

# Southern Partner Fund project: Material requirements of a just electricity system in Lao PDR



Questionnaire for personnel working in industry

## General guidance:

This questionnaire has been designed to be used by staff working on this project based in the National University of Lao. The questions follow a logical structure, from providing an overview of the desired topics, to asking details surrounding energy and material planning. The interviews should be conducted in either English or in Laotian: in English, if the interviewee is either a native speaker or is a proficient English speaker, or in Laotian, if the speaker is not proficient in English or if he/she feels more comfortable using Laotian.

The duration of the interview is: 40 min

The recording will be used exclusively to back-up the responses to questions and to create a transcript that the researchers may work with more easily.

## Privacy and consent

1. Do you consent to audio being recorded in this interview?
  - a. Yes
  - b. No
2. Would you like your name to be used in the recording of your responses or would you prefer for your responses to be anonymised?
  - a. Use name
  - b. Anonymise
3. Regardless of what you replied in question 2, do you consent to your name being used in the dissemination of the report from this project as a survey participant?
  - a. Yes
  - b. No
4. Regardless of what you replied in question 2, do you consent to your name being used in the academic paper made in this project as a survey participant?
  - a. Yes
  - b. No
5. Do you understand that your answers will be used to inform academic research on the energy situation and provision of materials in Lao, so your responses will be saved by the Universities involved and analysed?
  - a. Yes
  - b. No

## Questionnaire:

### A - Personal information

A1	Name of interviewee (in the format: first name LAST NAME, e.g., John DOE)	
A2	Occupation	
A3	Name of employer	
A4	Name of position	
A5	If you have professional experience in other areas, please list them generally (e.g., if you work in electricity planning, but have done work regarding construction of electricity, then please type 'construction, electricity infrastructure')	

### B - Electricity and material provision

	Overview of the company				
B1	What kind of industry do you work in?				
B2	Is it a Laotian company?	<input type="checkbox"/> Yes <input type="checkbox"/> No			
B3	If it is not a Laotian company, in which country are the company's headquarters?				
B4	What year was this company founded in? An estimation is fine if you aren't sure.				
B5	How many employees are in the company?	<input type="checkbox"/> Less than 10 <input type="checkbox"/> 10-50 <input type="checkbox"/> 51-100 <input type="checkbox"/> 101-500 <input type="checkbox"/> More than 500			
	Electricity provision				
B6	How much electricity does the company use on an average month? (in kWh)				
B7	What is the applicable electricity tariff in the company? (in LAK/kWh)				
B8	How much heat does the company produce or use on an average month? (in MJ)				
	Material provision				
B9	From the following list of materials that apply to your company, please select how they are sourced. If it is a mix of them, please give an estimate of the share of each type of provision (as percentage). If they are not used, please leave them blank.	<i>Material</i>	<i>Used or produced?</i>	<i>Sourcing (I: imported, L: manufactured by a Laotian company, NL: manufactured by a non-Laotian company)</i>	<i>Amount imported or produced per year (and unit)</i>
		Steel	<input type="checkbox"/> Yes <input type="checkbox"/> No	I .....% L .....% NL .....%	Used ..... Produced .....
		Aluminium	<input type="checkbox"/> Yes <input type="checkbox"/> No	I .....% L .....% NL .....%	Used ..... Produced .....
		Concrete	<input type="checkbox"/> Yes <input type="checkbox"/> No	I .....% L .....% NL .....%	Used ..... Produced .....
		Plastics	<input type="checkbox"/> Yes <input type="checkbox"/> No	I .....% L .....% NL .....%	Used ..... Produced .....
		Carbon Fibre	<input type="checkbox"/> Yes <input type="checkbox"/> No	I .....% L .....% NL .....%	Used ..... Produced .....
		Cast Iron	<input type="checkbox"/> Yes <input type="checkbox"/> No	I .....% L .....% NL .....%	Used ..... Produced .....
		Glass	<input type="checkbox"/> Yes <input type="checkbox"/> No	I .....% L .....% NL .....%	Used ..... Produced .....

		Stainless Steel <input type="checkbox"/> Yes <input type="checkbox"/> No I .....% L .....% NL .....%	Used ..... Produced .....
		Copper <input type="checkbox"/> Yes <input type="checkbox"/> No I .....% L .....% NL .....%	Used ..... Produced .....
		Iron <input type="checkbox"/> Yes <input type="checkbox"/> No I .....% L .....% NL .....%	Used ..... Produced .....
		Tin <input type="checkbox"/> Yes <input type="checkbox"/> No I .....% L .....% NL .....%	Used ..... Produced .....
		Lead <input type="checkbox"/> Yes <input type="checkbox"/> No I .....% L .....% NL .....%	Used ..... Produced .....
		Zinc <input type="checkbox"/> Yes <input type="checkbox"/> No I .....% L .....% NL .....%	Used ..... Produced .....
		Coal <input type="checkbox"/> Yes <input type="checkbox"/> No I .....% L .....% NL .....%	Used ..... Produced .....
		Oil and derivates <input type="checkbox"/> Yes <input type="checkbox"/> No I .....% L .....% NL .....%	Used ..... Produced .....
		Wind turbines <input type="checkbox"/> Yes <input type="checkbox"/> No I .....% L .....% NL .....%	Used ..... Produced .....
		Solar panels <input type="checkbox"/> Yes <input type="checkbox"/> No I .....% L .....% NL .....%	Used ..... Produced .....
		Timber <input type="checkbox"/> Yes <input type="checkbox"/> No I .....% L .....% NL .....%	Used ..... Produced .....
		Non-timber materials (but naturally sourced) <input type="checkbox"/> Yes <input type="checkbox"/> No I .....% L .....% NL .....%	Used ..... Produced .....
		Other material ..... <input type="checkbox"/> Yes <input type="checkbox"/> No I .....% L .....% NL .....%	Used ..... Produced .....
		Other material ..... <input type="checkbox"/> Yes <input type="checkbox"/> No I .....% L .....% NL .....%	Used ..... Produced .....
		Other material ..... <input type="checkbox"/> Yes <input type="checkbox"/> No I .....% L .....% NL .....%	Used ..... Produced .....
B10	Based on your experience, how would you rate the easiness to buy or get the materials you need for production?	<input type="checkbox"/> Extremely easy <input type="checkbox"/> Easy <input type="checkbox"/> Neither easy nor hard <input type="checkbox"/> Hard <input type="checkbox"/> Very hard	
B11	Based on your experience, do you feel that having access to materials for production has changed over time?	<input type="checkbox"/> It is easier to get or buy materials than in the past. – Go to B12. <input type="checkbox"/> It is easier to get or buy materials, even during the COVID pandemic. – Go to B12. <input type="checkbox"/> It had been easier to get or buy materials up until the COVID pandemic which made it harder. – Go to B111.1 <input type="checkbox"/> It has remained unchanged. – Go to B12. <input type="checkbox"/> It has become harder to get or buy materials than in the past. – Go to B111.1	
B11.1	If you responded that buying or getting materials has become harder, which	<input type="checkbox"/> ..... <input type="checkbox"/> ..... <input type="checkbox"/> .....	

	material(s) would you say have become harder to acquire?	<input type="checkbox"/> ..... <input type="checkbox"/> ..... <input type="checkbox"/> .....																					
B12	What are the main trade barriers you face for acquiring materials?																						
B13	While planning new projects or expansions in your business, how much is material provision considered as an important factor behind decisions?	<input type="checkbox"/> Very important (e.g., if a material is hard to get, we will reconsider the project). – Go to B13.1 <input type="checkbox"/> Important but not essential. – Go to B13.1 <input type="checkbox"/> Neither important nor unimportant. – Go to B14 <input type="checkbox"/> Not important. – Go to B14 <input type="checkbox"/> We never consider material provision in the decision-making process. – Go to B14																					
B13.1	If you responded that material provision considerations are important or very important in B13, could you please explain more or give an example of how material provision affects decisions made?																						
B14	Are you familiar with the following terms? If you reply YES to having heard at least one of the terms in question B14, please answer questions B14.1-B14.3.	<table border="1"> <thead> <tr> <th><i>Term</i></th> <th><i>Have you heard of it before?</i></th> <th><i>How familiar are you with the term?</i></th> </tr> </thead> <tbody> <tr> <td>Greenhouse gas emissions</td> <td> <input type="checkbox"/> Yes  <input type="checkbox"/> No </td> <td> <input type="checkbox"/> Never heard of it.  <input type="checkbox"/> I have heard of it, but don't know what it means.  <input type="checkbox"/> I know roughly what it means.  <input type="checkbox"/> I am familiar with it.  <input type="checkbox"/> I am very familiar with it. </td> </tr> <tr> <td>Carbon dioxide emissions</td> <td> <input type="checkbox"/> Yes  <input type="checkbox"/> No </td> <td> <input type="checkbox"/> Never heard of it.  <input type="checkbox"/> I have heard of it, but don't know what it means.  <input type="checkbox"/> I know roughly what it means.  <input type="checkbox"/> I am familiar with it.  <input type="checkbox"/> I am very familiar with it. </td> </tr> <tr> <td>Industrial efficiency</td> <td> <input type="checkbox"/> Yes  <input type="checkbox"/> No </td> <td> <input type="checkbox"/> Never heard of it.  <input type="checkbox"/> I have heard of it, but don't know what it means.  <input type="checkbox"/> I know roughly what it means.  <input type="checkbox"/> I am familiar with it.  <input type="checkbox"/> I am very familiar with it. </td> </tr> <tr> <td>Material efficiency</td> <td> <input type="checkbox"/> Yes  <input type="checkbox"/> No </td> <td> <input type="checkbox"/> Never heard of it.  <input type="checkbox"/> I have heard of it, but don't know what it means.  <input type="checkbox"/> I know roughly what it means.  <input type="checkbox"/> I am familiar with it.  <input type="checkbox"/> I am very familiar with it. </td> </tr> <tr> <td>Resource efficiency</td> <td> <input type="checkbox"/> Yes  <input type="checkbox"/> No </td> <td> <input type="checkbox"/> Never heard of it.  <input type="checkbox"/> I have heard of it, but don't know what it means.  <input type="checkbox"/> I know roughly what it means.  <input type="checkbox"/> I am familiar with it.  <input type="checkbox"/> I am very familiar with it. </td> </tr> <tr> <td>Carbon footprint</td> <td> <input type="checkbox"/> Yes  <input type="checkbox"/> No </td> <td> <input type="checkbox"/> Never heard of it.  <input type="checkbox"/> I have heard of it, but don't know what it means.  <input type="checkbox"/> I know roughly what it means.  <input type="checkbox"/> I am familiar with it. </td> </tr> </tbody> </table>	<i>Term</i>	<i>Have you heard of it before?</i>	<i>How familiar are you with the term?</i>	Greenhouse gas emissions	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Never heard of it. <input type="checkbox"/> I have heard of it, but don't know what it means. <input type="checkbox"/> I know roughly what it means. <input type="checkbox"/> I am familiar with it. <input type="checkbox"/> I am very familiar with it.	Carbon dioxide emissions	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Never heard of it. <input type="checkbox"/> I have heard of it, but don't know what it means. <input type="checkbox"/> I know roughly what it means. <input type="checkbox"/> I am familiar with it. <input type="checkbox"/> I am very familiar with it.	Industrial efficiency	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Never heard of it. <input type="checkbox"/> I have heard of it, but don't know what it means. <input type="checkbox"/> I know roughly what it means. <input type="checkbox"/> I am familiar with it. <input type="checkbox"/> I am very familiar with it.	Material efficiency	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Never heard of it. <input type="checkbox"/> I have heard of it, but don't know what it means. <input type="checkbox"/> I know roughly what it means. <input type="checkbox"/> I am familiar with it. <input type="checkbox"/> I am very familiar with it.	Resource efficiency	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Never heard of it. <input type="checkbox"/> I have heard of it, but don't know what it means. <input type="checkbox"/> I know roughly what it means. <input type="checkbox"/> I am familiar with it. <input type="checkbox"/> I am very familiar with it.	Carbon footprint	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Never heard of it. <input type="checkbox"/> I have heard of it, but don't know what it means. <input type="checkbox"/> I know roughly what it means. <input type="checkbox"/> I am familiar with it.
		<i>Term</i>	<i>Have you heard of it before?</i>	<i>How familiar are you with the term?</i>																			
		Greenhouse gas emissions	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Never heard of it. <input type="checkbox"/> I have heard of it, but don't know what it means. <input type="checkbox"/> I know roughly what it means. <input type="checkbox"/> I am familiar with it. <input type="checkbox"/> I am very familiar with it.																			
		Carbon dioxide emissions	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Never heard of it. <input type="checkbox"/> I have heard of it, but don't know what it means. <input type="checkbox"/> I know roughly what it means. <input type="checkbox"/> I am familiar with it. <input type="checkbox"/> I am very familiar with it.																			
		Industrial efficiency	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Never heard of it. <input type="checkbox"/> I have heard of it, but don't know what it means. <input type="checkbox"/> I know roughly what it means. <input type="checkbox"/> I am familiar with it. <input type="checkbox"/> I am very familiar with it.																			
		Material efficiency	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Never heard of it. <input type="checkbox"/> I have heard of it, but don't know what it means. <input type="checkbox"/> I know roughly what it means. <input type="checkbox"/> I am familiar with it. <input type="checkbox"/> I am very familiar with it.																			
		Resource efficiency	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Never heard of it. <input type="checkbox"/> I have heard of it, but don't know what it means. <input type="checkbox"/> I know roughly what it means. <input type="checkbox"/> I am familiar with it. <input type="checkbox"/> I am very familiar with it.																			
Carbon footprint	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Never heard of it. <input type="checkbox"/> I have heard of it, but don't know what it means. <input type="checkbox"/> I know roughly what it means. <input type="checkbox"/> I am familiar with it.																					

				<input type="checkbox"/> I am very familiar with it.
		Decarbonisation	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Never heard of it. <input type="checkbox"/> I have heard of it, but don't know what it means. <input type="checkbox"/> I know roughly what it means. <input type="checkbox"/> I am familiar with it. <input type="checkbox"/> I am very familiar with it.
		Paris Agreement	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Never heard of it. <input type="checkbox"/> I have heard of it, but don't know what it means. <input type="checkbox"/> I know roughly what it means. <input type="checkbox"/> I am familiar with it. <input type="checkbox"/> I am very familiar with it.
		Nationally Determined Contributions (NDC)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Never heard of it. <input type="checkbox"/> I have heard of it, but don't know what it means. <input type="checkbox"/> I know roughly what it means. <input type="checkbox"/> I am familiar with it. <input type="checkbox"/> I am very familiar with it.
B14.1	If you replied YES to having heard at least one of the terms in question B14, please answer this. In your opinion, who is pushing for actions to reduce carbon dioxide or greenhouse gas emissions <u>in Lao generally</u> ? (Select as many as applicable)	<input type="checkbox"/> The Laotian government <input type="checkbox"/> Local businessmen <input type="checkbox"/> Local investors <input type="checkbox"/> Donor agencies <input type="checkbox"/> Foreign banks <input type="checkbox"/> Foreign investors <input type="checkbox"/> Civil groups <input type="checkbox"/> Other ..... <input type="checkbox"/> No one		
B14.2	If you replied YES to having heard at least one of the terms in question B14, please answer this. In your opinion, who is pushing for actions to reduce carbon dioxide or greenhouse gas emissions <u>in Lao's electricity sector</u> ? (Select as many as applicable)	<input type="checkbox"/> The Laotian government <input type="checkbox"/> Local businessmen <input type="checkbox"/> Local investors <input type="checkbox"/> Donor agencies <input type="checkbox"/> Foreign banks <input type="checkbox"/> Foreign investors <input type="checkbox"/> Civil groups <input type="checkbox"/> Other ..... <input type="checkbox"/> No one		
B14.3	If you replied YES to having heard at least one of the terms in question B14, please answer this. In your opinion, who is pushing for actions to reduce carbon dioxide or greenhouse gas emissions <u>in Lao's industrial sector</u> ? (Select as many as applicable)	<input type="checkbox"/> The Laotian government <input type="checkbox"/> Local businessmen <input type="checkbox"/> Local investors <input type="checkbox"/> Donor agencies <input type="checkbox"/> Foreign banks <input type="checkbox"/> Foreign investors <input type="checkbox"/> Civil groups <input type="checkbox"/> Other ..... <input type="checkbox"/> No one		
B15	In your experience, is any work being done in reducing industrial carbon dioxide or greenhouse gas emissions in Lao?	<input type="checkbox"/> Yes – Go to question B15.1 <input type="checkbox"/> No – Go to question B16		
B15.1	If you answered YES in B15, can you please explain what is being done and by which industry (or industries)?			
B16	In your experience, is any work being done in checking and tracing the	<input type="checkbox"/> Yes – Go to question B16.1 <input type="checkbox"/> No – Go to question B17		

	carbon footprint of materials in Lao?				
B16.1	If you answered YES in B16, can you please explain what is being done and for which material(s)?				
B17	In the past, how many times have you replaced the following equipment and/or built more infrastructure and why?	<i>Item</i>	<i>Example of part replaced or built (leave blank if you never replaced or built any)</i>	<i>How long ago was it (were they) replaced or built?</i>	<i>Why did you replace or build it (them)?</i>
		Heavy machinery (e.g., tractors, excavators, cranes, pumps, mills, etc.)		<input type="checkbox"/> Over 10 years ago <input type="checkbox"/> In the last 10 years <input type="checkbox"/> In the last 5 years <input type="checkbox"/> In the last year <input type="checkbox"/> It has never been replaced or built	<input type="checkbox"/> It was old/outdated <input type="checkbox"/> It was damaged or faulty <input type="checkbox"/> We needed to extend the capacity of the plant <input type="checkbox"/> Other ..... .....
		Power or heat equipment (e.g., boilers, turbines, kilns, generators, etc.)		<input type="checkbox"/> Over 10 years ago <input type="checkbox"/> In the last 10 years <input type="checkbox"/> In the last 5 years <input type="checkbox"/> In the last year <input type="checkbox"/> It has never been replaced or built	<input type="checkbox"/> It was old/outdated <input type="checkbox"/> It was damaged or faulty <input type="checkbox"/> We needed to extend the capacity of the plant <input type="checkbox"/> Other ..... .....
		Vehicle(s) (e.g., vans, lorries, cars, etc.)		<input type="checkbox"/> Over 10 years ago <input type="checkbox"/> In the last 10 years <input type="checkbox"/> In the last 5 years <input type="checkbox"/> In the last year <input type="checkbox"/> It has never been replaced or built	<input type="checkbox"/> It was old/outdated <input type="checkbox"/> It was damaged or faulty <input type="checkbox"/> We needed to extend the capacity of the plant <input type="checkbox"/> Other ..... .....
		New builds or building expansion(s)		<input type="checkbox"/> Over 10 years ago	<input type="checkbox"/> It was old/outdated <input type="checkbox"/> It was damaged or faulty

				<input type="checkbox"/> In the last 10 years <input type="checkbox"/> In the last 5 years <input type="checkbox"/> In the last year <input type="checkbox"/> It has never been replaced or built	<input type="checkbox"/> We needed to extend the capacity of the plant <input type="checkbox"/> Other ..... <input type="checkbox"/> .....
B17.1	If you replied YES to replacing or building any of the items mentioned in question B17, was an environmental analysis or a comparison of the environmental impacts of the materials to use ever made?	<input type="checkbox"/> Yes <input type="checkbox"/> No			
	Additional data sources				
B18	Do you know of any databases around material use or consumption that are available or could be made available to this project? This is especially important for the material provision section.	<input type="checkbox"/> Yes – Go to question B18.1 <input type="checkbox"/> No – Go to next section			
B18.1	If you answered YES in B18, please provide more information and/or access to the database.				

### Section C - Additional comments

1. Is there anything else you would like to add regarding material provision and electricity plants planning and construction?