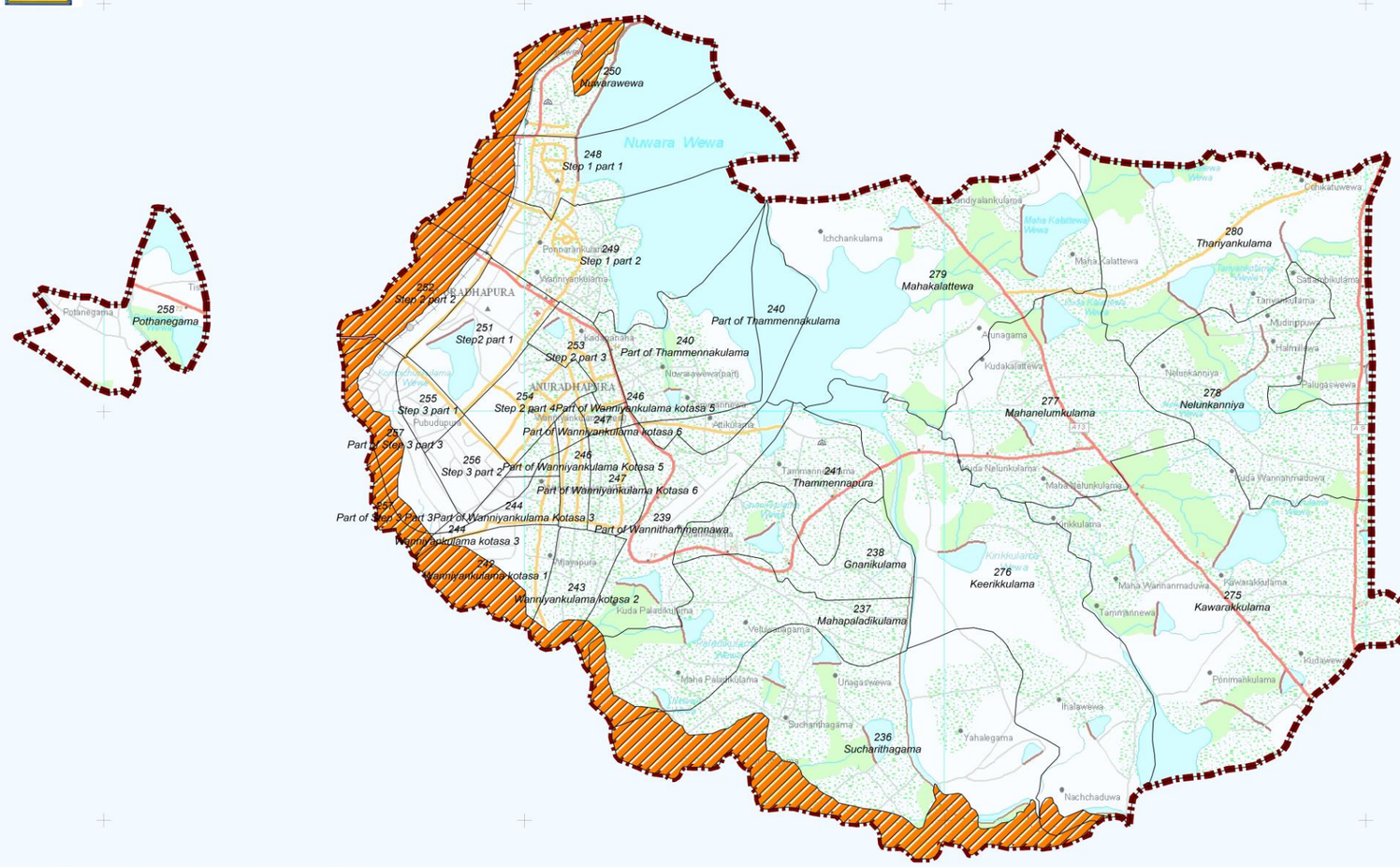
Printed - March 2021

Table 08

Inundated Areas in Nuwaragam Palatha Central Divisional Secretariat Division in December 2011 flood					
North Central Province					
Anuradhapura District					
DS Division	**GN Division NO**	**GN Division Name**	**Area Sq.Km.**	**Inundated Area Sq.Km.**	**Percentage %**
NUWARAGAM PALATHA CENTRAL	319	Bandara Puliyankulama	3.40	2.00	58.74
NUWARAGAM PALATHA CENTRAL	310	Poowarsankulama	9.35	2.14	22.86
NUWARAGAM PALATHA CENTRAL	312	Paniyankadawala	7.13	0.70	9.76
NUWARAGAM PALATHA CENTRAL	307	Aluthgama	14.62	3.36	23.00
NUWARAGAM PALATHA CENTRAL	305	Galpottegama	22.66	4.36	19.26
NUWARAGAM PALATHA CENTRAL	304	Galkadawala	12.83	2.54	19.79
NUWARAGAM PALATHA CENTRAL	308	Asirikgama	28.92	4.08	14.10
NUWARAGAM PALATHA CENTRAL	318	Saliya Mawatha	2.02	0.03	1.73
NUWARAGAM PALATHA CENTRAL	301	Ashokaramaya	4.03	1.26	31.36
NUWARAGAM PALATHA CENTRAL	288	Mahaehetuwewa	15.95	3.38	21.19
NUWARAGAM PALATHA CENTRAL	300	Perimiyankulama	6.83	1.63	23.84
NUWARAGAM PALATHA CENTRAL	298	Pethispura	3.82	1.10	28.77
NUWARAGAM PALATHA CENTRAL	299	Shuddha Nagaraya	2.13	0.68	31.91
NUWARAGAM PALATHA CENTRAL	296	Part of Isurumuniya	2.01	0.11	5.36
NUWARAGAM PALATHA CENTRAL	297	Wessagiriya	1.89	1.15	60.68
NUWARAGAM PALATHA CENTRAL	314	Saliyapura	9.05	2.99	33.05
NUWARAGAM PALATHA CENTRAL	295	Thissawewa	2.55	0.64	25.21
NUWARAGAM PALATHA CENTRAL	306	Helambagaswewa	34.54	14.01	40.57
NUWARAGAM PALATHA CENTRAL	315	Jayanthi Gramaya	3.60	0.00	0.02
Total			**55.77**	**19.58**	**35.11**

INUNDATED AREA MAP - NUWARAGAMPALATHA EAST DS DIVISION IN FEBRUARY 2011 FLOOD

ID FLOOD MAP



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Projection: Transverse Mercator
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False Northing: 200,000.0000
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Scale Factor: 0.9999
Latitude Of Origin: 7.0005
Units: Meter

Scale : 1:60,000

The inundated areas were marked according to the field observations taken with GPS instruments after the flood event (in Sept 2015).

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IRRIGATION DEPARTMENT

HYDROLOGY AND DISASTER MANAGEMENT DIVISION

MALWATHU OYA BASIN

INUNDATED AREA MAP – NUWARAGAM PALATHA EAST DS DIVISION
FLOOD IN FEBRUARY 2011

Date : 2015.09.24	Sheet No : 08	Map no : **IDFM/RB/90/2011**

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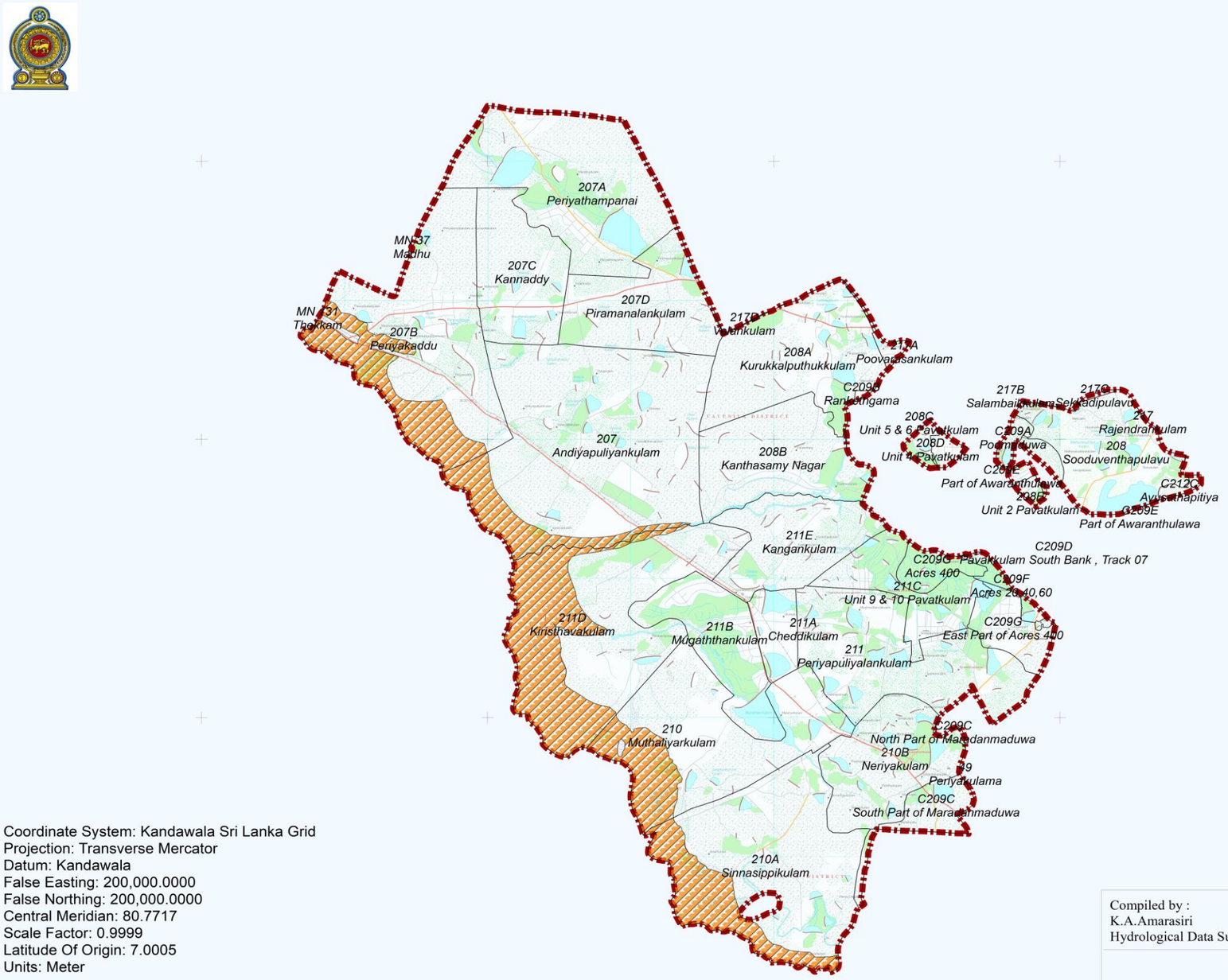
Table 09

Inundated Areas in Nuwaragam Palatha East Divisional Secretariat Division in December 2011 flood					
North Central Province					
Anuradhapura District					
DS Division	**GN Division NO**	**GN Division Name**	**Area Sq.Km.**	**Inundated Area Sq.Km.**	**Percentage %**
NUWARAGAM PALATHA EAST	237	Mahapaladikulama	3.69	0.30	8.00
NUWARAGAM PALATHA EAST	239	Part of Wannithammennawa	2.64	0.09	3.35
NUWARAGAM PALATHA EAST	257	Part of Step 3 part 3	1.39	0.57	40.73
NUWARAGAM PALATHA EAST	244	Part of Wanniyankulama Kotasa 3	0.46	0.02	4.26
NUWARAGAM PALATHA EAST	252	Step 2 part 2	1.34	0.95	70.99
NUWARAGAM PALATHA EAST	276	Keerikkulama	7.92	0.16	2.02
NUWARAGAM PALATHA EAST	243	Wanniyankulama kotasa 2	0.93	0.13	14.46
NUWARAGAM PALATHA EAST	242	Wanniyankulama kotasa 1	1.43	0.74	52.05
NUWARAGAM PALATHA EAST	236	Sucharithagama	9.22	2.47	26.84
NUWARAGAM PALATHA EAST	250	Nuwarawewa	2.72	0.68	25.12
NUWARAGAM PALATHA EAST	248	Step 1 part 1	3.01	0.29	9.67
NUWARAGAM PALATHA EAST	249	Step 1 part 2	4.23	0.42	9.83
NUWARAGAM PALATHA EAST	257	Part of Step 3 Part 3	0.24	0.24	99.61
Total			**21.78**	**4.99**	**22.89**

INUNDATED AREA MAP - VENGALACHEDDIKULAM DS DIVISION IN FEBRUARY 2011 FLOOD

ID FLOOD MAP



Coordinate System: Kandawala Sri Lanka Grid
Projection: Transverse Mercator
Datum: Kandawala
False Easting: 200,000.0000
False Northing: 200,000.0000
Central Meridian: 80.7717
Scale Factor: 0.9999
Latitude Of Origin: 7.0005
Units: Meter

Scale : 1:150,000

The inundated areas were marked according to the field observations taken with GPS instruments after the flood event (in Sept 2015).

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IRRIGATION DEPARTMENT

HYDROLOGY AND DISASTER MANAGEMENT DIVISION

MALWATHU OYA BASIN

INUNDATED AREA MAP – VENGALACHEDDIKULAM DS DIVISION
FLOOD IN FEBRUARY 2011

Date : 2015.09.24	Sheet No : 09	Map no : **IDFM/RB/90/2011**

Printed - March 2021

Table 10

Inundated Areas in Vengalacheddikulam Divisional Secretariat Division in December 2011 flood					
Nothern Province					
Vavuniya District					
DS Division	**GN Division NO**	**GN Division Name**	**Area Sq.Km.**	**Inundated Area Sq.Km.**	**Percentage %**
VENGALACHEDDIKULAM	207B	Periyakaddu	36.54	9.88	27.04
VENGALACHEDDIKULAM	207	Andiyapuliyankulam	53.09	6.32	11.90
VENGALACHEDDIKULAM	211D	Kiristhavakulam	37.77	16.52	43.75
VENGALACHEDDIKULAM	210	Muthaliyarkulam	29.11	6.37	21.89
VENGALACHEDDIKULAM	210A	Sinnasippikulam	36.99	8.64	23.35
Total			**193.50**	**47.73**	**24.67**