

Moving from mitigation measures to regional plans

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Abstract

Mitigation measures identified by the environmental impact assessment (EIA) process of large infrastructure projects are often a source of controversy involving regulators, project developers and local communities. Focusing the debate on just the nature and scope of such measures may fail to take advantage of all the value that the project can have as a tool to promote regional development. In this presentation we use evidences from studies conducted in Mexico on impacts and the implementation of mitigation measures in different stages of hydroelectric projects to propose a guideline on how to transform otherwise isolated mitigation measures into ecodevelopment regional plans. Focusing the study on a region impacted by three large projects in western Mexico, we propose a four dimensional approach that involves ecological land use planning, economic regional planning, negotiation of local development plans and integrated business plan management.

Introduction

Environmental impact assessments normally recommend a set of measures that project developers may implement without serious consideration of how they fit into a broader development plan. Similarly, the regulatory authority may ask the developer to follow the recommendations without necessarily considering other projects or plans undertaken by different public and private entities working in the region. This approach has several limitations because it transforms expensive, well thought and even carefully implemented measures into isolated actions leaving aside potential benefits of large infrastructure projects. Using EIA mitigation measures in such a way diminishes the contribution that this assessment technique can make to the achievement of regional development goals.

Taking as a case study a region with two hydroelectric power plants (Aguamilpa and El Cajón) and a third under construction (La Yesca), a research team from the University of Guadalajara is evaluating the economic potential of the region and the conditions under which local development actors may operate successful enterprises and knit an economic network that realizes the development potential of this region.

The regional context

The cases analyzed here involved the relocation of 40 communities, 28 in Aguamilpa and 12 in El Cajón, totalling 680 persons in Aguamilpa and 210 in El Cajón. In La Yesca, the project under construction, there was only one small community to be relocated. Cumulatively, the projects have direct impacts upon a larger region formed by 8 municipalities, 6 in the Western state of Nayarit and two in the neighbor state of Jalisco and indirect impacts in a region that extends from Guadalajara in the southeast part of the region to Tepic in the northwest part. Two major highways between these two cities form an important agricultural, commercial and manufacturing corridor that links this region to central and northwest Mexico. A mountain chain separates this corridor from the river basin where the hydroelectric plants and the directly impacted communities are located. Even after the hydroelectric projects were built, only a few paved roads connect the corridor with the impacted region. The mitigation measures in the two completed projects included some form of restitution of economic opportunities to impacted communities.

With some variations the contemplated alternative livelihood activities included fishing, water transportation, cattle raising, forestry and agricultural production. In Aguamilpa the emphasis was on fishing as the main source of income, but in El Cajón this option was less attractive. In both projects there are communities sending fish to markets in central Mexico through a network of intermediaries. In El Cajón, state and regional political leaders demanded additional emphasis on ecotourism and agricultural production. In most cases, the new enterprises were organized as small scale operations in association or in cooperation with external actors who participated as providers of know how, financial support or served as commercial distributors of local production.

The Power Utility Company provided assistance during the construction phase of the hydroelectric projects, by improving basic infrastructure that created new businesses opportunities and economic activities in the region. Along the way, other entities such as State Governments and Federal agencies have channeled resources to the region and have helped the local communities to create jobs by establishing small businesses in the retail, handcraft and tourism sectors such as small restaurants and hotel accommodations.

Recent fieldwork visits to assess the current status of different projects showed that while some of new businesses were still in place, the region as a whole have failed to become an integrated economic area that could evolve into a solid, diversified and competitive regional economy. These visits were part of a larger study to assess new economic opportunities. The research team has found a region with few solid business operations and those that were still working after they were originally established as part of the mitigation measures were facing several drawbacks that may be hard to overcome in the long term. Less than half of the business units created were still open; fishing the most important of them all was operating under the tacit control of intermediaries and the economic links existed between the communities in one micro region (Aguamilpa) and the next (El Cajón), of the two already created by the H.P. Projects.

This assessment identified a list of major barriers that need to be considered for future economic planning in the region.

- a) Small businesses are underfunded and work using obsolete equipment and technologies. Equipment maintenance is limited and few business owners have the skills to conduct the repair work needed or to develop a program of improvements that may lead to more competitive economic units.
- b) There is a lack of skilled workers in virtually all areas and the new activities have demanded new skills that only some have been able to develop.
- c) Activities based on the use of common resources such as fishing or ecotourism face organization problems and some conflicts among communities. This is a problem that may grow if the several agencies who work in the region do not negotiate a common agenda and funding principles and practices.
- d) Production costs are very high since most inputs have to come from outside the region, (from the Tepic-Guadalajara corridor), and local production is sold to intermediaries who have the knowledge and equipment needed for the distribution of the local production.
- e) Accessibility to most communities is very limited and expensive because there are only a few paved roads and there is not an intraregional and multimodal network of transportation routes.
- f) Transportation services of people and products inside the region are unreliable and expensive. There is no regular transportation service among the different communities and the services provided are poorly organized and equipped. In one of the larger towns there only two or three persons with the equipment (a truck) and the

skills (they can drive) to operate a road transportation service from the disembarking site to the community.

- g) Communities and business owners consider that electricity is expensive and is not available in all the communities.

In sum, while each microregion created by each of the hydroelectric plant has seen some improvements in the production conditions and quality of life, we can summarize the problems faced by local producers as a set of barriers that impede regional economic integration. We propose to address such impediments using an integrated approach that involves four areas of planning that may lead to an adequate regional economic development process.

From mitigation to planning: a four dimensional approach

In order to move from isolated project-specific mitigation measures to a coordinated regional planning approach, the interested parties (project proponents, regulators and municipal governments) need to realize that the microregions created by the three projects may be analyzed as forming a regional unit that shares several natural and socioeconomic conditions. As a region efforts need to be coordinated to develop an economic base for small communities that is integrated to create microregional economic networks that is likely to create a sustainable regional economy that participates in a more favorable exchange of products and services with the nearby Tepic-Guadalajara Corridor. (See map) To assess this possibility we are evaluating new economic opportunities for the region and its different communities. Our approach to microregional planning is multidimensional that considers cumulative effects involving:

- a) **Ecological land use planning:** This involves the use of geographical information systems to develop maps of potential economic activities in different parts of the region. This part of the study gives particular relevance to natural conditions as well as to the presence of socioeconomic conditions that may facilitate the operation of small businesses in different sectors. With a decision-oriented methodology we may pinpoint every site on the map and have a basic estimate of the economic potential of that site.
- b) **Economic regional planning.** In this dimension of the study we use conventional economic evaluation –cost benefit analysis- to assess what economic activities have more potential in the region and use a qualitative approach to analyze who is, or might be interested, in promoting such activities. Our regional development approach also looks at how each activity may contribute to integrate a diversified economic base for the region and how internal links can be strengthened.
- c) **Negotiation of local development plans.** Given the structure of social, economic and regional development policies in Mexico, communities in rural regions are subject to the intervention of several government agencies from the three orders of government: federal, state and local. In each community there are also different actors with particular interests and is very likely that few communities know what others can do in a regional planning scheme. The presence of different government agencies does not follow an integrated plan and sometimes even within one line of work, for example tourism development, it is possible to find more than four agencies working on a separate agenda.

The fieldwork conducted in the region, shows that in addition to this problem, there are other political actors and economic intermediaries pushing to achieve very specific goals such an agreement to guarantee the rights for product distribution, the

support of a particular project in a particular community or the establishment of a particular form of organization of economic activities.

All this happens without serious consideration of what is the cumulative contribution of each effort conducted or project funded to a larger development strategy.

To cope with this problem, the study conducted by a team of the University Guadalajara is implementing a regional dialogue following a three phase process inspired by negotiation theories and techniques that includes:

- i. an issue assessment based on fieldwork and interviews
- ii. a general assessment of potential sites and business possibilities, and
- iii. an analysis of regional conditions of production that may help the competitiveness of the region and local businesses.

One of the primary goals of this process is to have different stakeholders participating in the identification of the most viable business opportunities considering the natural, social and economic conditions of the region and how activities conducted in one community may be connected with activities in other communities to forge a strong and diversified regional economic base.

- d) Integrated business plan opportunities.** This analytical dimension is a key part of the transformation of mitigation measures into regional economic development plans. It consists of an analysis of market conditions for different lines of products and services that may be produced in the region. For each major line of production identified, a business plan is developed including the identification of potential investors either local and external. While the scope of the study is just to identify what is the actual potential of every line of production, it will also provide with recommendations for site selection and project management as well as a list of potential investors and the conditions they pose for anyone expecting to tap from the resources they provide.

This integrated approach has the potential of providing all decision makers and even local stakeholders with an instrument that defines not only what is viable in a particular site but also an understanding of what a project brings to the stability, growth and competitiveness of a region.

Preliminary conclusions

While the regional analysis is still underway, we can advance some preliminary conclusions about the advantages of using a regional approach to guide the investigation of economic opportunities in this particular region. These conclusions are local but can be extended to other regions affected by large hydroelectric or other large infrastructure projects:

- a) The projects promoted under a mitigation approach have rarely succeeded in the medium term. By assessing regional opportunities instead of particular projects the integrated approach suggested here may give serious consideration not just to the economic potential of a particular project but also to how it helps to forge a regional economy that is less dependant on external aid and support.
- b) The consideration of all the natural conditions that create a broader map of economic opportunities in the region provides the stakeholders with a key instrument to assess whether a particular site is considered to have the best conditions for a

particular project. This instrument facilitates communicating a broader view of what opportunities exists in the region.

- c) One key aspect in the region analyzed here is that each hydroelectric project has been constructed without a regional perspective. So instead of creating the conditions to forge a parallel economic corridor along the river, each dam cuts the downstream-upstream economic flow that could have arrived to the region if such an approach was planned from the very beginning. The practical implication of this is that the region does not have the infrastructure and equipment needed to permit a stronger integration with the participation of the impacted communities.
- d) In these conditions, owners of small businesses in the region do not have the conditions, including the existence of public goods that would allow them to create competitive products and services.

In sum, the approach used in this research has the potential to produce very specific and detailed recommendations but also to produce inputs that developers can use to facilitate a more productive regional dialogue in which experts and the public have opportunities to generate ideas and options that may lead to the integration of a regional economy.

