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Decency of primary occupations in the Indian fishing industry

The International
Center for Development
and Decent Work

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Contents

Abstract	3
1 Introduction	4
2 Review of Literature on Decent Work and Working Conditions in Fisheries	7
3 The Indian Fishing Sector	9
4 Working Conditions in the Indian Fishing Industry – An Analysis of NSSO Data	11
4.1 Overview and Composition of the Data	11
4.2 Reliability of Estimates	12
4.3 Demographic Characteristics of the Sample	12
4.4 A Note on the Use of Codes	15
4.5 A Note on the Use of Codes	17
4.6 Hours of Work	21
4.7 Equal Opportunity and Treatment in Employment	22
4.8 Presence of Child Labour	24
4.9 Stability and Security of Work	25
4.10 Social Security	26
4.11 Representation of Workers and Social Dialogue	28
5 Conclusions	29
6 Acknowledgement	29
7 References	30
Appendix	32
ICDD Working Paper Series	34

Abstract

Indian fisheries are moving from artisanal to capitalistic methods of production. As this transformation takes place, many traditional fishers are forced to seek employment on trawlers and other fishing vessels owing to their lack of a capital base to purchase modern vessels themselves. Competition among trawlers can lead to cost reducing strategies that lower the quality of working conditions for those employed in these vessels. This paper is an attempt to assess the working conditions of these workers through the use of indicators developed by the International Labour Office in the context of decent work. By utilizing data collected in the National Sample Survey Organization's (NSSO) 68th round survey of employment and unemployment, we find that there are some areas in which decency of work is lacking. The level of job security is highly inadequate among most workers in fisheries. There is a marked absence of women in the labour pool, especially in unskilled tasks. Child labour, while not a cause for alarming concern, exists to a minor degree in the industry. Furthermore, freshwater fishing was found to afford lower standards of work than marine fishing. Regulation and policy action are called into requirement by these observations.

Keywords: Fisheries, labour conditions, decent work

JEL Classification: J43



1 Introduction

In recent years, the concept of decent work has been put forth by the International Labor Organization (ILO) as part of their agenda on achieving Sustainable Development Goals by 2030, in order to address concerns about workplace conditions especially in developing countries. The concept looks to define a set of standard measures that will allow the assessment of working conditions in order to judge their adequacy. These standard measures are set against the backdrop of four 'pillars'² that include the promotion of a sustainable institutional and economic environment at the workplace, developing and enhancing measures of social protection, promoting social dialogue and a tripartite approach to economic development, and developing and respecting fundamental rights at work.

These developments in thought emerge from an increasing level of labour exploitation in developing countries. Within the third world, this is especially true in the case of those employed in the informal sector. Often, hazardous and substandard work environments, coupled with a lack of basic facilities such as drinking water and sanitation are common. The fishing industry is a highlighted case of this, with high levels of slavery and trafficking, poor working conditions, woefully inadequate remuneration, and a distinct lack of job security and seasonality; this is especially seen among the South East Asian countries such as Thailand (Environmental Justice Foundation, 2013). While not as pronounced in India as it is in Thailand, the issues of low remuneration and poor working conditions are also critical concerns in India and are likely to persist without adequate external intervention.

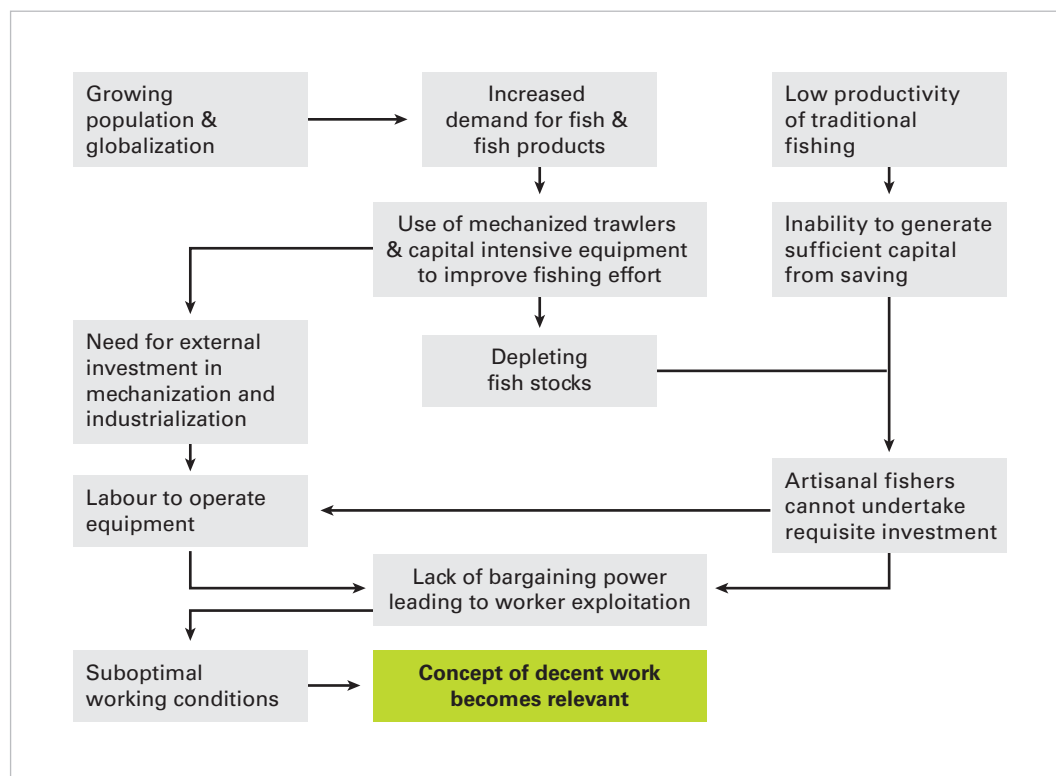
Fisheries are a major source of income and employment for people living in the coastal areas, and this is true for India as well (MOSPI, 2011). In addition, fish constitutes a major dietary supplement in several cuisines, providing an important source of protein. Due to the rapid expansion of population across the globe, the demand for primary sources of food from agriculture and fishing is increasing rapidly.

² www.ilo.org/global/topics/decent-work/lang--en/index.htm (accessed on 13 August 2017).

In agriculture, it is possible to create technological innovations through genetic engineering, producing new types of seeds to augment yield while still allowing farm ownership to be within traditional paradigms (i.e., with small landholdings and labour intensive cultivation methods), but this is not true for fishing. Here, effort towards fishing made by each worker needs to improve in order to increase yields. A substantial increase in fishing effort requires a shift from traditional to more industrialized methods of fishing. The latter requires the use of large trawlers and other expensive equipment, which subsistence farmers are often unable to afford. In addition, the shift to mechanization often reduces the quantity of fish available to subsistence farmers and decreases their yields. Owing to their inability to meet the requisite high capital investments required in the industrialized fishing model themselves, subsistence fishers would be compelled to abandon their traditional production methods and seek employment in mechanized trawlers.

As they shift to capitalistic employment from artisanal production (owning their own tools), they only derive a share of the profit, which is often small, and have reduced bargaining power. Competitiveness among fishing units can also lead to cost-cutting strategies that would result in more hazardous and less satisfactory working conditions for these fishermen, in addition to potentially lower remuneration. Overall, the decency of work that they undertake, in terms of remuneration and working conditions, suffers. **Fig. 1** shows the relationship between different factors in contributing to suboptimal working conditions in fisheries. A growing population and globalization increases the demand for fish, and the emergence of industrialized fishing reduces productivity of traditional methods and drives these fishermen into seeking employment on industrial vessels. This leads to worker–employer imbalances and consequently, suboptimal working conditions which may be less than decent.

Figure 1: Changing work structure in the fisheries sector



These issues lend relevance to an investigation into the conditions of work among those employed in the fisheries in the country. This type of investigation will help us obtain an overview of those areas where job quality has been most affected. Our review of literature (section 2) reveals that there is lack of research papers in this area, particularly for India, and this prompts further study. The next section (section 3) provides a brief review of literature on working conditions in fisheries and the concept of decent work including an overview of the development and functioning of the Indian fisheries. Section 4 utilizes data from the 68th round of the National Sample Survey Organization (NSSO) in order to ascertain the working conditions of workers in the primary fishing industry through the lens of ILO's decent work standards. Section 5 provides some observations and concluding remarks upon the findings.

2 Review of Literature on Decent Work and Working Conditions in Fisheries

Theories of differential wages do not recognize the importance of providing every worker with a minimum standard of work. They assume that all negative aspects of a job can be compensated through wages (such as the Theory of Equalizing Differences formalized by Rosen, 1986). However, there are some qualities that a work environment or job must necessarily provide, and increased wages or other such monetary compensations cannot substitute it. The ILO, since 1999, has made this an overarching policy goal, as evident from the mission statement in the report of that year³: 'The primary goal of the ILO today is to promote opportunities for women and men to obtain decent and productive work, in conditions of freedom, equity, security, and human dignity' (ILO, 1999).

This statement expresses the organization's push towards propagating labour policies that account for the need to ensure minimum standards of workplace quality. However, when confronted with such a set of goals, we also require the tools to analyze whether these objectives have been met. Work in this area can be found in Standing (1999) and Ghai (2002). Further, Anker et al. (2002) provide some important insights, and formulate 11 groups of pertinent indicators. The latter work provides the background against which we have analyzed working conditions in this paper. A succinct list of the full set of indicators can be found in the 2012 ILO Manual: Decent Work Indicators – Concepts and Definitions.

Empirical studies of the working conditions of fishermen have been given a fair level of attention internationally. Among the issues that workers face, long working hours are common, as exemplified by Georgina and Shrader (2005) in a study of New Bedford fisheries. In addition, several risks are faced by fishermen during deep sea expeditions, hence, legislation to protect fishers from these risks to some degree is necessary (Ben-Yami, 2000). Industrialization and mechanization of fish-gathering operations has reduced access to fishing waters by subsistence fishers (Dubay et al., 2010), and the shift from traditional fishing practices to employment in mechanized vessels has raised issues of job satisfaction as work in such vessels is intrinsically less rewarding (Gatewood and McCay, 1990). From a psychological standpoint, work in modern fisheries is comparable to that in offshore oil drilling facilities, especially in terms of risk, safety, and other psychological indicators (Sutherland and Flin, 1989).

³ [www.ilo.org/public/libdoc/ilo/P/09605/09605\(1999-87\).pdf](http://www.ilo.org/public/libdoc/ilo/P/09605/09605(1999-87).pdf) (accessed on 13 August 2017).



Through a rights-based approach, considering fisheries to be a common property resource, as suggested by Allison et al. (2011), the vulnerability among fishers may be reduced and efficiency improved. Several authors (Hauck and Sowman, 2001; Pomeroy et al., 2003; Hentrich and Salomon, 2006; and Hegland and Wilson, 2009 among others) discuss the possible role of co-management of fisheries in improving working conditions and alleviating poverty of fishermen as well. Jentoft (2011) stresses the need for flexibility in the organization and structure of such co-management initiatives.

In the context of India, early literature in the area of working conditions includes that of Chacko (1970), who discusses the need for insurance coverage for fishermen; Kewalramani (1976), who speaks of the hazards faced by fishermen; and Fernando (1978), who outlines the importance of community development of fisheries. Concentrating on the issue of gender, Hapke (2001, 2015) and Zhao et al. (2013) find a significant gender-divide among labourers in the fishing industry. Technology, however, can act as a means to improve these conditions to some extent and Jensen (2007) finds a significant improvement in market performance and welfare among fishermen as a result of the developing mobile communications infrastructure in Kerala.

However, there is limited literature which pertains to labour employed in fisheries (who do not own their means of production). Moreover, no studies could be identified that analyzed the working conditions of labour in Indian fisheries in the context of the ILO's Decent Work framework, and thus, this paper is an attempt to bridge this gap. The next section provides a brief overview of the developments and structure of the fishing industry in India to set a background to the analysis.



3 The Indian Fishing Sector

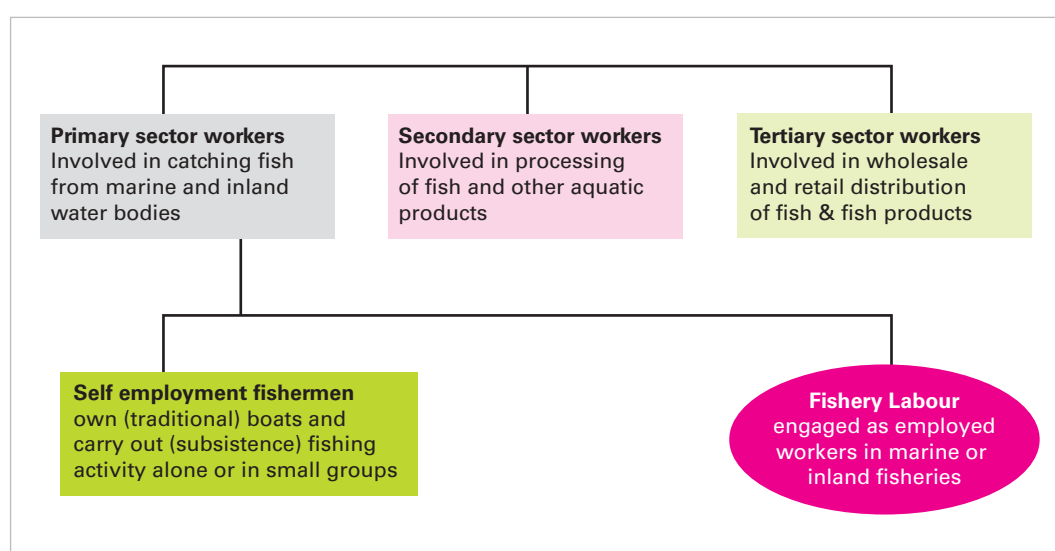
The Food and Agricultural Organization (FAO, 2006) estimates 3.93 million tons as the total marine resource potential of India and 700,000 tons as freshwater fishing. The industry was estimated to provide employment to 8.7 million adult fishermen in 2003, 0.97 million of whom worked full time. Fisheries, thus, are a significant source of employment, especially for the rural population (MOSPI, 2011).

Two important sub sectors constitute the Indian fishing industry, namely, those of marine fishing and inland or freshwater fishing. Marine fisheries are located along the long eastern and western coastlines of the country, predominantly among the southern states and West Bengal. Production in marine fisheries was estimated to be about 3.07 million tonnes in 2009–10. This figure represents a rapid growth in output from what was seen when the waters were mainly occupied by subsistence fishermen in the 1950s, whose combined yield was estimated at 0.5 million tonnes annually. The rapid expansion of output has been possible due to improvements in the harvesting process, increased fishing effort, and forays into deeper waters than before. Motorized trawlers have replaced the traditional row boats that were employed by subsistence fishermen; multi day fishing has become the norm to increase fishing effort. However, this type of industrialization has led to increased imbalances between employers and employees, and has given rise to worker exploitation (MOSPI, 2011).

Inland fisheries support poor rural communities that are dependent on these resources for their livelihood. These communities tend to be geographically dispersed. They are near streams, rivers, lakes, and other inland water bodies that have a significant fish population. Subsistence fishermen are more involved in activities related to capturing fish, while in the industrial model, development has taken the form of aquaculture. Correspondingly, inland fish production is highly dependent upon aquaculture and carps are the major varieties of fish produced in India through aquaculture (Misra, 2011). While we have not considered workers in aquaculture farms in this paper, the presence of this industry is important as its performance and characteristics may be closely related to the job conditions of those engaged in inland fishing activity.

Employment in the fisheries sector can be segregated into primary, secondary, and tertiary units. Our interest is in workers engaged in the primary fishing industry, and their location among the overall fisheries workers (**Fig. 2**). These workers are distributed among self-employed fishermen, who are often subsistence fishermen operating their own traditional craft, and fishery labour. Fishery labour work on mechanized (craft that use power-driven tools for the purpose of fishing) or motorized (craft that use on-board motors for locomotion only) boats in marine or inland fisheries, and earn wages from this activity.

Figure 2: Employment in the fisheries sector



Given the need for technologically advanced capital such as trawlers for marine fishing, fishermen depend on the owners of the capital for employment. Work in this industry is also laborious as they need to go to the deep sea as a part of their occupation. Inland fisheries workers also need to depend on the landowners who own aquaculture farms. Given such dependence, employment conditions of the workers in the industry are of interest. We proceed to the next section to outline the structure of the data used, and use the data to delve into the working conditions in Indian fisheries.

4 Working Conditions in the Indian Fishing Industry – An Analysis of NSSO Data

4.1 Overview and Composition of the Data

The employment and unemployment rounds of the National Sample Surveys (NSS), conducted by the Central Statistical Organization of the Government of India collect data on the employment situation of Indian household members. The survey employs a stratified multi-stage design to select households for study. In households, details of every member are collected. These details seek to provide data upon various indicators of employment and unemployment across the country. Questions attempt to ascertain the occupation and industry in which individuals work, their employment status (i.e., whether they are self-employed, or, engaged in some production unit, in education, etc.), their wages and other kind payments, details regarding their job contract, and if they are unemployed, the period of unemployment, and the intensity of work of each day, among other pertinent indicators. Several socioeconomic variables including age, gender, religion, social group, and level of general and technical education are captured as well.

The latest data given in the 68th Round Employment and Unemployment Survey of the NSSO includes observations upon 456,999 individuals from 101,724 households. Of these, 59,700 households were from rural areas, and the remaining 42,024 were from urban centres. A total of 451 observations (persons) were isolated as a part of the primary fishing industry from this data.

4.2 Reliability of Estimates

The NSS on Employment & Unemployment gather data upon a wide array of job characteristics for workers across India. The population frame includes all those involved in some job either as a primary occupation or as a subsidiary one. While the overall sample size is decidedly large, we consider a subset of one industry. Therefore, instead of attempting to identify robust estimates of population parameters, we seek to identify possible issues that do exist in employment and labour relations in the sector and provide a comparative picture considering all labour and agriculture and allied sector labour from the same data set.

It is, nevertheless, necessary to keep in mind possible sources of biases that may exist in such a data set, both induced due to the method of collection as well as the idiosyncrasies of the industry from which the sample derives.

4.3 Demographic Characteristics of the Sample

Employment in fisheries (indicating the presence of fisheries in an area) is concentrated heavily in the southern states of India, as discussed by MOSPI (2011). The tapering geography of the country's southern peninsula creates large swathes of coastline that much of the South has access to in close proximity, which leads to this pattern. **Table 1** shows some of the regions in India with the highest percentage of fishing industry employment.

Table 1: States with the highest share of employment in the fisheries industry

REGION	% OF TOTAL EMPLOYMENT
Kerala, Southern	16.4
Tamil Nadu, Coastal	16.0
Tamil Nadu, Coastal Northern	14.8
Andhra Pradesh, Coastal Southern	13.3
Kerala, Northern	12.4
Tamil Nadu, Southern	9.7
West Bengal, Southern Plains	5.3
Maharashtra, Coastal	2.7
West Bengal, Central Plains	2.1
Karnataka, Coastal and Ghats	1.9

Source: NSSO 68th Round (2011–12), MOSPI (2012) data

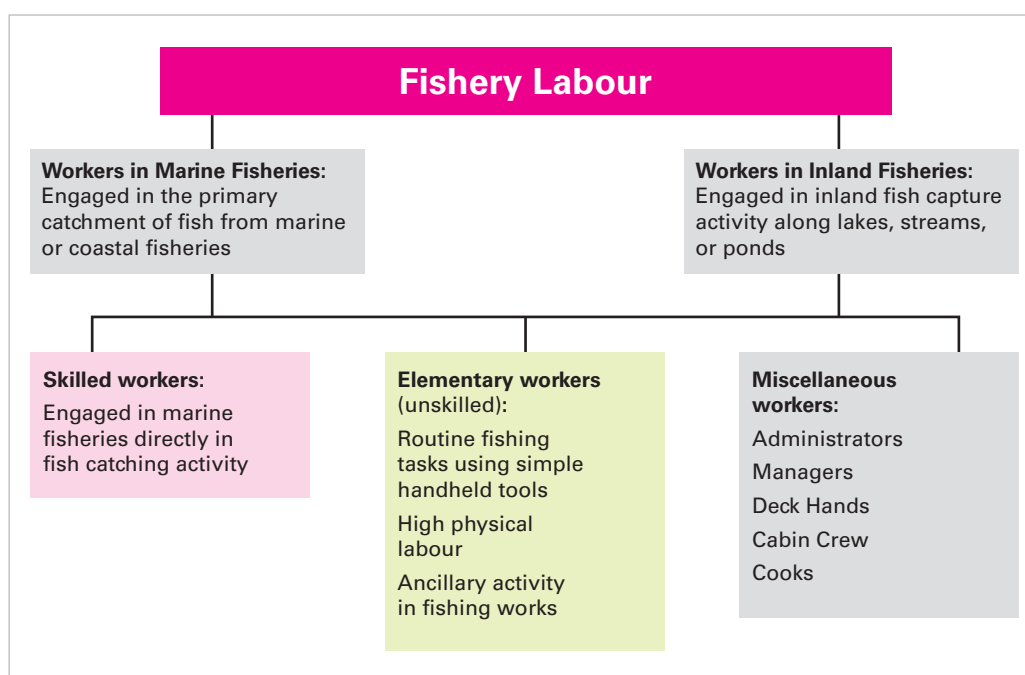
We see that with the exception of West Bengal, the largest portions of employment in fisheries is found in the southern states, most notably in Tamil Nadu, Andhra Pradesh, and Kerala. In many parts of these regions, fish and seafood form an important constituent of the local diet. Artisanal fishing is a traditional presence in these areas as a consequence of this dietary make-up. It is often these fishers who are pulled towards employment in trawlers, owing to their prior fishing experience (the industry has a heavy demand for skilled and semi-skilled labour). This results in reduced yield for traditional fishers following mechanization (as noted by Dubay et al., 2010 in a study of fisheries in Sinaloa, Mexico).

We next estimate certain characteristics of the fisheries workers under consideration and compare with our estimate of those characteristics for 'all workers' (i.e., workers from all types of industries) using NSSO employment survey data. Thus estimating population characteristics from the sample, we find that an overwhelming majority of workers (93%) were male, and only 7% were female, indicating that this industry is heavily male dominated, mirroring the results seen in literature (Hapke, 2001; 2015). This figure is much lower than the 22% of 'all workers' (i.e., working in any industry) in India who are female.

Aside from gender bias, we observe a relatively lower level of literacy among those employed in fisheries, with 24% workers in the fishing industry recorded as illiterate on the date of the survey as compared to 30% of all workers, and only 5% had completed their secondary education. Among those who were literate, the modal education level was up to middle school, which is the same among all workers. A low level of literacy may be correlated with a lower bargaining power, disallowing workers from influencing managers to provide them with better working conditions.

Much of the employment was provided by marine fishing along the large sea and ocean coasts (the southern peninsula of India is flanked by the Bay of Bengal and the Indian Ocean) with approximately 87% fisherman employed in the marine fishing sector and 13% engaged in freshwater fishing. Skilled and semi-skilled work is an important requirement of the industry, with 65% workers in the industry being skilled while 33% is designated as elementary (or unskilled) fishery labour. **Figure 3** provides a breakdown of the work done in fisheries by workers of different skills and occupations. Skilled workers are engaged directly in catching fish, or in the repair of nets. Both tasks require some level of skill and prior knowledge. Elementary workers are engaged in other tasks that do not require prior knowledge of fishing, but may involve a significant degree of physical labour. Miscellaneous workers cover all the rest from enterprise administrators to deck-hands on fishing vessels. Since our interest is primarily on the fishermen in these enterprises, we have not concentrated much on this group.

Figure 3: Primary sector labour in Indian fisheries



4.4 A Note on the Use of Codes

In order to record the industry in which a person is employed, the survey schedule makes use of a series of codes provided in the National Industrial Classification (NIC), 2008. These five digit codes indicate the sector, industry, and sub industry in which an individual is employed.

Occupations are similarly coded according to the National Classification of Occupations (NCO), 2004, which provide the occupation type, group, and work that they do through three digit codes. In addition, the status of employment (whether the person is a student, self-employed, or employed in some enterprise etc.) can be determined through the use of specific activity codes used by the survey schedule.

The following NIC (2008) codes identify workers attached to the primary fishing industry. These codes pertain to economic activity in the sphere of primary catchment of fish and other aquatic life forms.

- 0311x: Marine Fishing
- 0312x: Freshwater Fishing

The 'x' represents an additional digit that enables us to identify the sub industry. Respondents with these codes would be those who are engaged in some form in the fisheries industry, i.e., they are engaged in the primary catching of fish as well as other aquatic organisms in India.

Considering only those who are employed in some production unit (through the use of activity codes 31, 41, and 51), we find that there are skilled and unskilled fishery workers, and miscellaneous staff.

Skilled agricultural workers are provided NCO codes ranging from 610–620. NCO 615 in particular refers to skilled fishery workers, hunters, and trappers. Those with these three codes are considered to be skilled workers in fisheries for the purpose of this study. Skilled fishery workers in inland fishing are involved in aquatic cultivation works, inland fishing along rivers, tanks, channels, creeks, estuaries, and backwaters, divers for pearls or corals, or are employed as crew in inland fishery ships who catch and gather fish for sale to wholesale buyers.

Deep sea fishermen (in the marine fishing industry) work as crew in deep sea vessels that intend to catch fish for sale on a regular basis. They utilize specialized gear and spend several days venturing into the deep seas, selecting the fishing area, casting nets to gather fish, gathering and storing the caught fish, repairing damaged or broken nets, and maintaining fishing gear. These workers typically operate in trawlers or other power-driven boats for the purpose of their fishing activity (NCO, 2004).

Unskilled or elementary labour (NCO Code 920) perform simple and routine fishing tasks which may require the use of simple hand-held tools, and often are required to exert considerable physical effort and strength in the course of their routine work. They are typically involved in ancillary activities required for the purposes of fishing and fish cultivation (NCO, 2004).

Against this background, we begin the analysis of working conditions with an investigation into the basic economic indicator of work: wages. Wages are analyzed in order to understand whether, on an average, they are sufficient enough to provide an acceptable quality of life. Appendix **Tables A1** and **A2** provide data on most of the indicators discussed here.



4.5 Adequacy of Earnings and Productive Work

The first dimension of decent work addresses the adequacy of work in terms of its remuneration, i.e., whether the work pays enough in order to pursue a reasonable standard of living. This is an important indicator as it helps us assessing whether the wages earned are enough to support the minimum level of consumption and nutrition needed for labourers. We may analyze this by utilizing a poverty line, determined by government policy in the form of the Rangarajan Committee Poverty Line⁴.

We cannot use only wages to determine whether a worker falls under the poverty line since in reality most workers earn for a family and not just for themselves. With this view, we can find an upper bound on the level of poverty among workers in the fisheries industry by assuming that each worker is the sole income earner in his/her family and finding the percentage of workers that cannot afford adequate nutrition for their whole family from their wages from fishery work alone. The structure of the NSSO data allows us to assign unique identification numbers for each household in the sample, and we utilize these identification numbers to find the number of members (by aggregating the number of times the identification number appears in person-level data) and the household income (by aggregating the individual incomes of members with the same household ID).

Dividing the wage by household size for each worker, we find that at the most workers (47 %) fall into the category of poverty, which is somewhat higher than all-workers (42 %) in India (computed in the same way), but lower than when we consider workers in agriculture, forestry, and fishing (58 %). Thus, workers in agriculture and allied activities have relatively higher poverty ratio. Naturally, the actual poverty levels are somewhat lower than this as some households have more than one income earner, and some workers undertake more than one job.

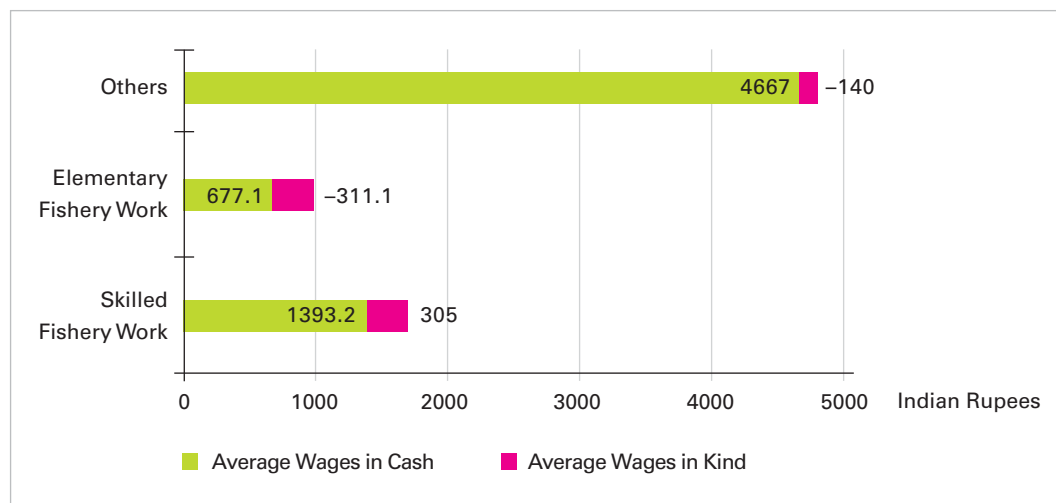
⁴ The Expert Group to Review the Methodology for Measurement of Poverty chaired by Dr C. Rangarajan computed the poverty line for 2011–12 to be Rs 972 in rural areas, and Rs 1407 in urban areas (1 Indian Rupee equals 0.012 Euro). The full report can be found here: http://planningcommission.nic.in/reports/genrep/pov_rep0707.pdf (accessed on 13 August 2017).

To compute an estimate of the actual poverty figure among workers in the fisheries, we calculated the average per capita consumption expenditure in the households of the workers by dividing the total household income by the number of household members. The percentage of fisheries workers from households with per capita consumption levels below the poverty line was 21, which is still lower than 22 % for all-workers and 28 % of those in agriculture, forestry, and fishing. However, this does not reflect purely upon the quality of the fisheries in terms of their remuneration as family members were employed in diverse industries.

We also looked at the distribution of wages among the workforce in order to ascertain whether only a few employees earned substantially high wages, while the rest earned low amounts. We looked at the disaggregated averages to assess industry and occupation-wise distortions in the distribution of wages.

The first indicator provided by the decent work framework pertained to the average real wages of workers. Wages were paid either in cash (through direct monetary transfers) or in kind, such as by sharing produce, providing free meals to workers, etc. The survey collected data for wages that had been paid or were due to be paid for the work done on the week during which the respondent was interviewed. We look both at what different types of fisheries work (marine and inland) tend to pay workers, as well as what differently skilled workers earn. The following chart (**Fig. 4**) shows the average wages for workers in different occupations in the fishing industry. Economic theory does predict that skilled work and work involving heavy labour would naturally command higher returns than unskilled work and light labour. This is seen in the data, but the premium earned for skill appears to be rather high, with strong differences between different levels of work skill, and little focus of work 'load' or 'heaviness', as miscellaneous staff are paid far more than skilled fishers, both of whom possess some degree of skill in their respective occupations.

Figure 4: Average weekly earnings for different occupations in the fishery sector



Note: others include professionals, managers etc.; 1 Indian Rupee equals 0.012 Euro

Source: NSSO 68th Round (2011–12)

We see that those in miscellaneous professions earn the highest average wages, such as in managerial roles in the fishing industry, and they earn an average weekly wage of Rs 4807. Skilled fishery workers earn less than a third of this figure, drawing an average weekly wage of only Rs 1698. However, skilled workers earn nearly twice the amount earned by unskilled or elementary workers, who earn only Rs 750. Thus, the data shows that skilled workers in the fishing industry draw a premium of Rs 948 per week over unskilled workers. In addition, elementary workers receive nearly a third of their wages in kind, while skilled workers only receive a fifth of it in this way. Looking at the rupee-equivalent values of transfers, elementary fishery workers earn 31 % of their total wages in kind payments, skilled workers receive 16 % in kind, and those in the 'other' category of workers receive only 3 % of their total wages in kind payments.

Occupationally, the highest wages are earned by those engaged in marine fishing, such as commercial fishing in the oceans, where the average weekly wage is Rs 1382. Freshwater fisheries are considerably less remunerative to workers than marine fishing, as seen in the chart above. Workers who are engaged in the freshwater fishing industry earn less than half of those in the marine fishing industry, at Rs 696 on average weekly. For those in the marine fishing industry, kind payments account for 20% of the weekly total earnings. In contrast, freshwater fishery workers receive only 2% of their wages in kind. Thus, while workers in the freshwater fishing industry earn far lower wages than those in the marine fishing industry, they receive a greater portion of their wages in cash compared to those in the latter industry. We may hypothesize that marine fishers draw a premium over inland fishers on account of the increased potential hazards they face on long voyages to deep waters and for more laborious work, while inland fishers may often find lakes and freshwater bodies closer to their residences. However, whether the wage differentials seen here are entirely on account of this difference requires further study.

In addition to average wages compared across sub-industries and occupations, it is also of interest to understand the proportion of workers receiving insubstantial remuneration. The low pay rate refers to the percentage of workers earning two-thirds of the median income or below. A high concentration of workers earning less than two-thirds of the median wage indicates that wages are concentrated only among a few workers, and there is a regressive distribution of income.

Around 35% fisheries' workers earn two-thirds of the median wage or below, which is higher than the 26% of workers altogether. This figure is 42% for unskilled workers and 30% for skilled workers, indicating some increased wage distortion over and above national averages (**Table A1** in the Appendix).

However, it is not wages but non-monetary aspects of work in fisheries that are given importance in the literature on working conditions and decent work. The first of these aspects include long working hours, which is discussed next.

4.6 Hours of Work

This indicator pertains to the number of hours spent per week by a worker on doing a particular job. However, owing to a lack of adequate data pertaining to working hours, only the average intensities of work throughout the week are utilized.

The NSSO uses 'intensity' to define how much time a person spent pursuing an activity. The intensity takes either the value 0.5 or 1 depending on the amount of time worked by one person:

- 4 hours or more on two activities, then each activity will be assigned an intensity of 0.5
- 4 hours or more on a single activity, then the intensity 1.0
- between 1 and 4 hours on one activity, then the intensity 0.5

The data showed that all of the workers were found to work for full intensity at their jobs on all days of the week. Considering a full work day to be eight hours long, we would find that the working time would be 56 hours a week, which is well above the ILO prescribed maximum of 48 hours, thus outlining considerably negative working conditions in the industry with regards to working time.

The finding that wages are often inadequate to support entire families compounds the problem here. Workers may have to supplement their earnings (as even having multiple earners in some families leaves at least a fifth of workers in poverty), but are unable owing to the long working hours and engagement throughout the week. While we may blame increasing population for the inadequacy of wages, nevertheless, the issue remains.

A third concern outlined in literature on decent work is gender-based discrimination against women, both in India as well as abroad. While we do find this to be true in terms of aggregate employment, it is of interest to find the main contributors (in terms of industry or occupation) that are leading to this outcome. Since these discrepancies in employment may be the result of fewer women applicants, we will delve deeper into the issue of wage compensation to men and women fishers with the same jobs below.

4.7 Equal Opportunity and Treatment in Employment

One of the central elements of the decent work agenda, concentrates upon the gender gap in terms of shares of employment, both in the overall industry as well as in senior and middle management. We look at the proportions of women employed, but must keep in mind that women may not prefer to work in fisheries in addition to possible discrimination. For example, women may not want to stay away for long on deep sea fishing vessels.

Stark differences exist in employment between the genders in each sub industry. While marine fishing does hire the greatest relative proportion of women, perhaps due to the nature of the work, actual employment is far from equal, with female employment being only an eighth of the workforce in that industry. Surprisingly, the situation is worse in the case of freshwater fishing, where no women worker in the data sample was found (**Table A2** in the Appendix).

While there is some significant participation of women in skilled occupations (a little more than a fifth of the workforce comprise women), this is not true in other professions. No samples from miscellaneous professions, and only a negligible portion of employment in elementary occupations is formed by women (**Table A1** in the appendix).

Looking at the gender bias in the industry through an analysis of the gender wage gaps (**Fig. A1** in the Appendix) by finding the compensation that men and women receive for the same jobs (though different tasks done by each gender cannot be accounted for with the data on hand), we find that skilled work has a higher wage gap than elementary work. In elementary or unskilled occupations, women earn on average 67 % of what their male counterparts earn. However, in skilled occupations, this is even lower, in which the average female earning is only 39% of the male earning. Furthermore, the average wages paid to women for skilled work is lower than what are paid to them for unskilled work, however, it is considerably higher for men. One possible reason for this is that although they fall into the same occupational category, women are assigned different jobs than men, which may require less physical effort or involve lower occupational risk. A deeper analysis based on a field survey may reveal the reasons for such differences, which is beyond the scope of this paper.

Using the ILO metric of expressing the gender wage gap as the difference between male and female wages as a proportion of male wages (ILO, 2012), we obtain figures of 33 % and 61 % for elementary labourers and skilled workers, respectively, showing significant wage discrimination against women, alongside a biased distribution of employment towards males. For skilled workers, we find that the wage-bias in the industry is significantly higher than in countries such as Sri Lanka (35 % in 2012) and Colombia (24 % in 2014)⁵.

A low level of female employment even with lower average wages paid to that gender may indicate that there is a degree of child labor in the industry, either arising out of a low supply of female labourers or easier availability of children for employment in this industry. Children may be employed in order to perform some simpler and less 'heavy' work. In light of this concern, we look at the prevalence of child labour in the industry in the next section.



⁵ Data gathered from ILO Database at www.ilo.org/ilostat. Figures for skilled laborers were only available for these two countries.

4.8 Presence of Child Labour

The ILO Convention on the Worst Forms of Child Labour (1999) and the United Nations convention on the Rights of the Child define a child as an individual who is under 18 years of age⁶. Children aged 0–11 are not to participate in any form of work according to this convention, while those aged 12–14 may undertake some light forms of work. It is accepted for children aged 15–17 to undertake some work, provided that it does not fall into the category of ‘worst forms of child labour’, which includes work under hazardous conditions.

The majority of child labour in fisheries is concentrated in the area of miscellaneous professions, and therefore, most children are not directly involved in fish gathering. Instead, they are likely to function as miscellaneous assistants, deck hands on ships, and other similar jobs. A small portion of skilled labour comprised children (0.8%), as were 2.2% of unskilled fish workers. However, there were no children aged below 14 years in the data (**Table A1** in the Appendix).

We also look at which industry is more responsible for the level of child labour (even though it is relatively small compared to total employment). Children do not account for more than 2% of the total workforce in either of the sub industries in fishing. Marine fishing, however, does have a marginally higher level of child labour than freshwater fishing industry. Thus, we may conclude that the level of child labour to be observed in the fishing industry is relatively low (**Table A2** in the Appendix).

Low remuneration, long working hours, biased employment patterns, and child labour are ‘bad’ working conditions, which are negatives for any industry. Their presence creates a negative effect, and their absence is a minimum requirement for decent work. However, there are also features of jobs that, if present, make work better and more decent. Some of these indicators include stability and security, ensuring that workers are not succumbed to work in an environment of uncertainty. Whether these are provided to labour in the fishery sector is studied below.

⁶ www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/normativeinstrument/wcms_112458.pdf (accessed on 13 August 2017).

4.9 Stability and Security of Work

The main indicator suggested by the ILO to ascertain the stability and security of work is the precarious employment rate. Precarious employment applies to workers whose contract is for a short period of time, whose employment can be terminated at a fairly short notice, and those whose work is fairly seasonal (ILO, 2012). Following these guidelines, a worker has been considered to be precariously employed in the following analysis if they do not have a permanent employment contract, their work is not full time in the industry, and if they did not work 'more or less regularly' in the past year. Due to the largely informal nature of fisheries, workers without a written job contract have not been considered to be 'precariously employed'.

Miscellaneous occupations in the industry have the highest rate of labourers being precariously employed, with more than 90 % of the total falling in this category. Additionally, the seasonal nature of work on ships and marine fishing vessels may contribute to this. Skilled labour on the other hand, has a far higher level of job security, with less than a third workers falling into the category of precarious employment. However, among unskilled labour in the industry, more than two-thirds fall under this category (**Table A1** in the Appendix). Looking at the sub-industry-wise patterns of precarious employment, we find that the greatest proportion of precarious employment is in the freshwater fishing industry (**Table A2** in the Appendix). Most of these percentages are higher than the average for all workers, which is 48.9%.

A lack of job security does appear to be fairly rampant throughout the industry, with a third or more workers involved in precarious forms of employment. Though more commonly seen in freshwater fishing and unskilled labour, it is still significantly existing throughout other sub industries and occupations in fisheries. However, it is to be kept in mind that some portion of the precariously employed workforce has accepted such an employment contract voluntarily. This distinction cannot be fully isolated from the data at hand, but it is to be noted that the actual situation of job security may be slightly better than what is portrayed.

4.10 Social Security

This set of indicators deals with securities provided to workers arising from a lack or inability to work due to a variety of reasons. Social security helps workers continue their livelihood and afford a minimum level of consumption even through the occurrence of unforeseen events that might render them unable to work completely or not as effectively as earlier. While it is generally developed as a national level indicator or used to assess the strength of public initiatives, it can be used at the industry level to assess the characteristics of work there. This has been done using available data from the NSS and the results have been summarized below (**Table 2**).

A vast majority of workers in fisheries were found to have no written job contract (95.9%). Those who do possess a job contract are not from miscellaneous positions but skilled fishery workers. While 93.7% of them had no written contract, the data showed that 0.5% had a contract for one year or less, and 5.9% had a contract for more than three years. Furthermore, only 1.6% workers in fisheries were eligible for paid leave; 97.2% were not eligible for any social security benefits either (including pension, gratuity, health care, and maternity benefits). These figures are much worse than the averages for all workers (**Table 2**).

Table 2: Status of social security and benefits for workers

	FISHERIES WORKERS (%)	ALL WORKERS / EMPLOYEES (%)
Written job contract	4.1	21.1
Eligibility for paid leave	1.6	29.4
Eligibility for social security benefits	2.8	24.4

Source: NSSO 68th Round (2011-12)

According to data obtained from the NSS, little in the way of job security and social benefits are extended to workers in fisheries in India. However, although contracts are verbal or non-written, we see that they tend to be permanent contracts for a majority of the workers, with 81% of those included in the survey coming under this category. Only 19% of those in the fishing industry were employed on a temporary basis. This is a significant concern since all these percentages are considerably lower than the percentages for all workers on average.

Improving working conditions and ensuring minimum standards of decent work need not necessarily be an initiative of governments and policymakers alone. Workers too can in many ways influence management and improve both their monetary and non-monetary compensations. Worker organizations through trade unions have long been successful in several industries the world over, and even in India, in improving wages as well as working conditions. However, for trade unions to be effective, their goals have to coincide with the aims and goals of most of the workforce to attract membership and have better bargaining power. Membership may also be improved through better awareness and education of workers. We look at the presence of trade unions in the fisheries in this context below, to look at the current situation as well as identify possible areas of opportunity to improve trade union power.



4.11 Representation of Workers and Social Dialogue

The last of the indicators covered in the decent work framework considered in this paper is related to the level of social dialogue, negotiation, and exchange of information in an industry. This would naturally cover the presence and spread of trade unions.

The ILO suggests the use of the trade union density rate, given by the percentage of union members in employment to the total workforce size in a given industry, as the standard measure of union presence. The comprehensive density rate accounts for all workers (paid and unpaid) who are union members in employment at a factory, and it is this measure that is used here. Breaking down the union presence by industry, we find that the marine fishing industry has the highest union presence, with almost half of the total workers being unionized. However, only 8.4% of the workers in the freshwater fishing industry are part of a trade union. This indicates a very low degree of worker's participation and social dialogue in the sector, and may be a cause for worry regarding the condition of workers in the industry.

Data reveals that for a large minority of workers in the fisheries, there was some sort of union presence (44.1%). Percentage of workers from the fishing industry involved in some union was 35.6%. It is interesting to note that if a union existed in their activity, there was a high probability (approx. 80%) that workers would be engaged in a trade union. This tells us that unionization is strongly possible in the industry.

Disaggregating union membership patterns according to the occupational profile of workers (Appendix **Table A1**) showed that skilled labourers have fairly high levels of unionization, as do those in miscellaneous professions. Elementary labourers, who are the most deprived, have the lowest levels of union representation, with only 6% of this group of workers belonging to a trade union. Workers in the fisheries are, however, more likely to be a part of a trade union than the all-India average (13.3%). The corresponding figure among workers in the fisheries is higher than all the disaggregated figures except for those who are engaged in 'elementary' work.

Thus, while the union density rate is fairly high among skilled labourers, it is abysmally low among the unskilled. This may be on account of low levels of education and awareness. It is important in this context to note that it is also the elementary workers, who in several cases, have the poorest working conditions. Perhaps other professions have improved working conditions as a result of their trade union support; this observation may pave the way for improving working conditions among unskilled workers.

5 Conclusions

The analysis brings into light several observations regarding the conditions of work in Indian fisheries. Among employed labourers, we find that marine fishing provides a higher level of average remuneration than freshwater fishing. Skilled labourers earned almost double the wages on an average as that of unskilled labour, and a far lower proportion were receiving less than two-thirds of the median wage among skilled workers when compared to unskilled workers. While wages were enough to support a single worker, they were inadequate in supporting normal rural families in many cases, with per capita consumption levels well below the minimum for more than 40% workers in fisheries. Working hours were excessive, with full intensity work throughout the week among all workers in the sample. Child labour was not prominent and not in its worst form (employing those below 11 years of age); children were mostly tasked with miscellaneous jobs. Job security was the highest among skilled labour and was far better in marine fishing than in freshwater fishing. In addition, only a small portion of workers were eligible for benefits as a result of employment. Trade unions were more prominent in marine fisheries when compared to freshwater fisheries, and were also more successful in unionizing workers in the former industry.

While marine fishing is far from being a provider of optimal working conditions, the case of freshwater fisheries is much worse. Significant policy action may be required to drive incentives to create a better work environment for labour in these industries, or even to reach the level seen in marine fishing. An improvement in the spread and presence of trade unions across the industry may help in enhancing better working conditions, but this increase in union density would still require policy initiatives in the form of building up awareness programmes.

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Appendix

Table A1: Occupation-wise work decency statistics

PERCENTAGE OF WORKERS:	EARNING LESS THAN 2/3 ^{RDS} OF THE MEDIAN WAGE	THAT ARE FEMALE	THAT ARE CHILD LABOR	THAT ARE PRECA-RIOUSLY EMPLOY-MENT	THAT ARE IN A TRADE UNION
FISHERIES WORKERS					
Elementary workers	48.4	0.4	2.2	67.5	6.0
Skilled workers	28.1	22.7	0.8	27.2	58.0
Others	0	0	19.9	90.2	39.9
Total	34.9	7.7	1.8	41.9	40.5
ALL WORKERS / EMPLOYEES					
Total	18.9	22.4	3.1	48.9	13.3
WORKERS IN AGRICULTURE, FORESTRY, AND FISHING					
Total	26.7	32.8	3.4	59.1	2.9

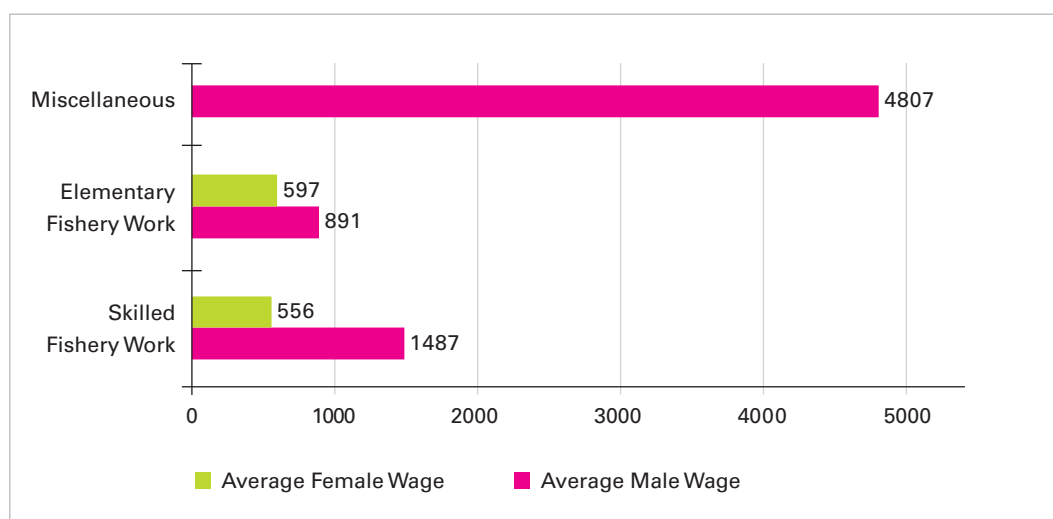
Source: NSSO 2011-12

Table A2: Industry-wise work decency statistics

PERCENTAGE OF WORKERS:	EARNING LESS THAN 2/3 ^{RDS} OF THE MEDIAN WAGE	THAT ARE FEMALE	THAT ARE CHILDREN	THAT ARE PRECA-RIOUSLY EMPLOY-MENT	THAT ARE IN A TRADE UNION
FISHERIES WORKERS					
Marine fishing	39.8	8.3	1.8	39.2	43.4
Freshwater fishing	60.2	0	1.2	74.2	11.5
Total	34.9	7.7	1.8	41.9	40.5
ALL WORKERS/EMPLOYEES					
Total	18.9	22.4	3.1	48.9	13.3
WORKERS IN AGRICULTURE, FORESTRY, AND FISHING					
Total	26.7	32.8	3.4	59.1	2.9

Source: NSSO 2011-12

Figure A1: Gender-wise average wages for male and female workers



Source: NSSO 68th Round (2011-12)

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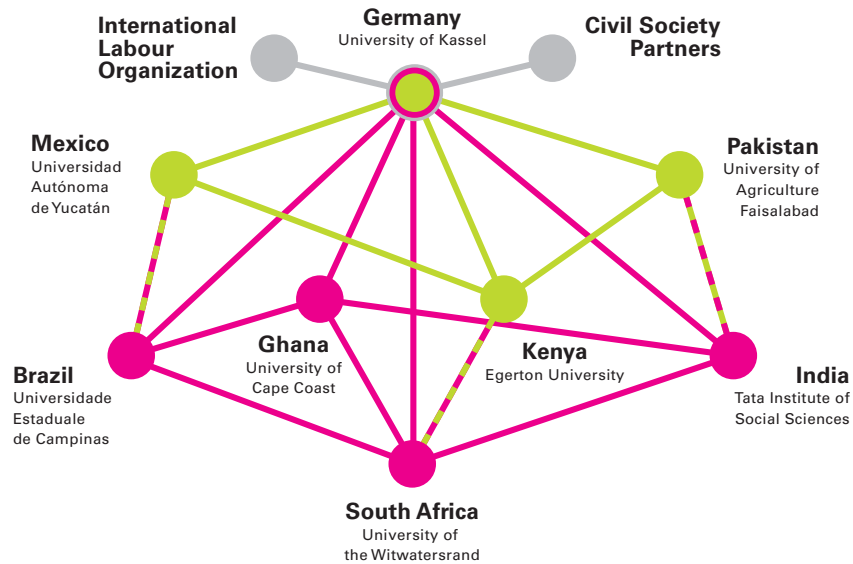
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