

SEA Case Study: Jordan Water Sector

by Vahid Alavian

Mr. Vahid Alavian is a Lead Water Resources Specialist at the World Bank. He has more than 25 years of experience in water resources management. At the World Bank Institute he leads the Water Program, which is responsible for the development of capacity building and learning programs related to the water sector for the Bank's client countries. Prior to joining the World Bank, Vahid served as the senior water advisor at the USAID Global Environment Center and worked as a Senior Engineer at the Tennessee Valley Authority (TVA). Vahid is a Fulbright Scholar and holds a PhD in Civil & Environmental Engineering from the University of Wisconsin in Madison. His academic experience includes faculty of Civil Engineering at the University of Illinois, Urbana-Champaign, USA and faculty of Civil and Environmental Engineering at the University of Tennessee, Knoxville, USA.

In this session, we are going to briefly review the case of Jordan's water sector. This case was carried out a year or two ago in connection with overall a strategic assessment in the country of Jordan, and the specific study that I'm going to share with you relates to the water sector.

I am sure that by now you have heard a great deal about the definition of strategic environmental assessment in various applications, and just to briefly review with you, I would like to share three of these potential definitions, and through the presentation will refer back to them.

One is that strategic environmental assessment is a tool for identifying and up-streaming environmental and social issues for several purposes: for development planning, for decisionmaking and implementation, as well as strategic planning.

Another definition that may be more familiar to you is that strategic environmental assessment could be a catalyst or a step towards the holistic understanding of the environmental and social issues within the context of policy planning and public investment.

And a third definition that we will refer to from time to time in the course of this session will be that strategic environmental assessment, sometimes referred to as SEA, is a tool for assessing development policies and programs to determine their adequacy for sustainable development.

So you will see that we can use SEA as a tool to identify an upstream process, we can SEA as a catalyst or as another tool that will allow us to assess existing and ongoing projects and activities.

Within the context of Jordan Water Sector, this study was carried out to review the Jordan Water Sector Planning and Investment Program. It was a 10-year program that the country of Jordan had developed, and there are four specific issues within the program that they were considering; one was water supply, water demand management, strategic planning and, finally, institutional reforms.

And we carried out the strategic environmental assessment with respect to these four particular areas. In order to fully understand how a strategic environmental assessment plays into the

national economic development program or plan, one must always use a filter or a way of measuring this.

One potential way of measuring this, which you may have heard about, is utilizing what the World Bank calls the safeguards, and there is a list of 10 of them, as you see. I will briefly mention them to you, but most of the focus of this session will be on the very first one, which is the environmental assessment.

But these filters that could be run against any overall planning for a strategic assessment could be an environmental assessment, forestry and watershed management, pest management, natural habitat, cultural issues and so on down the line to the point where one might look at development in disputed areas.

There are two other additional considerations that will be looked at, and one is a social assessment, with respect to the strategy, and the next would be disclosure of information to the stakeholder.

It has been found that it is extremely important to have the stakeholders directly involved in all aspects of strategic planning; one, for awareness and, secondly, for future better understanding of the issues that went into this assessment and the eventual investment decisions that are made from that.

This is the process that we utilized in addressing the strategic environmental assessment in the Jordan Water Sector.

First, we had a discussion with the government, where we had awareness within the Government of Jordan built to the importance and utilization of this process.

Then, there was a buy-in from the government, where there was agreement that this was a very useful exercise, and the government would be interested in assistance from the World Bank to carry it out.

And then there was a commitment to assist in this process.

The process allowed for identification and meeting with the various stakeholders. And in this particular case study, there were six ministries involved. We don't need to worry about the names of these ministries. Many of you who are in the water sector know that water is a fragmented sector and many ministries are involved.

Then, we looked at selected line agencies. These would be implementing arms or organizations within these ministries, and many of you in the water sector are familiar with that.

Then, we looked at Aqaba Special Economic Zone. This is a port of Jordan where special tax and economic incentives apply, and it was important to also consult with that organization, in terms of environmental impact of any investment plan.

Rural Scientific Society was essentially the research arm that we consulted. Jordan Environmental Society is a local NGO or a national NGO, nongovernmental organization, and Friends of the Earth Middle East would be the global or regional nongovernmental organization that was involved, and the University of Jordan, where most of the research is being done in various aspects of the environment, and of course any additional work that could be carried out in this area would be done at the university.

There are two other areas or potential stakeholders, which we did not have the time to consult. One was the civil society as a whole. This would be the general public, and the consultation would take place via television and newspaper media, and also donors that were involved in the country of Jordan on various aspects.

Again, the only reason these two were not included was because of the time constraint, and just to remind you that the time that it took for this particular strategic environmental assessment to be carried out was approximately two months, and two or three individuals were involved at a full-time level. So it was a rather compressed time frame, and usually one would like to spend more time than that, and that is why I have marked the last two in red in that, indicating that they are very important, and one must pay attention to them.

Let us continue with the process. The next step was to share the development investment, which I mentioned earlier, with the stakeholders and seek their response. This was carried out through a series of meetings with various stakeholders.

Of course, not every stakeholder is interested in every aspect of the water resources development plan for Jordan. So we tried to make sure that we focused on areas that they were particularly interested in, but for the purpose of awareness building, we discussed the entire report and the entire investment plan with them.

Then, the findings from these were compiled. Generally, one might consider doing this through surveys, one would do that through meetings and also use of media if appropriate.

Then, we had a stakeholder meeting to disclose all of the information, seeking additional input, and also reached consensus, and this is very important, to reach consensus on what would be considered the key environmental issues that would have a strategic effect and must be considered on the upstream side of any kind of an investment plan.

Then, we sought additional input from the parties. There's always a situation where parties are not able to attend these meetings or they would like to provide more information. And then a draft final report was prepared, which was shared by everyone, and in that report, follow-up activities were identified.

Now, allow me to share with you what some of the findings were in this particular case. As I go through that, I'll share with you how they tie back to the original definition of strategic environmental assessment.

As I indicated earlier in the session, there were four different areas of activities that we considered; one was water resource development, one was water demand management, one was institutional management, and finally the fourth one was the political essential aspects of strategic environmental issues. So let's take them up one-by-one.

On the water resources development, we ran the filter that you saw earlier, and we looked at intervention and potential strategic issues. In this particular case, I'd like to call your attention to the third line from the top, and this was a project that the Government of Jordan has in mind, in their 10-year development plan, to transfer water from an aquifer to the City of Amman for drinking water purposes.

We talked to the stakeholders, and the following key potential strategic environmental issues were identified by the stakeholders that should be studied well in advance of any investment activity. That would be the international aspect of this. This particular aquifer happens to be shared with Saudi Arabia, so there was an international dimension:

Safe yield from the aquifer. It happens to be a fossil aquifer, and of course it is not renewable, and therefore safe yield, if there is such a thing to be defined for fossil aquifers, could be determined.

The right of way. The pipeline that transported the water would go through certain areas of the country, and the right of way would have to be considered and the environmental issues associated with that.

Indigenous people that potentially might be affected in the pipeline area.

And, finally, the biodiversity that might be impacted by the pipeline being installed in a certain part of the country.

So those are the kinds of issues that in this particular exercise or case were identified.

I would also like to share with you perhaps one other example under the water resources development case, and that is our water reservoir. It is a dam that the Government of Jordan proposes to construct in the 10-year planning horizon. The issues there, again, environmental issues that were identified were international waterway. There had to be issues related to that discussed: safety of dams, biodiversity and resettlement of any potential individuals who might be living in the area that the dam would eventually flood.

Then, we moved to the water demand management side. We invited the stakeholders to tell us about the environmental issues that they considered to be extremely important to them in the water demand management area. And we discovered that unlike water supply side, where infrastructure is very heavy and environment is impacted greatly, on the water demand management side, there were very few environmental issues. There were mostly economic and political issues.

Let me share one or two examples with you. Tariff increases to recover operations maintenance, for example, was identified by the government as one of the areas that they would like to work on in the 10-year horizon that they had in mind. That is an economic issue because it addresses the ability of the individuals to pay, and it also is a political issue because it's an individual, and the general public would not like to have tariff raises in the cost of water.

However, the environmental impact of that was minimal and was considered by the stakeholders as not so important. And there are other cases as you see in the table there.

Then, we went to the potential strategic environmental issues related to strategic planning and management. These are all management activities. In general, these are activities that are used to improved water supply and, as a result, they have generally positive impact on the environment. So, as you will see on the right-hand side of the table, very few, if any at all, comments were made by the stakeholders as considered strategic environmental issues.

On the institutional reform side, the same thing. For example, restructuring of a water agency does not have a direct environmental impact, and therefore was not considered by the stakeholder as a strategic issue.

Then, we looked at the alternatives to mitigation. This is a normal process that takes place when one looks at the strategic environmental issues, and these are the issues that the stakeholders identified, and some of you will probably identify with these issues as well.

In the country of Jordan, every one agrees that demand is already well beyond the sustainable yield of both aquifers and surface water. So the alternatives available would be best or better management of available water resources. The issues usually associated with that are officious increases, pricing, licensing, reuse and so forth. Most of you already know about that, and the environmental impact of those issues would have to be considered if one were to look at alternatives and mitigating those alternatives.

But then there are a series of much more expensive options and alternatives that would be available, and that would be making use of nonconventional water supply.

For example, fossil groundwater, this is in progress. The government is making use of them, and of course there will have to be environmental impact assessment of that.

Desalination of brackish water, mostly for irrigation purposes, this is being done to a limited level, and of course the effluent discharge would have an environmental impact.

Interbasin transfer of water, this is very expensive. This would be a situation where water is brought from outside the Jordan Valley into the area. That is very expensive, and of course would require large infrastructure, and that in turn would require a great deal of environmental assessment.

So, for all of these mitigative options, a full environmental impact assessment would have to be carried out, and there are many common elements among them that could become part of the strategic environmental assessment.

One area which we did not have an opportunity to study and investigate, again, because of the shortness of time available to carry out this case study, was to look at the cost of mitigation. It is very important to identify alternatives and how those alternatives would be mitigated or at least the damages from those would be mitigated, but it is also important to determine what it would cost because that has to go into the overall government's public investment tables.

The strategic environmental assessment also addresses the enabling framework within the country to address some of these issues, whether or not there is policy and legal framework available to be able to carry out a strategic environmental assessment and take mitigative action. Are the institutions in place and capable of handling that? Monitoring and enforcement are important, and so on and so forth.

The input that's provided by the stakeholders in this particular case was rather interesting. Initially, when we invited the stakeholders to talk about enabling environment, they essentially had complaints and restating of the problem.

But once we were able to get past that stage, then it was extremely useful to have the stakeholders comment on this because they realize the complexity of the issues and areas of activities that are generally outside the water sector that need to play a role in a strategic environmental assessment; for example, public awareness, capacity building and so forth.

From this, in consultation with the stakeholders, a series of next steps were determined. In the near term, essentially it was decided that there is tremendous need for capacity building through seminars, training workshops, and so forth, to understand what the environmental issues are and what strategic environmental assessment is.

Of course, as a part of that, there will be some training with safeguard policies, particularly if the World Bank is involved in financing any of these activities.

Then, there is training for the staff at the government level, and at the public level and a civil society level for understanding environmental issues, and understanding mitigative issues, and understanding water management and conservation.

And in this specific case that we reviewed in Jordan, it became evident that many of the government ministries and line agencies that I mentioned earlier were in need of capacity building and training in order to be able to understand better manage the environmental impact assessment that was being prepared for the particular pipeline from the D.C. aquifer.

And in the longer term, in terms of next steps, they agreed that there's a need to increase in-country capability to manage and carry out environmental impact assessments because obviously for the options that is available to the country, environmental impact assessment, particularly for infrastructure, would be very important, and it is important to develop capacity within the

country to not only understand the strategic environmental issues, but also be able to deliver training on the strategic environmental issues.

So the short term will be specifically for the government and the civil society to be aware of the issues, to be able to understand them, and in the long term, it is important for the country to be able to carry the environmental impact assessment and be able to actually train through various either government-sponsored or donor-sponsored activities how to conduct a strategic environmental assessment.

The conclusions that were reached from this particular case study were several. One of the questions that we asked ourselves with the stakeholders at the end of this exercise was what did we learn that we did not know before we started the process?

The technical individuals were pleased to know and learn that there were other aspects to water management than just technical aspect, and those who were on the social scientist side were interested in learning more about the technical and some of the complicated issues related to delivery of water, management of water, management of demand and so forth. So that aspect of awareness building was very useful.

Then the participants asked themselves how will this work support the broader strategic environmental assessment for the entire country? And I'm sure you've heard many times in this course that a strategic environmental assessment should be done in an overall and a broad sense for the country.

And this particular case that we are studying here in this session, of course, is only for the water sector, but many decisions and issues related to the water sector are made outside the water sector. So it was important for them to understand what some of those linkages are.

And then the process and the exercise was extremely useful in bringing stakeholders together and focus on some of these issues and be able to understand the position of others a little bit more effectively and a little bit better.

And with this exercise, we were able to pave the way for next steps in Jordan to move forward on a strategic assessment, environmental assessment, as a part of their long-term plan.

I hope that this brief description of the case study of Jordan was useful to you, and I hope that you'll be able to apply this in at least some of the cases that you will be studying.