Applying the Managing from Clarity methodology to sustainable management of the water supply and recollection system in the city of Leon

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This paper tells about our experience in using the "Managing from Clarity" methodology – systems thinking and system dynamics – to aid group decision-making and strategy development for the governmental water management system in the city of Leon, Mexico, named SAPAL. The methodology consists in gaining strategic clarity in how the management team designs and manages five strategic elements – its Goals, Resources, Actions, Structure and People (GRASP). This clarity helps leaders to understand from a systemic point of view the organization with which they are interacting every day, to understand how to move it in the desired direction and provides them with a dynamic and comprehensive tool with which to communicate the whole view of the organization and where everyone fits in it.

"In my opinion, one of the reasons the GRASP methodology adds value is in its focus on the "leadership team", in how it helps to determine the path and to strengthen the communications and internal knowledge of all the departments. You learn to see the organization as a whole, taking in consideration external environment and its relation with all the internal pieces even when those are not my direct responsibility. It was very interesting to see SAPAL in black and white on one page. "Managing from Clarity" is a strategic lens that helps reaffirm, or define, the organization's current and future direction. You can find expected consequences or even better, the unexpected. It was a positive and enriching experience from the human, technological and organizational aspects." --SAPAL Director of Geoinformatics and Systems

The global goal of SAPAL is to guarantee the sustainability of the city of Leon's economic and social hydraulic development. The need SAPAL fulfills is the provision of sufficient high quality water at a fair price. They get permission from political organizations that want sustainable development of the city. Support in capital comes from the government. Support in action comes from the employees and unions that want to maximize benefits for the workers. In September 2000, SAPAL was about to start running the first phase of a water treatment plant. With this big initiative, the permission from political organizations and support in capital from the government was threatened, because of the monetary implications for the users, specially the industrial base, and the effect this could have on governmental popularity. Therefore, the main concern was the possible reactions from the industrial associations, which might withdraw support, influencing plant operation. Another critical concern revolved around water being a limited resource, which the population seemed to not recognize.

With the SAPAL management team and the director of the industrial council, we developed a qualitative, systemic, resource map and performed a systemic analysis of the organization. The analysis explored the main feedback loops, identified shared strategic resources and leverage points, and highlighted actors' perspectives of the system. This gave the management team clarity regarding what to do to minimize political impact and population discomfort. In the last quarter of 2000 and the beginning of 2001, the map was used as a guide in the planning team's strategic conversations as a thinking tool. A highlevel, summary map was used to communicate the long-term relevance of the initiative to achieve SAPAL's global goal.

After the consolidation of the water treatment plant, the management team was ready to continue their training in thinking systemically. During a workshop in the last quarter of 2001, six initiatives for 2002 were generated:

- 1) Plant II Second phase of the water treatment plant,
- 2) Project Rio Verde I and II Build an aqueduct to bring water from another state to the city of Leon,
- 3) Project Muralla II Build the infrastructure to bring water from another town nearby Leon,
- 4) Feasibilities Understand how land feasibility for home builders influences the system and what to do to control it,
- 5) Collection Explore how to increase collection efficiency,
- 6) Financial Resources Explore how financial resources are generated and explore management of the different options to get economical resources for initiatives 1, 2 and 3.

For each initiative, a GRASP model was built. These maps helped the team gain clarity and guide conversations to (1) find opportunity areas, (2) generate ideas around each initiative, (3) share the vision of possible actions, and (4) identify the main message to communicate outside SAPAL (two or three resources for each initiative).

After identifying the key strategic resources for each initiative, a stock-flow model was developed with the expert group. There were two objectives: (1) clarify key dynamics, and (2) once the model was validated, communicate the dynamics to the government (municipal and state) and the industrial association in Leon.

Following development and validation of the model for each initiative, a thinking and communication tool was developed integrating the work done in September 2000 with the work done in the last quarter of 2001 (see figure 1). With this integration, the management team was able to see at the bottom of the page the actions that were identified through the process linked to each one of the initiative resource maps and finally linked to the detailed resource map of the whole organization. It is important to keep in mind that the initiatives need to be seen in the integration map as a whole system not as independent actions. To facilitate systemic thinking the main action affected by the initiative in the company map was highlighted in red and the shared resources and variables among initiatives were highlighted in blue to facilitate systemic thinking. In this way, the team could think about the strategic pathways for the actions they were planning to take. Now the leadership team had an agreed-upon, holistic platform with which to strategize. As a result of the process, the management team realized that five of the six initiatives required a lot of political work outside SAPAL and they started looking for internal options to be able to achieve their global goal in the long term even without some of this initiatives.

Different versions of the integration were printed out in 5x3-foot versions, depending on the objective. The integration with the detailed qualitative map was printed out for their strategic meetings to guide strategic conversations, and the integration with the high-level resource map to communicate the impact of the set of actions to government and industrials.

Having a systemic understanding of the system, knowing how to move it in the desired direction, and being able to communicate this understanding to others gave the SAPAL management team a strong framework to think about strategic issues and act upon specific initiatives from a systemic perspective. The "Managing from Clarity" process was not only concerned with the strategic decision and the consequences of those actions, but more importantly how to think about it, how to improve performance and how to coordinate efforts inside and outside the organization to achieve the global goal.



Figure 1. Integration of the organization qualitative resource map with the initiative stock-flow diagrams