Purpose:
With the development of districted metered areas (DMAS), small and isolated supply zones are implemented. DMAs form the basis for network monitoring, water balancing and estimation of technical and commercial water losses, which again form the basis for action plans for the reduction of water losses.

SCOPE
This SOP describes the administrational and operational procedures for the development of one or several DMAs. It does not describe the daily work with DMAs, e.g. water balancing.

Responsibilities:
Accountable for the performance of the whole process ‘DMA development’ is the Water Services Manager (WSM). The WSM will be supported by the NRW Project Team (which is yet to be established).

The NRW Project Team is the connection between all involved departments and units. It supports the workflows and follows up the steps/processes of this SOP.

The respective Managers (Water Services, Strategic Planning, Customer Services) are accountable for implementation of the steps/processes within their departments, i.e. by organizing and managing the resources and the delivered quality.

Activities:
The activities in the SOP are described below and schematically presented in the flowchart in figure 1 below.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The Mgmt. team takes the decision to develop one or several DMAs in a certain area. The decision can be a result of a proposal, e.g. by SP or WS.</td>
<td>Mgmt. Team</td>
</tr>
<tr>
<td>2</td>
<td>The Water Services Manager forwards the decision to the GIS Unit of the Strategic Planning Department (SP). A specific form (e.g. Project Form) can be used for that purpose, which is yet to be developed.</td>
<td>Water Services Manager</td>
</tr>
</tbody>
</table>
### Responsibilities within the process

**Management Team (represented by SOM):**

1. Taking decision to develop DMAs in a specific area (‘project initiation’)
2. Acceptance of signed **Project Form (form yet to be developed)**

**Water Services Manager:**

3. Prepare **Project Form**
4. Forward **Project Form** to GIS Unit prepare DMA(s)
5. Review **DMA Info Form**
6. Approve and sign **Project Form**, indicating that the project of developing DMA(s) in a specific area is completed

**Senior Supervisor (WS):**

7. Definition of DMA boundaries in selected area
8. Synchronization of information with the GIS unit about existing assets in the area:
   - Location, condition and typical readings of Bulk Water Meters, Pressure Loggers, isolation valves, etc.
9. Definition of required equipment for isolation of the DMA and inflow bulk metering
   • Location and type of Bulk WMs, isolation valves, etc.

10. Preparation of Work Order Form for isolation of DMAs and installation of Bulk WMs

11. Control of workmanship in the field

12. Acceptance of signed Work Order Form

13. Creation/update of DMA Info Form in Excel

14. Send information to the GIS unit and the Leak Detection Unit whenever network changes are executed within a DMA

GIS Unit Supervisor:

15. Review of mapped network in GIS for the respective area

16. Update / completion of network mapping by:
   • Field visits as well as interviews with network operation and leak detection unit

17. Creation of DMA layer file for the respective DMA(s) with clear boundaries

18. Geo-referencing of customers that are located within the respective DMA(s)

Customer Service Senior Supervisor:

19. Identification of all customers within the DMA(s) with help of the GIS Unit

20. Assignment of DMA-ID (‘DMA Name’) to all customers which are located within a DMA

21. Send information to GIS Unit, whenever new customers are connected within the service area of a DMA

Indicators:

➢ No. of completely developed DMAs

Accompanying FORMS and GUIDELINES

➢ Work Order Form
➢ Project Form (yet to be developed)
➢ DMA Info Form (template available at the LDU)

Links to other SOPs:
Water Balancing (yet to be developed by WASCO)

Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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</thead>
<tbody>
<tr>
<td>CS</td>
<td>Customer Services</td>
</tr>
<tr>
<td>DC</td>
<td>Design and Construction</td>
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<tr>
<td>DMA</td>
<td>District Metered Area</td>
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<tr>
<td>GIS</td>
<td>Geographic Information System</td>
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<tr>
<td>NRW</td>
<td>Non Revenue Water</td>
</tr>
<tr>
<td>SP</td>
<td>Strategic Planning</td>
</tr>
<tr>
<td>SOP</td>
<td>Standard Operating Procedure</td>
</tr>
<tr>
<td>WOF</td>
<td>Work Order Form</td>
</tr>
<tr>
<td>WS</td>
<td>Water Service</td>
</tr>
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</table>
Revision of the SOP:

<table>
<thead>
<tr>
<th>Revision</th>
<th>date</th>
<th>Signature by WSD and SPD Managers and GM</th>
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<tbody>
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Figure 1: Flow Chart DMA Development