Reuse of data in Nepalese labor migrant industry

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Abstract

Nepal has seen the growth of development in the use of information and communication technology (ICT) in the past few years. The increase in mobile penetration, use of smart phones and aggressive reachability of broad band shows that Nepal in near future faces challenges with the exploding data sets. Challenges will lie not only of the data collected to be used for own business processes but also requirement to be reused. Governments of most countries are taking advantage on the reuse of data from one department to another mainly with the intention of transparency and fair competitions. Large data sets are put into governmental open data platform. This research explores the need and importance of data set brought about from the Nepalese labor industry and the benefits and challenges of reuse of Nepalese labor migrant data.

Keywords: reuse, labor industry, open data, data sharing

1. Introduction

Data sharing and reusing data have become the trend in global context. Benefits of reusability of data can be found in government and private sectors, business sectors, research and scientific areas (World Bank Group, 2015), although challenges should be overcome by the actual benefits that can be rendered by data sharing and reusing the published and unpublished data. New values are explored and innovation is generated by the reuse of data. Nepal migrant labor force seeking jobs in foreign countries contributes a prominent portion of the national economy. There are more than 2.1 million Nepali migrant workers abroad out of the 28.5 million population in 2015 and more than 500,000 left for overseas in 2014/2015 and the remittance fetched contributed over 30% of the share of the Gross Domestic Prodcut (GDP) (Nordby, Claussen and Shakya, 2017). Although, government is aware of the importance of the job application process, a leap frog approach is not being taken both by government and private sectors to make the Nepalese migrant labor system a transparent mechanism. Open data platform with the intention of sharing data for decision making and innovation would improve the efficiency of the job application process along with efficiency for the job applicants. Research works regarding the Nepalese migrant industry have stated missing gaps and challenges (Government of Nepal, Ministry of Labour and Employment, 2014; Sijapati, Bhattarai and Pathak, 2015; Bhandari, 2013; Donini, Sharma and Aryal, 2013), both nationally and internationally and study reports have recommended a wholesome solution (Sijapati, Bhattarai and Pathak, 2015; Labour Migration for Employmnet), to improve the migrant industry system. Although they show accountability of the labor migrant data being collected, there has not been reused to address

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the problems of the industry (Amnesty International, 2017). Government has yet to bring up the policy for sharing data and encouraging reuse of data in the labor migrant sector. Benefits of reusability can be utilized by the labor force themselves. Search of corrective jobs by the labor force would help them to avoid misfit jobs and cheating caused by the legal and illegal stakeholders (Verite, 2016).

2. Data reuse

The Department of Foreign Employment maintains a database of details from the labor permit applications and permits granted as well as complaints made and cases resolved regarding foreign employment (Government of Nepal, Ministry of Labour and Employment, 2014). Data aggregated are used for their own purpose of the collector, who is also the data controller. The reuse mechanism in this industry could be within the stakeholders, mainly comprising of the migrant labor himself. Job permit can be individually applied or through the Recruitment Agents. The Recruitment Agents comprise of government registered units who collaborate with foreign agents to bring jobs in lots and thus hold control of the labor's application process. The database of the application processes is stored in the management information system of the government concerned department (Government of Nepal, Ministry of Labour and Employment, 2014). However, during this study observation the reuse mechanism is not noted.

3. Open government data comes with data sharing

Open Data is, online available freely accessed data for public access, to use and republish for any purpose. The open government data can be used to create both social and economic value. The business value of Open Data is estimated to run into trillions of dollars annually worldwide. Open data gives essential information on a country's governance, infrastructure and resources (World Bank Group, 2015). Figure 1, shows the comparison of open government data index indicators for Nepal with its neighboring countries, India and China for the year of 2015 (Global Open Data Index). The indicators are detailed to understand whether the published data have the characteristics of:

- Openly licensed and to be freely used, reused and redistributed.
- Data available for free.
- Data machine in readable format.
- Available in bulk.
- Timely and updated.
- Publicly available without restrictions to public access.
- Data in digital form.
- Data available online.
- Data existence from governmental sources.
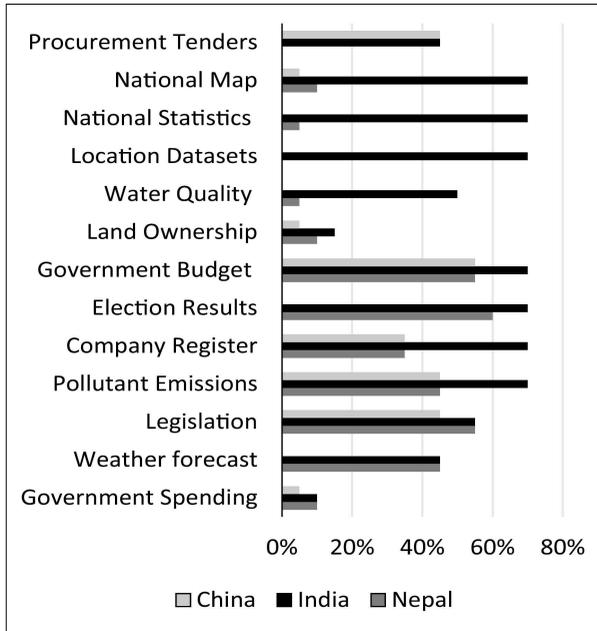
Figure 1. Global data index 2015

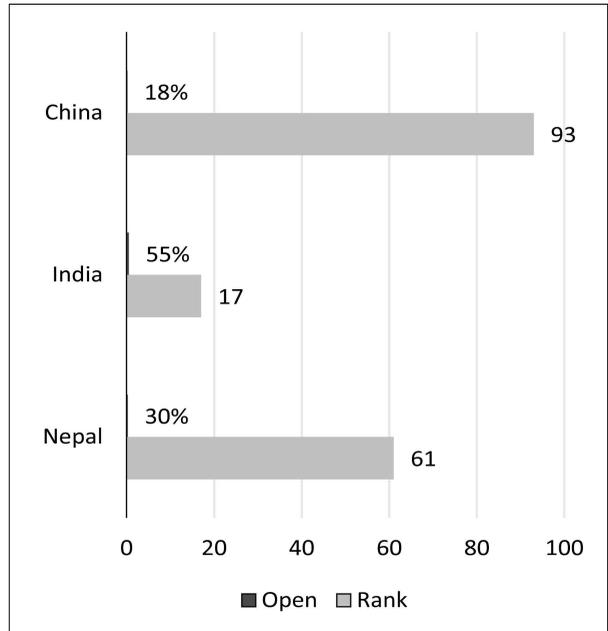Figure 2. Global data index 2015: Rank & openness

Figure 2 shows the comparison of Nepal's ranking position and score with the two neighboring countries. Nepal has gained its ranking position to number 61 in the year 2015, improving from years 2013 with rank 69 and year 2014 with rank 63. However, data sharing comes with various levels of authentication for sharing. Sharing innovates to more and more problems solving innovations. Communities and users themselves create large volume of data. Real time data and event analysis have contributed to larger demand to reuse the captured data and further to bring about new valuable information systems and insights. The technology changes have been able to meet the challenges needed by the reuse of the data. Specific skills and tools and technology are the challenges to fully explore the benefits of the open data (Berends, Carrara, Engbers and Vollers, 2017). Proper policies in the government give rise to sustainable service delivery and innovation. Telecom call data records also hold a valuable part of information on public data. Orange, a leading telecom provider makes call data records available so as to assist researchers to study population mobility relevant to development (World Bank Group, 2015).

4. Importance of sharing of data and reusability for Nepalese labor migrant industry

Data collected during the process is mainly initiated by the Recruitment Agents or their sub agents. Aggregation of data is entered into the DOFE (Department of Foreign Employment) controlled information system. The personal information along with the selected job, skill, education level, country of destination, visa, signed contract, and other relevant documents are submitted to the DOFE. On the validation of these data, DOFE permits the labor to travel abroad for job. Although the data collected are used for the internal usage, minimum information is published for reuse (http://www.dofe.gov.np/). Data that are collected need to be analyzed and published for public use. Data can be used by a labor citizen to select his own job and country and to his skill

matching choice and expected benefits. Recruitment Agents' published data can display its sincerity of the responsibility of the promised job. Jobs can be searched on the basis of the job-related data that can be collaborated by especially authentic Recruitment Agents. Over the years, jobs applied through Recruitment Agencies have increased resulting in 92.44% in the year 2016/2017 (Government of Nepal, Ministry of Labour and Employment, 2018). The published data will be helpful to bring transparency and enhance accountability of the stake holders. The analyzed data published by DOFE can be used to tell details on the sincerity of the Recruitment Agent, the Country of Destination (COD) Agent and the foreign company's commitment for the job. Dashboard and visualization of data captured can guide them to understand what they look for in the foreign environment. Companies offering job histories can be queried to match what they look for. Grievance data can set alerts and warn them of misfit job or foreign working environment. Stake holders and retailers like insurance, finance, medical and training institutes can be involved with data to reach the labor force both to enhance their procedures during job seeking as well as to render better service along with their own business promotions. The importance of reusability is as follows:

- Assisting in job search and application.
- For transparency and accountability.
- Fair completion of the usage of data.
- To connect large data sets.
- To create citizen partnership.
- For enabling economic and social benefits.
- For research.
- Setting alarms.
- Government record keeping and for decisions makings.
- For in-home job opportunity.

5. Challenges in reuse of data in Nepal context

Issues related to enhancement or changes in existing system can be foreseen as challenges in the leading institution. There may be resistance and unwillingness from stakeholders. The implementation of reusability of data may be obstructed by challenges and hence should be taken to attend to them right from the beginning of the reusability project. Some of the key challenges that may need to be dealt are given below:

- Attitude resisting to changes in the institution and stakeholders.
- Vested interest of officers and stakeholders that may resist openness.
- Transparency not wanted due to corruption and more work.
- Technology knowledge absence that hinders correct and timely implementation.
- Language and training that may hinder the actual usage.
- Non- priority may delay the strategy and implementation work.
- Funding may cause timely actions.
- Economic environment for actual reusability needs to be prepared.
- Political effect in bureaucracy hindering the policy.
- Lacking of policy will not set the goal of implementation.
- Willingness to collaborate from various departments and stakeholders will keep the reusability limited.
- Sustainability needs to be taken care in context of ownership, security, expansion, skill deployment,

collaboration, operability and stakeholders' willingness.
• Skill development and retention are needed.

6. Statement of problem

The Nepal migrant industry has seen more activity as more population go abroad for suitable jobs. About 50% of the Nepalese rely on financial help in the form of remittance. The top preferred destinations includeMalaysia (40.9%), Saudi Arabia (22.9%), Qatar (20.3%), United Arab Emirates (11.2%) and Kuwait (2.1%) (International Labour Organization, 2017). However, adequate attention is not paid by the government of Nepal to make this labor industry wholly digitalized and efficient in its service delivery to the labor migrant or to the stake holders (http://www.dofe.gov.np/). Since the jobs are mostly fetched by the Nepalese Recruitment Agents, most of the interested Nepalese seeking job opportunities rely on them. Much research works and published articles as stated above have spoken widely on the rectification of this process to avoid misfit of the jobs rendered through promised words by the job availing mediators. Hence, if the sharing of data with reuse could be a part of the policy for the service delivery, the labor industry could be made more efficient and transparent.

7. Objective of the study

The objective of this study is to explore the need for the data reuse of the labor industry from the labor migrant themselves. It intends to investigate the published and non-published data that can be reused for the purpose of innovation that could assist in the job seeking procedure for the migrant labors of Nepal. This research work further explores on the type of reusability of data that could bring about the efficiency in the labor industry. This research work also includes to understand if the Nepalese labor migrant are willing to share their own data.

8. Survey data collection

This study has been performed with the target of exploring the requirement for the reusability of the migrant data from the labors themselves. This research follows a basic quantitative study on data that was collected on survey basis on labor migrant applying for foreign job. Survey was conducted on labor migrants of Nepal who were in the process of applying for foreign jobs. Both men and women were asked to fill the survey forms. Women are fewer in number than men. Questions were both in English and Nepali for the ease of reading and understanding. Questions were designed on the basis of the gaps stated in the research reports (Sijapati, Bhattarai and Pathak, 2015; Bhandari, 2013; Donini, Sharma and Aryal, 2013). Data was collected from various cities around Recruitment Agencies where the migrant workers were present to apply for jobs. Clean data was analyzed for 440 participants altogether, both men and women, applying for foreign jobs.

Table 1. Skill level gender wise

Skill level	Male	Female
Unskilled	85	17
Semiskilled	127	24
Skilled	114	15
Professional	50	8
Total participants (440)	376	64

Table 2. Education of participants

Education level	Frequency	Percent
Bachelor-Masters	31	7
SLC	229	52
Secondary level	99	22.5
Primary level	34	7.7
Beginner level	20	4.5
Illiterate level	27	6.1

Thirty-three countries were listed out of which Malaysia and Qatar were the popular foreign destinations. The migrant workers were first time, second time and more than two times foreign destination job seekers and mostly semi-skilled category.
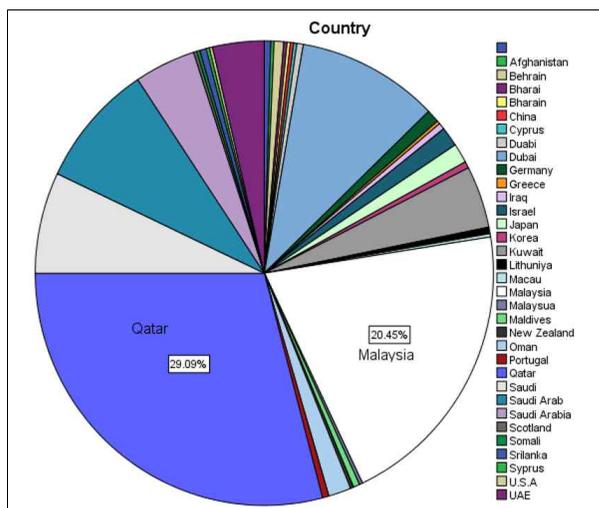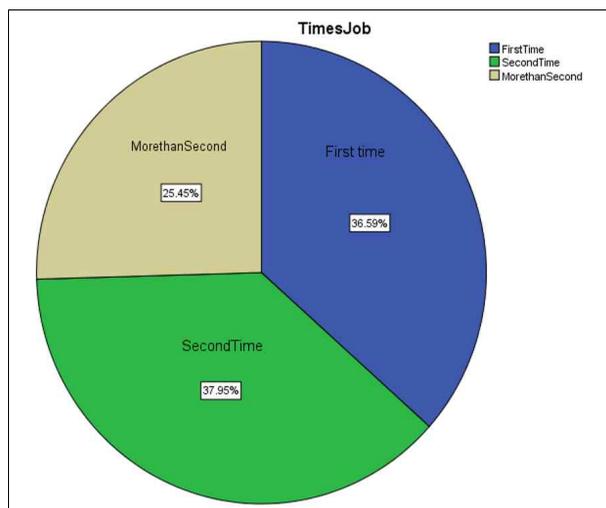
Figure 3. Countries of choice

Figure 4. Times the job applied

9. Analysis of data

Survey questionnaire was prepared with the intentions whether the requirement of reusability of data was desired by the migrant worker when looking for foreign jobs. 44 questions were asked in 5 levels of Likert scale, with 1 being lowest and 5 being the highest agreeability. An Exploratory Factor Analysis was performed to group the factors to latent components of willingness or need for reusability of the labor migrant data. Sampling Adequacy was checked by Kaiser-Meyer-Olkin. A value of 0.914 (which is >.9) indicated that it was marvelous. Bartlett test of Sphericity which is a measure of the multivariate normality of the set of distribution indicated whether the correlation matrix was an identity matrix. A significance value <0.05 indicated that these data did not produce identity matrix or differ significantly from identity. Hence, displaying approximately multivariate normal and acceptable for factor analysis. A Principal Component Analysis with Varimax rotation was carried out. Six components were extracted and were the same number as shown from the Scree test. The nomenclature of six factors with their variables is shown below. 44 variables were reduced to 27 variables. To check reliability of the data a satisfactory Cronbach's alpha test was done for each component.

Table 3. Extracted components

Component name	Variables (renamed for ease of understanding)
1.Willingness to be contacted: reuse of migrant data	1. Contacted for medical checkups 2. Contacted for in-home job 3. Contacted for travel service 4. Contacted for in-home job 5. Contacted for accommodation 6. Contacted for insurance 7. Contacted for financial loan 8. Contacted for investment 9. Contacted for safety
2.Willingness to choose: retailer data	10. Choose medical institute 11. Query medical institute details 12. Choose medical test scheme 13. Query training institute 14. Choose type of training
3. Willingness to find Job types in Nepal: Nepal job data	15. Technical job list 16. Business job list 17. Other job list 18. Agriculture job list 19. Domestic job list
4. Willingness to query on own: Recruitment Agency (RA) data	20. RA provided country list 21. RA provided job list 22. RA details
5. Willingness for training: training institute data	23. Skill types and courses data 24. Language courses 25. Preparatory courses

Component name	Variables (renamed for ease of understanding)
6. Willingness to query government data: permit process data	26. Government issued permit list 27. RA and country of destination RA list

Table 4. Mean value of components

	Component 1	Component 2	Component 3	Component 4	Component 5	Component 6
Mean	4.31	4.54	4.54	4.56	4.55	4.53
Std. Deviation	0.820	0.66	0.66	0.64	0.60	0.60
Minimum	1.00	1.80	1.80	1.00	2.00	1.00
Maximum	5.00	5.00	5.00	5.00	5.00	4.00

10. Results and discussions

The above extracted components having mean all greater than 4.3, display the importance of the reuse of the data by the participants themselves. They are willing to be contacted means that the labor migrant data are allowed to be shared between government, stakeholders and retailers. The willingness to query retailers is that the labor participants wish to choose from the data available regarding the finance, insurance, medical and training institutes. The willingness to find jobs in Nepal shows that the Nepalese labor group need data on the jobs available in Nepal. The data that are made available by the government can assist them to avoid going into foreign environment. The Recruitment Agency and their sub agents are the first point of contact for a foreign migrant looking for a job. The willingness to query information on the Recruitment Agency can assure the labor workforce on the trust of the agency for their fit job. The level of skill development is the up-lift of the job benefits rendered on them. Hence, the willingness of having data information and listing of the details of the legally registered skill development centers are highlighted by this component. The difficulties faced during the job regarding the misunderstanding of job placement allotted by the Recruitment Agency both in home and country of destination can be minimized with the availability of governmental data regarding the bonding of both these agencies. Willingness to query government data allows the migrant worker to make it necessary to have all data concerning the whole process of seeking a labor permit transparent for viewing throughout their tenure in the job.

10.1 Technical solution

Nepal Government, Department of Foreign Employment which is mostly responsible for Migrant labor industry can resolve this reuse issue by storing the collected data in the repository with the purpose of being accessed openly for reuse. The repository of the open data can be collaborated within related governmental inter-departments. Technology requirement is offered by some of the open data platforms like CKAN, DKAN, Junar, OpenData Soft and Socrata. These repositories may differ in their work functionality and have to be skillfully matched with the requirement. The accessibility can be open or accessed by APIs. APIs play in service delivery of the reusability. Collaboration of data with third party shareholders like recruitment agencies, training institutes, insurance companies, medical institutes and finance institutes can enhance the reuse mechanism.

Technical solution is backed up by the skill workforce. Hence, training and development of technical skill for sustainability of the system must be prioritized.

10.2 Policy level solution

Policy rules for data collaboration must be outlined with the mandatory and strict guidelines for the reuse. The policy must be outlined for compulsion of collaboration and reuse with government interdependencies and mandatory third party institutes. Since the Recruitment Agency plays a key role in fetching and offering of jobs in foreign countries, the reuse must be prioritized by being able to share and collaborate data with them. The timely and updated data must be part of the sustainability strategy of DoFE. Since DoFE plays the sole role in the issuance of the permit number to the labor the total ownership and responsivity are suggestible to be taken up by DoFE. Format for data must be machine readable with understanding metadata, timey available in updated status and allowed to be reused by proper licensing. Sustainability issues must be drafted in the policy with operability issues and funding requirements. Since, this industry supports nearly one third of the GDP of the nation, the project was be outlined under the strategic development goal in the highest level monitoring.

10.3 Administrative level solution

The attitude of the government and the department coworkers must set up mindset to implement the reuse project. Funding must be set aside along with sustainability objects. Trust of the reuse will highly depend on the data quality and the reuse ease mechanism. The ease to use must be as friendly as possible and must be mobile based so as to have the easy access to the system. Trust also lies on the data value which must be updated and consistent. Training and retention of the skilled manpower is highly dependent on the sustainability goals. Monitoring with feedback mechanism is essential also for the operability and for user trust. The continual improvement must be part of the operation and maintenance. As the reuse increased more and more scope will be realized. Mandatory methods for reuse and collection of data must be outlined and clear business model for publishing Open Data of labor industry must be well displayed. Figure 5 outlines the reuse scenario with the stakeholders of this industry.

Figure 5. Reuse of Nepalese labor migrant data
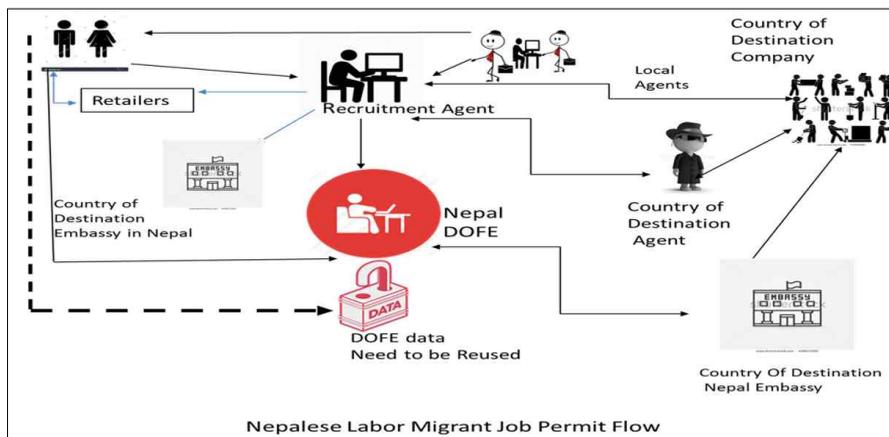
11. Conclusions

The government of Nepal has not adopted the open data and sharing of data platform in the policy and strategic planning of the labor industry. Policies and rules regarding the reuse of data have not been outlined till today. It is necessary that the government implements the open data and sharing of data for the labor industry in the highest priority. An interested foreign job seeker must be able to choose his foreign job on the data published by the government. The reuse of data can benefit both the labor and the government departments to make corrective decisions in order to recommend country and company that labor wishes to go and make corrective bargaining with the foreign government and companies to export labor from Nepal. Further government can allow the reuse of data for further research and predictions regarding foreign job placements. Home coming labor data can be reused to create in home jobs for the interested, based on the skills and experience gained in foreign jobs. The industry must improve the visibility of the labor migrant related data and facilitate the access to the published datasets on the industry's portal so as to reuse within the governmental units and retailers for the social and economic benefit of the laborers in Nepal.

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