Water Safety Planning
Key Lessons Learned from Elaborating Water Safety Plans in Two Moldovan Villages
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The document is based on contributions from the multi-disciplinary ApaSan team and has been compiled by Matthieu Amos.

Introduction
The Water and Sanitation Project in Moldova (ApaSan) (2008—2019) was funded by the Swiss Agency for Development and Cooperation (SDC) and co-funded by the Austrian Development Cooperation (ADC). It had the main goal of improving the general quality of life and public health among the rural population in Moldova through increased sustainable access to safe drinking water and environmental sanitation. The project was implemented by Skat Consulting Ltd. (Skat), which opened the Moldovan Branch of the Skat Foundation for the purpose of the project.

The Programul Național privind implementarea obiectivelor stabilite în temeul Protocolului privind Apa și Sănătatea în Republica Moldova pentru anii 2016-20251 (2016), supported by SDC and the Moldovan government, sets a target of having effective water safety plans (WSPs) in all agglomerations having more than 5,000 inhabitants by the year 2020. Within this frame, Skat supervised the implementation of two WSPs: one in the village of Cărpineni (Hîncești district) and the other in Șerpeni (Anenii Noi district). The goal of the two interventions was to develop local expertise regarding the WSP process in a way that allows for future replications around the country.

Water Safety Plan
A WSP consists of a thorough examination of an existing water supply system (WSS) followed by the identification of possible risks and the development of appropriate mitigation measures to prevent/offset them. As such, a WSP strengthens the reliability of a WSS and limits damages to it through the establishment of well-thought-out actions plans for if and when the identified risks occur. Developing a sound WSP requires a systematic process that includes periodic updates to ensure that the WSP is as up-to-date as possible. The main advantages of a WSP are:

- It informs community members about the various components of their WSS, including which risks have the potential to affect water quality.
- It encourages community members to take an active role in monitoring their WSS and reporting any issue to appropriate authorities, meaning risks can usually be identified and planned for/resolved at an earlier stage.

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1 Moldovan national program for the implementation of goals derived from the Protocol on Water and Health published by WHO/UNECE (1999)
- It raises awareness about actions/behaviors that may jeopardize water quality.
- It creates an emergency plan and highlights possible improvements for the WSS.

**Methodology**

Guidelines for the development of a WSP already existed in Moldova at the time of the ApaSan interventions in Cărpineni and Șerpeni. Therefore, Skat decided that the best course of action was to help develop local expertise on the subject by outsourcing implementation to a Moldavan sector consultant, to develop a long lasting local expertise in the country.

As the implementation of the plan needs an exhaustive comprehension of the system, the role of the local population is major. Volunteers were assembled in a WSP team, consisting mainly in the mayor, heads of water consumer association and other important actors of the village.

Each WSP team was charged with gathering all pertinent information on their WSS and proposing solutions to the identified risks. This was accomplished by following the modules illustrated in Figure 1. The consultant’s role was to facilitate the process and make sure that information was gathered and utilized properly during the development of the proposals. The consultant also gave deadlines and offered assistance on technical questions when necessary.

Before starting the WSP development process:

- The consultant explained the benefits of the WSP to each WSP team, pointing out that the additional effort and other resources required for the development of a WSP are balanced against increased WSS reliability, saving both time and money by avoiding system failure and ensuring adequate reaction to incidents.
- Capacity building measures were organized to raise awareness about frequently occurring risks.

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2 The Ghidului Național privind Planul de Siguranță a Apei pentru sistemele de alimentare cu apă potabilă (National Guideline for the Development of a WSP) was officially approved by the Moldovan government on July 21, 2017 (Ordin Nr. 609/65); however, the document was available in its final form at the time of the ApaSan interventions.
• A walkthrough tracing each step of the WSS (from pumping station to user tap) was organized in order to ensure all members of each WSP team had an accurate understanding of their WSS. This made it easier for each WSP team member to understand how and where possible risks to their WSS existed, in turn making it easier for the WSP teams to justify any actions taken to their local communities.

Summary of Experiences and Lessons Learned
The methodology developed and outlined above was successfully implemented in both villages, with the consultant intervening to help develop an agenda for implementation steps and ensure it was respected by all stakeholders. The consultant also gave important technical advice to the WSP teams when needed.

The composition of both WSP teams were similar (as mentioned above). An accent was placed for both teams on ensuring appropriate representation by age, gender and sector. In addition to the local team members, experts were also invited to join each team in order to balance local knowledge with expertise. The exact composition of the teams is presented in Table 1 below.

Table 1: Composition of the WSP teams in Cărpineni and Șerpeni

<table>
<thead>
<tr>
<th>Cărpineni WSP team</th>
<th>Şerpeni WSP team</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution / profession</td>
<td>Institution / profession</td>
</tr>
<tr>
<td>Village</td>
<td>Village</td>
</tr>
<tr>
<td>1. Chief of sector / engineer</td>
<td>1. Municipality / mayor</td>
</tr>
<tr>
<td>2. Municipality / mayor</td>
<td>2. WCA “Apa Șerpeni” / chairman</td>
</tr>
<tr>
<td>3. Municipal enterprise / director</td>
<td>3. WCA “Apa Șerpeni” / accountant</td>
</tr>
<tr>
<td>5. Kindergarten Andrieș / director</td>
<td>5. Health Center Șerpeni/ nursing director</td>
</tr>
<tr>
<td>7. District health agency / hygienist</td>
<td>7. Kindergarten Șerpeni/ cook</td>
</tr>
<tr>
<td>10. District health agency / specialist</td>
<td>11. State Ecological Inspectorate / specialist</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>EXTERNAL</th>
<th>EXTERNAL</th>
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</thead>
<tbody>
<tr>
<td>7. District health agency / hygienist</td>
<td>9. Economy agency / economist</td>
</tr>
<tr>
<td>10. District health agency / specialist</td>
<td>11. State Ecological Inspectorate / specialist</td>
</tr>
</tbody>
</table>

Overall, there were several lessons learned that can be taken from the intervention experiences in Cărpineni and Șerpeni:

1. In order to simplify the preparation of WSP documents, preparation work should be limited to a **maximum of 3-5 content writers/editors**, each having the responsibility of gathering and synthesizing relevant information on one or more assigned topics.
2. The composition of the WSP team is critical to guarantee quality work.
   - The team leader has to be chosen carefully and should be someone well-respected in the community as he/she is crucial to ensure smooth organizational efforts and mobilize both the WSP team members and other intervening parties.
   - Mayors should absolutely be involved in the WSP team, even if they have very limited availability, as they hold important information necessary to the development of a WSP and are generally well-respected within their communities.
   - An engineer with knowledge on WSS is necessary within the team as he/she is able to understand, guide and explain technical aspects and other valuable information to the rest of the team. This lesson became evident within the Şerpeni team, where the lack of an engineer resulted in the consultant intervening more often than should have been required.

3. Considerable efforts are made when WSP team members are given clear tasks with concrete deadlines.

4. Ensuring a relaxed, comfortable and informal atmosphere contributes to reduced tensions between team members and ensures a smooth decision-making process.

5. The national guidelines proved to be extremely useful in drafting the WSPs; however, they cannot be followed step-by-step as the context in each village is unique. Thus, it is important to use the national guidelines as a framework only, ensuring that the developed plan is tailored to each local context. In this way, plans are developed with a hands-on approach and become a real tool for water supply operators instead of a vague set of guidelines that are often not applicable to them.

Conclusion

WSPs were implemented successfully in both Cârpineni and Şerpeni, showing that the general methodology developed by the Moldovan government is adequate for WSP development (even if it needs to be tailored to better suit each individual context) and that the tools and skills necessary for developing WSPs are present in Moldova. Thus, the probability for the successful implementation of WSPs in other Moldovan villages is high, providing three key ideas are followed: (1) team composition should include both members with sufficient technical knowledge of WSSs and members who can function as mediators (in order to reduce the need for external interventions); (2) WSP activities should be clear and well-organized for each team member and include concrete deadlines; and (3) a limited number (3-5 maximum) of people should be responsible for preparing WSP documents.