

# PAGE

policy analysis on growth and employment



**Do out-migration and remittances induce shifts to non-farm entrepreneurship among the left-behind?  
Evidence from Nepal**

RESEARCH PROPOSAL

Presented to

**Partnership for Economic Policy (PEP)**

By

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&

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**South Asia Watch on Trade, Economics and Environment (SAWTEE)**

**Nepal**

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## Before you begin

Please make sure to carefully review and understand the following

- [Webpage](#) – especially with regards to the PAGE priority themes and
- [Guidelines](#) – for designing a research project proposal (in scientific terms)
- [PEP requirements and strategy](#) for policy engagement and research communication

Please note that :

- This template is mandatory for proposals of projects submitted under the [PMMA](#) and [MPIA](#) groups, i.e. that do not involve data collection
- Plagiarism is strictly forbidden – see note on “references and plagiarism” at the end of this document/template. PEP will be using a software program to detect cases of plagiarism.
- PEP encourages applicant research teams to submit proposals in English, but content (in text boxes below) may also be written in French or Spanish (and will be accepted given proper justification of language barrier).

There are three main areas/dimensions to all PEP-supported projects: capacity building, research and policy engagement. Each dimension must be considered with due care and attention, as they will be assessed individually and concurrently to determine the overall quality of a proposal.

The PEP proposal template is structured in five sections, as follows:

- Project overview and objectives
- Capacity building – team composition and experience
- Research – literature review, method and data
- Policy relevance and engagement strategy
- Other considerations

## SECTION I – PROJECT OVERVIEW & OBJECTIVES

### 1.1. Abstract (max 100 to 250 words)

The abstract should state the main research question, the context and its relevance in terms of policy issues/needs in relation to PAGE priority issues. Complete with a brief description of the method and data that will be used.

**Insert your text here** – max 100 to 250 words

The project will investigate the effects of work-related out-migration – distinguishing between internal and international – on the entrepreneurial activities of left-behind family members, including women, as reflected in their involvement in self-owned non-farm

enterprises. It will provide evidence from Nepal, a least-developed country where international remittances have become the backbone of the economy. Low productivity in agriculture and a dearth of non-farm employment opportunities that offer decent incomes induce people to seek foreign employment. Creation of such opportunities is high on the policy agenda, with promoting entrepreneurship through micro, small- and medium-scale enterprises a stepping stone towards that goal. The research question has salience beyond Nepal, given the surge in international labour migration in recent years, with over two thirds of international migrants originating in developing countries, and policy emphasis on job-creating structural transformation of domestic economy. The study will utilize cross-section as well as panel household data, and employ an instrumental variable strategy as a core method. The operation of non-farm enterprises, albeit largely informal, by left-behind family members has implications for (i) the domestic employment prospects of foreign-employment returnees, (ii) the employment prospects of migrants' children (who if faced with the same scarcity of decent off-farm jobs as their parents will be compelled to migrate), and (iii) in the long term, the employment opportunities for non-migrants in the neighbourhood (if the household-owned non-farm enterprises expand and hire labour, or through possible spillovers arising from the "discovery" of an entrepreneurial economic activity by the migrant-sending household).

## 1.2. Main research questions and contributions (max 500 to 700 words)

Explain the focus (or key questions) of your research and its policy relevance. Explain why you think this is an interesting research question and what the potential usefulness and value added of your work might be - in terms of both (general) knowledge gaps and policy needs for evidence base.

The literature review shall be detailed under "Research" (section III), not in this section.

Insert your text here - max 500 to 700 words

There has been a surge in international labour migration in recent years, with over two thirds of international migrants originating in developing countries. While remittances have become a major development resource for many developing countries, questions about the effects of out-migration and the associated resource inflows on macroeconomic as well as microeconomic outcomes in the originating countries abound.

A question at the microeconomic level, as yet not explored rigorously, is the effect of out-migration on a select aspect of labour supply of family members left behind: their engagement in *entrepreneurial* activities. Low productivity in agriculture and a dearth of non-farm employment opportunities that offer decent incomes induce people to seek foreign employment. Creation of such opportunities is high on the policy agenda, with promoting entrepreneurship through micro, small- and medium-scale enterprises a stepping stone towards that goal.

In this context, the proposed research will investigate the effects of out-migration (distinguishing between internal and international) on the employment activities and

behaviour of left-behind family members (including women), with a focus on non-farm entrepreneurship. The main research question: What is the effect of out-migration (and associated remittances) on left-behind household members' engagement in non-farm entrepreneurial activities? Outcome variables, defined at the household level or individual level, include propensity to operate a non-farm enterprise, intensity of involvement in the enterprise and characteristics of the enterprise.

The research will provide evidence from Nepal, an interesting setting for such a study. In the last two decades, this landlocked, least-developed country has seen a surge in out-migration, with a third of households now having at least one member abroad, even as domestic economic growth has averaged less than 4 percent per annum. Concurrently, the proportion of households with enterprises increased from 24.2 percent in 1995/96 to 34.6 percent in 2010/11. Over 80 percent of migrants, mostly males, are under the age of 35. Remittances amounted to 32 percent of GDP in 2015, making Nepal the nation with the largest personal remittances-to-GDP ratio. These flows are greater than foreign aid, foreign direct investment and export earnings combined. Notwithstanding the importance of international remittances as a source of foreign exchange and a driver of rising living standards, it is well-recognized in Nepal's policy discourse that relying on labour exports cannot be a viable, sustainable development strategy.

The operation of non-farm enterprises, albeit largely informal, by left-behind family members and the degree of success in doing so has implications for (i) the domestic employment prospects of foreign-employment returnees (the median migrant from Nepal spends, per migration episode, 9 months if the destination is India and 2 to 3 years if the destination is West Asia and Malaysia), (ii) the employment prospects of migrants' children (who if faced with the same scarcity of decent off-farm jobs as their parents will be compelled to migrate), and (iii) in the long term, the employment opportunities for non-migrants in the neighbourhood (if the household-owned non-farm enterprises expand and hire labour, or through possible spillovers arising from the "discovery"—a la Hausmann and Rodrik (2003)—of an entrepreneurial economic activity by the migrant-sending household).

## SECTION II – CAPACITY BUILDING

### 2.1. Team composition and experience

For each research team member, please indicate (using the following tables – one per member):

1. **Age, sex, as well as relevant/prior training and experience** in the issues and research techniques involved (start with team/project leader).
  - Note that PEP favors gender-mixed teams, composed of a maximum of four (4) members, at least 50% female researchers, and at least two (2) junior researchers (aged under 30), all contributing substantively to the research project. PEP also seeks gender balance in team leaders and thus positively encourages female-led research teams.

- Each listed member must post an up-to-date CV in their profile on the PEP website – refer to “How to submit a proposal” on the call’s [webpage](#).

**2. Benchmark and expected capacity building:**

- Describe the research capacities that each team member (and potentially her/his affiliated institutions) is expected to build through their participation in this project. This is an important aspect in the evaluation of proposals and should be presented in detail.
  - What techniques, literature, theories, tools, etc. will each team member and her/his institutions learn (acquire in practice) or deepen her/his knowledge of?
  - How will these skills help each team member in their career development?
  - What are the current state of knowledge of each team member in regard to the project you are proposing?

**3. Task and contributions to project:** Indicate the specific tasks each team member would carry out in executing the project.

- Note that one of the team members must be clearly identified as responsible for coordinating and reporting on the design/implementation of the projects’ policy engagement and communication strategy (see section III below). To achieve a more balanced task distribution, PEP advises to select a member other than the project leader.

**Team leader**

Name	Age	Sex (M, F)	Highest degree/diploma
Paras Kharel	33	M	PhD in Economics (University of Melbourne)
<b>Training and experience</b>	I have a PhD in Economics with specialization in international trade and applied microeconometrics. I have led, directed and/or undertaken research on mainly trade and development issues pertaining to Nepal and South Asia. I have been with South Asia Watch on Trade, Economics and Environment (SAWTEE) since 2007 and am currently its Research Director. SAWTEE is a Kathmandu-based think tank known for its research, advocacy, capacity building and sensitization activities in Nepal and the rest of South Asia. Some of my papers have been published, including as refereed chapters in books published by international organizations. My research has been funded by national and international organizations. I have worked as a journalist for five years, and contribute op-ed pieces occasionally.		
<b>Expected capacity building</b>	While I have considerable research experience in international trade and development issues, including the use of microeconomic techniques, I have yet to execute a rigorous research project in the area of labour economics. SAWTEE has identified remittance and		

	<p>development as a thematic area in which it needs to work more actively. Through the proposed research, I expect to (i) adapt and attune my microeconomic skills to answering research questions in the realm of labour economics using household-level data; (ii) gain experience in conducting research on migration, of great policy interest in Nepal and South Asia; and (iii) thereby diversify my research portfolio and, in turn, contribute to SAWTEE's ability—already well-recognized in the field of international trade—to scale up its work in the area of remittance and development as its Research Director.</p> <p>I also intend to benefit from the expertise and guidance that PEP can provide especially in the area of identification strategies. For example, there is a method of estimating causal effects in the absence of an instrument, which is based on the idea that selection on observables provides a guide to selection on unobservables (Altonji et al. 2005). This is a method we intend to explore to answer our research question – although not as the main method. I hope PEP inputs will help me better understand this method, and determine whether it is worth pursuing – a fruitful exercise in itself.</p> <p>Additionally, since research using state-of-the-art microeconomic techniques on micro-level data is still few and far between in Nepal, discussions on the methodological aspects will be encouraged wherever possible as part of the dissemination activities. Teachers and students of economics and researchers from other organizations (e.g., central bank, think tanks) will also be invited to dissemination events. This is expected to contribute to capacity building at the national level to some extent.</p>
<p><b>Contribution to project</b></p>	<ul style="list-style-type: none"> <li>- Lead the preparation of research proposal and its refinement upon receiving comments from PEP.</li> <li>- Develop methodology, and seek relevant inputs from experts, possibly through PEP.</li> <li>- Discuss identification issues with team members, enhancing their, and my own, understanding. For example, why are we using a particular specification and not another?</li> <li>- Where needed, provide team members with hands-on technical inputs and advice on handling Stata software in different phases of the project: e.g., setting up data, generating summary statistics and graphs, running regressions.</li> </ul>

	<ul style="list-style-type: none"> <li>- Contribute to building the capacity of other interested SAWTEE staff through in-house presentations/discussions on the study.</li> <li>- Write the introduction and empirical strategy parts of the paper, and assist in data analysis and interpreting results.</li> <li>- Finalize paper for publication in a refereed journal.</li> </ul>
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**Team member #2**

Name	Age	Sex (M, F)	Highest degree/diploma
Shaleen Khanal	28	M	MA
<b>Training and experience</b>	<p>I have Masters in Economics with specialization in Labour and agriculture economics. I also have keen interest in areas of industrial economics (especially in birth and location of firms). I have been associated with SAWTEE for the last four years, and have worked extensively in the fields of trade and transport facilitation, development constraints for emerging firms, and value chains of export based products. I was a contributor for the Nepal Trade Integration Strategy 2015 – a flagship 5-year trade strategy developed by the Government of Nepal, and part of the team that conducted a study on Growth Identification and Facilitation Framework in Nepal. My work has been published as a Working Paper in the Research Division of UNESCAP and I have an upcoming publication in the Asian Development Review. My recent research work on gender and ethnic inequality have required working extensively with income and expenditure data of the Nepal Living Standard Survey database, which the proposed research project seeks to use heavily.</p>		
<b>Expected capacity building</b>	<p>Areas of migration and entrepreneurship, despite being of great importance in Nepal's context, have not been part of my work portfolio here in SAWTEE. Therefore, it is an excellent opportunity for me to broaden my horizon and to pursue research in areas that are of great interest to me. Also, I will get a chance to discuss, learn and apply the latest microeconomic methodologies which can assist me and SAWTEE in further researches in the future. This project also provides me an opportunity to further sharpen my expertise in analysis of Nepal Living Standard Surveys and to analyse Census data – the two most comprehensive socioeconomic datasets of Nepal – which can be of great help in conducting similar</p>		

	researches in the future.
<b>Contribution to project</b>	For my last two researches, I have worked extensively on income and expenditure data of the Nepal Living Standard Surveys of 2003-04 and 2010-11. Therefore, I will be preparing the necessary database for application of econometric techniques. I will also be assisting the team in developing methodology and application of those methodologies during the course of the research.

### Team member #3

<b>Name</b>	<b>Age</b>	<b>Sex (M, F)</b>	<b>Highest degree/diploma</b>
Dikshya Singh	30	F	MA in Economics
<b>Training and experience</b>	<p>I have a master's degree in Economics and I am currently writing a dissertation to complete an M Phil in Economics. Working as a researcher at SAWTEE from June 2016, I have worked on a number of researches pertaining to cross-border connectivity issues, informal trade, impact on livelihood of different programs and post-disaster reconstruction. I am also part of a two-member team that is handling a project on the ongoing reconstruction after the 25 April 2015 earthquake in Nepal. One of the components of the project is to explore the implications of labour migration for reconstruction activities.</p> <p>Prior to working in research, I was engaged in journalism. As an economics reporter at a leading national daily in Kathmandu, I covered issues related to finance, foreign employment and remittance in Nepal for half a decade. I have extensively covered trends of remittance and foreign employment in Nepal and their impacts on the economy in news reports and feature stories. I was also awarded a fellowship by Washington-based International Center for Journalists (ICFJ) in 2013 to cover the situation of migrant workers from Nepal. My later experience of handling the website of a long-form magazine on South Asia has familiarised me further with migration and labour market issues in South Asia.</p>		
<b>Expected capacity building</b>	<p>Being part of this research team will equip me skills to do research on labour markets in general and migration in particular.</p> <p>This will also give me an opportunity to significantly enhance my modest knowledge of econometrics, allowing me to apply the techniques learnt in this project to future research projects. My participation is also guided by my desire to do more quantitative research using state-of-the-art tools in my career. I look forward to being fairly proficient in Stata through the project.</p>		

	In addition, I am in the preliminary stage of conducting a thesis (research) as part of an M Phil degree, where I intend to examine the relationship between participation in foreign employment and human development. My involvement in this project will help me answer my thesis research questions using econometric techniques.
<b>Contribution to project</b>	<p>Conduct literature review.</p> <p>Assist (and in the process learn from) other team members in cleaning data and performing data analysis.</p> <p>Assist the team leader in writing the research report/paper.</p> <p>Design and implement policy engagement and communications strategy.</p>

#### Team member #4

<b>Name</b>	<b>Age</b>	<b>Sex (M, F)</b>	<b>Highest degree/diploma</b>
Pragati Koirala	27	F	MA in Management and Leadership
<b>Training and experience</b>	I did my Bachelor's in Business Administration from Nepal and MA in Management and Leadership from Webster University, Geneva. I am currently working as a research associate at South Asia Watch on Trade, Economics and Environment (SAWTEE). I assist in research, do basic data analysis, write and edit reports, and contribute to proposal development. One of the research projects I am contributing to at SAWTEE is an assessment of the effect of the 2015 Nepal earthquake and subsequent reconstruction activities on different sectors of the economy, including implications for migration and remittances.		
<b>Expected capacity building</b>	<p>I believe this experience will allow me to:</p> <ul style="list-style-type: none"> <li>• Upgrade my quantitative research skills, especially learn applied microeconomic tools and learn Stata</li> <li>• Acquire in-depth knowledge of a key facet of the Nepalese economy: migration and remittances</li> <li>• Develop research proposals in this area for my organization in future</li> <li>• Get tooled up for writing a good research paper in the second Master's degree (Economics) that I am pursuing</li> </ul>		

<b>Contribution to project</b>	<ul style="list-style-type: none"> <li>• Assist team in basis data analysis</li> <li>• Assist team in running regressions</li> <li>• Assist team in literature review</li> <li>• Assist in report writing</li> <li>• Assist team in organizing policy workshop</li> </ul>
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## 2.2. List of past, current or pending (non-PEP) projects in related areas involving team members, including resulting publications (If any)

Name funding institution, title of project and related publications, list of team members involved.

Name of funding institutions	Title of projects and related publications (link)	Team member(s) involved
Ministry of Commerce, Government of Nepal	Title: <i>Least-developed countries' issues and concerns with regard to the Eleventh Ministerial Conference of the World Trade Organization</i>	Paras Kharel, Pragati Koirala
	Publication (reference): <i>Yet to be published.</i>	
The Asia Foundation	Title: <i>Post-earthquake reconstruction: Impact on migration and remittances</i>	Pragati Koirala
	Publication (reference): <i>Yet to be published.</i>	
The Asia Foundation	Title: <i>Initiating Dialogue on Post-Disaster Reconstruction</i>	Dikshya Singh, Paras Kharel
	Publication (reference): <i>An anthology of research papers (to be published)</i>	
CUTS International	Title: <i>Linkages and Impacts of Cross-Border Informal Trade in Agricultural Inputs in Eastern South Asia</i>	Dikshya Singh
	Publication (reference): <i>Nepal-India informal trade in agricultural inputs: Evidence from a small-scale survey (Research Brief, forthcoming)</i>	
Overseas Development Institute	Title: <i>Structural Economic Transformation in Nepal: A Diagnostic Study</i>	Shaleen Khanal
	Publication (reference): <a href="https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9019.pdf">https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9019.pdf</a>	
United Nations	Title: <i>Strategies for Mitigating the Impact of Graduation from the Least Developed Countries Category</i>	Shaleen Khanal
	Publication (reference): <a href="https://www.un.org/development/desa/dpad/publication/background-paper-35-applying-the-growth-identification-and-facilitation-framework-to-nepal/">https://www.un.org/development/desa/dpad/publication/background-paper-35-applying-the-growth-identification-and-facilitation-framework-to-nepal/</a>	

SAWTEE	Title: <i>Ethnicity and Income Inequality in Nepal</i>	Shaleen Khanal
	Publication (reference): Yet to be published.	
UNESCAP	Title: <i>Structural Transformation and Trade Policy: Case of Nepal.</i>	Paras Kharel
	Publication (reference): "Structural transformation and trade policy: Case of Nepal." In <i>Trade performance and competitiveness: Selected issues relevant for Asian developing economies</i> , pp.1-73. Bangkok: United Nations Economic and Social Commission for Asia and the Pacific.	
Commonwealth Secretariat	Title: <i>Nepal and SAFTA: Issues, Prospects and Challenges</i>	Paras Kharel
	Publication (reference): Adhikari, Ratnakar, and Paras Kharel. 2014. "Nepal and SAFTA: Issues, prospects and challenges." In Mohammad A Razzaque and Yurendra Basnett (ed.), <i>Regional integration in South Asia: Trends, challenges and prospects</i> . UK: Commonwealth Secretariat.	
International Centre for Trade and Sustainable Development, Geneva	Title: <i>Evaluation of Aid for Trade</i>	Paras Kharel
	Publication (reference): Adhikari, Ratnakar, Paras Kharel and Chandan Sapkota. 2011. <i>Evaluating Aid for Trade on the ground: Lessons from Nepal</i> . Aid for Trade Series, No. 23. Geneva: International Centre for Trade and Sustainable Development.	
Background paper for a presentation made at "Asia-Pacific Regional Meeting on Implementing the Istanbul Programme of Action", 14-16 December 2011, Bangkok, organized by The United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) and The Office of High Representative for Least Developed	Title: <i>Remittances as Development Resource: The Experience of Nepal</i>	Paras Kharel
	Publication (reference): Yet to be published	

Countries, Landlocked Developing Countries and Small Island Developing States (OHRLLS)		
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**2.3. List of past or current PEP-supported projects involving team members, including resulting publications**

Project code (e.g. PMMA-12345)	Title of project and related external (non-PEP) publications, if any	Team member(s) involved
	Title:	
	Publication (reference):	
	Title:	
	Publication (reference):	
	Title:	
	Publication (reference):	
	Title:	
	Publication (reference):	
	Title:	
	Publication (reference):	

## SECTION III – RESEARCH

**3.1. Literature review (max 1000 to 1500 words)**

Explain specific gaps in existing literature that your research aims to fill. You might want to explain whether or not this question has been addressed before in this context (including key references), and if so, what you wish to achieve (in addition) by examining the question again?

<p>Insert your text here – max 1000 to 1500 words</p> <p>The literature on the impact of migration on non-migrating members of households is growing but still limited. There are two broad lines of enquiry (see Yang (2011) and Antman (2013) for surveys). The first is the effect on income, production, investment, consumption, health, education, poverty and other welfare metrics. Studies on countries other than Nepal include Rozelle et al. (1999) on China; Taylor and Lopez-Feldman (2010), Alcaraz et al. (2012), and Antman (2010a, 2010b) on Mexico; and Yang (2008) on the Philippines. Nepal-</p>
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specific studies have explored the effects of migration and remittances (internal, international or both) on poverty (Lokshin et al. 2010; Acharya and Leon-Gonzalez 2013), educational attainment of children (Acharya and Leon-Gonzalez (2014)), and agricultural productivity (Tuladhar et al. 2014). The papers on Nepal find that migration and/or associated remittances have contributed to poverty reduction, improved educational attainment of children, and reduced agricultural yields.

The second line of investigation—and which our research question is more closely related to—concerns the labour market behaviour and outcome of left-behind household members. Amuedo-Dorantes and Pozo (2006) ask, using data from Mexico, whether hours worked by men and women vary owing to whether the household receives international remittances. Besides gender, the analysis is disaggregated by types of employment (formal sector work, informal sector work, self-employment and nonpaid work), and rural versus urban areas. Women reduce their total hours worked overall in rural areas, driven by a reduction in informal sector work and nonpaid work. Men see no effect on total hours worked, but witness a reduction in hours worked in the formal sector and an increase in hours worked in the informal sector. In urban areas, men also work lower hours in self-employment in response to receipt of remittances. Demurger and Li (2013) estimate the impact of belonging to an internal migrant-sending household in rural China on occupational choice, which is categorized in four binary decisions: farm work, wage work, self-employment and housework. The paper also estimates how the impact of migration differs across households depending on whether they receive remittances and on their migration history (based on the number of years the migrant has been away). It finds that individual migration experience favours local off-farm work, whereas at the family level, migration pushes those left behind to farming rather than to off-farm activities. In Nepal, Lokshin and Glinskaya (2009), using data from a 2004 household survey, find that male migration (internal and international combined) has a negative impact on spouses' decision to participate in wage employment. They find evidence of substantial heterogeneity in the impact.

The proposed research complements and extends the existing literature on the effect of migration on the labour market behaviour and outcome of non-migrating household members (including women) by focusing on the effect on the non-farm entrepreneurial activities of those who stay behind. In studies that also look at self-employment (e.g., Amuedo-Dorantes and Pozo 2006; Demurger and Li 2013), self-employment is not clearly defined and is unlikely to be confined to engagement in non-farm own enterprises, a precise definition that we will be using. Moreover, they only consider internal migration. In their Nepal study, Lokshin and Glinskaya (2009) only look at female wage employment and do not distinguish between internal and international migration. Thapa (2008), in an unpublished paper, attempts to analyse the “impact of migration and remittances on labour supply decisions of remittance-receiving households using panel data” from the 1996 and 2004 household surveys of Nepal. However, it appears to consider the combined effect of internal and international migration, although it motivates the paper with the importance of international migration. It does not specifically consider non-farm own enterprises, and it is not clear what its self-employment category means. Moreover, although it uses a range of methods (e.g., IV with random effects and Tobit models), the identification strategy is not clear.

This research will ask whether international out-migration and associated remittances (M&R)

induce or retard shifts to non-farm self-employment activities, which reflect entrepreneurship, among those left-behind in migrant-sending households. It will also look at the relationship between (M&R) and the characteristics of such enterprises (e.g., registered or not, hire labour or not, number of family members engaged, revenue, labour productivity, etc.)—something that studies that assess the effect of M&R on participation in non-farm self-employment activities do not delve into. Further, unlike most studies, this research will explicitly distinguish between international and internal out-migration: Do the effects of international out-migration (to a foreign country) differ from those of internal out-migration (to a place within the country) with regard to the key research questions?

The proposed study also speaks, in part, to the literature analysing the process and determinants of structural change in developing countries, i.e., the decline in the importance of agriculture in total output and employment and the corresponding rise of non-farm sectors/occupations.<sup>1</sup> The potential role of non-farm entrepreneurship, even if it is in the form of operating informal household-level microenterprises, in fostering large-scale industrialization in the long run also makes analysing its determinants policy relevant.<sup>2</sup> In Nepal's domestic employment during the period 1995/96-2010/11, the share of non-farm self-employment increased while the share of agricultural employment decreased. This happened against a backdrop of increasing out-migration and inward remittances. This study will analyse the role of out-migration and inward remittances in this shift among migrant-sending households.

### 3.2. Methodology (max 1200 to 1600 words)

Presentation of the specific techniques that will be used to answer the research questions and how exactly they will be used to do so.

- Explain whether you will use a particular technique normally used in other contexts or whether you intend to extend a particular method and how you will do so.
- Explain if these methods have already been used in the context you are interested in (including key references).
- **For PMMA (microeconomic analysis) proposals only:** In case the proposed methodology aims to empirically estimate a causal relationship, explain potential sources of endogeneity in the context of your research, and how the proposed technique(s) would allow the identification of the relevant parameters.

Insert your text here – max 1200 to 1600 words

#### The identification challenge

<sup>1</sup> For example, Foster and Rosenzweig (2004) and Shilpi and Emran (2016) look at the role of agricultural productivity in effecting structural change in India and Bangladesh, respectively. Emran and Shilpi (2011) present evidence on intergenerational occupational mobility from agriculture to the non-farm sector in Nepal and Vietnam. In related literature, Scharf and Rahut (2014) assess the effect of participation in non-farm employment on rural welfare, finding an overall positive effect.

<sup>2</sup> The rural non-farm sector has been credited with providing the foundation for the rise of a modern industrial state in Japan (Smith 1988). The manufacturing sector is a component of the non-farm sector, and theoretical models feature learning-by-doing in the manufacturing sector as the engine of growth (e.g., Matsuyama 1992).

Our main outcome of interest is participation in non-farm own enterprises. It can be measured as a binary variable indicating whether an individual participates in that activity or not, or as a continuous variable (e.g., hours worked). The latter is more likely to be prone to measurement error, though. The key explanatory variable of interest is whether the household to which the individual belongs has a migrant abroad or receives remittances from abroad.<sup>3</sup> In auxiliary specifications, we might include the value of international remittances received by the household as the main regressor. Note that capturing migration/remittances by a dummy is less likely to suffer from measurement error. In the main specification, thus, the outcome variable is a binary variable measured at the individual level, while the key regressor, also a binary variable, is measured at the household level.

A key challenge in giving the parameter of interest a causal interpretation is endogeneity or selection issues. A household with a member working abroad may have characteristics, not all observable to the econometrician, that differ from those of a household with no one working abroad, and these characteristics could potentially affect the employment decisions of those who do not migrate. The direction of bias is, a priori, unknown. The preferred, standard method in the literature to address the endogeneity of migration has been to use an instrumental variable (IV) strategy. This is the main method that we will employ.

#### Finding an IV

The most popular IV draws on migrants' network: the share of emigrants in the total population/labour force of the geographical unit to which the household/left-behind individual belongs (see, for example, Rozelle et al. 1999; McKenzie and Rapoport 2007; Lokshin and Glinskaya (2009); Lokshin et al. 2010). The intuition for the instrument's relevance is that it is a proxy for the social networks maintained by emigrants linking their villages with their destinations, which lower the cost of out-migration. As for whether the exclusion restriction is satisfied, the literature relies on the belief that migrants' networks affect the outcome variable (be it household consumption or labour allocation) only through the variable of interest, the migration status of the household. Most relevant to our study, Lokshin and Glinskaya (2009) and Lokshin et al. (2010) use the proportion of the labour force that has out-migrated at the level of the ward (the smallest administrative unit), with a lag of about three years, as an instrument for household-level international migration status. There is a concern, however, that unobservables may affect both the IV and the outcome: a ward may have unobserved characteristics that affect the out-migration rate as well as the labour supply response of those who stay behind. As area fixed effects cannot be used at the level the IV is measured, the approach taken by the literature is to condition on a vector of observables at the area level. We do not claim to have a better instrument, but will (i) attempt to refine it to make it more plausible; and (ii) also use an alternative instrument.

First the refinement. Concerns about the excludability of the instrument can be partly allayed by the use of "historical" migration networks—the persistence of ward-level unobservables hopefully peters out over time. Rozelle et al. (1999) use migration networks that prevailed a decade before the survey year. We propose to use as an IV the proportion of the labour force that out-migrated at the level of the ward 10-15 years before the survey. The exclusion restriction, we believe, is more plausible now than when contemporaneous migration networks are used (as, for example, in Tuladhar et al. (2014); Acharya and Leon-

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<sup>3</sup> In practice, there is little difference between the two.

Gonzalez (2013, 2014)).

Because the IV does not vary at the household level—the unit at which the regressor is observed—some papers interact it with the education level of the most-educated household member (e.g, Rozelle et al. 1999, Amuedo-Dorantes and Pozo 2006). We believe that the education of a household member can directly affect the outcome of interest, be it agricultural yield as in Rozelle et al. (1999) or labour market participation of non-migrating members, which we are interested in. We propose to tweak the IV further in a way that it can potentially vary, more plausibly, at the household level, and additionally address the concern about the exclusion restriction. What we have in mind is the out-migration rate among the ethnic group to which the household head belongs, preferably at the level of the ward and a decade before the survey. We will be exploiting the fact that there are over 100 ethnic groups in Nepal—although we may have to categorize them into much fewer groups as some groups have a very small population—and ethnic diversity is likely present even at the ward level. With the IV varying at the household level, area fixed effects can be used, addressing the aforementioned concern that area-level unobservables may be correlated with the IV. Since the number of observations within a ward is likely very small, using ward fixed effects would be cutting the data too thin. One possibility is to use fixed effects at the level of primary sampling unit (PSU), which is a ward, sub-ward or collection of contiguous wards within the same village.<sup>4</sup> The average PSU has about 12 sampled households and the average household has at least two working-age members (aged 15-59). Another possibility is to use fixed effects at the level of the district—71 districts are covered in the 2010/11 household survey (cross-sectional component). Ethnic group-specific characteristics may affect migration decision as well as the outcome variable. Ethnic group fixed effects will take care of this. What about ethnicity-by-ward unobserved heterogeneity? We argue such heterogeneity may be more of a concern at a higher level of geographical/administrative unit, and can be picked up by ethnicity-by-region fixed effects, with six regions.

An instrument for internal migration can be constructed in the same way as the standard instrument for international migration: fraction of the labour force or population in a ward/district that has migrated to a place within Nepal (as used in Lokshin and Glinskaya (2010)).

An alternative instrument could be the lagged economic (e.g., wage growth) conditions in, say, six major destinations interacted with the “historical” migration rate from a ward to a destination, in a spirit similar to the IV strategy in Dustman et al. (2015). To allow for greater flexibility in the way area characteristics mediate the influence of destination-level conditions on out-migration, we can instead interact the destination-specific conditions with district dummies (71 of them).

#### Estimation: Linear or non-linear model?

The above IV strategies can be easily implemented using a linear model, which will be our baseline. While the binary nature of the key outcome variable means that a linear model can predict values that lie outside the [0,1] range and constrain the marginal effects to be constant, this is not a serious problem to the extent our focus is on the average marginal effect. Since the endogenous regressor is also binary (at least in the main specification), the

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<sup>4</sup> There are 499 PSUs in the household survey of 2010/11 (cross-sectional component).

linear model permits identification without restrictive distributional assumptions about the errors, as in, say, a bivariate probit model or a switching probit model (the latter is used in Lokshin and Glinskaya (2009)). What the linear model additionally buys is the ability to use a high number of fixed effects, which are likely required in some of our IV strategies discussed above and cannot be handled by the non-linear estimators. Additionally, we can also exploit data on a panel of households (about 500) observed for at least two years (2003 and 2010) to run a linear IV model with household fixed effects, which capture all time-invariant unobserved heterogeneity at the household level.

Because the data are grouped into clusters (defined at the level of PSUs), there is a genuine concern about intragroup correlation – i.e., correlation of the error terms among households/individuals within a PSU. Failing to take this into account is likely to bias standard errors downwards. As the number of clusters is large – at 600 PSUs – we intend to address this concern by clustering standard errors at the PSU level in the cross-sectional regression. When using panel data, clustering may be done at the household level.

#### Alternative methods

As an alternative method, but using the same IV, we will estimate a switching probit model under two regimes—migration and no migration—in order to capitalize on some of its advantages (as in Lokshin and Glinskaya (2009)). Notably, it allows coefficients in the labour market participation equation to vary across the two regimes, and permits measuring the average treatment effect on the treated and the marginal treatment effect, and exploring heterogeneity readily.

When hours worked is the outcome variable, we are thinking of following Amuedo-Dorantes and Pozo (2006) in using the Amemiya Generalized Least Squares estimator for Tobit with endogenous regressors (i.e., IV-Tobit) in view of the zero inflated nature of the dependent variable. When enterprise characteristics are the outcome variables, sample selection becomes a potentially serious issue as the outcome variables are observed only for households with an enterprise. A possible way out is a Heckit-type estimation coupled with a 2-SLS, the latter to address regressor endogeneity (as discussed in Wooldridge 2010, pp. 809-813). While the IV for the endogenous regressor in the 2-SLS part is the same as above, finding an exogenous variable that enters the selection equation but not the equation that predicts the endogenous regressor is a challenge, addressing which is left for the actual research.

Because there are always doubts about the validity of an instrument, we will also explore the possibility of placing bounds on our key estimate without using an IV by adapting the estimation methods in Altonji et al. (2005) that are based on the idea that selection on observables provides a guide to selection on unobservables. Advice will be sought from PEP experts on whether this avenue is worth pursuing.

### **3.3. Data requirements and sources (max 400 to 700 words)**

This is a critical part of the proposal. The key issue is to explain the reason for the choice of your particular databases. You must establish that they are ideal for the question you wish to address and

that you have or will have access to these data before your project begins. Please consult the [“Guide for designing a research project proposals”](#) for more detail.

Insert your text here – max 1000 to 1300 words

The main source of data is nationally representative household surveys of Nepal conducted by the national statistical organization, the Central Bureau of Statistics (CBS). For the cross-sectional model, we will use the third and latest wave of the Nepal Living Standards Survey (NLSS), conducted in 2010/11 (NLSS-III).<sup>5</sup> NLSS collects information on a range of topics, including demography, education, health, in-migration, employment and unemployment, work and time use (agriculture wage job, non-agriculture wage job, agriculture self-employment, employment in non-farm self-owned enterprises), absentee population (internal and international out-migration, along with information on destination), remittances, assets, agricultural production, access to facilities, among others. NLSS provides information on a rich set of household-level characteristics, and to some extent individual-level characteristics, which can be controlled for in the regressions. One such characteristic that we hope to utilize to refine the standard instrument is the ethnicity of the household head. The 2010/11 survey enumerated 5,988 households from 499 PSUs, spread over 71 districts, in its cross-sectional sample. The average household size is 4.9. We may also consider people above the age of 5 (or 10) since it is normal for children to work, particularly in household activities (including non-farm household owned enterprises), and people continue to work after 59. We do not have information on the number of wards at the moment, but it almost surely, by definition, is more than the number of PSUs.

The panel sample comprises 1,032 households—513 enumerated in 2003/04, and 519 enumerated in both 2003/04 and 1995/96. This will allow us to, additionally, estimate an IV model with household fixed effects. As a robustness check, and to estimate an IV fixed effects model proper, one can run the regressions with the household as the unit of observation.<sup>6</sup>

Going by the descriptive statistics presented in a summary report of the latest household survey (CBS 2011), there is limited overlap between households with an internal out-migrant and those with an international out-migrant. One way to analyse both types of migration is to include two dummies, one for internal and another for international migration. Alternatively, one can run separate regressions for internal and international migration.

NLSS has information on not just the time spent by individual household members on self-employment in non-farm enterprises/activities, but also on the characteristics of the enterprises. Such information includes nature of activity, sector, the main person involved, ownership (household only or partnership), age of the enterprise, months operated in the last 12 months, share of profits kept by the household, registration status, source of investment/borrowing, hiring of workers, income, expenditure, revenue, etc. This can be

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<sup>5</sup> Three waves of such surveys have been conducted so far: 1995/96 (NLSS-I), 2003/04 (NLSS-II) and 2010/11 (NLSS-III). The Nepal-specific studies cited so far in this proposal have used either the second wave or both the first and the second.

<sup>6</sup> In this case, the dependent variable would be, for example, whether at least one member of the household is engaged in self-employment in non-farm enterprises. The key regressor, as before, would be at the household level.

linked to the information on individuals (e.g., education) available in other modules of the survey. We will be investigating the relationship between out-migration and some enterprise characteristics (e.g., a measure of performance).

In the 2010/11 survey, information is collected on how long an absentee has been away from a household. Combining this with information on the age of an enterprise will us to distinguish between enterprises that began to be operated after out-migration and those that were in operation before out-migration.

While the focus is on the effect of work-related out-migration on left-behind household members' self-employment in non-farm enterprises/activities, a suggestive indicator of entrepreneurship, we will also be looking at the effect on employment in other activities/jobs (agriculture wage job, non-agriculture wage job and self-employment in agriculture) to get a holistic picture.

There are some differences in the questions about out-migration and remittances across the survey waves, with NLSS-III having more detailed and precise questions and information than the first two waves. Whereas NLSS-I and II collect information on remittances sent by a person who is not currently a member of the household, without determining whether the person used to be a member,<sup>7</sup> NLSS-III has information on absentees<sup>8</sup> such as reason for out-migrating, education, age, years since they left the household and the remittances they send home, as well as information on remittances received from all other persons (neither absentees nor currently household members). However, all surveys have information on the location of the remittance sender and/or out-migrant: the district if within Nepal and the country if abroad. While using data from multiple survey waves, we will define the regressor in a consistent manner.

The National Population Census 2001, also conducted by CBS, will be used to construct the instrument—lagged ward-level emigration rate—for international out-migration in our cross-sectional regressions on 2010/11 NLSS data. The 1995/96 NLSS or 2003/04 NLSS will be used to construct the instrument—lagged district-level emigration rate—for internal out-migration.<sup>9</sup> However, when we use panel data that combine the 2003/04 and 2010/11 NLSS surveys, the instruments for both internal and international out-migration will be at the district-level, with the instruments for 2010/11 coming from the 2001 census (international) and the 2003/04 NLSS (internal), and those for 2003/04 coming from the 1995/96 NLSS (both internal and international).

We also intend to utilize some additional questions on out-migration introduced in the 2010/11 NLSS which have a potential to generate information on return migration. These questions include whether a household member lived outside the village for more than two continuous months over the last five years; the place (within Nepal or abroad) the person went to; and whether the person has returned. Such information can help us explore how

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<sup>7</sup> One can partly make inferences about this from the relationship between the donor and the remittance recipient, though.

<sup>8</sup> An absentee is a person who used to be a member of the household, is currently away for a period of at least six months and is expected to return to the household in future.

<sup>9</sup> This is similar to what Lokshin et al. (2010) do. Ward-level instruments cannot be constructed using NLSS.

the presence of returnees in a household can influence participation in employment activities, including in situations where a household has one returnee and one absentee. Finding an instrument for return migration is a challenge. Nevertheless, even results in the nature of associations, if not causality, would be interesting as this is an underexplored dimension, especially in Nepal.

Both the household survey data and census data are readily available from the CBS.

## SECTION IV – POLICY ENGAGEMENT

### 4.1. Policy relevance

#### 4.1.1. Describe policy context and needs

Describe the specific policy issues or needs that your research aims to address; how your potential outcomes and findings may be used in policy making? Please be as precise as possible, indicating specific current or prospective policies and the specific contributions your research would make.

Also, justify timing of your research in terms of policy and socioeconomic needs and context – e.g. reference to existing, planned or potential policies at the national, regional or local level; specific political context; international examples of similar policy problems or solutions, etc.

Insert your text here – max 800 to 1000 words

Low productivity in agriculture and dearth of non-farm employment opportunities offering decent incomes drive people from poor countries like Nepal towards foreign employment. Creation of such opportunities is high on the policy agenda, with promoting entrepreneurship through micro, small- and medium-scale enterprises as a stepping stone towards that goal (e.g., Nepal's periodic development plans, including the latest one for 2016/17-2018/19; the annual national budgets; the Industrial Policy; the National Employment Policy). Motivating this policy stance is a consensus that remittances sent home from abroad, for all their contributions to everything from household-level welfare to foreign exchange reserves, cannot be a credible basis for sustained economic growth. The goal of economic growth and industrialization, and associated structural transformation, that provides decent and productive employment to Nepali citizens on Nepali soil, is a critical component of the recently launched Sustainable Development Goals (Goals 8 and 9) and central to Nepal's development aspirations. This goal eluded the country during the implementation of the Millennium Development Goals—which did not explicitly feature any goal on growth, employment and industrialization— despite achievements on other fronts, such as poverty, health and education. Attaining it remains a formidable challenge for a country that aspires to graduate from least-developed country status by 2022 and become a middle-income country by 2030.

Knowledge of the impact of the decision to send a member abroad for work and the

resulting remittance inflow on the left-behind household members' employment activities, especially their engagement in household-owned non-farm enterprises, and the potential channels and heterogeneity of the effects will help identify the broad contours of policy interventions required to foster entrepreneurship through the establishment and operation of household-owned micro, small- and medium-scale enterprises. If, for example, it is found that receiving remittances induces shifts towards entrepreneurial activities, but only among women with at least a higher secondary-level education, there would be a case for supporting this particular group to scale up its enterprises and addressing the factors that inhibit women with a lower educational attainment from leveraging remittances towards non-farm entrepreneurial ventures.

#### 4.1.2. Consultations to date

List the consultations that you have had with potential research users (e.g. policy makers or stakeholders) and that have helped define your research question, and/or informed you of the specific policy context described above.

For each institution consulted, please:

- List key (individual) representatives who participated in the consultation
- Describe the main outcome(s) of the consultation (feedback, inputs, etc.)

<b>Name of institution/organization #1</b>	Ministry of Labor and Employment, Government of Nepal
<b>List the key representative involved in consultations (names and titles/positions)</b>	
Mr. Laxman Prasad Mainali, Secretary	
<b>Describe main outcomes of consultation – feedback or inputs received</b>	
We need to identify what kind of skills is needed in foreign countries frequented by our migrants. We do have training programs currently operating in Nepal, but the budget is limited and there hasn't been proper research on what kind of skills the training programs should focus on. There is also limited research on how the left-behind family members fare in terms of employment and how remittances can be leveraged for domestic economic growth. This study can provide evidence on the level of intervention needed to stimulate entrepreneurial activities among the left-behind members.	
<b>Name of institution/organization #2</b>	Asian Development Bank (a major donor agency for Nepal)
<b>List the key representative involved in consultations (names and titles/positions)</b>	
Mr. Anjan Pandey, Senior Programs Officer.	
<b>Describe main outcomes of consultation – feedback or inputs received</b>	
Nepal has not been able to use migration and remittance for development purposes, especially since our migrants are not making a lot of money. There has to be an effort to train the people seeking foreign employment as well as counseling for the returning workers. Policy intervention is needed to develop entrepreneurship among the left-behind members as well as the returning migrants. Hence, a study of this nature can provide a much-needed evidence on the necessity of such policies.	

<b>Name of institution/organization #3</b>	Pourakhi Nepal (An NGO working to support migrant workers and their children, particularly women going abroad for employment. It regularly conducts entrepreneurship training as well as skills training.
<b>List the key representative involved in consultations (names and titles/positions)</b>	
Ms. Manju Gurung, Chairperson	
<b>Describe main outcomes of consultation – feedback or inputs received</b>	
Greater intervention is required to spur entrepreneurship activities among the left-behind family members. Pourakhi Nepal has conducted some programs on that front like raising awareness about how to save the remittance received, how to open a bank account, etc. The findings of the proposed research could be helpful for them in their future activities related to helping the left-behind family members.	

<b>Name of institution/organization #4</b>	Federation of Nepal Cottage and Small Industries (FNSCI)
<b>List the key representative involved in consultations (names and titles/positions)</b>	
Ms Shobha Gurung, Vice President	
<b>Describe main outcomes of consultation – feedback or inputs received</b>	
Women who are running micro enterprises and belong to families that has adult male(s) working abroad have to balance their entrepreneurial activities with their household chores and farm activities. They need support from the government to grow their enterprises.	

<b>Name of institution/organization #5</b>	Nepal Institute of Development Studies
<b>List the key representative involved in consultations (names and titles/positions)</b>	
Mr Ganesh Gurung, migration expert	
<b>Describe main outcomes of consultation – feedback or inputs received</b>	
Migration abroad has potentially changed domestic livelihood patterns. The proposed research can shed light on such changes.	

<b>Name of institution/organization #6</b>	General Federation of Nepalese Trade Unions
<b>List the key representative involved in consultations (names and titles/positions)</b>	
Mr Ramesh Badal, Secretary-Foreign Employment	
<b>Describe main outcomes of consultation – feedback or inputs received</b>	
Sending youth abroad for work cannot be a viable development strategy in the long run. The findings of the research can identify interventions required to create employment opportunities on Nepali soil.	

#### 4.2. Engagement strategy

#### 4.2.1. Identify target audiences

Identify potential users of your research findings – institutions/organizations that may use your findings to inform, advise or influence policy or other relevant decision-making processes. Please explain why you believe these institutions/organizations are the most important potential users of your research, to inform relevant development/policy decisions.

<b>Name of institution/organization #1</b>	Poverty Alleviation Fund
<b>Explain relevance of this user to inform key decisions</b>	
An organization whose governing board is chaired by the prime minister of Nepal, the PAF implements programmes aimed at poverty alleviation across the country. It supports, among others, activities for generating income through self-employment and/or small businesses in rural areas.	

<b>Name of institution/organization #2</b>	Ministry of Industry
<b>Explain relevance of this user to inform key decisions</b>	
It is the central authority responsible for formulation of policies, laws and regulations to create employment opportunities through industrialization.	

<b>Name of institution/organization #3</b>	National Planning Commission
<b>Explain relevance of this user to inform key decisions</b>	
It is the apex advisory body of the Government of Nepal, helping in formulating periodic plans and policies for development. Among other things, it “assesses resource needs, identifies sources of funding, and allocates budget for socio-economic development” ( <a href="http://www.npc.gov.np/en">http://www.npc.gov.np/en</a> ).	

<b>Name of institution/organization #4</b>	Ministry of Labour and Employment
<b>Explain relevance of this user to inform key decisions</b>	
It was responsible for the formulation of the National Employment Policy. According priority to self-employment activities and microenterprises is one of its strategies.	

#### 4.2.2. Define outreach and engagement strategy

How, from proposal design to the dissemination of your research results, will you consult and communicate with these users to both gather their inputs and keep them informed of your project, in order to increase chances of research uptake?

Insert your text here – max 150 words
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A key motivation for the research stems from discussions on development issues facing Nepal and other South Asian countries that the team members have had with various stakeholders while conducting research studies and participating in conferences at national, regional and international levels. Some of the events are those organized by South Asia Watch on Trade, Economics and Environment (SAWTEE), a Kathmandu-based think tank known for its research, advocacy, capacity building and sensitization activities in Nepal and the rest of South Asia. For example, the July 2017 monthly interaction forum convened by SAWTEE discussed issues of migration and remittances in Nepal in the context of the devastating earthquake of 2015 and recent reconstruction activities. Consultations and engagement aimed at increasing the chances of research uptake will proceed by utilizing SAWTEE's network, events and publications.

#### 4.2.3. Outline your preliminary dissemination strategy

Outline your preliminary dissemination strategy (channels, tools, events, audiences, etc.).

Note that PEP expects grantees to disseminate information about their research work and (expected) outcomes throughout the project cycle, and not only after publication.

Insert your text here – max 150 words

Dissemination of the research will utilize the tools and channels that South Asia Watch on Trade, Economics and Environment (SAWTEE) has honed over the years to disseminate the outcomes of many research projects (please visit [www.sawtee.org](http://www.sawtee.org)). The tools and channels may include, subject to resource availability: (i) a national conference, where key stakeholders including policymakers will be invited, to discuss the findings of the research; (ii) dissemination of the findings during presentations/discussions in different forums hosted by SAWTEE or its network members in South Asia, or other events participated in by SAWTEE; (iii) a SAWTEE working paper or a research brief or a policy brief; (iii) highlights of the research in SAWTEE's monthly e-newsletter; (iv) an article in SAWTEE's flagship, quarterly magazine, *Trade Insight*, which is circulated to a wide spectrum of stakeholders in the region and beyond – including academics, researchers, civil society organizations, media, policy makers and international development agencies; and (v) publication in a referred journal.

## SECTION V – OTHER CONSIDERATIONS

5.1. Describe any ethical, social, gender or environmental issues or risks that should be noted in relation to your proposed research project.

## 5.2. References and plagiarism:

Applicants should be very careful to avoid any appearance of plagiarism. Any text of five or more consecutive words that is borrowed from another source should be carefully contained between quotation marks with a reference to the source (including page number) immediately following the quotation. It is essential that we be able to distinguish what you have written yourself from what you have borrowed from elsewhere.

Note also that copying large extracts (such as several paragraphs) from other texts is not a good practice, and is usually unacceptable. For a fuller description of plagiarism, please refer, for example, to the following website:

- <http://writing.yalecollege.yale.edu/advice-students/using-sources/understanding-and-avoiding-plagiarism>

PEP will be using a software program to detect cases of plagiarism.

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