



**Policy Instruments for Chinese Sustainable Future:**  
Environmental Policy Integration and  
Strategic Environmental Assessment  
for the Energy and Transport Sectors

An Action under the  
European Union's Asia Pro Eco II Programme  
Project No. 122184

CHINA-EPI-SEA Paper No. 1\_EN

**EPI Report – Energy Sector**  
An Outline of Contents

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## Project outline

Policy Instruments for Chinese Sustainable Future focuses on the integration of the environment into transport and energy planning in China, both at the policy level and in terms of concrete measures for the two administrative levels of provinces and municipalities. The implementation of this project will help to build transportation and energy-use systems that are environmentally sound and capable of achieving sustainable development in China. As part of the Asia Pro Eco II Programme the project contributes to the programme's main themes for China: energy savings, improved air quality and reduced emissions of GHGs.

At the heart of this project are two closely related mechanisms that are central to the EU efforts to promote sustainability: Environmental Policy Integration (EPI) and Strategic Environmental Assessment (SEA).

The action targets the inadequate reflection on environmental policy objectives and the weakness of the environment as a cross-sectoral priority and the need for information and knowledge of technical/practical solutions that can lead to immediate improvements in the development of sectoral plans. The 30 months Action consists of four work packages and multiple activities.

For further information please look at:

[http://www.epi-in-china.com/project\\_information/summary.html](http://www.epi-in-china.com/project_information/summary.html)

### How to cite this CHINA-EPI-SEA Paper:

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N.B.

This report contains our **suggestions** for completing each section. You should use this and adapt according to your understanding of the Chinese context.

In [...] our *suggestion* of approximate length of each section in pages.  
Overall, the report should be between 50-70 pages.

The **Final** EPI Reports are due in 2009

## 1) About this report

[2-3 pages]

In this section you should include information on the following:

### Status of EPI in China

provide a few lines explaining the most important (mainly national) requirements for the consideration of environmental issues (EPI) in your sector - details will be given in the main sections of the report.

### Scope of the EPI Report

The report it will focus on the Energy sector at the Provincial and Municipal levels, with reference to the national energy framework (e.g. key organizations, legislation, guidance etc.) where appropriate:

- The Sichuan Province will be the focus for energy EPI at the Provincial level
- The Xichang Municipality will provide the main example for energy EPI at the Municipal levels. However, we strongly advise to use Chengdu as a second example, given the participation of SACEE – this would provide a very interesting second example and strengthen the overall findings. Hereafter we refer to Xichang/Chengdu, allowing you to choose whether to include the latter.

### Purpose of the report

ACEE/SACEE/EPB (with contribution from SEI) – in collaboration with the key actors responsible for energy planning - are to undertake:

- An analysis of the structure of the energy administration system (organizational and institutional background) and flow of information for the energy sector;
- Identify the main problems of the system to date through a SWOT-type analysis (Strengths, Weaknesses, Opportunities and Threats) of current practices for the integration of environmental concerns at provincial and municipal levels (the latter using Xichang as an example);
- Identify opportunities for more effective EPI for the energy sector;
- Make recommendations for future EPI application (and organizational and institutional set-up) for the energy sector.

Two outputs are envisaged: an analysis report, and recommendations.

These tasks and outputs are to be compiled under a single final report: the '***EPI for the Energy Sector Report***'.

The ***EPI for the Energy Sector Report*** will therefore provide a broad overview of the capacity and performance of such organizations and institutions in terms of protecting the environment and the promoting sustainability of the energy sector – enabling the Project Partners to formulate ***recommendations*** on how to enhance the performance of EPI for the energy sector (section 10 of this Report).

The energy and transport EPI Reports will also provide an input to the following Project outputs (Proposal, Section 2.2, p.27):

- '***Future application of EPI and SEA in China***'

- '***Guidelines on SEA and EPI***'.

Finally, the links between EPI and SEA are explained in the document '***Understanding the relationship between EPI and SEA***', by Bina and Persson (this should be annexed to the EPI report itself).

**Please Note:**

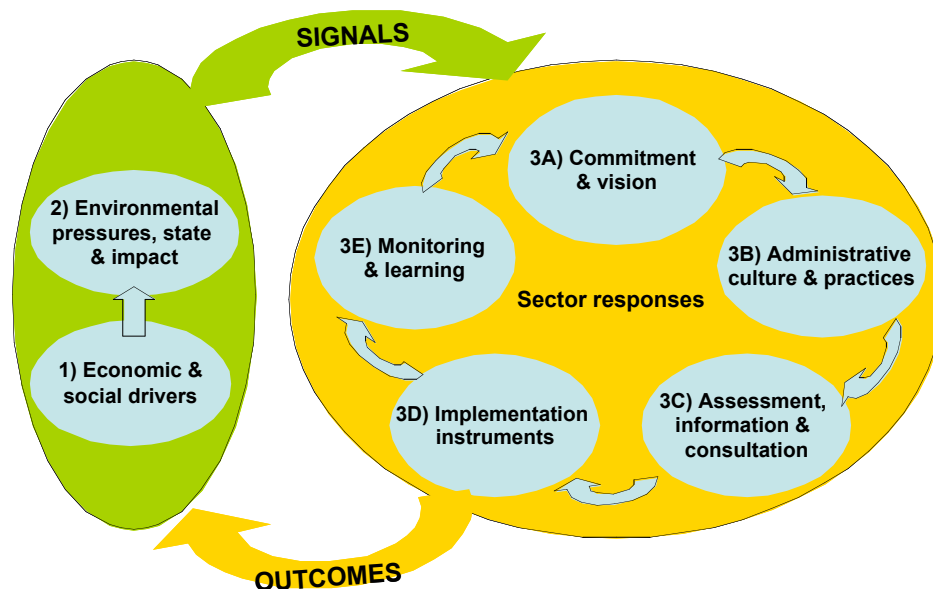
In terms of meeting the Pro Eco II reporting requirements, Section 6 of the ***EPI for the Energy Sector Report*** will have to be drafted by October 2007, and officially submitted as a standalone report (entitled '***Organisational and Institutional Background***') to the Project coordinator by December 2007. Revisions can be made subsequently, as part of the overall EPI report.

**Methodology**

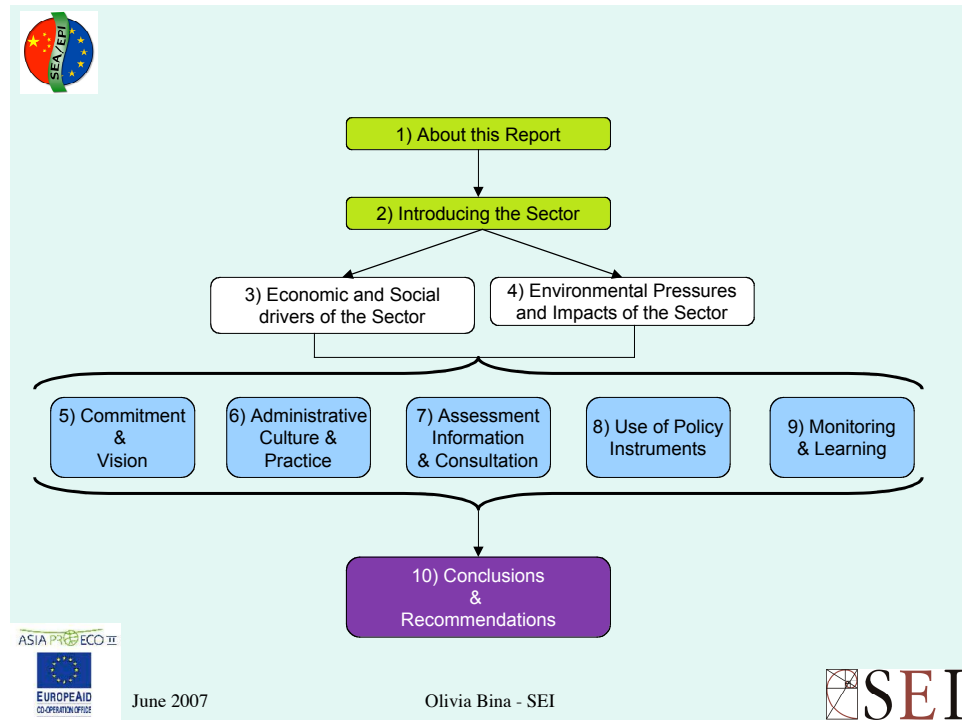
- Describe the methodology used to collect data for this report. E.g.
  - Use of the EPI questionnaire;
  - Additional interviews/meetings with relevant organisations and individuals (give details);
  - Literature and reports (list sources).
- Describe how the EEA framework for EPI has been used to structure the chapters and inform the discussion (to be done in collaboration with SEI).
- Describe who has been responsible for preparing this report (SACEE/EPB/ACEE) and who has contributed to it (e.g. Leading Group for energy planning in Xichang, local and provincial DRCs etc.)

The figures below can be used to describe the structure of the report:

Based on the EEA framework for EPI:



This report will be structured in ten sections:



## **2) Introduction to the energy sector in China (focus on Sichuan and the municipality of Xichang/Chengdu)**

[approximately 5 pages]

NB. Some of this information will also be useful to the SEA Report.

- Describe briefly the characteristics of Sichuan Province:
  - What makes it representative of Chinese Provinces – what makes it different and unique [half a page].
  - Brief geography of the Province and the Xichang/Chengdu municipality, using maps and a simple table showing the size, population, major cities, watercourses and similar background information [max. a page];
- Describe briefly the character of energy demand at the Provincial level and Xichang/Chengdu municipal level, including – please use tables where possible:
  - Energy demand from different user groups: households, industry, agriculture, etc.
  - The demand for electricity and heating/cooling within these groups.
- Describe briefly the supply of energy at Provincial and municipal levels, by source:
  - Hydropower
  - Coal
  - Gas
  - Solar
  - Biomass
  - Other.

### 3) Economic and social drivers of the sector (linked to Questionnaire)

[4-5 pages]

#### ***Economic driving factors and their trends***

- Taking the Provincial level perspective, describe the main economic factors affecting the energy sector's future development. For each identified factor, describe how it is anticipated to influence energy demand, with reference to different energy sources if possible. Note that this description can be qualitative if appropriate quantitative data cannot be easily accessed. The purpose of this description is to get an initial understanding of what the future environmental pressures might be (addressed in the next chapter).
- Additional reflections and data for the municipal level should be included (for Xichang, and possibly Chengdu)
- The table below can be used as a support for the description of both provincial and municipal levels.
- In the table below, factors that were reported from the questionnaire response at the case study workshop in Chengdu have been filled in JUST as example for Xichang. Please elaborate on how these – and potentially other – factors will affect the future of the energy sector.

#### **Sichuan Provincial level – economic factors**

| <b>Main economic factors<br/>(maximum 10)</b> | <b>Trend (could be<br/>qualitative or<br/>quantitative)</b> | <b>Brief comment on<br/>implication for the future<br/>of the energy sector in<br/>Sichuan Province</b> |
|---|---|---|
|   |   |   |
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|   |   |   |

#### **Xichang Municipal level – economic factors**

| <b>Main economic factors<br/>(maximum 10)</b> | <b>Trend (could be<br/>qualitative or<br/>quantitative)</b> | <b>Brief comment on<br/>implication for the future<br/>of the energy sector in<br/>Xichang Municipality</b> |
|---|---|---|
| GDP growth                                    | 16.9 % growth in<br>2006??                                  |   |
| Industrial growth                             |   | ??  |
|   |   |   |



- Conclude this chapter by briefly summarising the likely future development of the energy sector and the anticipated environmental implications. Questions that could be relevant to answer include:

Please give **brief outlines only** (again, you could use tables or bullet lists):

- In the past what have been the main economic and social drivers of increased energy use?
- Will energy demand increase over the coming decades? If so, by how much roughly? Give sources for such predictions.
- What will be the main economic and social drivers of this development?
- Is it possible to address and potentially reduce these drivers by policy measures or planning at the provincial and municipal levels, in order to decrease the environmental impact of the energy sector? If so, how?

**Sources of information:** See EEA's Energy and Environment Reporting Mechanism for indicators that have been used in Europe to describe and analyse the economic and social drivers of the transport sector:

[http://ec.europa.eu/environment/integration/energy/index\\_en.htm](http://ec.europa.eu/environment/integration/energy/index_en.htm)





## 5) Commitment and vision (linked to Questionnaire)

[4-5 pages]

### ***Legal/policy requirement to integrate the environment in energy policy and planning at provincial and municipal levels***

- In Europe, there is a legal requirement in the constitution of the European Union (the Amsterdam Treaty) that “environmental protection requirements must be integrated into the definition and implementation of the Community policies [...] in particular with a view to promoting sustainable development” (Article 6). The constitutional requirement for EPI in the policy sectors have also led to specific instructions to the sector ministries (Commission Directorates-General and Council formations) to develop environmental objectives and strategies for their respective sectors, including the energy sector.
- Describe if there are any similar requirements for EPI in national, provincial and/or municipal legislation/regulations/policy statements and similar. Such requirements can be as general as the EU example above, but should also include much more detailed initiatives, such as:
  - the requirement for EIA/SEA of sector plans (i.e. China’s EIA Law);
  - State Council and 11<sup>th</sup> 5 Year Plan requirements on energy efficiency
  - Recent requirement to maintain temperatures around 26 degrees in Government buildings
  - any administrative requirement to involve EPB in energy planning
  - Etc etc.
- Discuss any potential problems with enforcement of requirements.

### ***Environmental objectives and targets for the energy sector***

- Describe here any environmental objectives and targets that:
  - i) have been stated specifically for the energy sector (e.g. energy savings by 20%), and
  - ii) are general environmental protection objectives that must be taken into account in energy sector policy and plans for their indirect relevance (e.g. proportion forest-covered areas).

This data may be linked to the section above.
- Describe the source of these objectives:
  - i) national level decision-makers (e.g. State Council, NDRC, ministries for transport, SEPA, other)
  - ii) provincial level (e.g. provincial government, NDRC, provincial EPB, other)
  - iii) municipal level (e.g. municipal government, vice-mayor, local DRC, Leading Group for energy plan, local EPB, other)
- Describe where they can be found and their legal status:
  - i) legislation (national/provincial/municipal)
  - ii) five-year plans (national/provincial/municipal)
  - iii) environmental plans (national/provincial/municipal)
  - iv) sustainable development strategy (national/provincial/municipal)
  - v) other??

- Describe whether the targets are:
  - i) quantitative or qualitative
  - ii) have deadlines or not (e.g. reduce x emissions by 2020)
- As a guide, the following environment-related objectives and targets were reported in the presentation of the questionnaire responses at the Chengdu case study workshop:
  - Xichang to be a modern medium-sized city
  - Built-up urban area will expand to 36.2 km<sup>2</sup>
  - Forest cover to increase to over 40%
  - Green area per citizen to be 10.8 m<sup>2</sup>
  - Switch to natural gas from coal
  - Target to build one solar power plant
  - Build more wastewater treatment capacity, target 128,000 m<sup>3</sup> (today 60,000 m<sup>3</sup>)
  - Air pollution targets, for various pollutants
- A table like the one below can be used to provide an overview of the environmental objectives and targets that have been identified. The table could include columns indicating the type of objective, as described by the categories above.

### Objectives and Targets

| Environmental objective<br>(original formulation) | General<br>or<br>transport-<br>specific? | Source<br>(national/<br>provincial/<br>municipal) | Legal<br>status<br>(legislation<br>/<br>plan/other) | Quantitative<br>or<br>qualitative | Deadline |
|---|--|---|---|-----------------------------------|----------|
|   |  |   |   |                                   |          |
|   |  |   |   |                                   |          |
|   |  |   |   |                                   |          |
|   |  |   |   |                                   |          |
|   |  |   |   |                                   |          |

### Comment and analysis

- Describe whether and how these objectives are considered in energy plans at the provincial and municipal level.
- Describe whether there are any problems in enforcing the consideration of these objectives.
- Describe whether there are any difficulties involved in considering the environmental objectives, e.g. they are unclear, they are not prioritised, they are not quantified.
- Describe opportunities for modifying the formulation of these objectives in order to make their consideration in energy planning easier.
- Describe any difficulties involved in considering environmental objectives *alongside* economic and social objectives when preparing energy plans. For example, are the economic objectives quantified whereas the environmental objectives are not? For example, is it unclear which objectives should be prioritised, if there are conflicting?
- Please give any examples of good consideration of environmental objectives in Sichuan and Xichang energy planning that could be used to inform other provinces or municipalities.

***Strategies for an environmentally sustainable energy sector***

- Describe if the Government of the Sichuan province, or China nationally, and in the Xichang municipality have developed any forward-looking strategies to make the energy sector more environmentally sustainable. Such strategies may not have the status of legislation or formally required plans, but may be analyses or think pieces by different actors/organisations (e.g. government, university, research institute).
- If such strategies exist, please summarise their main points and recommendations. Describe if these strategies have had any impact upon planning, either a specific plan or a long-term change in the thinking around energy issues – at provincial and municipal levels.

## **6) Administrative culture and practices (linked to Questionnaire and the SEA Scoping Report, sect. 4)**

[8-10 pages]

There is significant overlap between this section and Section 4 of the Scoping report, hence material should be copied from one to the other. This is also the key section that will need to be fully drafted by October, and submitted in December as a stand alone report (see comment in “Introduction”, above).

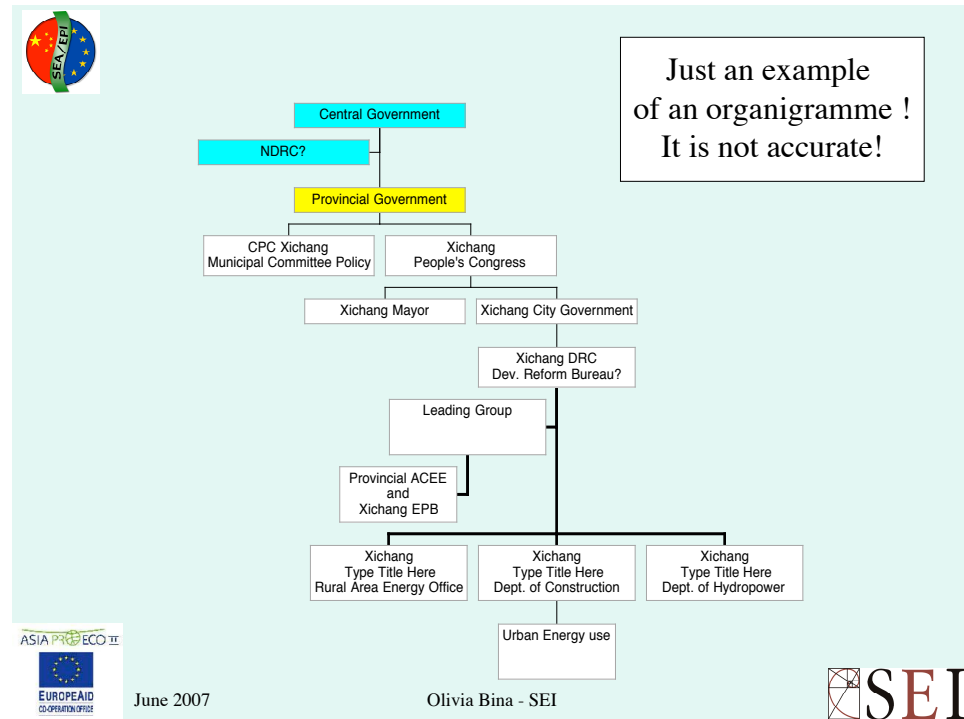
### ***Administrative structure for the energy sector in Sichuan***

#### **Administrative structure at National and Provincial levels**

Organigramme of interested actors/departments – please use flow diagrams and tables to summarise:

- the institutional actors directly involved in energy policy and planning;
- the actors indirectly involved (e.g. Construction Ministry? Etc);
- Please provide an organigramme with the
  - names of the departments involved (and special units if relevant),
  - the national-/provincial-level departments that they report to
- Describe the **responsibilities for energy** of these organisations, and how **funding** of energy supply infrastructure is channelled through these organisations.
- **Emphasise** (e.g. through colours) which environmental and social organisations are being involved in energy policy and planning.

For illustration only, as it is incorrect! – An example of a simple organigramme is included below. This is actually for the Municipal level, and only gives brief information of the higher levels. You may need to develop several such diagrams, with different information and levels of detail:



## Administrative structure at Municipal level: the example of Xichang

Organigramme of interested actors/departments – please use flow diagrams and tables to summarise:

- the institutional actors directly involved in energy policymaking and planning;
- the actors indirectly involved;
- N.B - By energy policymaking/planning, we mean both energy supply infrastructure and efficient use of energy among different user groups. This includes:
  - Leading Group for energy savings plan
  - Vice-Mayor
  - Local DRC
  - Rural Energy Office
  - Department of Construction
  - Department of Hydropower
  - Etc.
- Please provide an organigramme with the
  - names of the departments involved (and special units if relevant),
  - the national-/provincial-level departments that they report to

- Describe the **responsibilities for energy** of these organisations, and how **funding** of energy supply infrastructure is channelled through these organisations.
- **Emphasise** (e.g. through colours) which environmental and social organisations are being involved in energy policy and planning.

## ***Environmental responsibilities of the authorities***

### **Environmental responsibility at Provincial level**

- Describe whether the Leading authority for Provincial energy policymaking and planning have a responsibility to consider and to achieve certain environmental objectives (see previous chapter), or whether these responsibilities lie with an external body, such as the Provincial EPB.
- Describe how these responsibilities are **formulated** (e.g. in the standing instruction or mission statement of the department, in the five-year plan) and **implemented** (e.g. through environmental monitoring, EIA/SEA, early workshops on environmental objectives in the planning process).
- Please describe these systems in detail, highlighting good and bad experiences and lessons to be learned.
- Describe the **role and responsibilities** of the local EPB in the energy planning process (identified in the organigrams above).

### **Environmental responsibility at Municipal level**

- Describe whether the Leading Group for energy and the relevant municipal government departments have a responsibility to consider and to achieve certain environmental objectives (see previous chapter), or whether these responsibilities lie with an external body, such as the local EPB.
- Describe how these responsibilities are formulated (e.g. in the standing instruction or mission statement of the department, in the five-year plan) and implemented (e.g. through environmental monitoring, EIA/SEA, early workshops on environmental objectives in the planning process).
- At the Chengdu case study workshop, we learned about the Vice-Mayor's assignment of environmental responsibilities and targets to different departments within the municipal government. We also learned that the 'Objectives Office' every year evaluate progress against these targets for different departments and produce a list of good and bad performers. Please describe this system in more detail, highlighting good and bad experiences and lessons to be learned.
- Describe the role and responsibilities of the local EPB in the energy planning process (identified in the organigrams above).

## ***Cooperation with other authorities and coordination with other plans***

### **Cooperation and coordination – Provincial level**

### **Cooperation and coordination – Municipal level**

- With reference to the description of the administrative structure for municipal energy planning above, describe whether and how the different authorities cooperate with the environmental authorities, e.g. the local EPB. For example, when are the environmental authorities contacted in the planning process?
- Describe how this coordination takes place, e.g. through formal and informal communication and coordination channels, such as seminars, regular meetings, reporting, joint fact-finding, joint drafting of planning or policy documents
  - As a guide, the following relationships between plans were highlighted in the presentations at the Chengdu case study workshop:
    - Urban Development Strategy of Xichang
    - The 11<sup>th</sup> Five-Year Plan of National Economy and Social Development in Xichang
    - Industry Development Plan
    - Industrial Energy Conservation Plan
    - Construction Plan of New Countryside
    - Environmental Protection Plan (?)
- Describe weaknesses and opportunities related to this coordination with environmental authorities. For example, can it take place at an earlier stage? Can it be more proactive?

## 7) Assessment, information, and consultation (linked to Questionnaire)

[5-6 pages]

NOTE: The purpose of this chapter should be to discuss the practice of SEA/EIA in the energy sector in Xichang municipality *in general*, and not only the specific SEA studied in this case study. We are interested in the strengths and weaknesses of the system of EIA/SEA, not individual examples of assessments.

### ***The practice of SEA/EIA in Sichuan and Xichang energy planning***

#### **SEA/EIA – their character and their impact**

- Describe roughly how many SEAs/EIAs are conducted within energy planning at the municipal and provincial level per year (less than one; one to five; more than five; other).
- Describe who is responsible for carrying them out and who approves them.
- Describe what are the main process and technical guidance notes that are used.
- Describe the impact of SEA, in terms of any changes to energy plans they have led to (e.g. environmental restrictions introduced, siting of an energy production facility).

#### **Other assessment procedures**

- Describe if there are any other assessment procedures for energy plans *not* focused on environmental issues, but for example technical assessments, cost-benefit assessments.
- Could anything be learnt from these assessment procedures of relevance for SEA/EIA?
- Could these other assessments, if conducted, be linked to SEA/EIA in a meaningful way?

#### **Resources available for SEA/EIA**

- Describe the availability of resources to carry out SEA/EIA related work supported by the table below.

|                          |   |  |
|--------------------------|---|--|
| <b>Personnel</b>         | Number of people working 100% on environment                                    |  |
|                          | Number of people working less than 100% on environment                          |  |
| <b>Funds</b>             | % of overall sector's budget  |  |
| <b>Technical support</b> | Is the availability of instruments and tools adequate? Yes/no, explain          |  |
| <b>Data</b>              | Is appropriate data available, as a rule? Is a standard set of indicators used? |  |
| <b>Other</b>             |   |  |

### **Summary of strengths and weaknesses of SEA/EIA practice**

- Describe whether the system for SEA/EIA is generally functional and effective, or if there are any major problems. For example, in the Chengdu case study workshops, the following kind of problems were described:
  - Lack of technical support
  - Lack of funds for equipments and tools
  - Lack of technicians
- Describe ways in which SEA practice can be improved and who has the responsibility for such improvements.

### ***Consultation with environmental stakeholders and the public***

- Describe whether for energy planning in general in the Xichang municipality environmental stakeholders (e.g. EPBs, environmental NGOs, universities and experts) are consulted.
- Describe whether for transport planning in general in the Xichang municipality the general public is consulted.
- Describe *how* environmental authorities and stakeholders are engaged. Please distinguish between: a) being informed, b) being asked to comment, c) being invited to participate actively in the process of debate, planning.
- Describe the issue of timing: are environmental authorities and stakeholders involved in the process at the most effective time?

## 8) Use of policy instruments

[3-4 pages]

### ***Funding and budgeting for energy infrastructure***

With reference to both Provincial and Municipal levels:

- Refer back to the description of funding within the energy sector in chapter 6 (see above), and describe whether the funding give incentives to consider environmental objectives. For example, if funding is related to the output of energy production (e.g. TWh –check unit), environmental restrictions may be considered as a barrier to receiving more funding.
- Describe whether there are clear budget lines for environmental protection to the departments involved in energy production and rational energy use in the municipality, or whether these budget lines are for EPB only.

### ***Technical standards for improved environmental performance***

- Describe whether any technical standards have been set within energy policy and plans that improve the environmental performance of the sector. Indicate also whether these standards have been defined in national, provincial or municipal legislation. Examples of standards related to energy include:
  - Standards regulating the quality of fuel
  - Cleaning filters in combustion
  - Efficiency requirements for energy production facilities
  - Energy efficiency standards for various products, e.g. refrigerators, washing machines
  - Eco-labelling of electricity from renewable sources
  - Municipal air quality norms

### ***Market-based instruments for improving environmental performance***

- Describe whether any market-based instruments are used to reduce the use of energy and/or emissions from energy production. Indicate also whether these instruments have been defined in national, provincial or municipal legislation. Examples of market-based instruments related to energy include:
  - Energy taxation
  - CO2 taxation
  - Subsidies for renewable energy production
  - Subsidies for instalment of equipment for energy efficiency

## **9) Monitoring and learning**

[2-3 pages]

### ***Monitoring of the sector's environmental impact***

- Describe whether there is a data collection system in place in the province for continuously monitoring the overall environmental impact of the energy sector.
- Describe who collects this data and who receives reports.
- Describe strengths and weaknesses in the monitoring system.

### ***Evaluation of energy policies and plans***

- Describe whether energy plans and policy instruments developed at the municipal (and provincial) level are systematically evaluated. This includes both the enforcement and implementation of plans (i.e. whether infrastructure projects were carried out, and whether environmental restrictions were respected) and the impact of plans (e.g. decreased/increased use of energy, and related increases/decreases in emissions).
- Describe strengths and weaknesses related to evaluation.

## **10) Conclusions and recommendations**

[6-8 pages]

### ***Reflections on the concept of EPI in the Chinese context***

- Describe the advantages and disadvantages of using the concept of EPI and the EEA framework for EPI for understanding the integration of environmental concerns at Provincial and Municipal levels of energy policymaking and planning.

### ***Strengths and weaknesses of EPI in Sichuan and Xichang energy planning***

- Summarise the main strengths and weaknesses identified in the different chapters of this report.

### ***Reflections on the concept of EPI in the Chinese context***

to be completed in collaboration with SEI:

- Describe the advantages and disadvantages of using the concept of EPI and the EEA framework for EPI for understanding the integration of environmental concerns in the energy planning.
- Make recommendations on how the concept of EPI can be better adapted to the Chinese context.
- Make recommendations for European policy-makers what could be learnt from the Chinese approach to environmental integration.

### ***Recommendations for more effective EPI***

- Make recommendations on how the concept of EPI can be better adapted to the Chinese context.
- Make recommendations for how EPI can be pursued more effectively in Sichuan and Xichang energy planning. Clarify who has the capacity to act upon these recommendations (e.g. national-level departments, local-level departments, EPBs, others).

## References

List sources of information here, including policy documents, interviews with stakeholders, technical reports, academic literature.