



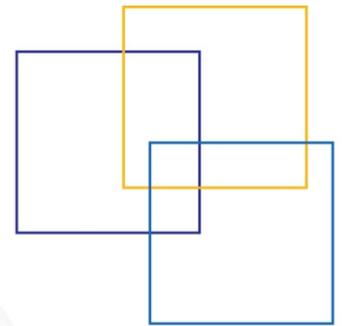
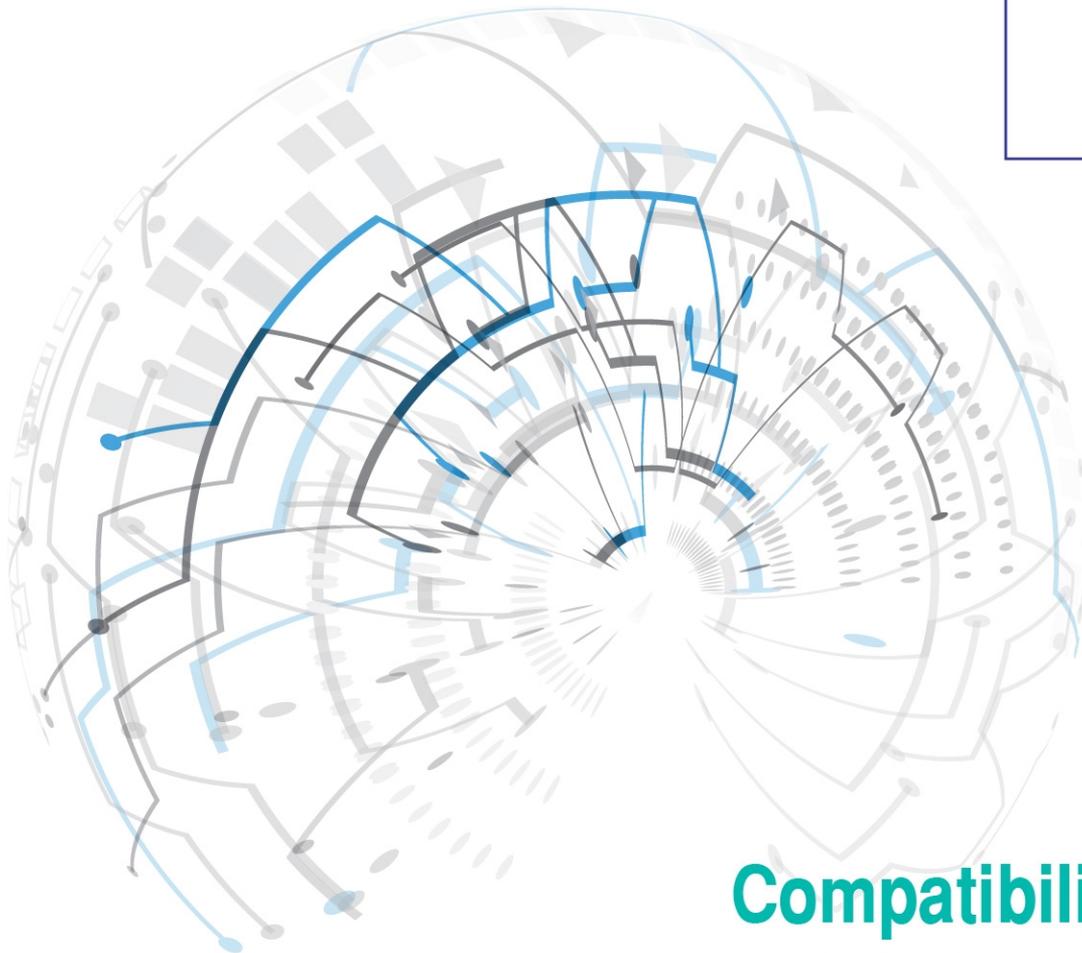
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International
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Organization

Managing Migrant Worker Information in Bangladesh



Compatibility of Data Integration

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Preface

As Bangladesh is fast developing into a middle income country, the contribution of overseas employment and remittances to the country's economy has gained prominence in its overall strategy, especially through the development of a more pro-active and migrant worker-oriented approach to management.

This has led to changes in the overall legislative and policy framework, and a gradual recognition of the need to develop improved information systems for management, including concrete measures for social protection, for complaints investigation and redress, and for investment in building the skills and qualifications of workers to improve the quality of their overseas employment.

In order to move into full implementation of the Overseas Employment and Migrants' Act 2013 and the Expatriates' Welfare and Overseas Employment Policy 2016 as part of ongoing improvements in labour migration, it has now become pertinent to develop the institutional capacity of the government to collect, manage, and monitor migration and labour market information

As such, through the Swiss Agency for Development Cooperation (SDC) funded "Application of Migration Policy for Decent Work of Migrant Workers" project, the International Labour Organization in close collaboration with the Refugee and Migratory Movements Research Unit (RMMRU), has developed a set of four reports on the Integrated Migrant Workers Information System and the Labour Market Information System in Bangladesh.

This particular report *Compatibility report on data integration* of the Migrant Workers Information System and the Labour Market Information System in Bangladesh compares and assesses the existing database systems in the overseas migration sector in Bangladesh against similar database systems in other countries. The report also looks at existing Bangladeshi database systems for other sectors, such as the internal labour market. It is expected that the experience from other countries will support Bangladesh to subsequently develop a comprehensive and efficient information system.

Based on the findings and analyses, the project will propose design recommendations for an integrated database information system on migrant workers' information (MWMIS) and a labour market information system (LMIS), identifying sources of data and software requirements.



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Acronyms and abbreviations

A2i	Access to Information
ALMIS	America’s Labor Market Information System
API	Application Programming Interface
ASEAN	Association of Southeast Asian Nations
BANBEIS	Bureau of Educational Information and Statistics
BBS	Bangladesh Bureau of Statistics
BILS	Bangladesh Institute of Labour Studies
BMET	Bureau of Manpower Employment and Training
CRVS	Civil Registration and Vital Statistics
DEMO	District Employment and Manpower Office
DOL	Department of Labour [Nepal]
DYD	Department of Youth Development
EA	Enumeration Area
EGPP	Employment Generation Program for the Poorest
ETA	Employment and Training Administration [United States]
FDI	foreign direct investment
ICT	information and communication technology
ILMS	International Labour Migration Statistics Database in ASEAN
ILO	International Labour Organization
IOA	Inter operable Application/ Interconnection Oriented Architecture
IOM	International Organization for Migration
IT	Information Technology
LFS	Labour Force Survey
LMIS	Labour Market Information Systems
MIDAS	Migration Information and Data Analysis System
MIS	management information system
MEWOE	Ministry of Expatriates’ Welfare and Overseas Employment
MRVRS	Migrant Rights Violation Reporting System
MWMIS	Migrant Workers’ Management Information Systems
OECD	Organisation for Economic Co-operation and Development
PMO	Prime Minister’s Office
PSU	Primary Sampling Unit
SLBFE	Sri Lanka Bureau for Foreign Employment
STED	Skills for Trade and Economic Diversification
STEP	Skills and Training Enhancement Project
TVET	technical and vocational education and training
UN	United Nations

Essential definitions

Data can be any character, text, words, number, pictures, sound, or video. Within the context of a database, data are figures that are arranged in rows and columns of a table.

Data versus information: **Data** is simply raw information, and if not put into context, data mean little or nothing to a person. **Information** is the context created or processed from that data. Computers typically read data, but that data is not necessarily something that a computer actually understands. Through the use of formulas, programming scripts, or software applications, a computer can turn data into information that a person can understand.

Data versus statistics: **Data** is the raw information from which statistics are created. That is, **statistics** provide an interpretation and summary of data.

Data table represents a single table in a database. It has rows and columns.

Dataset is simply the collection of data tables.

Database is collection of interrelated data organized in a specific format. A database is where data is stored and managed.

Database management system is a software for controlling and managing databases.

Application programming interface (API): A set of functions and procedures that allow the creation of applications that access the features or data of an operating system, application, or other service. It is essentially a bridge linking the flow of data between two or more systems or applications.

Inter-operable application/interconnection-oriented architecture (IOA): a software application's capability to communicate, execute programs, or transfer data among various functional units (or systems) in a manner that requires the user to have little or no knowledge of the unique characteristics of those units. Within an IOA, a concept like "the network is the computer" becomes a reality.

Data dashboard (or simply "dashboard") is an information management tool that visually tracks, analyses, and displays key performance indicators (KPIs), metrics, and key data points to monitor the health of a business, department, or specific process. Dashboards are customizable to meet the specific needs of a department and company. Behind the scenes, a dashboard connects to your files, attachments, services, and APIs, but on the surface displays all this data in easily readable forms, such as tables, line charts, bar charts, and gauges. A data dashboard is the most efficient way to track multiple data sources because it provides a central location for businesses to monitor and analyse performance. Real-time monitoring reduces the hours of analysing and the long lines of communication that previously challenged businesses.

Big data involves extremely large data sets that may be analysed computationally to reveal patterns, trends, and associations, especially relating to human behaviour and interactions. These data sets are so voluminous and complex that traditional data processing application software are inadequate to deal with them. Big data challenges include: capturing data, data storage, data analysis, search, sharing, transfer, visualization, querying, updating, information privacy, and data source. There are five dimensions to big data known as Volume, Variety, Velocity, and the recently added Veracity and Value.

Big data analytics is the process of examining large and varied datasets –i.e., big data-- to uncover hidden patterns, unknown correlations, market trends, human behaviour, customer preferences, and other useful information that can help organizations (and countries) make more-informed decisions with regard to business, procedures, planning, and governance decisions.

1. Introduction

1.1. Background and overview

The growing significance of labour migration from Bangladesh has become an important area of research and public policy. Serious and immediate coordinated effort should be given to institute a reliable and comprehensive database system on labour migration to enhance decent work for migrant workers. The Government of Bangladesh recognizes international labour migration as a major contributor in the country's economy. The percentage of households having an overseas migrant member¹ currently stands at 6.1 percent, while the local labour migration within Bangladesh accounts for 20.9 per cent of the total labour force in country (BBS, 2015; 2017). In 2016, total overseas job creation represented 750,000 workers, and that was a 36 per cent rise from the previous year. In 2017, just over 1 million people left the country for overseas employment, the highest number yet. Migrant workers from Bangladesh mostly migrate to Saudi Arabia, the United Arab Emirates, Kuwait, Qatar, Malaysia, the Republic of Korea, Singapore, Hong Kong (China), Brunei Darussalam, Oman, Iraq, Libya, Bahrain, and the Islamic Republic of Iran. In the year 2015, remittances represented 49.78 per cent and 37.65 per cent of the country's total exports and imports, respectively.

1.2. Declining remittance earning and the need for comprehensive management of the labour sector

Bangladesh is now out of the least developed countries list, and on its way to becoming a lower middle-income country. According to the World Bank's Global Economic Prospects report, Bangladesh is among the top 17 out of 134 countries projected to have a growth rate of 6.4 percent or more in 2017–18 (The Daily Star, 2018). The potential of the overseas employment sector and remittances to contributing to the development of the Bangladesh economy has been extensively talked about, but not comprehensively planned to unlock its full potential. A strategic development plan should include overseas migration as part of the overall strategy for development.

However, the gradual decline of remittance earnings since 2016 is a major concern for Bangladesh. Remittance was at US \$14.2 billion in 2013–14 and \$15.3 billion in 2014–15, but started to slip thereafter, with \$14.9 billion being remitted in 2015–16 and \$12.77 billion in 2016–17 (Bangladesh Bank, 2018). Although this downturn has begun to reverse in the last few months, a more proactive and migrant worker-oriented approach to management of the sector needs to be enforced to see the benefits in investing in this community and sector. Some changes have already come to pass in the overall legislative and policy framework, and there has been gradual recognition of the need to develop improved systems for management, including concrete measures for social protection, complaints investigation and redress, and investment in building the skills and qualifications of workers to improve the quality of their overseas employment.

1.3. Development, migration, and data

Bangladesh needs to focus on the development aspect of the human resource migration sector. It needs to plan the development, employment, and cyclical migration of its labour force within and outside the country. That will help implement sectoral initiatives better and help institute a mechanism to develop from the bottom while preserving the macro-economic outlooks in healthy foreign currency reserves, ensuring smooth balance of payments, robust and sustained growth, and development of its human resources that will be pay long-term dividends for the economy. An important tool for facilitating this integrated approach towards development is data integration of migrant workers' database systems (MWMIS) and labour force database systems (LMIS).

¹ An "overseas migrant member" in this context refers to a short-term international labour migrant (STILM) worker.

1.4. Labour migration data collection initiative at the regional level

Countries of South Asia – Bangladesh, India, the Maldives, Nepal, and Sri Lanka – are developing their own individual initiatives towards decent work for migrants and on the labour market with support from international organizations like the International Labour Organization (ILO) and International Organization for Migration (IOM). But a single platform/repository of such data is non-existent. The ILO has, however, recently initiated such a database. Comparability of data remains a key unmitigated issue here as well. A recent meeting of Statisticians on Labour Migration in South Asia drew attention to:

- 1) efforts related to strengthening South Asian labour migration statistics within the relevant national, regional, and global migration frameworks;
- 2) measurement approaches that have been adopted at the international level, and the suitability of said definitions and methodologies at the South Asian level;
- 3) Sustainable Development Goals (SDGs) and indicator frameworks in relation to migration; and
- 4) the concept and framework for a proposed International Labour Migration Statistics (ILMS) Database for South Asia (ILO, 2017).

1.5. Goal of the Government of Bangladesh with regard to data

The Government of Bangladesh is going through improvements in fair labour migration procedures to develop institutional capacity, monitor the labour market, and move into full implementation of its Overseas Employment & Migrants Act, 2013, and Expatriates' Welfare and Overseas Employment Policy, 2016. As per these documents the Government of Bangladesh aims to:

- Provide regular, generally accurate, and timely information analysis;
- Integrate data from multiple sources to support robust tracking processes and analysis;
- Track returning workforce and enforce naturalization processes at home; and
- Identify medium- and longer-term opportunities, and invest in training to develop a labour supply for those upcoming demands.

1.6. Report objectives

The objective of this report is to compare and assess existing database systems in the overseas migration sector in Bangladesh against similar database systems in other countries, and also with other Bangladeshi database systems for other sectors, like the internal labour market. Based on the findings and analyses, the project will propose design recommendations for an integrated database information system on migrant workers' information (MWMIS) and a labour market information system (LMIS), identifying sources of data and software requirements.

2. Database, MIS systems, and data needs in Bangladesh

2.1. National databases, management information systems, and challenges

The biggest database system in Bangladesh is the one for national census data, followed by the National ID database systems under the Election Commission, the personal data held by the Passport Office, and data under the Bangladesh Road Transport Authority. Health sector database systems under the Ministry of Health and Family Welfare are well rolled out, and the ministry maintains mechanisms of data collection, preservation, use, and dissemination. There are some upcoming databases under the Prime Minister's Office, including the Civil Registration and Vital Statistics (CRVS) database and a national skill portal.

The relevant database systems for this study are:

- 1) The labour market survey-based database of the Bangladesh Bureau of Statistics (BBS) under the Planning Commission;
- 2) Data on labour migrants held by the Bureau of Manpower, Employment and Training (BMET) under the Ministry of Expatriates' Welfare and Overseas Employment (MEWOE);
- 3) Some data on the deceased/injured whose family have received compensation is held by the Wage Earners' Welfare Board (WEWB);
- 4) Some returnee data is available with the Special Branch, under the Department of Immigration of the Public Security Division of the Ministry of Home Affairs; and
- 5) Additional returnee data is held by some labour wings at embassies when migrant workers are deported or evacuated.

In addition, the Department of Youth Development (DYD) under the Ministry of Youth and Sports has a massive dataset on training and skills of youths that has yet to be converted into a database system. For any database integration to succeed there is a need to enhance collaboration in data sharing among the significant national level bodies mentioned above. Each respective management information system (MIS) needs to be integrated with data held by other ministries/directorates/departments without necessarily giving up the current structure of data collection processes and the control of individual government agencies. Hence, there is a need for capacity building of relevant staff within the data-holding institutions, and developing the requisite skills for data, analysis, and dissemination of labour market information should be considered to be as important as creating the software platform for data integration.

2.2. Data on labour market demand profiles in countries of destination

All of these data sources, however, are not updated continuously or on a similar interval pattern, and they are not on compatible platforms capable of data migration from one system to the other. Hence they are not ready for use to help the Government devise policies. Easily accessible, usable, disaggregated, complete, and updateable data on employment opportunities in overseas destination countries are also not available to the general public or the Government of Bangladesh, except for the Musaned system of Saudi Arabia, which allows access to employers and recruiters from Bangladesh.² Bangladesh for its part has engaged a private sector survey company under the aegis of the BMET and Access to Information

² Key informant interview with Shameem Ahmed Chowdhury Noman, Joint Secretary-General, Bangladesh Association of International Recruiting agencies (BAIRA), 2017.

(A2i) to conduct labour market surveys of 52 countries around the world to assess the labour market conditions in those countries and to assess suitability for Bangladesh to send human resources to as many of these countries as possible for overseas employment. ³Neither the Bangladesh Government nor the private sector receives updated data on labour requirements and relevant information from any country on a regular basis. ⁴An ILO consultation in 2017 with government and other stakeholders observed: “Labour market analyses of destination countries prepared by the 2011–2015 project confirmed the value of this type of information, particularly the need to have access to more current information through a continuous assessment process.” Moreover, there is a need for research to yield information and data on sectoral context and human resource development strategies for or by the employers in countries of destination. This sectoral data and information can substantiate the macro data further. The ILO’s Skills for Trade and Economic Diversification (STED) methodology helps to align skill policies with sectoral strategies that contribute to export growth, economic diversification, and employment creation. Taking a sectoral approach to research on labour demand profiling may typically involve many important questions across six stages as outlined in the STED method (ILO, 2017c):

- 1) Sector’s current position and outlook: What would be a realistic growth trajectory based on existing products and existing markets? How can export growth for existing products be stepped up, and what would be a realistic target? Is there room to develop new products, access new markets, improve quality and branding, increase value addition, and so on?
- 2) Business capability implications: What capabilities will firms need in order to develop new products in line with regulations and consumer tastes in domestic/foreign markets? What will they need to be able to do in areas such as logistics, sales, marketing, and channel management in order to develop new internal/export markets? What will a business in the sector have to be able to do better in its operations in order to become more competitive on cost, quality, and responsiveness?
- 3) What types of skills? Improving business capabilities is about skills, technologies, work organization, processes, strategies, financing, business culture, and other factors within and outside a firm. An improvement in capability will have significant implications for skill demand as well. Identifying the types of skills required will be important to delivering the medium-term growth scenario. Identifying existing gaps in skills in all areas of relevance to firms is also a very important issue.
- 4) How many workers, by skill type? This stage of investigation may be pursued if data is available. Companies hire workers, not skill-sets. In order to develop useful policy recommendations, anticipated developments in skills requirements are therefore translated into demand for workers based on the sector’s current occupational structure and the expected demand for new skills. The exercise can help create a picture of expected demand for workers by each relevant skill type.
- 5) Skill supply gaps: Matching the results from the stage four with an assessment of the skills currently provided by the education system (in the country of origin in this case), on-job training, migration, etc. The purpose is to identify current and future gaps between skill supply and demand. The gap analysis covers the institutional set-up of the education system and available mechanisms for skills anticipation in order to identify potential institutional/structural causes for skill mismatch.
- 6) Proposed responses: The results of the STED analysis are concrete recommendations at the policy, institutional, and enterprise levels. Policy recommendations typically cover the development of specific curricula or training programs; labour market policies that improve job matching; as well as the overall incentive system (taxes, subsidies, etc.) for innovation and skill formation. Policy recommendations also cover ways to enhance coherence between trade, investment, labour market, and skills policies. At the institutional level, recommendations may

³ Key informant interview with H.M. Asad-Uz-Zaman, Policy Expert (Team Leader of Skills and Employment), A2i, Prime Minister’s Office, 2017.

⁴ Key informant interview with Md. Nurul Islam, Director, Training Operations, BMET. 2017.

suggest ways to enhance the relevance of training and educational institutions for the sector's needs, for example by improving dialogue with employers. In addition, the creation or improvement of permanent institutional arrangements for skills anticipation and skills governance might be recommended. At the enterprise level, critical factors for skills development, such as in-house training, labour turnover, and mechanisms for social dialogue on training needs and delivery are considered, and improvements are recommended where necessary.

To adequately assess the labour market demand profile in countries of destination, both countries of origin and countries of destination can work together under a bilateral agreement or memorandum of understanding on exchanges of services from appropriate human resources under contract terms. The country of destination can work toward and share research information on stages 1,2,3,4, and 6. Meanwhile, the country of origin can work toward and share information with the country of destination regarding stages 5 and 6. Both countries stand to win from such collaborative regular research.

A2017 ILO study on skill recognition programmes found that the key questions to be investigated in countries of destination from a skills and recruitment point of view could include:

- What are the priorities for employers in terms of skills development?
- Under what circumstances do they value certification of skills enough to pay a premium?
- Where is the link between skills and productivity most evident and not dependent on multiple other factors?
- What adjustments do they want to see in the skills recognition process? What policy incentives would influence employers? (ILO, 2017c)

2.3. Planning for and use of data in Bangladesh

Recently, Bangladesh has recognized the importance of big data in managing development initiatives in the labour market sector. The BBS has incorporated migration information in its recent version of the Household Income and Expenditure Survey⁵. The two database systems on the national labour force in the internal market and migrant workers in the overseas market are by no means scanty at the moment, but they are disjointed, with different data collected at different points, using non-comparable methodologies, and with overlaps and/or gaps. There is also a lack of strategies to develop data usage and a lack of related procedures in terms of systematically engaging with big data solutions to further institutionalize, monitor, and even regulate the labour market where and when needed. For example, labour data can be utilized in ensuring (among others):

- Appropriate employment, i.e., optimization of work and production;
- Wage standardization effecting social protection policies and increasing overall improvement in welfare and wellbeing indexes;
- Local/regional market growth predictions; and
- Pattern analyses of standard of living by region and sector of work.

Such an integrated database system can, in fact, look at the labour market as a whole and allocate resources accordingly to develop and employ labour in the domestic or overseas market based on skill sets. The dynamics of the international labour market is changing rapidly over time due to technological changes, bringing new challenges and opportunities for Bangladesh. A recent review of international job portals shows wide range of demand for resources/workers in areas such as:

- Academics (e.g., English as a second language teacher, campus counselor, training specialist,

⁵This survey is currently underway

continuous improvement lead, research fellow, information technology cooperative education, and internship/site/civil cooperative education);

- Architecture (quality assurance/control manager – architecture, senior AutoCAD team leader, automotive senior project designer, senior project architect, CAD designer, architectural designer);
- Audit and legal (risk compliance analyst, coordinator, corporate litigation, internal auditor, corporate counsel, contract analyst, planner, compliance officer);
- Banking and finance;
- Biotechnology (lead statistician, product specialists – lab informatics, senior bio-pharma engineer, deviation investigator, sterile manufacturing);
- Customer service (customer service officer, customer support – sales-oriented, client relations representative, customer relations coordinator, customer service assistant), and so on.

There are also jobs in areas of construction, chemical research, engineering, geology and geoscience, domestic work, information and communication technology (ICT), human resources, manufacturing, management, medical and health, mining, nursing and midwifery, project management, real estate, restaurants, sales and marketing, tourism and hospitality, and transportation sectors. In general, the required skills for these jobs suggest that having a formal education up to a certain level – along with technical training and expertise in respective sectors – will be pivotal in availing international jobs (Islam, 2017).

Data on the labour market and on returnee overseas migrants can be used to channel much needed high-skilled former migrants into key sectors to generate capital and/or refresh the skill sets in the workplace, creating an effective loop of circular migration (Rashid and Azad, 2017). This will also help developing countries like Bangladesh in the long run to send highly skilled people to the European Union and North America, countries in those regions prefer circular migration. Bangladesh will also need to employ higher skilled labour force to increase its national productivity level and attract foreign direct investment (FDI) in sophisticated industries, including the manufacturing and information technology (IT) sectors. Bangladesh has 32 “thrust sectors” for employment creation, which include apparel, ready-made garments, agriculture, ICT, light engineering, pharmaceuticals, infrastructure, frozen food, energy, handicrafts, ceramics, healthcare, and tourism. ⁶There are a wide range of opportunities in tourism and hospitality, including hotel, reception, security and services (Islam, 2017).

Data-driven circular migration of a labour force skilled in the latest techniques will do well for the economy of Bangladesh (Azad, 2017). However, access to database systems must be increased to benefit the workforce as well. The categorization of data must be done according to the international codes of classifications of skills and occupations (ISCO) to make labour data from Bangladesh comparable with that of the countries of destination.

Database system scan also streamline the migration sector, ensuring better governance through effective management of labour migration and the provisioning of strong support systems so that workers are protected abroad. This directly contributes to reduction in the vulnerability of migrants in the face of increasing situations of forced labour and human/labour trafficking (Rashid and Azad, 2017). Robust tracking processes and analyses are required that would, in turn, support ongoing improvements in ethical labour recruitment and fair and safe migration.

⁶Other thrust sectors include leather technology, finance and business, transport, telecommunications (including mobile phone repair), shipbuilding, caregiving, freelancing, power plant, interior design and landscape, solar energy, education, caregiving, research, handicrafts and home-made products, and home delivery-based social services for children and the aged.

Data is a reservoir of information to inform planning processes for development, to secure rights, and to secure the State. As far as human resource development and utilization is concerned, Bangladesh, as a fast developing economy, has two important goals to achieve to attain the desired GDP growth rate of 8 per cent per annum. These two goals must be targeting:

- a) developing the domestic labour market and overseas labour market under a single policy;
and
- b) linking the internal and external labour markets as part of a whole market scenario and as two points in a continuum.

To achieve either one of these goals, data procurement, augmentation, and management are a must. Essentially and eventually, this is a big data project with multi-faceted uses.

3. Issues with comparability

3.1. Research methodology – Identifying comparable systems

The purpose of the comparability analysis was to explore similarities, dissimilarities, and unavailability in the databases. The three objectives of this comparability study are:

- (1) to identify different data structures in labour market and migration workers' databases in order to allow for integration;
- (2) to define an appropriate set of dimensions by which existing databases can be compared and contrasted; and
- (3) to explore lessons that have been learnt so as to design the database systems and ensure accessibility.

Comparability analysis of database systems is necessary to ensure that data, when integrated, remains standardized through all stages: collection, filtering, definition-wise categorization, entry fields and update intervals, data presentation structure, etc. This ensures that data from two database systems are indeed comparable by all standards. Any database systems involved will have to pass three tests to ensure a minimum validity and reliability score. These three sets of items are: correctness, efficiency, and usability.

The first important component of this study is to identify comparable systems. During this phase, a preliminary vision of the design and the configuration items of typical, likely solutions are described. Based on reviews of the literature and discussions with the related agencies, directorates, ministries, organizations and individual stakeholders, it was found that national databases are kept and monitored – especially by the BBS, the National Election Commission, the Passport Office, and the Bangladesh Road Transport Authority– and migrant data is kept by directorates like the BMET, WEWB, and Special Branch. Some organizations/research entities keep project-based datasets on migration processes and issues, but these are not maintained or updated with individual migrants' data. Government agencies like the BBS and the DYD; private organizations like the Bangladesh Institute of Labour Studies (BILS), trade unions, and the Bangladesh Employers Federation; as well as other concerned stakeholders keep records related to the internal labour market.

The second component of this study is to assess database systems from other countries to account for any comparability issues and determine possible avenues for data standardization. The project assignment mandates assessment of a foreign country database systems that may provide valuable insight into the answers of why and how to set up an integrated database systems on labour and labour migration. This report offers overviews of several countries' systems, including detailed analyses on the systems of two particular countries': Nepal and Sri Lanka. These two countries were chosen as their experiences in labour migration are similar to those of Bangladesh, given that they are in the same region, have similar population characteristics, and moreover, both have better database systems than other countries in South Asia⁷. As such, the systems comparisons will be conducted at two levels –national and regional.

⁷ Regional ILO officials from both Nepal and Sri Lanka provided valuable input in detailing the context and status of the existing systems in place and also facilitated a visit by the RMMRU team.

3.2. Scope and coverage of analysis

3.2.1. Time factor

The time factor is one of the core issues in comparability between database systems. The existing database systems in Bangladesh are not standardized and constant for every structure. Some data are quarterly, some are monthly, and some are generated annually. As an example one can consider two major data sources: the BBS' Labour Force Survey (LFS) and the BMET migrant worker database. The LFS has been conducted on a quarterly basis through the 12 quarters between July 2015 and June 2018. In the LFS database each survey block is visited in two consecutive quarters but then not visited for the next two quarters; the block is then revisited for another two quarters, and then dropped. After the first few quarters of operation within the survey's given time period, the survey revisits one half of the households visited in the previous quarter, and one half of the households visited in the same season a year before. Apart from its clear analytic benefits, this rotational scheme is intended to substantially improve the precision of quarter-to-quarter and year-to-year variation measurements. However, the database kept by the BMET is a day-to-day updateable database system. As such, if one wanted to compare data from both databases on the dashboard of an inter-operable application (IOA), the data from the BMET database needs to be clustered on a quarterly basis, and even then, both data sets will not be comparable for researchers in absolute terms.

3.2.2. Type factor

The type factor of datasets in a database system refers to what types of respondents are corresponding when data is collected. There are two types within the terms of this study: household surveys and regional surveys. The Quarterly Labour Force Survey 2015, for example, was conducted to provide reliable estimates of the labour force population at the national, urban, and rural levels, as well as by division. The labour force component covered the population aged 15 or older living in the sample households to obtain estimates on many variables, particularly in relation to the economic and non-economic activities. The survey involved a sample of 30,816 households across all 64 districts for each quarter. The survey covered both urban and rural areas and dwelling households, including one-person households. Institutional households, that is, those living in hostels, hotels, hospitals, old age homes, military and police barracks, prisons, welfare homes, and other institutions were excluded from the coverage of the survey. As with time factor example above, however, this LFS data will not pair up with BMET data on labour migrants unless the LFS data is matched against the individual/personal datasets of each labour migrant in the BMET database. Only an IOA can match data from individuals appearing in both databases, and then flag and jointly project the combined data of these individuals on a dashboard. Only then will data from each of these two systems complement each other while creating a more comprehensive picture of the migrant workers in question.

3.2.3. Data structure

Data structure is basically the way data is categorized. It is the process that organizes the collected data in the best way, and performs operations on that data in the most effective way. If data structure is organized as stipulated by the analyst or database planner, data will suit a specific purpose to access and perform operations within appropriate ways. As an example, the frame used for sample selection in the LFS was based on the Population and Housing Census 2011. The sampling frame, which was made up of preparing of a primary sampling unit (PSU) that consists of collapsing one or more enumeration areas (EAs) created for the Population and Housing Census 2011. EAs are geographical contiguous areas of land with identifiable boundaries. On an average, each PSU has 225 households. All the EAs of the country were categorized into three segments – strong, semi-strong, and not-strong – based on the housing materials. The frame has 1,284 PSUs spread all over the country and covers all socio-economic classes, and is therefore able to serve as a suitable and representative sample of the population. The BMET migrant worker data, on the other hand, will have limited variability in terms of social class and type of previous occupation/profession, as migration-prone communities are often

more clustered than not. However, categorization can be done based on definitions that allow inclusion of data and information from the nearest experiences and exposure indicators. These indicators/markers need to be set for an integrated database or for an IOA.

3.2.4. Data upgrading process and factors

Every dataset needs to be updated after a certain time. For instance, the LFS is upgraded on a quarterly basis. Snapshots/infographics of the results are published quarterly, but a detailed analytical report is published annually. It is essential to monitor the upgrading process databases as well. Organizations often fail to upgrade their databases as regularly as they do other systems, which leave a wide opening for hackers to enter and reveal or steal information. Missed opportunities for enhanced features, lack of technical support, incompatibility with software and hardware, and many other disadvantages come along with using an obsolete version of a database system.

4. Comparability with other countries

This report reviews database systems of several countries and presents an overview of those systems. Nepal and Sri Lanka in particular are analysed below in some detail regarding the extent of information available in their database systems, with Sri Lanka being a particularly key country to assess. Below is an overview of a few countries using either an LMIS or MWMIS, which of course can be a mixed bag when analysed from a national development context. This review draws from important studies, models of existing systems, and key lessons from international practices from Asia, Europe, Africa, North America, and Australia. These regions offer examples of interesting and effective practices. For ease of understanding, these country case studies are organized below in two groups: database systems in countries of origin and database systems in countries of destination. Another study led by an IOM research team assessed about 30–40 countries and did not find a single instance of any country where the LMIS also incorporated the MWMIS or the other way round.⁸ Everywhere these database systems are kept disjointed. That finding was supported by research for this report, which looked into ten national and three regional initiatives around the world.

4.1. Countries of origin

4.1.1. Sri Lanka⁹

International labour migration from Sri Lanka has increased significantly in the last two decades. The Sri Lanka Bureau for Foreign Employment (SLBFE) estimates that more than 1 million Sri Lankans are employed abroad, and that there was an outflow of about 266,000 persons in 2010. About 24 per cent of the total labour force of Sri Lanka in 2010 was so employed. Overseas job opportunities continue to be a vital source of employment, reducing the pressure on authorities on account of unemployment issues in the country, especially among less-skilled women and youths. At the same time, Sri Lanka has not been able to supply the numbers of workers in mid-professional, skilled, and semi-skilled job categories as per demand from various destination countries. The National Human Resources and Employment Policy in Sri Lanka is aimed at promoting the attainment of full, decent, productive, and freely chosen employment for all men and women in Sri Lanka. It also seeks to promote the productivity of the labour force to improve their competitiveness and enhance employability.

This study chose Sri Lanka's existing database with the SLBFE as they are actively contributing to efficient and equitable pathways for people to benefit from their skills in overseas employment markets. The SLBFE sits under the Ministry of Foreign Employment, and the study found that their database content is very detailed and constructive. The SLBFE highlight different perspectives of departure details like skills level, region/country/division basis, age-group basis, foreign earnings, training information, recruiting agency details, and job mismatches. Their current complete data set stretches back to 2012 and up-to-date up through 2016. They also have some data going back to 1986, with some additional fields having been added in 2010. The SLBFE data are gender disaggregated and very detailed in scope. Thus, comparing Bangladesh data with the current Sri Lankan system is important, as it could point to data gaps and needs. The SLBFE is also preparing to restart its data entry programmes/schemes for the future development of a returnee database in order to plan returnee reintegration as per migrants' social and economic backgrounds. The Sri Lankan Department of Census and Statistics is actively advising the SLBFE on technical matters through a separate cell working from within the SLBFE.

⁸ Findings presented by Dr Mohammad Abdur Razzaque: the IOM research team lead on assessment of LMIS systems in a stakeholder consultation workshop held on 4 January 2018 at the Senate Building, and from the study titled Identification and Review Towards Development of a Labour Market Information System (LMIS). The project is funded by ILO, Dhaka office.

⁹ See <http://www.tvec.gov.lk/lmi/>; <http://www.nhrep.gov.lk/>; and <http://www.slbfe.lk/>.

The Sri Lankan LMIS involves the systematic collection, analysis, and dissemination of information regarding the demand for and supply of labour. It is a crucial component of the country's technical and vocational education and training (TVET) sector, which is industry-led and demand-driven. The LMIS – which contains population, labour force, employment and unemployment, education and training providers, wage rates, and other related data – is expected to contribute to making more and better labour market information available for stakeholders needs in Sri Lanka.

4.1.2. Nepal¹⁰

An important existing system to be compared with Bangladeshi systems is the newly installed system by Nepal, which was piloted in 2016 and has been operating since July 2017. The Department of Foreign Employment under the Ministry of Labour and Employment has been working on recording data related to labour migration since 2008. Nepal's new system is a web-based application that is automated and covers all the processes of foreign employment. The system is also very user-friendly and accessible to all stakeholders. Security issues are given high priority, as the system contains comprehensive and sensitive information of migrant workers, including biometrics (iris and thumbprint) and photo. In addition, there is provision to collect additional data via the Foreign Employment Information Management System (FEIMS), such as age, religion, marital status, training, academic qualifications, and nominee. There are some challenges to improving the system, such as standardization in data formats, undocumented records, proper management of re-entry (returnee migrant) data, proper skill categorization, and so on. There is no mechanism developed yet to record migrant worker returnee data. The system also suffers from technical problems, like common definitions and methodology issues for seasonal worker and returnee migrants need to be standardized further.¹¹ Easy accessibility and user friendly interfaces can test and popularize the system.

Nepal is currently preparing an LMIS under the Department of Labour (DOL), but there have been delays in establishing this LMIS and a network of Employment Service Centres (ESCs) that will support data collection. That said, three ESCs, at Labour Offices in Dhangadhi, Kathmandu, and Biratnagar have already been established to carry out labour management information functions.

4.1.3. The Philippines¹²

The Philippines have an LMIS that contains:

- A national job portal;
- The National Skill Registration Program, (which operates according to market needs); and
- The Career Guidance Advocacy Program.

All these features serve the Government's efforts to ensure the most relevant policies for the local labour market according to the demand and structure of the population. The Bureau of Local Employment, under the Department of Labor and Employment, aims to improve the local labour and employment situation. Its vision is to become the centre of employment service in Asia. To this end, the Bureau:

- Facilitates local employment through online employment facilitation engines like PhilJobNet;
- Commits to provide fast and effective employment service to jobseekers and clients; and
- Informs policy-makers, planners, and decision-makers with accurate, timely, and reliable labour market information.

¹⁰ See <http://dol.gov.np/site/cms/14>, and <http://www.dofe.gov.np/new/welcome>.

¹¹ Per presentation by Nepali officials at the ILO Office in Dhaka, 2017

¹² See <http://www.ble.dole.gov.ph/index.php/porgrams-projects/labor-market-information-system-lmis?start=7>.

The bureau's mission is to promote full employment by facilitating access for Filipino jobseekers to local employment opportunities through policy research, standards setting, strategy development, labour market analysis, and provision of technical assistance to regional implementers in support of employment service operations.

4.1.4. Indonesia

The LMIS in Indonesia is still at the development stage. Once established, it will link up vocational school graduates and industries. With regard to strengthening the employment monitoring system, the LMIS will allow for employment outcomes to be monitored more closely in Indonesia. In this regard, it may be useful to assess the utility of producing a “job vacancy rate” or “employment projections” as part of the employment monitoring systems. The concept of “the labour market” is more than a connection between employers and jobseekers; it is a model that runs for the short term and the long term, interlinking institutions. The larger labour market transaction information system could be the most important one for creating opportunities for each jobseeker. It could recognize the flow of employers' requirements for short or long periods of time. The LMIS is therefore created to make a link between vocational schools and industries in Indonesia, with the information serving as the bridge. The research framework for Indonesia's LMIS is based on three stakeholders that interact with the system directly: vocational schools, government (specifically the Labour Department), and industries. The LMIS should include career decision support for jobseekers.

The Directorate General of Labour Inspection Empowerment under the Ministry of Manpower and Transmigration is a technical unit assigned to provide labour protection for workers and employers. The “One Gate” System of the central Government has attempted to address the lack of coordination between central and regional governments by inviting regional governments and private sector representatives in the regions to jointly handle labour migration issues. Different initiatives have been piloted including:

- (1) An overseas work exchange at the district level;
- (2) Expanding the network of community-based training centres for labour migrants; and
- (3) Establishing crisis centres for labour migrants in trouble.

This reorganization at the grassroots level needs to be taken into consideration, as it will impact the digitization process and the ultimate shape and working of database.

4.1.5. India¹³

In India, consideration for a future LMIS system was initiated in 2013 with the support of ILO. The system was designed to strengthen the flow of data and information to employers and jobseekers, and to improve planning for the supply of skills. The system was ultimately built upon the findings of a report on stakeholder perspectives on the labour market information that showed Indian stakeholders often lack a comprehensive understanding of the structure and components of an LMIS (ILO, 2013). The LMIS was developed under the Government's National Skill Development Agency. The LMIS policy is instrumented to improve the information flow in the labour market. The system brings together quantitative and qualitative information concerning labour market actors and their environment, and generates key analysis and reports, which can be used for various policy interventions by different government stakeholders, as well as by the industry at large. Increasingly the India LMIS also provides tools and resources to help people decide on careers and find work. Key stakeholders of the LMIS include trainees, training providers, industry/employers, sector skill councils, government agencies/policy-makers, assessment agencies, certifying agencies, funding agencies, international agencies, labour market tracking agencies, and government and private placement agencies (inclusive of Employment Exchanges).

¹³ See <http://www.lmis.gov.in/>.

The Government of India has established its LMIS as it would consolidate, monitor, and evaluate all skilling programs across different ministries and agencies in the country. Through the LMIS, existing knowledge, systems, and technical expertise can be leveraged as much as possible, which will further avoid overlap of generated information and duplication of efforts. Various LMIS modules are being developed by other stakeholders, such as:

- Sectoral information being collated by the Sector Skills Councils;
- National Career Service Portal being developed by the Directorate General of Employment and Training;
- Skill Development Management System of the National Skill Development Council;
- State-level LMIS systems by state governments (16 states have already consented to the initiative); and
- Details of schemes and persons trained by the various ministries.

These modules will be plugged into the LMIS, and one national information system will be created that is open for use by all citizens. The LMIS is a central, one-stop portal that directly provides easily accessible information, linking users and suppliers of information across ministries, states, sectors, and institutions. The system provides easy access to national data and sub-national data across India.

4.2. Countries of destination

4.2.1. Saudi Arabia

Saudi Arabia has initiated the Musaned System to keep track of migrant workers in their country, enhancing the safeguards against abuse. Employers can easily get into the system and see the status of workers. With regard to Bangladeshi migrant workers, the system currently only captures the details of domestic workers, as it is meant solely for the domestic work sector. This system also captures data on domestic workers while they are travelling or in the process of migration. It allows the Government of Saudi Arabia to follow up on recruitment process that take place in labour-sending countries with which it has entered into pacts. Recruitment agencies in various countries of origin willing to recruit men and women domestic workers can visit the Musaned website at www.musaned.gov.sa or download the official app. Through Musaned they can review the list of licensed recruitment offices and companies in Saudi Arabia, the nationalities of current workers, and jobs, in addition to recruitment costs and the date that is set for a domestic worker's arrival. Musaned, however, is not accessible to all stakeholders in the migration process, with parties like the government of the country of origin, migrant workers, and civil society organizations all being excluded.

Images 1–3 below provide screenshots of the dashboard of the Musaned system to demonstrate functionality. These screenshots were accessed using the account of a recruitment agency in Bangladesh.

Image 1. Screenshot of homepage of Musaned System of Saudi Arabia

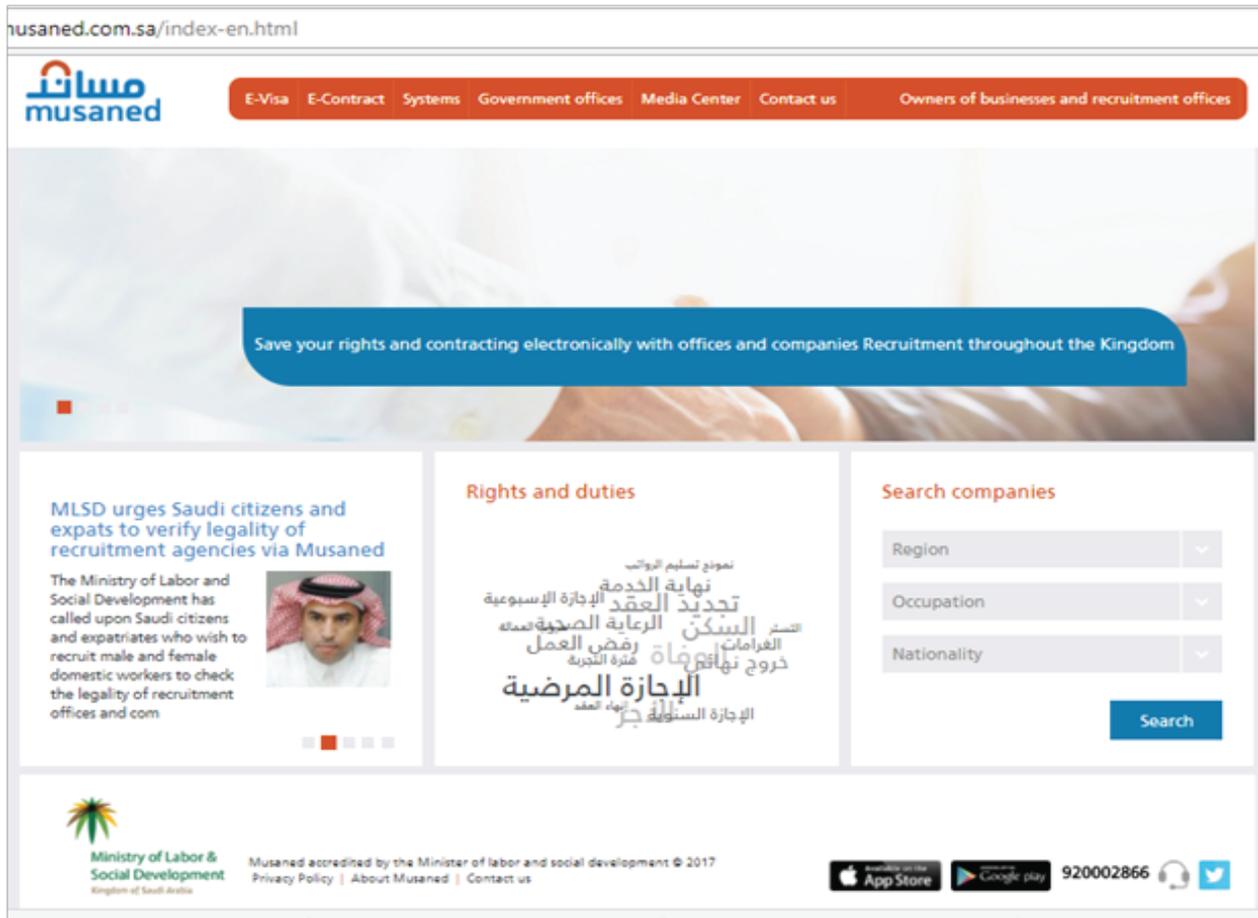
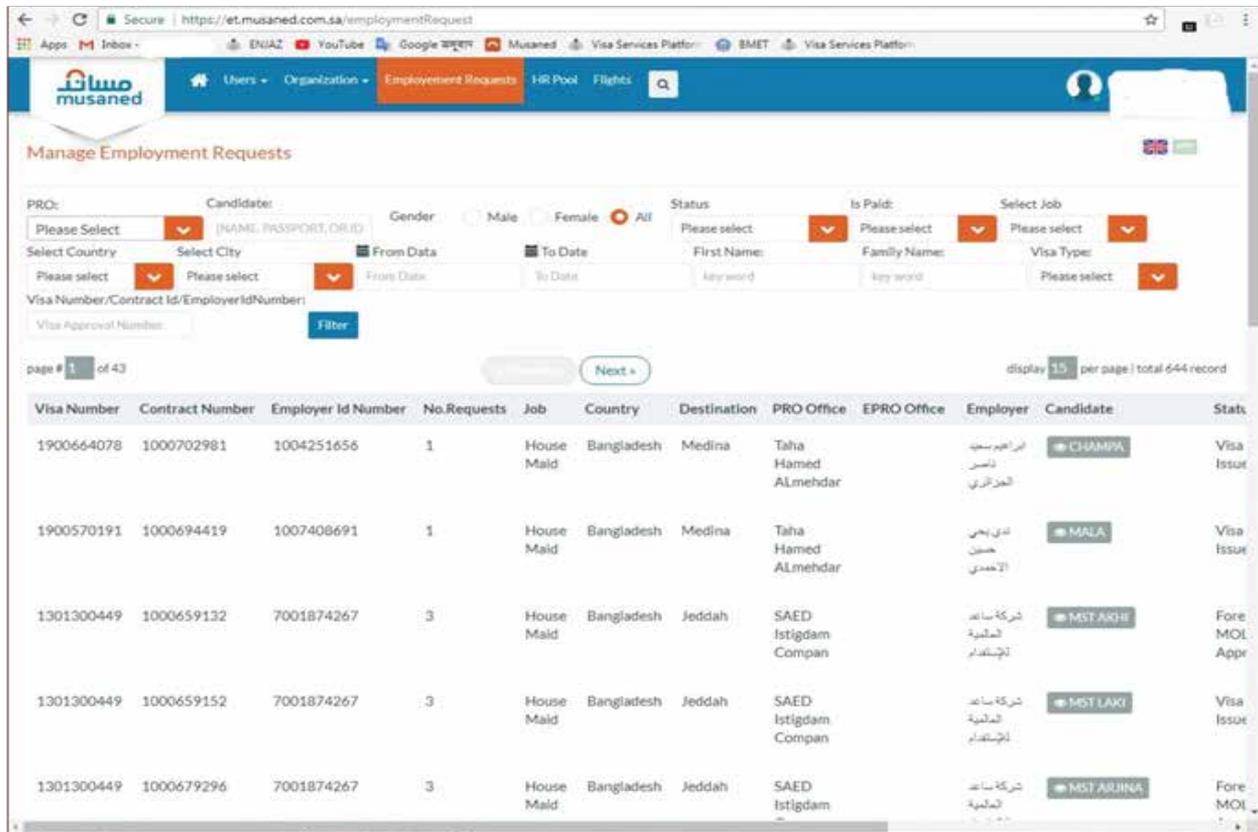


Image 2. Screenshot of “Manage employment requests” screen in the Musaned System



The Saudi Government is expecting that this online database system will help reduce vulnerability of labour migrants from other countries, especially the female migrants. Employers/recruiters from Bangladesh are also happy with this database system, as it gives them direct access to oversee the condition their clients (migrant workers) while they are living and working in Saudi Arabia.¹⁴

4.2.2. United Kingdom¹⁵

The National Online Manpower Information System is run by the Office for National Statistics, and provides free access to detailed and up-to-date UK labour market information. Information is collected from all official sources only. Available variables in the labour market profile include: population, employment, economic inactivity, qualifications, earnings, jobs and vacancies, benefit claimants, and businesses. In addition, dataset time series analysis, summaries of the statistics and comparisons, and employment surveys are also available in the web-based database. Reports include: local authority profiles (district/county areas), local enterprise partnership profiles, combined authority profiles, regional and national profiles, 2010 parliamentary constituency profiles, 2011 ward profiles (England and Wales only), and so on. This portal also features links to national census data and other regional database systems.

4.2.3. United States¹⁶

America's Labor Market Information System (ALMIS) connects employment, education, and training services into a coherent network of resources at the local, state, and national level. This new system links the country's employers to a variety of qualified applicants, and provides jobseekers with access to employment and training opportunities locally and across the country.

The US Department of Labor's Employment and Training Administration (ETA) has initiated many programmes like: trade adjustment assistance, career training, technical skills training, the Jobs Accelerator, the Innovation Challenge, "Make It in America", the Tech Hire Partnership, and the Strengthening Working Families Initiative. The ETA is working to increase profitability through:

- An analysis of available government incentives, tax credits, and assistance;
- The use of real-time information about workforce and career information, such as local wages and economic trends, and industry competencies;
- Standardized training to inform business decisions and reduce recruitment costs;
- Increased retention through workforce solutions, such as screening and referral of job-ready candidates; and
- Developing a more competitive workforce by connecting workers to training and other up-skilling resources.

4.2.4. Australia¹⁷

The Labour Market Information Analysis in Australia is available in the form of the Labour Market Information Portal operated by the Department of Education Employment and Workplace Relations. In their system, labour market statistics like unemployment and employment rates, full-time and part-time occupations, categorized by gender, jobseekers, working age population, labour force participation rate, duration of unemployment, employment by industry and occupation, and employment rate by state and territory are available. The overall objective of the existing labour market system and a proposed international system for migrant workers is to improve the capacity to collect and share labour migration information. The system would foster greater intraregional labour mobility and enhance the positive effects of migration on economic development.

¹⁴ Key informant interview with Shameem Ahmed Chowdhury Noman, Joint Secretary-General, BAIRA, 2017.

¹⁵ See <https://www.nomisweb.co.uk/>.

¹⁶ See <https://www.doleta.gov/programs/msfw.cfm>.

¹⁷ See <http://lmip.gov.au/>.

4.2.5. African Union

In Africa, a continent-wide LMIS is under development that aims to collect information on the functioning of country-level LMIS systems to enable a rapid assessment of the situations in various African Union States. At the national level, the Government of Ghana is implementing a project to establish a comprehensive Labour Market Information Data Base for the country. The project seeks to develop a strong and sustainable LMIS and should cover both the formal and informal sectors.¹⁸ Zambia has also initiated an adequate, accurate, and up-to-date LMIS. This LMIS was instrumental in designing a comprehensive, integrated, and coherent employment policy, and grounded the strategies to achieve employment generation objectives (Ministry of Labour and Social Security, 2004).

4.3. Innovative non-government initiatives at the regional level

There are other sources of data that can be used to assess issues of data comparability and integration. The United Nations (UN)¹⁹, the ILO, the IOM, and the World Bank²⁰ hold data on labour migration as well. KNOMAD²¹ data is particularly used by social and policy researchers and policy-makers around the world. With regard to international statistical standards on migrant data, there is no agreed framework for statistics on migrant workers. While the main objectives of international migration statistics from the UN is demographic accounting of population (immigration/emigration and population change), the ILO's main objectives for migrant data is to characterize labour market dynamics and the impact of labour migration, as well as to inform employment and labour migration policies. There is an express need for the use of coherent concepts, definitions, and methodologies if migration data is to be usefully integrated at the regional or international level (Hakizimana, 2017). Almost all international datasets collect their data from administrative records, population and housing censuses, and household surveys.

4.3.1. ILOSTAT²²

The ILO holds one of the most significant databases, which is made available through ILOSTAT. “Key Indicators of the Labour Market” in ILOSTAT include:

- Employment-to-population ratio;
- status in employment;
- Employment by sector;
- Employment by occupation;
- Employment by education;
- Hours of work;
- Informal employment;
- Unemployment rate;
- youth NEET rate;
- Time-related underemployment;
- Monthly earnings;
- Labour costs;
- Labour productivity;

¹⁸ According to a draft report by the Ministry Of Manpower, Youth and Employment.

¹⁹ See <https://esa.un.org/unpd/wpp/Download/Standard/Migration/>.

²⁰ See <http://www.worldbank.org/en/topic/migrationremittancesdiasporaissues/brief/migration-remittances-data>.

²¹ See <https://www.knomad.org/data/migration/emigration>.

²² See <http://www.ilo.org/ilostat>.

- Employment by economic class; labour dependency ratio;
- Industrial relations;
- Labour market projections;
- Wage growth by region;
- Global and regional indicators; and
- Quarterly indicators.

In datasets and reporting within ILOSTAT, the same data indicators are available in multiple time increments (annual, quarterly, and monthly) and by subjects like:

- SDG labour market indicators; ILO modelled estimates; population and labour force;
- Employment; unemployment and labour underutilization;
- Working time;
- Earnings and labour cost;
- Labour productivity ;
- Social protection;
- Safety and health at work;
- Industrial relations;
- Labour migration; and
- Consumer prices.

4.3.2. IOM Migration Database²³

Developed by the IOM in 2009, the Migration Information and Data Analysis System (MIDAS) is a high-quality, user-friendly, and fully customizable solution for States in need of a cost-effective and comprehensive border management information system. MIDAS is operational in 19 countries. It has been designed to be compliant with international standards. MIDAS includes biographic data; biometric data; images examined under infrared, ultraviolet, and white light; entry and exit data; visa data; and vehicle/flight/vessel data.

4.3.3. International Labour Migration Statistics Database in ASEAN

An important data source is International Labour Migration Statistics Database in ASEAN (ILMS). The ILMS holds data on labour migrants from Bangladesh and other countries of origin that are collected by the ILO from the governments of Malaysia, Singapore, Thailand and other Association of Southeast Asian Nations (ASEAN) countries. The ILMS is basically an ILO initiative at the regional level. It gathers together official government data from a number of statistical sources on international migrant workers' stocks and flows within the region, as well as on ASEAN nationals living or working abroad. In doing so it fills an important knowledge gap, creating a powerful research tool through which policy-makers and others can profile and monitor the international migrant labour force within the region. This database is non-comparable, as per the ILO's own definition and disclaimer. The key indicators of the ASEAN dataset related to the labour market are working-age population and migrants, total employed migrants, migrant population and labour force, international migrant stock, and international migration flow by sex, country of origin, working-age migrants, and occupation.

²³ See <https://gmdac.iom.int/>.

4.3.4. Database on Overseas Labour Migration for South Asia

Currently a similar initiative is underway from ILO's regional office in New Delhi aimed at integrating labour migration data in South Asia. This is also a non-comparable database at the outset due to non-harmonization of definitions and data collection methodologies across South Asian countries. The ILMS South Asia's structure can be discerned by looking at the scope of the data collection found in McCarthy (2017), per the table headings from that report below:

Table 1: Stock of nationals abroad by country of destination (1990, 1995, 2000, 2005, 2010, 2015)

Table 2: Total annual inflow of SAARC nationals to OECD countries (2000 –2015)

Table 3: Annual outflow of nationals for employment abroad by sex and country of destination (1997 –2017)

Table 4: Annual outflow of nationals for employment abroad by skill level and economic activity (1997 –2017)

Table 5: Annual outflow of nationals for employment abroad by occupation (1997 –2017)

Table 6: Annual outflow of nationals for employment abroad by method of recruitment (1997 –2017)

Table 7: Annual outflow of nationals for employment abroad by province/state of origin (1997 –2017)

Table 8: Annual returns of nationals employed abroad to country of origin by country of previous residence (1997 –2017)

Table 9: Annual inflow of remittances/ODA/FDI (1997 –2017)

Table 10: Remittance transaction costs for US\$200 and US\$500 transfers from select destination countries to South Asian origin countries (Q3 2013 –Q3 2017)

Table 11: Annual fatalities of migrant workers employed abroad by country of destination (1997 –2017) (McCarthy, 2017).

The ILO seeks that all South Asian countries should soon share updates on how each country is progressing in reporting on the most relevant SDG indicators, including 8.8.1 (occupational accidents), 10.7.1 (recruitment costs), 10.c.1 (remittance costs), and so on (ILO Report, 2017).

As per Hakizimana (2017), good practices to improve statistics for integration at the regional and international level may include the following steps:

- Inclusion of essential questions pertaining to migration in population census;
- Inclusion of migration modules in large-scale household surveys with adequate sample design/size;
- Compilation and release existing administrative data for statistical purposes;
- Harmonization of concepts and definitions across data sources;
- Dissemination of census data tabulations by native/foreign-born status, duration of stay, and basic economic characteristics (LF status, main occupation, industry, status in employment); and
- Sharing of census data on foreign-born population across countries.

This study finds these are essential and instructive for any national level data integration initiative as well.

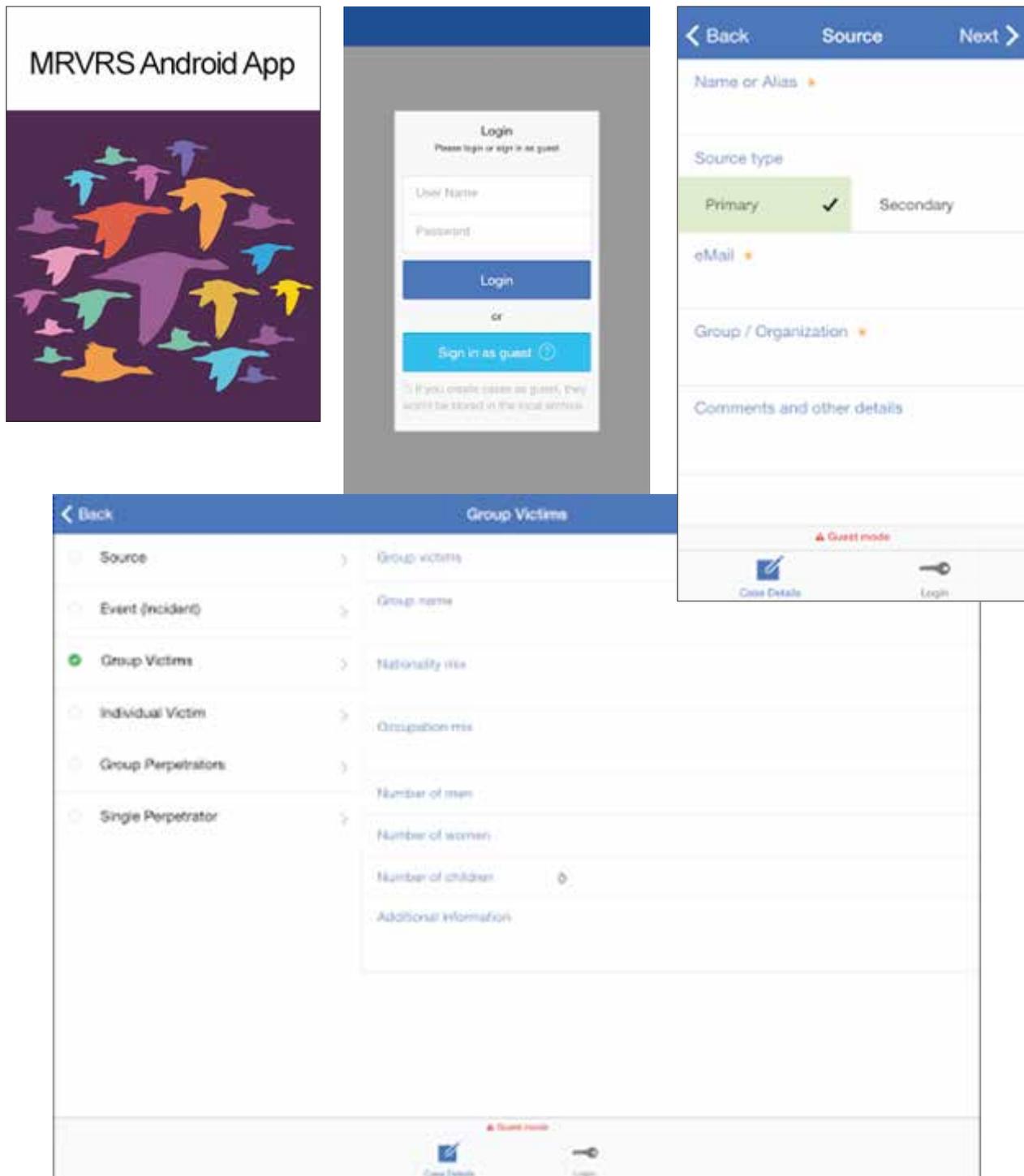
4.3.5. Migrant Forum in Asia's Migrant Rights Violation Reporting System

The Migrant Rights Violation Reporting System (MRVRS) was initially developed by the Migrant Forum in Asia network in 2004 with an aim to record, store, and manage information about human rights and labour rights violations against migrant workers and members of their families.

The MRVRS is an online internal database of the network that facilitates generation of statistics and consolidated reports for advocacy. It also serves as one of the key platforms where a migrant worker's situation can be reported and addressed by the network members and by the network itself (Migrant Forum in Asia, n.d.).

This could be a major cross-national platform for labour migrant's data. Especially useful for those in vulnerable situation due to forced labour, fraudulent practices in recruitment, and other issues yet to be tackled by international migration regime. Image 3 shows screenshots taken from the MRVRS mobile application.

Image 3. MRVRS Android App– Four screenshots



5. Database systems and datasets in Bangladesh

Eleven database systems from government sources within Bangladesh have been assessed in this report. Following the descriptions below, one can find a summary table of the relevant systems (table 2).

5.1. Bangladesh Bureau of Statistics

The database systems with the largest pools of data on the labour market and related data at the national level are kept by the BBS. The bureau collects this data through their quarterly Labour Force Survey. The key variables in the labour market datasets compiled in the LFS are:

- Population and household characteristics;
- Education and training;
- Employment by sector – occupation, forms of work;
- Employment in the informal economy;
- Unemployment and underemployment;
- Part-time workers;
- Youth employment;
- Time-related underemployment;
- Persons outside the labour force;
- Educational attainment and illiteracy;
- Wages – compensation costs;
- Labour productivity;
- Poverty;
- Income distribution;
- Employment by economic class and working poverty;
- Hours of work;
- Labour migration focusing on distribution of migrant and non-migrant persons;
- Labour force participation rate of migrants and non-migrants; and
- Unemployment rate of migrants and non-migrants workers.

The survey report also provides a complete picture of labour statistics, as well as the key indicators of labour market such as labour force participation rate, employment to population ratio, status in employment, employment by sector and occupation, employment in the informal economy, unemployment and youth unemployment, not in labour force, educational attainment and illiteracy, and average monthly wages. The BBS is currently readjusting its concepts, standards, and methodologies as per international given standards (like that of ISCO) because a comprehensive database with a match to workforce information in destination countries also ensures speedy access to migrant workers in case of emergency and a comprehensive picture for policy-makers with regard to the migrant labour force.²⁴

²⁴ See <https://gmdac.iom.int/>.

After the successful completion of the LMIS project by the BBS (with procurement support from the World Bank and financing from the Government itself), the bureau is producing quarterly reports on the LFS with analysis. The BBS's Household Income and Expenditure Survey – done every five years – is also collecting basic migration data. As per an understanding between the BBS and ILO, the former will start collecting more data under this survey and under the LFS from next year.

5.2. Bureau of Manpower, Employment and Training

The BMET is engaged in overall planning and implementation of the strategies for proper utilization of the human resources of the country in the overseas market. They keep data on migrant workers' personal information and information on their nominees, addresses, education, training, language, and experience. They have statistics on overseas employment, including data disaggregated by gender, country of destination, district, and category of employment. As the BMET is the main data source for migrant worker information with a 9 million people strong database system, it is essential to evaluate this source of information properly. Most stakeholders, employers, and recruiting agencies do not feel the database is sufficient for their needs.²⁵ The BMET has data on recruitment agencies, with details of professions, migrants' destination countries, numbers of migrants sent, etc. Although not all categories/variables are publicly available on the Internet and data on irregular migration cases is not included, the BMET database system does include the following²⁶ gender disaggregated data:

- Stock of Bangladeshi nationals abroad by sex and destination area, region, or country;
- Permanent migration inflows of Bangladeshi nationals to Organisation for Economic Co-operation and Development (OECD) countries by nationality;
- Annual outflows (departures) of nationals for employment by sex and country of destination;
- Outflows (departures) of nationals for employment by economic activity;
- Outflows of nationals for employment by occupation;
- Outflows of nationals for employment by method of recruitment;
- Outflows of Bangladeshi nationals for employment by district;
- Annual inflow of remittances, Net ODA, and FDI to Bangladesh (available at BMET, Bangladesh Bank);
- Average total quarterly remittance transaction cost from select migrant destination countries to Bangladesh;
- Total annual welfare fund payments for deceased migrant workers;
- Recruitment agencies: address, migrants sent, staff number, proprietor/owner details; and
- Migrant educational background by sex, area of origin

The BMET has data on recruitment agencies with professions details, the destination countries of migrants sent, numbers of people sent, etc. Under the Skills and Training Enhancement Project (STEP) supported by the World Bank, the MIS of the BMET was set up and the IT backbone revamped. Currently, migrant data is also hosted in this server. The BMET database system currently includes the variables found in table 1 below.

²⁵ Detailed suggestions on needs/gaps of the MWMIS will be covered in a separate report on Data Needs and Gaps Study under this project.

²⁶ Data headings are mostly designed to correspond to International Labour Migration (ILM) data held by the ILO New Delhi Office, 2017-2018.

Table 1. Data fields currently available in BMET migrant worker database

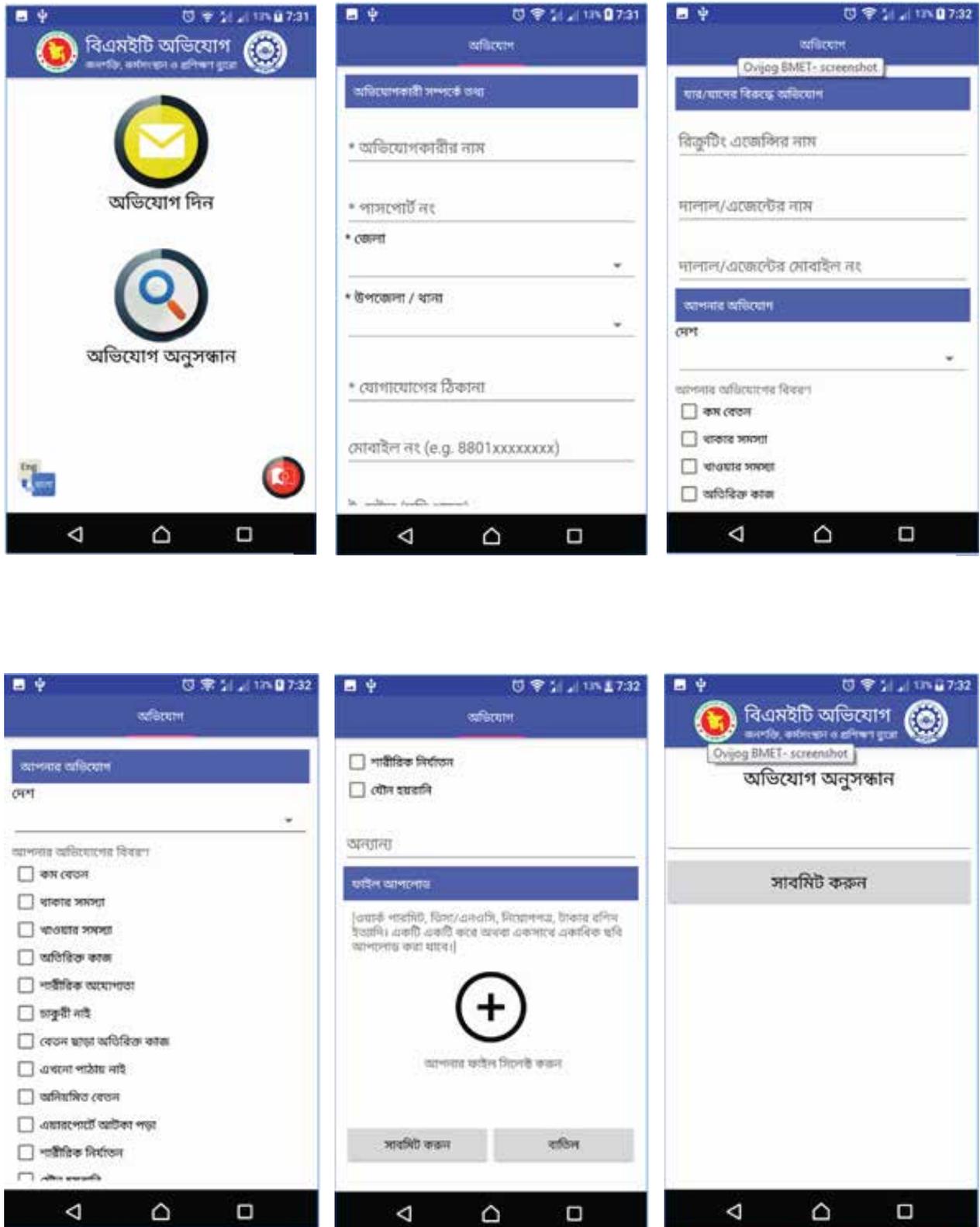
Heading	Current data fields
Personal information	name; father's name; mother's name; spouse's name; National ID; birth country; birth district; nationality; religion; birth date; desired job; sex; marital status; weight (kg); height (m); no. of daughters; no. of sons; passport issue date; permanent address; mailing address
Nominee information	nominee name; address relation to worker; phone/mobile
Education information	degree name; year earned; institution/school; board; subject grade/division language of study
Health condition	–
Language skill	spoken skill writing skill
Experience/previous work information	company name; position; service from (start date); service until (end date); address; phone/mobile; contact person;

Heading	Current data fields
	email; responsibilities; achievements
Training information	training name; institute; duration (months); description
Current/desired employer's information	name; address; country; province/district; contact nos.; email

Source: Compiled by authors

Another initiative of the BMET is the complaint registration system Ovijog (complaint), which is operated and serviced through a portal and also via a mobile application (see image 4).

Image 4. Screenshots of BMET mobile app version of Ovijog



The Ovijog initiative is a potential source of further data that will not be otherwise found in any other regular dataset. Currently, the MEWOE is also in the process of launching a separate complaint registration system that will be based on the Ovijog portal. A complete view of the existing BMET portal is shown in image 5 below.

Image 5. Screenshot of the BMET web portal based on Ovijog

Government of the People's Republic of Bangladesh
Ministry of Expatriates' Welfare and Overseas Employment
Bureau of Manpower Employment and Training (BMET)

English

বিএমইটি অনলাইন অভিযোগ **অভিযোগ** বিএমইটি প্রবন্ধ অভিযোগ অনুসন্ধান বারগেজ

বিএমইটি অনলাইন অভিযোগ ফর্ম

অভিযোগকারী সম্পর্কে তথ্য:

- অভিযোগকারীর নাম: অভিযোগকারীর নাম
- জন্মের তারিখ: জন্মের তারিখ
- পাসপোর্ট নং: পাসপোর্ট নং
- জন্মের স্থান: জন্মের স্থান
- দেশ: দেশ
- উপজেলা: উপজেলা
- যোগাযোগের ঠিকানা: যোগাযোগের ঠিকানা
- মোবাইল নং: মোবাইল নং
- ই-মেইল (যদি থাকে): ই-মেইল

বার/ব্যাচের বিরুদ্ধে অভিযোগ:

- বিরুদ্ধে এজেন্সির নাম: বিরুদ্ধে এজেন্সির নাম
- বার/ব্যাচের নাম: বার/ব্যাচের নাম
- যদি থাকে:
- বার/ব্যাচের মোবাইল নং: বার/ব্যাচের মোবাইল নং
- যদি থাকে:

আপনার অভিযোগ:

- দেশ: দেশ
- আপনার অভিযোগের বিবরণ: কম বেতন Less Salary
- থাকার সমস্যা Accommodation Problem
- খাবারের সমস্যা Food Problem
- অতিরিক্ত কাজ Extra Duty
- শারীরিক অযোগ্যতা Medically Unfit
- চাকুরী নাই No Job
- বেতন ছাড়া অতিরিক্ত কাজ Overtime Without Pay
- এখনো পরোতে নাই Not Send Yet
- অনিয়মিত বেতন Irregular Salary
- এয়ারপোর্টে আটকা পড়া Stranded at Airport
- শারীরিক নির্যাতন Physical Harassment
- বৌন হরাসনি Sexual Harassment
- অন্যান্য:
- প্রমাণাদি: প্রমাণাদি: [ওয়ার্ক পারমিট, ভিসা/একওসি, নিয়োগপত্র, টাকার রপিন ইত্যাদি]
-

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5.3. Bangladesh Overseas Employment and Services Limited (BOESL)

BOESL is a state-owned recruitment agency that sends skilled and less- skilled workers for overseas employment. Its expressed aim is to offer the best services as a development partner based on mutual trust and to minimize migration cost in comparison to other recruitment channels. BOESL has kept country of destination and skills statistics from 1984 to 2016.

MEWOE, through its directorates like the WEWB and BOESL, has prepared a database of 2.5 million potential migrants for the plantation sector to cater to the needs arising under the current Government-to-Government agreement with Malaysia.

5.4. Department of Youth Development

The DYD is a key data holder in the domestic market. It has centres around the country holding data on over 50 million youths who have been trained by the DYD over many years. Currently these datasets are maintained manually on paper, but they are in the process of conversion to digitally ready databases. If turned into a database system, DYD records can be utilized for both domestic and overseas employment/recruitment and skills development training purposes. The available variables under DYD database include:

- Trainee name;
- Father's name;
- Age;
- Address;
- Contact no.;
- Education level;
- Training requirements; and
- Experience.

5.5. Wage Earners' Welfare Board

The WEWB uses a separate database for compensation purpose. The compensation database has been kept since 2004 and updated regularly. The data variables known to be available²⁷ through the WEWB database include:

- Name of the migrant worker;
- Names of the worker's father and mother;
- Age;
- Address
- Language skills;
- Marital status
- Spouse's name;
- Nominee;
- Experience;

²⁷ Not all variables were disclosed by the WEWB.

- Education level;
- Passport number;
- Destination country;
- Visa information;
- Registration ID;
- Employer in country of destination;
- Address of employer in country of destination;
- Information on recruitment agency in Bangladesh;
- Facilities in country of destination;
- Salary in country of destination;
- Fatality;
- Contact information of individual to receive the body of the deceased; and
- Compensation paid.

5.6. Bureau of Educational Information and Statistics (BANBEIS)

The BANBEIS has detailed data on education information. Data on underemployment or employment by education level can be generated from the database in BANBEIS, which includes education statistics under the Ministry of Education. It also has a well-developed MIS, which could be incorporated into the larger LMIS and MWMIS.

5.7. Ministry of Disaster Management and Relief

The Ministry of Disaster Management and Relief has an MIS. This ministry oversees the Employment Generation Program for the Poorest (EGPP) project, which includes 900,000 beneficiaries who are working in rural infrastructure. As per World Bank data, 31.1 per cent of the population (or 47 million people) are considered to be “poor” and 17.4 percent (or 26 million) “extremely poor”. The EGPP targets the latter segment of extremely poor, with 3.02 million beneficiaries in 2012/2013 (World Bank, 2015a). Thirty-six per cent of these beneficiaries were women, contributing to overall female labour force participation. Another programme undertaken by the EGPP is “food for work”, now turned into a “money for work” programme. Here, no women are included, as the workers are engaged in heavy construction tasks. The EGPP programme also has an MIS.

5.8. National Skills Development Council

The National Skill Development Council (NSDC) database collects household data including a remittance indicator and an individual’s current residency status. These two variables can be shared and integrated into the MWMIS.

5.9. Department of Social Service

The Department of Social Service under the Ministry of Social Welfare keeps an updated MIS that includes data on disability. They also hold data on the allowances provided to widows over the age of 18, who may well be active in the labour market. The department conducts a comprehensive survey every few years and that survey is updated quarterly. This is a robust database system.

5.10. CRVS Secretariat of the Cabinet Division

The creation of the Civil Registration and Vital Statistics (CRVS) database is a mammoth initiative under the Prime Minister’s Office that aims to handle component by component the data of different directorates like the BBS, Access to Information (A2i), the Planning Commission, municipalities, etc. It is important to share select vital micro data on migration in the CRVS platform. “Civil registration” refers to the universal, continuous, permanent, and compulsory recording and documenting of vital events in a persons’ life (including birth, death, cause of death, marriage, divorce, adoption, and migration). “Vital statistics” refer to the total process of: (a) collecting information by civil registration or enumeration on the frequency or occurrence of specified and defined vital events, as well as relevant characteristics of the events themselves and the person or persons concerned, and (b) compiling, processing, analysing, evaluating, presenting, and disseminating these data in statistical form (CRVS Secretariat, 2018). Additional integration can also be done with health sector data, but this is only possible under an initiative with a long-term national strategic roadmap on data sharing in place. So, these larger integration initiatives could be implemented further down the line, perhaps in five to ten years’ time as required.

Table 2. Bangladesh Government database systems potentially relevant to LMIS and MWMIS

Data holder	Available database systems
Access to Information (A2i), Prime Minister’s Office	Civil Registration and Vital Statistics (CRVS) database; National Job Portal
Bangladesh Bureau of Statistics (BBS)	National census database; Household Income and Expenditure Survey
Election Commission	National ID database
Department of Immigration & Passports, Ministry of Home Affairs	Passport database system
Bangladesh Road Transport Authority, Ministry of Road Transport and Bridges	Driving License and other personal info
Bureau of Educational Information and Statistics (BANBEIS), Ministry of Education	Education Information
Department of Youth Development (DYD), Ministry of Youth and Sports	Skill training with personal profile of youth
National Skill Development Council, Ministry of Education	Household data, including remittance
Supply Chain Management Portal, Ministry of Health and Family Welfare	Health workers, drug availability/supply, hospital asset tracking database.
Ministry of Disaster Management and Relief	Employment Generation Program for the Poorest (EGPP) project database
Ministry of Social Welfare	Data on disabled people, included widows above the age of 18 who received allowances

Source: Compiled by the authors

6. Assessment of comparability of database systems at the national level

As the BBS and BMET are the main data sources of labour market and migrant worker information respectively, it is essential to evaluate these two sources of information properly. Most stakeholders, employers, and recruitment agencies do not feel the database is sufficient for their needs. To address these gaps, this study on comparability has been conducted using two different approaches: field research and desk analysis. Field research comprised collection of data, interviews with relevant bodies, focus group discussions, etc. Analysis included the processing and compilation of data and reporting. The field study aimed to collect data by using pre-designed questionnaires and face-to-face interviews. The aim of the field survey of this study was to prepare a profile of: (i) aspirant potential women migrants; (ii) returnee women migrants; and (iii) members of the family of women migrants. Key points for a discussion on integration and comparability are identified in the sections below.

6.1. Data availability and harmonization issues

Though some of the variables are available in existing sources that can be easily accessed; – this includes variables around qualification (education background, requirements, and skill sets), sources of labour (as per age, gender), sources of recruitment (as per type, area) – some important variables are unavailable in current information systems. These include variables like wages, working conditions, the filling of vacant jobs (against drop outs – as per area, age, qualifications), seasonal migration, head hunting for lower management roles, and so on. According to respondents surveyed for this study, the LMIS needs more information on experience and skills, as well as details on the companies in countries of destination. It is difficult to harmonize the two databases of the BMET and the BBS, as data collection processes, maintenance, quality control, update intervals, and reporting all are done in different ways. Work will have to start by standardizing concepts, definitions, and methodological parameters, and then go on to establish data structure parity, matching of update interval times, capacity building of staff, and development of infrastructure for better network traffic handling, user accessibility, data backup, and security.

6.2. The data collection process

The BBS-conducted Labour Force Survey is one of the major sources of data on migrant workers and the labour market, and it is therefore essential to know about their process of data collection. To aid in identification of and access to households, letters of introduction highlighting survey objectives and identification badges were provided to the enumerators. They were advised to visit the households to introduce themselves prior to administering the LFS questionnaire. A supervising officer also sometimes went for courtesy calls to the households. It took the enumerators approximately 30–40 minutes to administer the questionnaire, depending on the size of the household. Most of the teams managed to collect the data within the stipulated timeframe. Data collection was carried out using a personal interview approach. Officers from the BBS and outsourced enumerators involved in the survey were given special training. Enumerators visited the selected households to collect information on demography, labour force participation, and non-economic activities using a set of questionnaires. Field checks were undertaken by experienced officers from the BBS and the Statistics and Informatics Division of the Planning Commission to detect and rectify any invalid information collection that may have occurred during interview sessions. In addition, follow-up/re-interviews of certain selected households are done to ensure the quality of data collected.²⁸

²⁸ Key informant interviews with Kabir Uddin Ahmed, Director, Industry and Labour Wing, BBS; and Lizen Shah Nayeem, Deputy Director, BBS, 2017.

The BMET, on the other hand, primarily collects data from administrative sources, such as: new permissions to work abroad, reports from recruitment agencies, new exit permits or emigration visas, and new compensation claim cases. Data on the last variable is supplied by the Wage Earners' Welfare Board (WEWB).

6.3. System overview of the BBS and BMET national databases

Both the LFS database of the BBS and the migrant worker database of the BMET are Oracle based and use Java for security. The databases are run using SQL. The BMET does not have mirror server, but the BBS does. While the BBS is backed up properly by a data centre backbone, the BMET has on premises a low configuration data server that struggles to handle data and network traffic, and gets bogged down frequently.

6.4. Data sharing

Currently, 35 government agencies are sharing the data of the Election Commission. This was possible under the active guidance of the Cabinet Division of the Government of Bangladesh. This is an important precedent in data sharing and procedures, demonstrating that data sharing among government agencies should be possible with regard to labour and migration, given that only around 12 ministries and three directorates are involved. But this study found that government officials are highly guarded with regard to sharing data held by their respective ministries and directorates.²⁹

6.5. Data integration

Different ministries, agencies/directorates, embassies of the government have owned or kept some data, and they all have their own data collection and storage processes and systems. However, ministries have not been working to more broadly integrate or share their data. In addition, private organizations involved in labour migration and skills development in Bangladesh do not communicate among themselves regarding data sharing or integration, only rarely sharing their information with stakeholders or researchers. Nevertheless, in order to integrate data kept at different ministries/agencies/directorates, there needs to be an authoritative taskforce for data pooling and sourcing.

The BMET can contract a private agency or organization to devise a comprehensive and combined database system that can work with all ministries under the Government's authority to connect all agencies, allowing them to integrate their data. The government taskforce then can oversee the designing, structuring, and execution of that work. An ideal scenario would be to link the National ID database, the passport office database, and the Bangladesh Road Transport Authority database with the LMIS and the MWMIS.

²⁹ Some officials denied access to the study team.

7. Data comparability matrix

This chapter presents a number of data sources in Bangladesh and overseas and provides context to assess their comparability (tables 3–5).

Table 3. Relevant database systems/datasets in Bangladesh – Government sources

Sl. No.	Who has data? – Source	What data? – Type	How data is collected? – Methodology	How data is kept? – Data structure	Who has access?	What the data is used for?	When is it updated? – Upgrade interval	Links to other database systems?
1	BMET	MWMIS – Migration: Skilled and less- skilled job sectors, industries	Outgoing migrants register with full details.	File, record, website, database	BMET; MEWOE	Enquiries into individual information records; Employment-related queries	Regular, monthly	None
2	WEWB	Partial info for MWMIS – Compensation for deceased and injured	During disbursement of compensation; cross verification with labour attaché in embassies abroad	Digitally maintained, but not as a database system	WEWB; MEWOE; BMET; Ministry of Foreign Affairs; Government organs on a needs basis	For disbursement of compensation.	When new data comes in.	None
2	BBS	LMIS – Labour force, all sectors (formal and informal)	Census data; quarterly surveys; 5-year surveys	Big database	Commercially accessible	Research projects; analysis;	Quarterly and annually	None
3	Dept of Youth, Ministry of Youth and Sports	LMIS – Youth training (formal and informal)	Registration form	Manual entry, lists of trainees	Youth Development Centres	Data shared with ILO, World Bank, Ministry of Labour and Employment; and Planning Commission.	none	None

Sl. No.	Who has data? – Source	What data? – Type	How data is collected? – Methodology	How data is kept? – Data structure	Who has access?	What the data is used for?	When is it updated? – Upgrade interval	Links to other database systems?
4	Technical Training Centres, BMET; AZi (under process)	Training/skill data – People who want to receive training (skilled and less-skilled); Informal sector (plumbing, welding, automobile, etc.)	Registration form (personal information, work experience, skills); communication	Excel, database, books, e-books, magazines, journals	BMET	To keep a record of sectors and trainees.	none	None
5	District Employment and Manpower Offices (DEMOS); BMET	Potential migrants' profiles (informal sectors)	Registration form	Manually kept dataset	DEMOS; BMET	To record individual profiles.	none	None
6	Industrial Wing, Ministry of Labour	Occupation statistics – Labour force (skilled and less-skilled)	Field inspections; secondary sources such as Bangladesh Institute of Development Studies, other orgs.	Manually kept dataset	Confidential	Research	Only on inspection. Manually kept.	None. Not even within the Ministry.

Table 4. Relevant database systems/datasets – Other countries with similar labour force experiences to Bangladesh

Sl. No.	Who has data? – Source	What data? – Type	How data is collected? – Methodology	How data is kept? – Data structure	Who has access?	What the data is used for?	When is it updated? – Upgrade interval	Links to other database systems?
1	Dept of Census and Statistics, Ministry of Finance and Planning, Sri Lanka	Census data; Migration-related data – Foreign exchange earnings, training, foreign employment, and insurance schemes	Primary data, household surveys	Database, disaggregated by country, district/division, and age	Free access	Production of information for government ministries and local authorities;	10-year interval	None
2	Dept of Manpower and Employment, Sri Lanka	Labour force data – Skilled, less-skilled, semiskilled, by age group and gender	Primary data	Database, disaggregated by district and country	Free access to all national citizens, after creating account	All employment-seeking personnel, including and with special focus on returnee migrants	Quarterly	None
3	SLBFE, Ministry of Foreign Employment, Sri Lanka	Foreign employment/migrant data – Professional, middle-level, clerical, and related jobs	Primary data surveys	Database, disaggregated by district and country	Only authenticated officers	Migration data that can be downloaded as Excel files for research and other planning needs	Daily input.	None
4	Department of Foreign Employment, Ministry of Labour and Employment, Nepal	Foreign Employment data – Age, religion, marital status, training	Primary data surveys, biometric systems	Web-based application system	Easily accessible to public	To fill the gaps identified in the previous system;	Annually	None
						Record returnee migrant worker data.		

Table 5. Relevant datasets in Bangladesh – Non-government sources

Sl. No.	Who has data? – Source	What data? – Type	How data is collected? – Methodology	How data is kept? – Data structure	Who has access?	What the data is used for?	When is it updated? – Upgrade interval	Links to other database systems?
1	Bangladesh	Migrants –	Individual information,	Dataset in a	BAIRA,	Profile of potential	Not	None

	Association of International Recruiting Agencies (BAIRA)	Skilled, semi-skilled, basic-skilled	form, entry	computer	some recruitment agencies	migrants, employment		
2	RMMRU	Migrants – Adaptation, remittance, climate change, female migration, construction, Rohingya issues, urban development	Household survey	Statistical Package for Social Sciences dataset in a computer	Donor organizations, Impact of International Migration on Poverty and Development (IMPD-2) – soon to be free for accessing	Research purposes, mediation, policy recommendations on Poverty and Internal Migration Development (IMPD-2) – survey done every 3 years	None	
3	BILS	Labour force – Formal and informal	Surveys, in-depth interviews, focus group discussions	Dataset in a computer	Donor organizations	Research purposes	Annually	None
4	Trade unions	Employment and type of business; Labour force – Garments sector, port, jute mill, industries	Secondary data sources	No individual database	N/A	To know wage differentials, injuries, overtime, instances of abuse, job security, leave.	N/A	None
5	Trade bodies – DCCI, MCCI, FBCCI, BASIS	Employment and type of business; Labour force – Entrepreneurship, industries, export, staff in offices	Primary data	For most organizations the dataset is maintained manually. Those maintained in computer are not updated regularly.	Annually	Reporting, research, policy implementation	Some free to access	None
				Only BASIS maintains proper updated database system.				

8. Software architecture

An information system management plan describes how relevant data are collected or created; how data are used and stored; and how data are made accessible for others after storage has been completed.

8.1. Key questions pertaining to data issues

A good information system management plan contains a solution to all the questions specified below. The right framing questions for data-related software structures are as follows.

- The data:
 - What kind of data is collected/generated?
 - In what way is data collected/generated?
- Rights:
 - Who owns the application, the intellectual property rights, and the management rights to the data?
 - Who has the right to grant access to the data?
 - What procedures are used to inform stakeholders?
- Confidentiality and data security:
 - How is confidentiality of data ensured?
 - What kind of rights do different user groups have to access and process data files?
 - How is data security ensured?
 - How are back-ups of data files handled?
- File formats and programs:
 - What procedures will be used to store and process data?
 - What file formats and storage media are used?
- Documentation on data processing and content:
 - How is the (technical) quality of data ensured?
 - How are data processing methods documented?
 - Where are metadata describing data collection methods and data content stored?
- Life cycle:
 - What will be the application lifecycle process?

8.2. Level of Awareness of key offices/data holders on data issues

The questions in table 6 were posed to the three Bangladesh Government agencies that hold the largest database systems and/or datasets in the country –the BBS, BMET, and DYD –to serve as a guideline. The answers can be summed up as in table 6 below.

Table 6. Awareness of key government agencies on data issues

Government agency responses				
Topic	Question	BBS	BMET	DYD
Data	What kind of data is collected/generated?	Labour force data under LMIS and basic personal data as part of census.	Outgoing labour migrants' data and some data on professionals who go with clearance from BMET.	Only training related data of youth is kept.
	In what way is data collected/generated?	Data is collected/ generated through labour force survey – LFS. BBS [does] survey[s] on migration and remittance occasionally.	It is the core technical issue. Migrants' data is now collected through an online registration process. Previous manually kept data is also digitized now since 2004. We can do data migration process within our subsystems. .	Data is collected from ledger of entry used for training programmes. There is no database system. This is maintained manually.
Rights	Who should own the proposed application, the intellectual property rights, and the management rights to the data?	The application should be owned by BBS and the PMO [Prime Minister's Office]. PMO has given the task of CRVS database planning to BBS. The intellectual property rights and management rights to data should be with BBS. As per the law of the land BBS will own all the government data rights and approve structure of any survey by any agency – public or private.	BMET should own its own data. The PMO can have access. Intellectual property rights and management rights to all migrants' related data should be given to BMET. Other agencies will not be competent to own and use this database system.	The application should be owned by the PMO. The intellectual property rights and management rights to data should be vested in BBS as they are the most competent authority in data collection and management.

Government agency responses

Topic	Question	BBS	BMET	DYD
	Who has the right to grant access to the data?	Both BBS and PMO should be the rightful authority to grant access to all and any kind of data.	Besides PMO, BMET should be the rightful authority to grant access to data on migrants.	BBS should be the rightful authority to grant access to data. They can take advice from [Ministry of Youth and Sports] on the matter.
	What procedures are used to inform stakeholders?	The procedure to inform stakeholders on access to data and use of same from the upcoming application (IOA) should be official and formal besides other medium[s] like email, text messaging or advertising.	In addition to the formal methods of communication like – official letters, e-mail, other methods may include: text messaging, advertising about the application in electronic and print media, seminars, workshops and training program to inform all the stakeholders and users.	It should be official and formal.
Confidentiality and data security	How is confidentiality of data ensured?	The application (IOA) should have layers of security as done by any international agency and other governments. It depends on the guidance the (IOA) programme development team receives from government.	Data encryption should be inbuilt in the programme. Government policies will also dictate on which data is confidential and which is not.	It should be done from the technical side of the application. DYD will have no role in ensuring this.
	What kind of rights do different user groups have to access and process data files?	No specific answer at this stage. The access area should be detailed in different government policies. Though still Bangladesh has no law on data sharing between agencies and between public and private domains. Although free flow of data is mentioned in the constitution, migration policy, etc. It will be tough to manage sharing all the labour related data	The limit to access should be identified by different government agencies holding data. It is not likely that all will share data. Of course if the PMO wants and directs then it is a different matter.	This is a legal issue so no comments. It should be sorted out before the application is implemented.

Government agency responses				
Topic	Question	BBS	BMET	DYD
		in a single database system.		
	How is data security ensured?	All data related transactions and data packet flows should be encrypted during the travel time.	End to end data encryption. The IT firms in the private sector have sufficient knowledge on this. Such firms have previously implemented several big projects – national ID, passport, driving license under Bangladesh road transport authority, etc.	No prior technical knowledge on it. Government datasets are very important. So they should be fully secured.
	How are back-ups of data files handled?	Data backups should be done automatically into onsite server and on cloud space. Data backup needs to be done real-time.	Data backups are done automatically as and when used and onsite. [On a] weekly basis data should be saved into a mirror server. Offline real-time backups may not be needed.	No particular knowledge.
File formats and programs	What procedures will be used to store and process data?	Our systems engineers and analysts can say.	It is a legal issue.	No idea.
	What file formats and storage media are used?	No specific knowledge on this. It should be done as per global standards.	Our current format is adequate although higher configuration of process and storage may help users.	I can't specify that.
Documentation on data processing and content	How is the (technical) quality of data ensured?	To ensure and check on quality of data, regular monitoring and periodic evaluation may be helpful. Users may also suggest what they need or if there is any problem. BBS can open a discussion board on the net to ensure data quality.	Even multiple users should be able to check on the quality of data and demand corrections.	No knowledge on this.

Government agency responses

Topic	Question	BBS	BMIET	DYD
	How are data processing methods documented?	That's the part of software development and documentation.	Design document of the IOA should answer/detail this.	Developers will know.
	Where are metadata describing data collection methods and data content stored?	I cannot tell.	Do not know.	No idea.
Life cycle	What will be the application lifecycle process?	I can't specify this field.	As it is always written in application process life cycle.	Do not know.

Source: Key informant interviews with government officials from BBS, BMIET, and DYD, 2017.

This discussion gives an idea of the key data-holding offices within the Government. Table 6 above shows that on key IT-enabled services issues all three offices have very limited understanding. Hence capacity building and harmonization of concepts on data usage, laws, and policies related to data need to be sorted out while an IOA or integration platform is being designed. Dedicated cells of officials capable of handling such issues in all key data-holding agencies of the government are a must. They cannot be posted to other ministries on a regular interval. With the launching of an app or after integration, local level service providers from within or outside the Government have to be engaged for data entry. Maintenance of servers and other onsite facilities that will ensure real time or periodic uploads and updates of data every day or on a regular interval is also very important and something to train for. So, a major concern will be how to smoothly populate the databases in a timely manner. Concerned ministries, agencies, and directorates need to start developing their capacity in all related aspects of database system maintenance and upgradation.

8.3. Assumptions for designing the data architecture of an IOA or for data integration

The following assumptions should be made with regard to developing the proposed IOA for the LMIS and MWMIS:

- Database integration is possible but it will be a complex process.
- For accomplishing the database integration process, different technologies used by different offices in the Government may become a barrier.
- The proposed MIS will be a multi-tiered application.
- Prioritizing cyber security, the LMIS and MWMIS's security will be ensured from both ends (application end and other external hardware end related to networking).
- Data access will be ensured according to the policy and users' rights to data access.
- Stakeholders' needs will be considered in the LMIS and MWMIS as per consultation
- Statistical and other key performance indicators will be a complex issue to accomplish.
- Big amounts of data need to be managed in this application.
- Real-time statistical and other reports can be generated from LMIS and MWMIS.
- Data will be well organized according to user needs through the use of different algorithms for different access policies.

9. Conclusions and recommendations

9.1. Brief discussion on the outcomes

As Bangladesh continues to strive towards the process of digitization it has taken up a number of initiatives in coordination and consultation with various donor agencies and UN agencies, including the World Bank, the UN Development Programme, the ILO, and others. Almost all ministries have their own database systems and applications, either in the form of their own office MIS or sector MIS, such as the LMIS, the LFS, the BMET database, and others. None of these applications, however, is scalable as a fully online holistic and agile system, and there are no other alternative applications to assist users like migrant workers, government policy-makers, and civil society organizations with compliance and regulatory processes related to employing migrant workers from initial selection all the way to ensuring workers' safe return. Almost all the existing applications related to workforce and labour market information management systems store incomplete data. The LMIS is also incomplete without a component on overseas migrant workers, and within the LMIS labour market data is actually organized by age, skill, and occupation only. Considering all these issues as well as the problems managing migrant worker information, the ILO has planned a scalable end-to-end solution that will use an integrated database system that will draw from existing data sources from a diverse array of sector-related ministries. The application will be designed by considering the demands of different stakeholders and the various types of access policies written.

9.2. Data related challenges

The following is a summary of data-related challenges with regard to implementing an integrated LMIS and MWMIS:

- Accessibility of the existing data sources;
- Implementation of government policies and laws;
- Data collection processes from end users;
- Accessibility for non-government stakeholders;
- Lack of information from different ministries and government organizations according to the needs of users, including potential migrants, returnee migrants, families of migrants, recruiters, employers, trade bodies, and private-sector think tanks;
- Managing very large amounts of data;
- Collection, processing, analysis, and dissemination of relevant and reliable data/information from sources;
- Migrant workers or labour force participants often lack exposure to online portals and employment resources and will need training on online job search, filling out forms, etc.; and
- Ensuring security keeps pace with new cyber threats.

9.3. Brief assessment of the database system design

- The MWIMS will contain a module on LMIS or the database could also be an integrated database system, which will be connected with other related existing databases.
- As an integrated database system there will be major complexity to manage massive amounts of heterogeneous data that are stored in different formats.
- The MWIMS will be an online management system backed by a secure and robust data processing infrastructure.

- The MWMIS will:
 - allow skilled and less-skilled workers to register into the system;
 - allow employers to apply for a migrant workforce;
 - manage relevant information on migrant workers and track movement; and
 - be integrated with biometric systems (from that of the national ID), which will hasten the processes of data collection and make things easier for end users.
- The database structure will be dynamic so it can retrieve different formatted data through a synchronized process.
- The MWMIS will utilize a dynamic database structure – an architecture for managing evolving, heterogeneous data in relational database management systems.

9.4. Recommendations

- Typically, any two database systems cannot be brought together in a single platform, as that is technically and procedurally a nightmare, especially in Bangladesh where IT literacy is generally poor. In developed countries in the EU and in the United States, even if most government database systems are kept disjointed, national security agencies still have the authority to check any data they want to. But these several database systems can be brought together through a bridging interoperable application (IOA) hosted in a portal, with cloud-based backup and usable on mobile platforms.
- The database system should be able to refer and add other disjointed but similar category datasets generated from other sources (think tank research, donor project data, etc.) in separate worksheets or windows as cluster data with proper disclaimers and references.
- The database systems' IOA should be hosted by the Prime Minister's Office to give it authenticity and the authority to instruct other related ministries. However, the BBs should help solve data standardization and comparability-related technical issues, organize and oversee training/orientation, and general assist in implementation.
- Any comparable system needs to be accessible to policy-makers as well as the data subjects like migrant workers and/or workers in the domestic labour market. These data subjects are the biggest and most important end users of data in the long run to support the goal of robust and sustained development.
- To maintain comparability, any measure needs to follow few basics: data collection methodologies need to be open and stated in detail and the timing of data updates/upgrades needs to be synced so that the database presents real-time data from all sources.
- Any integration effort should be preceded by the establishment of a data sharing protocol through an IOA that would help stakeholders to access data via a dashboard. Such a protocol would also help to create a culture of data sharing over the coming years. Also full data integration is very difficult, especially on a single platform, and therefore this can be attempted gradually. For now the launching of a modular IOA would suffice.

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Appendix I. Links to country LMIS and MWMIS systems and other non-governmental databases

Bangladesh:

<http://www.bbs.gov.bd/>
<http://www.bmet.gov.bd>
<http://www.dyd.gov.bd/>
<http://www.wewb.gov.bd/>
<http://www.boesl.org.bd/>
<http://www.banbeis.gov.bd/>
<http://www.modmr.gov.bd/>
<http://www.mohfw.gov.bd/>
<https://scmpbd.org>
<http://www.dss.gov.bd/>
<http://www.nsd.gov.bd/en/home>
<http://crvs.gov.bd/>
<http://mole.gov.bd/>

Other countries:

<http://www.dofe.gov.np/new/welcome>
<http://dol.gov.np/site/cms/14>
<http://www.lmis.gov.in/>
<http://www.tvec.gov.lk/lmi/>
<http://www.slbf.lk/>
<http://www.nhrep.gov.lk/>
http://www.nhrep.gov.lk/index.php?option=com_content&view=article&id=46&Itemid=27&lang=en
http://www.dome.gov.lk/web/index.php?option=com_content&view=category&id=10&Itemid=101&lang=en&limitstart=4/
<https://www.nomisweb.co.uk/>
<https://www.doleta.gov/programs/msfw.cfm>
<https://www.doleta.gov/business/>
<http://lmip.gov.au/>
<http://www.ble.dole.gov.ph/index.php/porgams-projects/labor-market-information-system-lmis?start=7>

International organizations:

<http://mfasia.org/migrant-rights-violation-reporting-system/>
<http://gmdac.iom.int/>
<http://databank.worldbank.org/data/home.aspx>
<https://data.worldbank.org/indicator/BX.TRF.PWKR.DT.GD.ZS>
<https://esa.un.org/unpd/wpp/>
<https://gmdac.iom.int/>
<https://www.knomad.org/data/migration/emigration>
<http://www.ilo.org/ilostat>

Appendix II. Key informant interviews and meetings with officials

Key Informant Interviews (in 2017)

- H.M. Asad-Uz-Zaman, Policy Expert (Team Leader of Skills and Employment), A2i, Prime Minister's Office. Bangladesh.
- Md. Nurul Islam, Director, Training Operations, BMET. Bangladesh.
- Shameem Ahmed Chowdhury Noman, Joint Secretary General - 2, BAIRA, Bangladesh.
- Estiaque Bari, Sr. Research Associate, Centre for Policy Dialogue. Bangladesh.
- Md. Enayet Hossain, Joint Chief, Planning, Ministry of Shipping, Bangladesh.
- Nazmul, Chief Engineer and Surveyor, Dept. of Shipping. Bangladesh Inland Water Transport Authority, Ministry of Shipping, Bangladesh.
- Kabir Uddin Ahmed, Director, Industry and Labour Wing, BBS, Ministry of Planning. Bangladesh.
- Sayema Haque Bidisha, Associate Professor, Dept. of Economics, University of Dhaka. Bangladesh.
- Dr. Abdur Razzaque, Senior Economist, Former Lead, Trade Policy, Commonwealth Secretariat, United Kingdom.
- Dr. Md. Kamrul Islam, Associate Professor, Dept. of Population Science, University of Dhaka, Bangladesh.
- China Banarjee, Assistant Director, DYD, Ministry of Youth and Sports.
- Masud Rana, Deputy Director, BMET, MEWOE.
- Lizen Shah Nayeem, Deputy Director, BBS, Ministry of Planning.
- E. L. K. Dissanayake, Director, Manpower Planning, Development & Research, Department of Manpower and Employment, Ministry of Labour, Trade Union Relations and Sabaragamuwa Development, Sri Lanka.
- Shyamalie Karunaratne, Director (Statistics), Sample Survey Division, Department of Census and Statistics, Ministry of Finance and Planning, Sri Lanka. (Sat in for Director General of Department of Census and Statistics)

Meetings with Officials (in 2017):

- P.P. Weerasekara, Deputy General Manager, Planning and Monitoring, Sri Lanka Bureau of Foreign Employment, Ministry of Foreign Employment, Sri Lanka.
- Dr. Jameel Ibra Lebbe Hadji, Manager, Research, Sri Lanka Bureau of Foreign Employment, Ministry of Foreign Employment, Sri Lanka.
- Isharika K Wickramasinghe, Administrative Officer, Research Division, Sri Lanka Bureau of Foreign Employment, Ministry of Foreign Employment, Sri Lanka.
- Bhumi Shwor Pokhrel, Under Secretary, Ministry of Labour and Employment, Government of Nepal.
- Raju Shrestha, Computer Engineer, Department of Foreign Employment, Ministry of Labour and Employment.
- Dr. Kamal Uddin Ahmed (PhD), Member (Secretary), Socio-Economic Infrastructure Division, Bangladesh Planning Commission, Ministry of Planning, Bangladesh.

Other high ranking Government of Bangladesh officials approached and talked to (in 2017):

- Dr. Md. Anwar Ullah, FCMA, Joint Secretary, Additional Inspector General, Department of Inspection for Factories and Establishments, Ministry of Labour and Employment.
- Aminul Islam, Deputy Secretary, Ministry of Labour and Employment.

Managing Migrant Worker Information in Bangladesh: Compatibility of Data Integration

This particular report *Compatibility report on data integration* of the Migrant Workers Information System and the Labour Market Information System in Bangladesh compares and assesses the existing database systems in the overseas migration sector in Bangladesh against similar database systems in other countries. The report also looks at existing Bangladeshi database systems for other sectors, such as the internal labour market. It is expected that the experience from other countries will support Bangladesh to subsequently develop a comprehensive and efficient information system.

Based on the findings and analyses, the project will propose design recommendations for an integrated database information system on migrant workers' information (MWMIS) and a labour market information system (LMIS), identifying sources of data and software requirements.