INJUSTICE ANYWHERE IS A THREAT TO JUSTICE EVERYWHERE. WE ARE CAUGHT IN AN INESCAPABLE NETWORK OF MUTUALITY, TIED IN A SINGLE GARMENT OF DESTINY. WHATEVER AFFECTS ONE DIRECTLY, AFFECTS ALL INDIRECTLY.

ALABAMA, 1963

la injusticia en cualquier parte es una amenaza de la justicia en todas partes, estamos atrapados en una red ineludible de reciprocidad, atados en un solo compromiso con el destino, lo que afecta a uno directamente, afecta a todos indirectamente

Martin Luther King, Jr Memorial
From the collection of information, hydrological and hydropower research, proposal and evaluation of schemes of work, social management and environmental assessment of projects, to selecting the best technical, economic, social and environmental option.

Basic Studies
Approach and Assessment Scheme Works on Different Levels: Great Vision, Prefeasibility and Feasibility
Efforts and Social Assessment, Environmental and Policy Management Representations, and Agreements

From the general arrangements of the main features and definition of electromechanical equipment works, until the development of executive plans for the construction of civil works, technical specifications and catalog concepts.

Technical Specifications
Conceptual Engineering
Basic Engineering
Detailed Engineering
Licenses

Includes the activities of the monitoring phase of the construction of hydroelectric projects in stages: Preliminary Activities, External and Internal Supervision

Monitoring every stage of the construction project by:
Private Civil Works
Electromechanical residence
Socioenvironmental residence
Private Engineering Site
**STAGES OF STUDY**

**PLANNING STAGE**

1. **IDENTIFICATION**
   - Locate potential hydroelectric sites nationwide.

2. **SCOPING – WIDE VISION**
   - Propose schemes integral use of a watershed or river, prioritizing projects.

3. **PRE-FEASIBILITY**
   - Select the best scheme development and the optimum design of the works at a selected site.

4. **FEASIBILITY**
   - Establish the technical, economic, social and environmental feasibility of the project, defining the project works.

**DESIGN STAGE**

5. **CONCEPTUAL ENGINEERING**
   - Studies to define the comprehensive scheme.

6. **BASIC ENGINEERING**
   - Development of general plans of each of the works that make up the project in sufficient detail to make the bid.

**CONSTRUCTION STAGE**

Coordinación de Proyectos Hidroeléctricos
Gerencia Técnica de Proyectos Hidroeléctricos
Centro de Anteproyectos del Golfo
PLANNING

- Project Identification, A Regional Level
- Data Collection and Basic Studies
- Strategic Development Schemes
- Strategic Environmental Assessment
- Development and Assessment Preliminary Schemes
- Nesting Hydro Projects

Hydro Projects Portfolio with Possibility of Development

- Project Sustainability Evaluation
- Basic Parameters Electro Mechanical Equip.
- Environment Management
- Preliminary Scheme Works
- Procedures and Permits

Sustainable Hydro Projects
PROJECT EVALUATION AND PRIORITIZATION
STAGE: GREAT VISION

1993 - 1994

1996 - 1997

Goodland R. 1996
Figure 8.1 The WCD’s seven strategic priorities

- Gaining public acceptance
- Comprehensive options assessment
- Addressing existing dams
- Ensuring compliance
- Sustaining rivers and livelihoods
- Recognising entitlements and sharing benefits
- Equitable and sustainable development of water and energy resources

DAMS AND DEVELOPMENT
A New Framework for Decision-Making
THE REPORT OF THE WORLD COMMISSION ON DAMS
2000
Later, with the publication of the WCD report, focus on strategic priorities proposed for decision-making in the selection of projects and later the first version of the protocol is put in the IHA 2004.
PROYECTOS EN ETAPA DE GRAN VISIÓN
OBJECTIVE

THE AIM AT THIS STAGE IS TO IDENTIFY THE RISKS AND OPPORTUNITIES FOR THE UTILIZATION OF HYDROPOWER POTENTIAL OF THE BASIN; ASSESS THE SCHEMES AND PROPOSED SITES BASED ON CRITERIA TECHNICAL, ECONOMIC, SOCIAL AND ENVIRONMENTAL; SO THAT THE RESULTS OF THIS STUDY WILL BE USEFUL IN DECIDING WHICH PROJECT SITE AND / OR UTILIZATION SCHEME REQUIRES FURTHER ANALYSIS AND ISSUES ARE THE MOST IMPORTANT.
ENERGY REFORM

Criteria of social equity, productivity and sustainability is to support and promote companies in the social and private sectors economy, subjecting them to such limitations as and use public interest in general benefit, of productive resources, guarding their and the environment preservation.
ENERGY REFORM

The law will protect and encourage economic activity performing individuals and provide the conditions for the development of the Private sector contribute to national economic development, promoting competitiveness and implementing a national policy for industrial development sustainable.
Comparación Proyecto Las Cruces vs potencial minihidroeléctrico Cuenca Río San Pedro Mezquital

<table>
<thead>
<tr>
<th>Característica</th>
<th>Proyecto Hidroeléctrico Las Cruces</th>
<th>171 plantas mini hidroeléctricas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacidad instalada</td>
<td>240 MW en tres unidades de 80 MW</td>
<td>255 MW *</td>
</tr>
<tr>
<td>Generación</td>
<td>751 GWh</td>
<td>2070 GWh</td>
</tr>
<tr>
<td>Costo</td>
<td>7 995 millones de pesos</td>
<td>855 millones de pesos</td>
</tr>
<tr>
<td>Habitantes beneficiados</td>
<td>7000 habitantes en 47 comunidades</td>
<td>14 395 habitantes **</td>
</tr>
</tbody>
</table>

Impactos adversos
- La transformación 4,500 ha de ecosistemas terrestres a un ecosistema acuático de tipo lítico estratificado.
- La fragmentación local de ecosistemas terrestres regionales.
- Las afectaciones a las poblaciones de flora y fauna, derivadas de la transformación de los hábitats.
- La retención de una cantidad significativa de nutrientes y sedimentos dentro del embalse, que alterarían los procesos geomorfológicos y productivos del río, la llanura inundable, de las lagunas costeras, estuarios y línea de costa.
- Desviación parcial del caudal de agua.
- Afectaciones localizadas de vegetación y usos de suelo.
- Afectaciones mínimas a la fauna local.
- Modificación de terreno por actividades de preparación de sitio en áreas pequeñas.
- Descontento social local y temporal

*Datos preliminares, sujetos a validación, no considera costos de obras de construcción ni de conexión a la red
** en 324 localidades localizadas a 5 km de distancia de los sitios identificados