GREEN JOBS MAPPING in MONGOLIA

Ulaanbaatar 2014
Project: Partnership for Action on Green Economy (PAGE) – an initiative by the United Nations Environment Programme (UNEP), the International Labour Organization (ILO), the United Nations Industrial Development Organization (UNIDO) and the United Nations Institute for Training and Research (UNITAR)

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ABBREVIATIONS AND ACRONYMS

CMTU  Confederation of Mongolian Trade Unions
EPCRC  Economic Policy and Competitiveness Research Center
ERC  Energy Regulatory Committee
GDP  Gross Domestic Product
GGGI  Global Green Growth Institute
GoM  Government of Mongolia
GWE  Green World Environment NGO
IGES  Institute for Global Environmental Strategies
ILO  International Labour Organisation
ILO ROAP  International Labour/Organisation Regional Office for Asia and the Pacific
LLC  Limited Liability Company
MBKA  Mongolian Bee-keepers Association
MEGD  Ministry of Environment and Green Development
MIFA  Ministry of Industry, Food and Agriculture
Ministry of Environment and Green Development
MNCCI  Mongolian National Chamber of Commerce and Industry
MNT  Mongolian Tugrik
MONEF  Mongolian Employers’ Federation
MoU  Memorandum of Understanding
NAESRM  National Association of Employees of Secondary Raw Materials
NGO  Non-governmental Organisation
NSO  National Statistical Office
PAGE  Partnership for Action on Green Economy
SEEA  System of Environmental - Economic Accounting
UB  Ulaanbaatar city
UNEP  United Nations Environment Program
UNIDO  United Nations Industrial Development Organization
UNITAR  United Nations Institute for Training and Research
USD  United States dollar
USUG  Water Supply and Sewerage Authority of Ulaanbaatar city
WHO  World Health Organization
WSRC  Water Sewerage Regulatory Council
WWF  World Wide Fund
yoy  Year on Year

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The report at hand gives an overview on green jobs in Mongolia. The mapping reveals that currently in the selected sectors of the Mongolian economy there are 569,921 places of employment. Of these, only 11.5% can be considered Green jobs. This represents some 6.2% of the total employment in Mongolia.

Executive Summary

The Mongolian economy grew by 31.5% from 2008 to 2012. At the same time, inefficient use of energy, outdated technology with low productivity and insufficient infrastructure all led to environmental degradation. Mongolia has almost no value-add activities in the country, meaning that economic growth was mainly driven by extraction of raw materials mainly minerals.

According to the latest statistics, the sector with highest CO2 gas emission is the energy sector, followed by animal husbandry and by forestry and land use activities. The sectors of agriculture, energy, transport, water/wastewater management, solid waste management and construction have been selected for estimating green jobs. Together they comprise about 25.7% of GDP and 53.4% of total employment. Animal husbandry, which alone occupies about 30% of employment with a growth rate of 7.9% and 14.8% of GDP with a growth of 21.3% in 2012, is the most vulnerable sector to the climate change.

Employment is growing at a steady rate, and is relatively gender balanced. The sectors that are covered by the mapping are facing the highest growth of employment in 2012.

According to the NSO Employment Survey of 2012, about 174.5 thousand people work in the informal sector, which is an increase of 26.5%. However, the share of persons working in electricity and gas, and water and waste management in the informal sector has declined by 45.3%. The decrease in the share of people working in the above mentioned sectors in the informal sector in 2012 can be explained by an increase of similar jobs in the formal sector.

The Green jobs mapping study was carried out at the end of 2013 as part of the inception phase of the Partnership for Action on Green Economy (PAGE) in Mongolia—an initiative implemented by four of the United Nations specialised agencies and programmes. This report was written by the Economic Policy and Competitiveness Research Center (EPCRC) in line with contributions from the International Labour Organisation. Moreover, the EPCRC has also conducted an independent “Stocktaking report of the Green Economy in Mongolia”, also within the inception phase of the PAGE project which is closely related to this Green jobs mapping study.

For quick information, the following table gives an overview on the green jobs mapping.

<table>
<thead>
<tr>
<th>#</th>
<th>Sectors</th>
<th>Employment</th>
<th>D Jobs</th>
<th>EF Jobs</th>
<th>Green jobs</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Animal husbandry</td>
<td>342,882</td>
<td>42,512</td>
<td>252,915</td>
<td>42,512</td>
<td>12.4</td>
</tr>
<tr>
<td>2</td>
<td>Crop production</td>
<td>58,477</td>
<td>20,932</td>
<td>4,591</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>Forestry</td>
<td>3,923</td>
<td>3,923</td>
<td>3,923</td>
<td>3,923</td>
<td>100</td>
</tr>
<tr>
<td>4</td>
<td>Energy</td>
<td>14,500</td>
<td>14,500</td>
<td>1,231</td>
<td>1,231</td>
<td>8.5</td>
</tr>
<tr>
<td>5</td>
<td>Water, sewage, water</td>
<td>6,538</td>
<td>6,538</td>
<td>5,159</td>
<td>5,159</td>
<td>78.9</td>
</tr>
<tr>
<td>6</td>
<td>Solid waste management</td>
<td>1,401</td>
<td>300</td>
<td>1,401</td>
<td>300</td>
<td>21.4</td>
</tr>
<tr>
<td>7</td>
<td>Transport</td>
<td>72,900</td>
<td>72,900</td>
<td>12,506</td>
<td>12,506</td>
<td>17.1</td>
</tr>
<tr>
<td>8</td>
<td>Construction</td>
<td>69,300</td>
<td>69,300</td>
<td>3,610</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>---</td>
<td></td>
<td>569,921</td>
<td>230,905</td>
<td>285,336</td>
<td>65,631</td>
<td>11.5</td>
</tr>
</tbody>
</table>

D Jobs = Decent Jobs, EF Jobs = Environmentally Friendly Jobs

D The data is compiled from sectoral surveys published by the National Statistical Office. Other data from the same agency, the Mongolian Statistical Yearbook 2012, indicates 506.5 thousand places of employment for the same year.
1. Introduction

Mongolia has expressed strong interest and commitment in the transition to a green economy and has pledged to be the first country for the PAGE – an initiative by the United Nations Environment Program (UNEP), the International Labour Organization (ILO), the United Nations Industrial Development Organization (UNIDO) and the United Nations Institute for Training and Research (UNITAR).

The PAGE initiative is a response to the Rio+20 Declaration. In 2012, the Rio+20 Declaration –The Future We Want – recognised a green economy as a vehicle for achieving sustainable development and poverty eradication. It called on the United Nations to support interested countries in their transition to greener and more inclusive economies. The overall vision of PAGE is to contribute to the equitable and sustainable transformation of national economic structures in 30 countries by 2020, with the ultimate intention to achieve environmental sustainability, decent job creation, reduced poverty and improved human well-being.

1.1 THE PURPOSE OF THE REPORT

As part of the PAGE inception phase and a broader stocktaking exercise, ILO has committed to undertaking a green jobs mapping study, a mapping study on the employment aspects of greening the economy of Mongolia. This mapping study will contribute to a broader stocktaking exercise meant to provide a blueprint for coordinated action, as well as outline future activities where PAGE can have the highest impact.

The objective of the mapping study is to examine the potential for green employment by identifying sectors and activities, that could enhance green employment in the transition to a green economy. The study has assessed environment economy-employment linkages at a national level and the mapping of ‘Green jobs’ on the labour market in Mongolia using ILO guidelines. The study also includes suggestions related to sectors that have scope for Green Jobs and consider which policy options could be introduced to stimulate Green Jobs. This may be used as guidance for policy recommendations in terms of effective state intervention, private sector involvement and support by development partners.

1.2 DEFINING “GREEN JOBS”

As mentioned in the ILO’s “Assessing green jobs potential in developing countries practitioner’s guide” the concept of “Green jobs” can be broadly defined as the direct employment created in different sectors of the economy and through related activities, which reduces the environmental impact of those sectors and activities, and ultimately brings it down to sustainable levels. This includes “decent” jobs that help to reduce consumption of energy and raw materials, de-carbonize the economy, protect and restore ecosystems and biodiversity, minimise the production of waste and pollution or help adapt to climate change. In other words, this equated to estimating, insofar as the currently available data permits, the number of those jobs that provide decent work conditions and through their environmental performance and social/economic attributes, can be considered “green jobs” under the ILO definition. The definition of the technical boundaries for green jobs is country-specific.

The statistical definition of employment in the environmental sector, as adopted by the 19th International Conference of Labour Statisticians in October 2013 further considers employment in the environmental sector. “The environmental sector consists of all economic units that carry out environmental activities. These activities are defined in the Central Framework of SEEA9 as those economic activities whose primary purpose is to reduce or eliminate pressures on the environment or to make more efficient use of natural resources. These activities are grouped into two broad types of environmental activity:

(a) environmental protection activities and
(b) resource management activities.

a. Environmental protection activities are those activities whose primary purpose is the prevention, reduction and elimination of pollution and other forms of degradation of the environment.

b. Resource management activities are those activities whose primary purpose is the preservation and maintenance of the stock of natural resources and hence safeguarding against depletion.”

The report on “Green Jobs Mapping Studies in Asia (2010-2012)” published by ILO ROAP in 2013, was very useful as it had already proposed the concept and methodology. This methodological approach was first piloted in Bangladesh and carried out in five other countries in Asia and the Pacific. It assessed the direct green jobs that contribute to low carbon development, environmental sustainability and adaption to climate change. In a step-wise approach the core-environment related jobs are assessed, and among those jobs the ones that are decent work under ILO definition were considered green jobs.

Based on this, the main environmental and decent work screening criteria were discussed and established in consultation with Mongolian authorities, such as the Ministry of Environment and Green Development (MEGD), relevant offices of sector ministries, the Mongolian Chamber of Commerce and Industry (MNCCI), the Mongolian National Employers Federation (MONEF), the Confederation of Mongolian Trade Unions (CMTU), academia and scientists that conduct research in this sector.

The following graph shows the overlapping of environment related jobs and decent jobs in order to illustrate where exactly the core of “green jobs” is located.

2. An overview of the approach

In order to estimate existing or direct green jobs in Mongolia the following tasks were implemented:

<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Review of the overall structure of Mongolian economy and employment</td>
<td>Overview of the overall economic structure</td>
</tr>
<tr>
<td>2.</td>
<td>Developing screening criteria that support ‘core’ environment-related works and decent work</td>
<td>Screening criteria by proposed sectors</td>
</tr>
<tr>
<td>3.</td>
<td>Estimating ‘core’ environmental employment using the screening criteria</td>
<td>Estimates of jobs in ‘core’ sectors</td>
</tr>
<tr>
<td>4.</td>
<td>Screening core jobs using the Decent job criteria</td>
<td>Decent work criteria and estimates of ‘green job’</td>
</tr>
<tr>
<td>5.</td>
<td>Summary – mapping of green jobs in Mongolia</td>
<td></td>
</tr>
</tbody>
</table>

2.1 PREPARING SECTOR PROFILES

A desktop review of the Mongolian economy was conducted in order to develop an overall structure/profile, including analysis of 2008-2012 data from the National Statistical Office (NSO).

During a workshop where relevant government staff, researchers and representatives of NGOs attended, we identified the priority activities in each of the proposed economic sectors that have an impact on climate change, adaptation and mitigation, waste and resource reduction, with consideration for the size and distribution of environment related jobs in each sector.

2.2 DEVELOPING ENVIRONMENT SCREENING CRITERIA

The review of policy documents for developing screening criteria that support ‘core’ environment-related work and decent work has been done based on the available data.

Screening criteria of environment related jobs in selected economic sectors have been applied as follows:

- The first screening criterion is compliance with international and/or national environmental law. Activities and enterprises whose performance is not consistent with national law on pollution control, technologies etc cannot be considered to be providing ‘core environmental’ jobs and need to be excluded;
- The second criterion is compliance with voluntary environmental standards and associated management systems linked to the production of green goods and services;
- The third criterion is existence of government and/or public/private strategic plans and targets for environmental management. These can signal national aspirations and desired directions of travel (e.g. plans for promotion of solar PV and conversion of public transport fleets to alternative fuels);
- The fourth criterion is benchmarks performance or minimum performance thresholds for industries or sectors established by the government and/or private sector. In this case, under circumstances where national or voluntary standards
and codes are absent, the analyst is making a proposal for what constitutes ‘good’ environmental performance. This contrasts with the steps above where a standards-based approach is being followed:

- The fifth criterion is an activity-based approach, whereby activities are considered as providing core environmental jobs because of their low resource use and/or positive environmental impacts (e.g. bee-keeping/honey production, climate change adaptation programs).

### 2.3 DECENT WORK CRITERIA

The concept of decent work is also an important criterion for green jobs. The Decent Work concept was formulated by the ILO’s constituents – governments, employers and workers. It is based on the understanding that work is a source of personal dignity, family stability, and peace in the community, that democracies deliver for people, and that economic growth expands opportunities for productive jobs and enterprise development.

The ILO has worked to develop “decent work”-oriented approaches to economic and social policy by promoting the Decent Work Agenda. The agenda has four pillars:

- **Creating Jobs** – an economy that generates opportunities for investment, entrepreneurship, skills development, job creation and sustainable livelihoods.

- **Guaranteeing rights at work** – to obtain the recognition and respect for the rights of workers. All workers, and in particular disadvantaged or impoverished workers, need representation, participation, and laws that work for their interests.

- **Extending social protection** – to promote both inclusion and productivity by ensuring that women and men enjoy working conditions that are safe, allow adequate free time and rest, take into account family and social values, provide for adequate compensation in the case of lost or reduced income and permit access to adequate healthcare.

- **Promoting social dialogue** – involving strong and independent workers’ and employers’ organisations is central to increasing productivity, avoiding disputes at work, and building cohesive societies.

According to this definition and based on the discussion with representatives of CMTU, MONEF and government, the decent work criteria for Mongolia consists of, and is in compliance with:

- Freedom of association and right to collective bargaining,
- Occupational safety and health,
- No forced or compulsory labour,
- Absence or abolition of child labour,
- Elimination of discrimination with respect to employment and occupation.

The following table will give a summed up overview of these criteria:

<table>
<thead>
<tr>
<th>Table 2.1 Screening criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Environmental criteria</strong></td>
</tr>
<tr>
<td>Complies with relevant national laws on environment</td>
</tr>
<tr>
<td>Complies with the national programs on green economy</td>
</tr>
<tr>
<td>Complies with industry and sector benchmarks and best practices</td>
</tr>
<tr>
<td>Activities based initiatives promoting positive environmental impacts, etc</td>
</tr>
</tbody>
</table>

Source: adapted after IGES 2013 “Green jobs mapping study in Malaysia: An overview based on initial desk research”

CMTU has branches in all major economic sectors and geographical locations. Members of CMTU are the:

1. Trade union of automobile workers
2. Trade union of workers of production sector
3. Trade union of construction workers
4. Trade union of teachers and researchers
5. Trade union of workers of agriculture and environment
6. Trade union of workers of private sector, small and medium enterprises, trade and tourism sectors
7. Trade union of railway workers
8. Trade union of transport and communication
9. Trade union of doctors and nurses
10. Trade union of geologists and workers of energy sector
11. Trade union of workers and professionals
12. Confederation of trade unions
13. Trade union of municipality planners.

Therefore, the criterion on freedom of association and collective bargaining can be considered as fulfilled for above mentioned sectors. However, these members of trade unions still need a lot of capacity building in order to increase their bargaining power.
In terms of quantification of green jobs, the approach adopted in this report is based on the following two dimensions of green jobs:

- The output approach, which identifies establishments that produce certified green goods and services and counts the associated jobs. Various approaches may be considered in relation to the scoping of the associated labour force, and
- The process approach, which identifies jobs associated with environmentally friendly production processes and practices, irrespective of whether the sectors concerned are considered to be environmentally friendly or not.

### Table: Indicators

<table>
<thead>
<tr>
<th>Sectors</th>
<th>Process</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Agriculture</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1 Animal husbandry</td>
<td>Any activities that lead to proper pasture management;</td>
<td>• Reduction of the number of livestock and</td>
</tr>
<tr>
<td></td>
<td>Actions to improve the health of livestock and land</td>
<td>• Increase of the yield per animal</td>
</tr>
<tr>
<td></td>
<td>Any activities related to restoring the ecological balance</td>
<td>• Engagement in intensified farming</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1.2 Crop production</strong></td>
<td>Any activities related to improving the soil nutritional value and reducing desertification</td>
<td>• Growing plants, trees, and grass</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Running green house</td>
</tr>
<tr>
<td><strong>2. Energy</strong></td>
<td>Any activities related to reducing the CO2 emissions by energy sector</td>
<td>• Renewable energy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• New technologies on the use of coal and gas in energy sector</td>
</tr>
<tr>
<td><strong>3. Water and waste water management</strong></td>
<td>Any activities related to maintaining water resources of the country</td>
<td>• Re-use of water</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Water treatment</td>
</tr>
<tr>
<td><strong>4. Waste management</strong></td>
<td>Any activities related to reducing the amount of solid waste and soil contamination</td>
<td>• Waste processing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Waste classification</td>
</tr>
<tr>
<td><strong>5. Transport</strong></td>
<td>Any activities related to reducing CO2 emissions by the transport sector</td>
<td>Any products that meet the objectives of the Government Policy on “The Mid-term Development Program” to introduce ecologically clean public transport</td>
</tr>
<tr>
<td><strong>6. Construction</strong></td>
<td>Any activities that help to reduce land degradation</td>
<td>Building auto roads</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Building water channels and pipes, building bridges</td>
</tr>
</tbody>
</table>

Due to limitations in time and resources, extensive in-depth interviews with the identified environment related sectors have not been used. Instead, the consultants used the desktop review approach.

**2.5 CHALLENGES AND ASSUMPTIONS**

Currently there is no sufficient labour market information on existing green jobs in Mongolia although some policies have already been implemented by public and private organisations promoting green jobs. Available data is not sufficient and does not necessarily correspond to the sector/subsector of interest. The main challenges in data handling were the following:

- **Lack of data on actual job estimates**: In many cases there is no information on job estimates in the sector/sub-sector of interest. There are also no available estimates or official data for activities within certain sectors/subsectors that have the potential to generate green jobs.
- **Data disaggregation**: Job data is often aggregated at a high level. For example, job estimates for the transportation sector are combined with jobs in warehousing.
- **Lack of information on what has been implemented on the ground**: There is considerable information on government policy initiatives and strategies-including financing-towards climate change programs. However, there is very little information available on the actual projects implemented, and much less on the corresponding green jobs generated.

**How to deal with job estimates for “short-term green projects”:** For example, there are cases of isolated or short-term environmental projects such as tree planting on a certain part of land, which might generate temporary jobs. However, there are no data available on these jobs.

**Congruence of data**: Data from the National Statistical Office often differs from data published or obtained from the sectors. Therefore, the NSO data have been taken for all the survey.
3. The economy and employment in Mongolia

The current situation and the recent developments of the Mongolian economy can be best shown with an overview of GDP growth while employment reflects the demographic situation of the country. The labour market is strongly influenced by both.

3.1 INTRODUCTION

The average annual growth of the Mongolian economy between 2008 and 2012 was 8.7%. As of September 2013, real GDP grew by 11.5% year on year (yoy), a decrease by 0.8% compared to the growth in 2012.

Source: Statistical Yearbook, 2012, NSO

Following this period of economic growth, GDP per capita reached USD $3,600 in 2012, an increase of 1.1 times compared to 2009; and the poverty headcounts level dropped to 27.4%, a decrease of 11.3% percentage points compared to 2009. Poverty decreased by 5% during the last 3 years to reach 5.3% per annum.

As Table 3.1 shows, the most important sectors in Mongolia are agriculture, mining, energy, construction, transport and services. As of 2012, the main economic sectors, measured by to GDP are mining and quarrying (21.4%), agriculture (14.8%), processing industries (8.0%), transport (6.6%), finance and insurance (3.6%), and communications (3.1%), (refer Table 1 in the Annex).

However, if one looks at the growth rate of the above sectors, the most rapidly growing sectors are construction with a growth rate of 25.6%, finance and insurance with a growth rate of 25.7%, followed by agriculture (21.3%), transport (12.8%) and mining (8.9%) sectors.

Economic growth also had a positive influence on employment. By October 2013, the unemployment rate had dropped to 7.3%, a decrease of 1.7% compared to the previous year. Thus despite fluctuations in the exchange rate recognised to have a negative impact on employment. During the first 10 months of 2013, the Mongolian currency MNT weakened against the USD by more than 30%.

Compamed to 2011, foreign trade turnover in 2012 increased by 2.6% or USD 292.9 million to reach USD 11,123.0 million. This comprised exports of USD 4,384.7 million, and imports of USD 6,738.3 million. Over the same period, exports decreased by 9.0% and imports increased by 2.1%.

Mongolia’s exports are predominately minerals. About 83.2% of total exports are raw products without any processing. 15.1% are processed with low technology, 0.8% with middle technology and only 0.02% are products with high technology.4

3.2 AN OVERVIEW OF THE STATUS OF EMPLOYMENT MAINTAINED IN THE ECONOMY

In 2012, Mongolia had a population of 2,867.7 thousand people with an average annual growth rate of 1.9%. Of this, 48.6% are male, 51.4% are female; 45.9% live in the capital city Ulaanbaatar. 21.3% live in other urban settlements, and 32.8% live in rural areas. There are about 3.7 persons per household, and the density of population per square km is 2. The average life expectancy at birth has reached the age of 68.7 years, which is an increase of almost 2.9 years compared to 2006.

The literacy rate in Mongolia is high. Around 97.8% of people of age 10+ are literate, and 80.7% of children of schooling age study in schools. The education index, which is calculated based on the above two figures, equals 0.915.

In terms of education level, 19.8% of people aged 10+ have higher level education, 6.2% have special professional education, 3% have technical professional education, 34.6% have secondary level education, 19.3% have basic education, and only 17% have primary education. Higher education rates for women have increased.

4 NSO 2013: Statistical Yearbook 2012
5 D. Ganbat, lecturer at Otgontenger Institute, 2013: A Survey on socio-economic impact of establishing a free trade agreement with Japan, page 25
The working age population in 2012 comprised 63.2% of the total population, representing a decrease of 5% compared to 2009. Researchers have forecasted that by 2030 these proportions will change to 23.8%, 68.3% and 7.9% respectively. That means the proportion of the population aged over 65 will double. Yet, Mongolia is far from becoming a country of an over-aged population.

**Figure 3.3 Growth of population by age groups, 2010-2030, in thous. people**

Source: “Population location, settlements and labour market survey” National Development Institute, page 18, 2012; Population and Housing Census 2010, NSO

The working age of 2012 comprised 63.2% of the total population, representing a decrease of 5% compared to 2009. Researchers have forecasted that the share of people of working age until 2030 will not drop below today’s level, and the population window will occur during 2025-2030 when the share of people of working age reaches the highest level7 (See Figure 3.3).

Between 2009 and 2012, labour participation level (66.8%to63.5%) decreased for women, but increased for men. On the other hand, employment grew substantially (86.4% to 91.8%), with the same rate and the proportion of number of people employed is now relatively gender balanced (91.6 to 91.9%). The proportion of women employed with stable wages is slightly less than men (47.4% to 47.8%) in sectors other than agriculture (refer. table 2 in the annex).

About 35% of all employees, including official employed, self employed and herders, are employed in the agriculture sector, 25.7% in the service sector, 17.7% in the public administration sector, 13.8% in the manufacturing sector, 4.4% in the mining sector. The remaining 3.4% are employed in other sectors (see table 3 in the annex).

In 2012, some 47.5% of all employed people were salaried employees, 30.2% herders, 16.9% self-employed, 4.3% were people who participate in the household family business without salary. 0.9% are employers, and 0.2% do not belong to any of these categories8.

The Government of Mongolia (GoM) announced the year of 2011 as the “Employment promotion year” and implemented several policies to support employment generation. As a result, between 2011 and 2013 an average of 62.1 thousand new jobs per year had been created, leading to a decrease in unemployment.

As of October 2013, 0.6% of all registered unemployed possess masters and doctors degrees, 29.3% have bachelor and diploma degrees, 6.9% have special professional education, 6.5% are graduates of vocational technical schools, 41.8% have finished secondary school education, 10.9% have finished basic secondary education, 3.1% have primary education, and 0.9% have no formal education.

The number of unemployed with higher education comprises 1/3 of total registered unemployed, which shows that there is a mismatch between supply and demand in labour market. The sectors that face the highest growth of employment are water supply, sewerage, waste management and remediation activities (30.5%), communications (27.5%); energy supply and gas (21.5%) and construction (13.9%). Also, the sectors such as agriculture, service, construction, transport and storage and mining, that created the biggest amount of work, do not necessarily require workers with higher educational levels but rather require more workers with skills that usually are obtained through vocational trainings.

### 3.3 The Informal Sector

Employment in the informal sector is a significant income source for the Mongolian population. The GoM defines informal employment as: “any production or service activities other than agriculture and not forbidden by any legal acts by individuals, households or group of people without formal structure and not covered by formal registration and social security”9.

The definition of GoM follows the ILO decision to exclude agriculture from informal economy as it is difficult to define formal and informal activities within agriculture in developing countries.10 Therefore the production and service activities other than agriculture include all the activities and services other than crop production, forestry, and animal husbandry, primary processing of agricultural products, storage, transportation, production, use and repair of agricultural machinery.

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8 Definition according to the joint resolution on “Methodology of calculations of statistical indicators of employment and labour force” by the Chairman of NSO and Minister of Social Welfare and Labour, 1 July 2009
According to the NSO Employment Survey of 2012, about 174.5 thousand people work in the informal sector, of which 56.3% are male and 43.7% are female. The self-employed in the informal sector are divided into primary and secondary employment, and about 94.5% have primary employment in the informal sector.

Compared to the previous year, the number of people working in the informal sector has increased by 26.5%. The number of males with a secondary job in the informal sector has almost doubled (see table 4 in the annex).

Following the population distribution, in urban areas including UB some 71.7% of all people work in the informal sector, while in rural areas only 28.3%. By region, 43.9% are located in UB, 20.4% in Khangai region, 16.8% in the Western region, 14.9% in the Central region and 4.0% in the Eastern region.

By economic activity, the majority of people working in the informal sector are engaged in wholesale and retail trade (44.4%), followed by the transport and storage sector (17.2%), manufacturing (15.7%), construction (5.8%), and mining (3.5%). Other sectors including communication, education, health, electricity, water and wastewater management, finance and insurance, hotel and food outlets, culture and entertainment share 13.4%. Compared to 2011, the growth rate of male employees is slower than the growth rate of female employees; in other words, more women are entering the informal sector (see table 5 in the annex) as the main employment in informal sector are retail and street vending, where women have easier entrance.

The biggest change by industry has been the increase in sales persons, while the number of workers in the small scale manufacturing categories, such as operators of machineries and equipment, workers specialised in production, handicrafts and other related work, and support workers has declined. The share of people working in electricity and gas, water and waste management has also declined. The decrease in the share of people working informally in these sectors in 2012 can be explained by the increase of similar jobs in informal sectors (see table 6 in the annex).

Due to low salaries in Mongolia, a significant number of Mongolians work abroad. The number of people working abroad has reached about 11% of the total labour force.

There are about 120,000 Mongolians working abroad, the majority of which are in South Korea (40,000 persons), USA (28,000), England (9,000), Czech Republic (5,800), and Japan (5,600)\(^1\). People working abroad contribute to the development of the country by bringing knowledge and understanding to their jobs. They also contribute to Mongolian GDP through remittances. There are also cases when they bring know-how and new technologies into the country. The Mongolian Government has launched a new program called “Bee-hive” with the aim of supporting Mongolians living abroad in returning home, although to date the program has been limited in achieving its objectives.

Besides the migration of Mongolians to other countries for employment, there is also rural to urban migration and in-between sectors.

Since 2008 the Mongolian economy has been on a steady growth path with an annual average growth of 8.9%. GDP per capita has reached USD 3,600, indicating that Mongolia has moved into the group of countries of lower-middle income\(^1\). The positive economic growth has led to a drop of the poverty level (27.4%) and a lower rate of unemployment (7.3%).

According to 2012 statistics, the mining, agriculture, processing and transport sectors have contributed significantly to GDP; however the most rapidly growing industries are construction, financial intermediaries and agriculture.

Mongolia’s exports are predominantly raw materials; the country lacks value adding activities. Increasing the numbers of business entities in processing raw materials would lead to more employment opportunities and poverty reduction.

The Mongolian population is growing at a relatively high annual rate of about 2%. The population is ageing however the share of people of working age will not drop below today’s level, and this indicator will reach its highest level in 2025-2030. Literacy in Mongolia is high. The education index of Mongolia is 0.91, which is a positive factor for learning new skills which are in the labour market demand.

Employment is growing at a steady rate (88.4% to 91.8%), and it is relatively gender balanced (91.6%/91.9%). There are 1,056.4 thousand employees in Mongolia, of which 506.5 thousand are occupied in the sectors that are covered by the green jobs mapping survey.

The sectors that are covered by the survey are facing the highest growth in unemployment in 2012. For instance, the number of employees in water supply, sewerage, and waste management and remediation activities has increased by 30.5%, energy supply and gas by 21.5%, construction by 13.9% and agriculture by 7.9%.

According to the NSO Employment Survey of 2012, about 174.5 thousand people work in the informal sector, which is an increase of 26.5%. However, the share of persons working in electricity and gas; water and waste management in the informal sector have declined by 45.3%. The decrease of the share of people working in the above mentioned sectors in the informal sector in 2012 can be explained by the increase of similar jobs at formal sectors.

\(^1\) D. Ganbat, lecturer of Otgontenger Institute, 2013: A Survey on socio-economic impact of establishing a free trade agreement with Japan, page 25

\(^1\) World Bank, Countries classification http://data.worldbank.org/about/country-classifications
4. Green jobs in key economic sectors and industries

Today it is acknowledged that economic growth can have a negative impact on the environment and can lead to a degradation of natural resources\textsuperscript{13}. During the last 25 years, the world economy grew fourfold. Meanwhile 60% of ecosystems became unstable due to improper use of natural resources. This narrative is warning for Mongolia. Although the Mongolian economy grew by 31.5% from 2008 to 2012, very little was invested on rehabilitation of the environment and eco-systems.

Mongolia consumes 7 times more energy for production of 1 USD of GDP compared to the world average (0.39 kg. sample fuel/$ against 3.04 kgs.f./$). By emissions of CO\textsubscript{2} relative to GDP Mongolia is 10 times higher than the world average (0.75kg/$ against 7.5 kg/$) although by emission of CO\textsubscript{2} per person, Mongolia is lower than the world average\textsuperscript{14}. Studies between 1940-2008 also show that, the air temperature in Mongolia has increased by 2.14 degrees, which is 3 times higher than the world average.

According to statistics for 2006, 64.4% of CO\textsubscript{2} gas emission is created by the energy sector; 41.4% by animal husbandry and 13.3% by forestry and land use activities\textsuperscript{15}.

As the biggest contributing industry to emissions, the energy sector has been selected as one of the industries for estimating green jobs.

Furthermore, the sector of animal husbandry which alone occupies about 30% of employment, has experienced a growth rate of 7.9% and 14.8% for contribution GDP, with a growth rate of 21.3% in 2012, and which is the most vulnerable sector to climate change, has also been selected for estimating green jobs.

The transport sector has been selected as a primary target for government policy in Mongolia which including stipulations on ecologically clean public transport that would lead to the reduction of gas emissions. Water and waste water management intended contribute to reducing overall water use in an arid country like Mongolia, and are also selected for estimating green jobs. As is solid waste management to fend off uncontrolled dumping of waste and therefore contributing to protect the environment.

Due to the very small amount of gravel or asphalted roads in Mongolia a huge amount of land is degraded by uncontrolled driving on tracks that can sometimes be kilometer wide. Furthermore, building roads and bridges will channel traffic, meaning that the construction sector has also been selected.

Together, all selected sectors comprise about 25.7% of GDP and 53.4% of total employment.

The mining sector is recognised by economists as a key driving force for Mongolian growth in the near future. By the end of 2012 it accounted for 21.4% of GDP with an annual growth rate of 8.9%. Despite this, the mining sector is not included in the selected sectors, as it only accounts for 4.4% of employment (with a growth rate) of 3.5% and compared to energy and animal husbandry, does not have significant impact on CO\textsubscript{2} gas emissions nor is it vulnerable to climate change.

UNEP has developed a working definition of a green economy as “one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. In its simplest expression, a green economy can be thought of as one which is low carbon, resource efficient and socially inclusive\textsuperscript{16}.”

This definition was used to identify the Green jobs in Mongolia, considering that all jobs in the above mentioned economic sectors are Green jobs if they meet the decent work criteria as well.

Another important document which was used to identify Green jobs is the Government Program “Inhabited Mongolia”, approved on 12\textsuperscript{th} of December 2012 by the Resolution 4 of the National Council on Employment.

The main objective of the Program is to enhance the sense of ownership and social responsibilities of citizens and encourage their participation in social affairs by supporting citizens groups that are engaged in the following activities:

- Organization of investment and green development activities that are in the common interest of society,
- Protection of land,
- Maintenance and security of environment safeties,
• Organization of proper waste management, and
• Risk mitigation

The introduction of the Program demonstrates a willingness of Mongolia to support citizens’ initiatives intended to reduce the factors that negatively influence the environment and lead to unsafe living conditions.

Within the program, there is an objective to support creation of green jobs under the framework of supporting small and medium enterprises. This includes: support of small and medium enterprises that run activities aimed at ecologically efficient consumption, and production of ecologically clean products through identification of eco-business projects and provision of financing opportunities, soft loans, training and building a basis of an economy that is favorable to the environment and green Earth.

The Mongolian National Chamber of Commerce and Industry has introduced several initiatives to support Green development such as its “5x20” goals, “Green office”, “Made in Organic Mongolia” “Green labeling”; “Green loans” and etc.

In a nutshell, the government is not the only area leading the push towards Green Development. Elements of the private sector recognise the importance of the green economy and also seek a path towards green development. Besides the National Chamber of Commerce and Industry, banks such as Xac bank and Golomt Bank are pursuing strategies for green loans and investment because it makes good business sense, and companies such as Newcom are developing green energy sources.

Meanwhile, international organisations such as the World Bank, the ADB and the EBRD are providing funding for environmental projects to address air pollution and water management, and lending to support renewable energy infrastructure. NGOs such as the Global Green Growth Institute and the World Wide Fund for Nature are also establishing their own environmental projects and lobbying government.

4.1 AGRICULTURE, LIVESTOCK AND FORESTRY

The agricultural sector contributes 14.8% to Mongolia’s GDP. It accounts for 0.7% of export income, and 35% of the total labour force.

According to the 1st National Census of Agriculture of 2011, a total of 2,455 business entities were registered in the agricultural sector, which employs 403.5 thousand people. Of all businesses registered, 507 operate in the field of animal husbandry, 1,705 in crop production, and 243 in forestry, hunting and fishing.

Of all job places in agriculture, 84.9% are created in animal husbandry, 14.5% in crop production and 0.6% in forestry, fishing and hunting.

**ANIMAL HUSBANDRY**

Nomadic herders are defined as individuals together with their family operating in nomadic animal husbandry in order to create income or for their livelihood. Their relations concerning the labour and social protection as well as production management are regulated within the family. They can be an employer or employee depending on the number of livestock, yields of animals, and number of family members. The nomadic herders’ livelihood is directly dependent on nature and climate, therefore they are exposed to high risk, and normally savings are built very slowly. This unique feature requires specific labour regulations.

As we described earlier, agriculture is not included in the official definition of informal sector and a herder is recognised as a specific type of employment.

The GoM has launched several independent policies targeted at herders. Mongolian Parliament and the Government have approved several national policies and programmes that have stipulated the objectives to support income generating activities of herders, to improve their working conditions, to broaden insurance schemes, and to support herders to run environmentally friendly activities. Those policies include a “Government policy on herders”, a policy on “Mongolian livestock” and a policy to “Establish agricultural commodity exchange” approved by Parliament in 2009, 2010 and 2011 by the Resolutions 39, 23 and 29 respectively. The GoM has also established a “Government program to support the development of intensive farming” as well as Mongolian Government Action Plan of 2012-2016, and Main Directions of activities of 2013.

Today, about 342,467 people work in the animal husbandry sector, which is 32.3% of the total labour force and 84.3% of all workers in the agricultural sector. Of all herders, 43.9% are female, 56.1% are male, 340,157 herd-ers work on for households and 2,310 work for establishments. In addition, all persons working in animal husbandry 4,881 persons work as professional staff in animal husbandry in occupations such as veterinarians and animal husbandry engineers.

Table 4.1: Professionals in animal husbandry sector

<table>
<thead>
<tr>
<th>No.</th>
<th>Professionals</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Veterinarians</td>
<td>438</td>
</tr>
<tr>
<td>2</td>
<td>Animal husbandry engineers</td>
<td>416</td>
</tr>
<tr>
<td>3</td>
<td>Professional farmers</td>
<td>317</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number</th>
<th>Professional</th>
<th>Total</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Veterinarians</td>
<td>438</td>
<td>220</td>
<td>218</td>
</tr>
<tr>
<td>2</td>
<td>Animal husbandry engineers</td>
<td>416</td>
<td>213</td>
<td>203</td>
</tr>
<tr>
<td>3</td>
<td>Professional farmers</td>
<td>317</td>
<td>165</td>
<td>152</td>
</tr>
</tbody>
</table>
Due to a policy to support intensive farming which has a goal to supply the population with high quality food, the number of intensive farms has increased to 1,706 (an increase of 3.4%), of which 977 are dairy farms, 78 are beef cattle farms, 229 are meat and wool farms, 181 are pig farms, 152 are chicken farms and 89 are bee-keeping farms\(^{19}\).

Bee-keeping is one of the recovering sectors of farming in Mongolia. Bees are recognised as insects that play an important role in keeping ecological balance on Earth and having positive influences on the natural biodiversity. Also, bees are used often for agriculture. Besides collecting the nectar from the flowers they also pollinate the plants and crops, creating an ecologically balanced environment. Therefore bee-hives are often placed near agricultural fields. During the first 10 years of transition from planned economy to market-oriented economy bee-keeping faced a sharp downturn. However due to the efforts of World Vision, WWF and others, there have been many positive changes. Honey produced by Mongolian bee-keepers now fulfils the criteria of Green labeling of MNCCI.

The Mongolian Bee-keepers Association (MBKA) has organised the Census of bee-keepers in December 2013 for the first time in Mongolia. According to the bee-keepers census there are 415 jobs\(^{20}\) that can be considered as Green jobs.

**Environmentally friendly jobs in animal husbandry**

There are several projects funded by donors such as Green Gold project of SDC, Pasture Management near urban settlements of the Millenium Challenge Account, and the Sustainable Land Management project financed by the Dutch Government. They have organised many activities intended to support herder groups to possess their common pastures in the long-term, to increase the yield and to improve the health of livestock and land, and to improve the cooperation between herders and veterinarians. All of these activities are aimed at supporting herders to introduce environmentally friendly animal husbandry.

The pasture carrying capacities vary depending on grass yield and annual climate conditions, especially rainfall. It is estimated that on a good year the carrying capacity of pastures in Mongolia is 82.5 million livestock units; in average years 68.8 million units and in bad years 55.5 million units\(^{21}\). The national average carrying capacity of a 100 hectare pasture is 60 livestock units.

According to statistics, Mongolia had 67.3 million livestock units in 2012 and the climate was favorable for animal husbandry. Therefore, the carrying capacity for Mongolia in average was not exceeded.

Due to the migration of herders, the problem of pasture degradation occurs more prevalently near urban settlements. For instance, by number of animals per 100 hectare of pasture, Orkhon (857 livestock units), Ulaanbaatar (325), Darkhan uul (270), Bulgan (180), Arkhangai (174), and Selenge (141) aimags (province) have exceeded the national average by 2.4 to 4 times\(^{22}\). These aimags have a total of 89,967 herders; which have been exclude from environmentally friendly jobs.

Based on the above justification the following 252,915 jobs are considered as environmentally friendly jobs in the agricultural sector:

- Bee-keepers – 415
- Professional workers in animal husbandry – 4,881
- Herders – 247,619

**Decent work in animal husbandry**

Employment in animal husbandry tends to be family business. Although many herders with large amounts of livestock are creating job places for assistant herders, most of the herders are not covered by social security schemes nor do they pay their fees to Social Insurance Fund. Most of the assistant herders are paid in goods, not in cash.

Of all herder families, 19.1% or 40,000 people paid social insurance fees and 84.4% or 176,800 paid health insurance premiums\(^{23}\). In addition, 2,310 full time employees of business entities are covered by social and health insurance schemes and they work an average 9.25 hours per day.\(^{24}\) Also, of 4,881 professional workers in animal husbandry 202 are employed by public institutions and business entities and are fully covered by social and health insurance schemes. The remaining professionals work on self-employment basis and there is no official data on their work conditions. There is no data about Social insurance fees paid by bee-keepers.

**Green jobs in animal husbandry**

Therefore, only the herders who paid their social and health insurance fees, and professional workers employed by establishments, (all together 42,512 jobs) are considered as decent job places. Based on the above justification these 42,512 jobs in animal husbandry are considered as Green jobs:

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22 NSO 2013: Agriculture in 2012, page 29
24 Ibid.
GREEN JOBS MAPPING in MONGOLIA

- Herders covered with social insurance – 40,000
- Herder - full time workers at establishments - 2,310
- Professional staff in animal husbandry – 202

CROP PRODUCTION

The size of arable land in 2012 was 115.4 million hectares, a decrease of 0.1 million hectares or 0.1% compared to the previous year. Of this, 96.2% of arable land was considered pasture land, 1.5% is used for animal fodder crops, essentially hay, and 0.9% for other crops.

In 2013, about 70.43% of crop fields were planted with wheat, 20.0% with oil crops, mainly rapeseed, 3.7% with potatoes, 2.1% vegetables, and 2.7% with animal fodder.

There are 117,477 employees in the crop production sector, of which 58,447 are full time, 37,871 are part time, and 15,254 are seasonal. 5,905 employees in crop production are professionals. Out of 58,447 full time workers 87.1% are employed in a family business, and 12.9% or 7,532 are employed by business entities.

Government policy in crop production

One of the main policies of the Government of Mongolia is to ensure the food safety and security when supplying the population with high quality Mongolian original agricultural products. For instance, provision 95 of Mongolian Government Action Plan of 2012-2016 has an objective to “improve the food supply of Western region population by supporting the development of wheat production in the region”, and provision 14.7 of “Food safety” program has stipulated “to revive the agriculture and intensive farming in the Western and the Eastern regions, in particular in the implementation of the “Khalkh-gol” project, which has an objective to start using the old and new crop fields in Khalkh-gol region.

The Ministry of Industry, Food and Agriculture supports families engaged in green house production, which is considered as production of protected soil. From 2007 to 2012, 2,454 green houses, utilising of Korean technology were purchased by the Government investment and distributed to 1,250 individuals and business entities after having them trained on green house management.

The beneficiaries paid 50% of the total cost of greenhouses.

According to the Agricultural census, 6,437 families and 804 business entities have greenhouses, warehouses and storehouses and other agricultural facilities. (See table 4.1)

However, except for the above mentioned information, we could not find any data on employment generated in this field.

One of the initiatives introduced in agriculture, with a focus on green economy is the National Program on “Green job place – Sea-buckthorn”.

Within the “Green job place – sea-buckthorn” program, a significant amount of sea-buckthorn seedlings were nurshed to be planted on 620 hectares, 215.6 hectare fields were protected against sand movement, and rehabilitated mining exploration sites and 4,591 green jobs were created, all of them as growers of sea-buckthorn. Green labelling was given to sea-buckthorn oil and sea-buckthorn juice by MNCCI within the “Made in Organic Mongolia” initiative.

Environmentally friendly jobs in crop production

A total of 4,591 jobs created within “Green job place – sea-buckthorn” are considered environmentally friendly.

Furthermore, businesses engaged in green house production and storage cause no harm to environment and, therefore, the jobs created in those sectors could be considered environmentally friendly. However, there is no available data on number of jobs created.

All the other jobs in the crop production sector cannot be recognised as environmentally friendly as of all land used for crop production 61.9% create soil damage that results in lower yield per hectare. In order to increase the harvest, many crop producers use chemical fertilizers. In 2011, 1.1 tons of fertilizer per hectare was used on

<table>
<thead>
<tr>
<th>Families with agricultural facilities, total</th>
<th>6,437</th>
<th>Business entities with agricultural facilities, total</th>
<th>804</th>
</tr>
</thead>
<tbody>
<tr>
<td>With greenhouses</td>
<td>1,428</td>
<td>With greenhouses</td>
<td>199</td>
</tr>
<tr>
<td>With warehouses</td>
<td>125</td>
<td>With warehouses</td>
<td>305</td>
</tr>
<tr>
<td>With storehouses</td>
<td>5,421</td>
<td>With storehouses</td>
<td>395</td>
</tr>
<tr>
<td>With granary</td>
<td>15</td>
<td>With granary</td>
<td>142</td>
</tr>
<tr>
<td>Garages for agricultural machineries</td>
<td>211</td>
<td>Garages for agricultural machines</td>
<td>109</td>
</tr>
<tr>
<td>Repair of Machines</td>
<td>60</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Summary of the 1st national agricultural census of 2011, NSO, 2012

agriculture land; and 0.9 kg of chemicals per hectare was used to abolish insects.

**Decent work in crop production**

All employees of business entities (7,532) are covered by social and health insurance schemes, while 40% (13.4 thousand people) of all those working in family businesses pay their social and health insurance fees. Therefore these jobs can be considered as decent. Other employment such as part time and seasonal jobs cannot be considered decent as there is no evidence to suggest that they are covered with social and health insurance. There is no available data on social and health protection for sea-buckthorn producers.

Therefore, in crop production sector 20,932 job places can be considered as decent jobs.

**Green jobs in crop production**

Though there are environmentally friendly jobs in crop production, those jobs did not meet the decent jobs criteria. As for the other jobs identified as decent in crop production, those could not be identified as environmentally friendly and vice versa. Therefore, the research team could not estimate the number of Green jobs in the crop production sector within the limitations of this study. A more in-depth, follow-up study, is needed to further investigating the status of green jobs in crop production.

**Forestry and fishing**

There are 18,565.6 thousand hectares of land covered by forest, which is 11.9% of total land of Mongolia. 75.4% of them are pine and deciduous forest and 24.6% is shrub, consisting mainly of salt bush (black saxaul, Haloxylonaphyllum) vegetation.

The forestry sector faces a number of challenges. According to available data, of 1,475.5 thousand hectares of forest, about 326 thousand hectares of trees have died up and are dead, and about 18.5 thousand trees have fallen. Furthermore, there is an urgent need of forest management and maintenance for 123.3 thousand hectares of forest, 365.3 thousand hectares for planting new trees, 338.1 thousand hectares for supporting growth of trees in and 24.2 thousand hectares for protection of new forest.

According to the Census documented by the World Bank in 2002, during the years 1950 – 1980 a total of 1.6 million hectares of forest was destroyed, while during 1999-2000, 660 thousands of hectares of forest was destroyed. The annual consumption of wood in Mongolia varies between 1 and 4 million cubic meters. According to the Forestry Department, every year between 345 thousand to 2.4 million cubic meters of wood is cut illegally.

**Government policy on forestry**


The objective of the Program is to identify state policies and their direction of activities on improving the capacities of protection, proper use of resources and rehabilitation of forest in accordance with ecological balance and sustainable development requirements.

**Employment in forestry**

There are 232 business entities engaged in forestry, of which 202 actively operate in the sector. Out of these, 106 grow seeds of plants and trees and 92 entities have greenhouses for tree-nursery activities. Furthermore 43 business entities are engaged in wood cutting and production of wooden items, 75 in wood cleaning and maintenance, 164 in nursery, 15 run other services.

In 2011 there were 148 people in management positions and a total of 2456 employees in the forestry field. In 2012 the number of employees increased by 356 persons and reached 2812\(^{29}\), which includes 442 workers who plant trees, 1996 workers engaged in forest cleaning and rehabilitation and 372 assistant workers.

In addition were 336 state inspectors (1 state inspector per soum) and 775 rangers (environment protectors) in Mongolia.

Besides the above mentioned employment, there are 565 families that have greenhouses for tree-nursery and 5,317 families have planted trees. Some of them have joined forest user groups. There are 600 forestry user groups. Unfortunately there is no data on how many jobs have been created.

**Environmentally friendly jobs in forestry**

In total, there are 3,923 jobs including 2,812 workers in forestry companies; 336 state inspectors and 775 rangers that are considered environmentally friendly jobs.

**Decent jobs in forestry**

Of total expenditure of forestry business, 25% (MNT 746.7 million) was paid as salaries and wages of employees; According to NSO, in 2012 the average monthly salary of an employee in agriculture, forestry, fishing and hunting was MNT 244,200.

A total of 1,111 job places of state inspectors and rangers can be considered as decent, as they have labour contracts with their employers, their wages are higher than the Country’s minimum wage level, and they are covered by social and health insurance schemes.

**The jobs that are created by business entities are all**

28 NSO 2012: Summary of the 1st national agricultural census of 2011, page 228-229
29 NSO 2012: Summary of the 1st national agricultural census of 2011, page 4
seasonal, except the workers in management position and the few jobs in tree nursery greenhouses. However, according to the NSO definition, these can be considered full-time-employees. Therefore, all of the 3,923 jobs in forestry are considered as decent.

**Green jobs in forestry**

3,923 jobs that are environmentally friendly and meet the decent job criteria shall be considered green jobs.

**Green jobs in fishing**

According to the Summary Report of the 1st National Agricultural Census of 2011, there are 9 entities engaged in fishing and 106 full-time job places, of which 26.2% are female. However, the data regarding jobs in the fishing is considered confidential information. Therefore, no estimation of green jobs in fishing could be undertaken.

**4.2 ENERGY SECTOR**

The demand for energy is increasing in line with the economic growth of Mongolia. In 2012, the energy sector occupied 6% of the GDP, and compared to 2009, energy production had increased by 48.6%. In terms of energy demand, 62.7% of all energy is used in the manufacturing and construction sectors, 24.3% in households, 4.2% in agriculture and 8.9% in other sectors.

On the supply side, about 90.6% of energy is produced by thermopower stations, 1% by hydro power stations, 0.55% by diesel-generator power stations, and 7.85% is imported. There is an estimation that the consumption of energy will further increase by 2 to 3 times the current level by 2020. Due to the current low energy capacity, about 100 newly constructed buildings could not be connected to the central heating system in 2013.

The energy sector employs about 14.5 thousand people, an increase of 51.9% compared to that in 2009. This represents 14.5% of the total labour force of Mongolia. Within the sector, 11.3% of workers are at the management level in electricity, gas, steam and air conditioning, 29.4% are engineers and technicians, 68.1% are workers at power stations and 12.7% are support staff.

**Government policy in energy sector**

The GoM’s strategy for the energy sector is to:

1. Create new sources of energy; build local/regional energy grids;
2. Support the development of renewable energy production through tax reduction and tax exemption, as well as by increasing investments; the goal by 2020 is “20% of total consumed energy is produced by renewable energy sources”.
3. Develop new technologies in the use of coal and gas, and support innovations.

**Environmentally friendly jobs in energy sector**

The research team has hypothesised that all the employment created in the renewable energy sector is environmentally friendly. Currently the renewable energy comprises of power stations that use wind, solar and water resources in Mongolia.

There are 12 companies and 1 institute that are engaged in introducing, testing and producing of renewable energy. Currently there are 2 wind power stations; one is located in the Khatanbulag soum Dornogovi aimag and the other is “Salikh” power station (50 MW) located in Sergelen soum Tuv aimag. The data about the employment in those two power stations is included in the above mentioned 639 jobs.

There are 8 solar power stations (with a total capacity of production of up to 100 kW of energy) that are operational in the country, including in Umnugobi (1), Gobi-Altau (3), Bayanhongor (1) and Bajan Ulgi aimags (3) and 3 solar and wind power stations with total installed capacity of 150-200 kW. No data is available about the employment in these power stations. However, according to informal sources, the power station in Shine-Jinst soum of Bayanhongor aimag produces energy of up to 150 kW and employs 2 people.

There are 11 hydropower stations with installed capacity of 11kW to 2000kW. They have created a total of 137 job places.

The Government Program “100 thousand solar panels” has created no direct jobs. However, many private businesses engaged in trading started to import solar panels, and offer repair services for them. For example, one of them is “Malchin LLC”. The company was awarded with “Best Green Grand Prix Winner” and “Best Green Energy Award” by the Ministry of Environment and Green Development (MEGD) in December 2013. The company supplies herders and rural businesses with high quality solar panels that meet European standards and employs 18 people. Data for the other private companies could not be obtained.

In addition, all the work that is created in association with proper utilisation of coal and gas can be considered as green jobs as they contribute to the development of alternative energy sources.

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30 According to the NSO definition: “Full time employment is an employment that is based on Labour contract where the employer fully responsible for social insurance and taxes of an employee; and fulfills all the obligations of the Labour law and Law on Public officials”.
31 NSO 2012: Summary of the 1st National Agricultural Census of 2011, page 47
32 www.nree.mn/index.php?id=2
33 NSO 2013: Employment Survey 2013
34 ERC 2013: Some renewable energy power stations that operate in Mongolia, www.erc.mn/mn/renewable_energy
There are 6 companies in Mongolia that operate in the field of liquid gas for use as energy source for households and businesses in rural and urban areas, for heating of houses, and as a fuel for cars. “Dashvaanjil LLC” is one of these companies. This company was awarded by MEGD with “Best green technology award” as a company that introduced this new technology. All companies in this field together employ 437 individuals.

There are some initiatives to produce pressed fuel out of coal that should contribute to reduction of air pollution in urban settlements. Unfortunately no formal or aggregated data about the jobs created from this initiative could be obtained.

Therefore, about 1,231 jobs are considered as environmentally friendly.

**Decent jobs in the energy sector**

The average salaries of workers in energy sector is higher than the minimum wage level and 100% of workers pay their social insurance fees. They are also provided with uniforms, job safety actions and food allowances.

Therefore all the jobs in energy sector can be considered as decent work.

**Green jobs in the Energy Sector**

1,231 jobs created in the renewable energy sector are considered as Green jobs, considering the above justifications.

### Table 4.3: Average monthly salary of workers in energy sector, MNT ‘000

<table>
<thead>
<tr>
<th>Years</th>
<th>Workers paid social insurance fees</th>
<th>Full time employees</th>
<th>Average monthly salary</th>
<th>Average monthly salary of engineers and technicians</th>
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</thead>
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<tr>
<td>2009</td>
<td>9.5</td>
<td>9.5</td>
<td>297.3</td>
<td>314.3</td>
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<tr>
<td>2010</td>
<td>12.4</td>
<td>12.4</td>
<td>337.5</td>
<td>363.2</td>
</tr>
<tr>
<td>2011</td>
<td>11.9</td>
<td>11.9</td>
<td>411.3</td>
<td>430.6</td>
</tr>
<tr>
<td>2012</td>
<td>14.5</td>
<td>14.5</td>
<td>540.8</td>
<td>596.8</td>
</tr>
</tbody>
</table>

Source: Statistical Yearbook 2012, NSO

**4.3 WATER AND WASTEWATER MANAGEMENT**

### Environmental problems

The Law on Water has stipulated that the districts, soums, aimags and the capital city shall register the number of water resources, their reserves, quality, use and also waste water amount once a year and those in the country once in every four years. The registration shall be paid by state budget.

According to 2011 registration, there are 6,646 rivers and streams, of which about 551 are dried out, have seeped into ground or evaporated. There are 3,613 lakes, of which 483 have dried out; 9,320 springs, of which 7,441 have permanent water discharges. Since 2007, a total of about 2,913 rivers, streams, lakes, springs have disappeared due to various reasons. For a country with very low reserves of water, this is one of the most challenging issues that the country is facing today.

### Government policy on water management

The Parliament of Mongolia approved the National Program on Water by Resolution 24 of 2010. The program will be implemented with two phases during 2010 - 2021 and has the objective to set up water basin administration units, re-use wastewater from mines after treatment as water for industrial use. As a result, Energy Resources LLC has started to re-use 95% of their wastewater, and put a requirement to Oyu Tolgoi LLC to re-use at least 80% of their wastewater.

### Water supply and management

Mongolia has very scarce sources of water. About 70% of Mongolian land has no access to surface water, and only 30% of the land has surface water. The rivers that are formed in Mongolia have a reserve of about 30.6 cubic km on average per year, including the rivers that flow from Russia and China that amount to 36.6 cubic km annually. 49% (16.9 cubic km) of all water that flows in rivers drains to the Arctic Ocean basin, 11% (3.8 cubic km) to the Pacific Ocean basin and 40% (13.9 cubic km) to Central Asian water basin, that has no out-flow.

Some 60% of all river water is lost for the country as it flows out to neighboring countries. The remaining water evaporates or seeps into the ground and feeds the underground water streams, or flows to Gobi lakes. 83.7% of the water reserve is kept in lakes, 10.5% by glaciers, and 5.8% by rivers. 85% of the water is fresh water, and 93.6% of this water is contained in the Khovsgol Lake in Northern Mongolia.

Mongolian scientists and water specialists have identified 29 water basins crucial for proper water management and to further the socio-economic development of the country. Furthermore, the Law on management of water basins has been approved by Parliament and 23 water basin administrations are established. Underground water comprises 90% of the water supply of the country.

38 NSO 2013: Employment survey of 2012
39 www.nso.mn/content/96072.shtml
Green jobs in the water management sector

The water management sector employs about 1,860 people on a full-time basis, through public institutions such as the National Water Committee headed by the Prime Minister with an implementation unit of 7 officials; National Water Sub-Committees in all 21 aimags headed by aimag Governors and comprising at least 1 staff per aimag (total 21 persons)40; the State Inspection Agency that employs 30 water inspectors (1 inspector per aimag and UB district—a total of 30 inspectors, further data is not available), water basin administration centers (30) established by the order A-78 of 19 February 2013 of the MEGD, employ about 176 workers42 and the Water, Climate and Environment Research Office, employs 138 personnel for biological and chemical control of water resources43.

Besides the above mentioned regulatory and management bodies, there are some further 4,502 jobs created to supply water to urban residents, of which 3,133 are employed for centralised water pools (that supply water to apartment residents), and 1,369 for non-centralised water pools that are in charge of supply of water to ger district residents44.

There are also many non-governmental organisations, projects and programs that are involved in water management and protection. However, the data about job creation in these institutions is not available.

Decent jobs in water supply management

All of the jobs created are full-time and based on labour contracts with government agencies. Therefore, all 6,362 job places can be considered as decent jobs.

Environmentally friendly jobs

All work in water supply management can be considered as environmentally friendly jobs, except for the jobs associated with supply of water to the ger districts. The water supply for ger districts has many critical points: first and the most important is the quality and cost of water; secondly, wells are not connected to the central infrastructure, and the well-water distribution centers have to be heated during winter. Therefore, there is a need to connect ger district residents with central water supply facilities.

Based on the above considerations, 4,993 jobs are considered as environmentally friendly jobs.

Green jobs in water supply management

There are 4,993 jobs that meet decent job criteria and are environmentally friendly.

Waste water management, and sewerage

There are 107 institutions that possess special license for water activities, of which 103 operate in water supply and sewerage management, and 4 operate in water mining and treatment. The average monthly salary of personnel working in the water sector is MNT 508,100 which is well above the minimum wage45.

Out of all 103 entities, 66 entities are engaged in collection, disinfection, and treatment of waste water. All of them have obtained special licenses from the Water Sewerage Regulatory Council (WSRC) that sets up the standards and controls the fulfillment of standards by the water treatment companies and institutions in accordance to the Law on Water Sewerage of Cities and Urban Settlements. All their operations are in line with environment protection plans46. They employ 176 people.

Except for the above mentioned institutions, 46 water treatment entities operate in Ulaanbaatar city without licenses from WSRC. For this reason they are not counted as green jobs.

Green jobs in the waste water management sector

All 176 employees work on full-time basis with labour contracts and their average monthly salary is higher than the minimum wage, therefore all of them are considered as decent job places.

Waste water management is one of the most important environmental activities, therefore all the jobs created to support waste water treatment are considered as environmentally friendly activities.

Based on above considerations, all 176 jobs are considered Green jobs.

Green jobs in the sewerage and water supply management sector

The following 5,169 jobs can be considered Green jobs:

1. 4,993 employees in the water management and research institutes
2. 176 jobs for waste water collection, disinfection and treatment

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40 MEGD 2014: Water reserve of Mongolia www.mne.mn/v3/?p=1673#UtGV-PsmWSO
42 National consultation of Water basins, Ulaanbaatar, 18-19th December 2013
43 D. Tumurtsooj 2013: Master study “The water pollution and the calculation of it”
44 MEGD 2013: Employment survey 2012
46 Ibid
The Law on Solid Waste Management was approved in 2012. According to the law, waste can be classified into two groups: solid and liquid. It was estimated that an average person produces half ton of solid waste and 0.6 cubic meters of liquid waste on average per year. The city administration also has a standard calculation that says some 0.2 tons of waste is generated per 1,000 square meters of streets and open places.

Solid waste includes paper, glass, and wood, and bones, plastic and metal, and organic and non-organic waste. By quality, the solid waste is classified as non-harmful and dangerous. The dangerous waste can be a cause of infectious and non-infectious diseases for human beings as well as for animals and plants. This can also have negative influences on future generations. Solid waste pollutes the air and soil, and thus damaging the balance of ecology and environment.

Today, there are 3 waste collection centers near Ulaanbaatar where waste is yarded by landfill method, and then the soil is treated. Ulaanbaatar city produces 1,100 tons of solid waste per day on average, of which 35-40% is plastic bags and items.

During the meeting of the Board of Directors of the Association of Waste Exporters that took place in October 2010, the number of Directors to increased to 23 giving seats to all representatives of the sector and was renamed the Association into “National Association of Employees of Secondary Raw Materials” (NAESRM).

Ulaanbaatar City Municipality recently began distributing 15 garbage bags every month to every household in order to teach the citizens to classify the garbage and not to throw it away unsorted. This is thought to be a step towards collecting separated garbage for recycling, a public awareness campaign for garbage separation which however has still not been implemented. The municipality spends MNT 5.0 billion to produce these plastic bags. However, currently all garbage bags are deposited together with the unsorted garbage. This initiative is detrimental to the environment, as plastic bags have a biodegradation period of 400 to 500 years. Therefore these jobs shall not be considered as green jobs.

**Environmentally friendly jobs in the solid waste management sector**

Jobs that require collection, disinfection and processing of solid waste contribute to environmental protection and can be considered as environmentally friendly jobs.

Recently MNCCI organised an exhibition titled “Environmentally friendly Technology 2012”, in which 42 solid waste processing companies participated. These companies produce diesel from waste tyres and oil, different products from plastic bags, and also process waste paper. In total 1,401 people are employed by these companies, which is 1.3% the total labour force. These jobs can be divided into:

- Garbage collection: 439 jobs
- Disinfection and processing of garbage: 106 jobs
- Production of secondary raw material from garbage: 185 jobs, and
- Other garbage processing activities: 671 jobs.

Besides the above mentioned jobs, the NAESRM has 15,000 members and supporters; there are 192 points where the raw materials are collected, and 12 processing factories. All of them work together with the Government and non-governmental organisations in order to improve the legal environment for processors of waste materials, and create favorable conditions for economic development.

**Decent work in the solid waste management sector**

Of above mentioned workers about 300 are workers in the Ulaanbaatar municipality. In 2013 their average monthly salary reached the level of MNT 500.0 thousand, which is almost 1.6 times higher than the minimum wage level. They also are covered by social and health insurance schemes, have uniforms and are provided with hot meals at their job places. They also attend the job safety trainings.

There is no further data on job conditions, and payment of workers in private sector, therefore these 300 job places are considered decent works. However, there are an unknown number of scavengers that are part of the informal sector, for which no tangible data is available.

**Green jobs in the solid waste management sector**

Of 1,401 job places in the solid waste management sector, only 300 can be considered as green jobs, as they meet the criteria of environment and decent work.

**4.5 TRANSPORT SECTOR**

Transport is the third biggest economic sector after mining and agriculture, contributing 6.6% to GDP, and it employs 56.1 thousand people according to the Statistical Yearbook 2012. Of the total freight turnover, 73.1% is through railways, 26.8% through auto transport and 0.01% through air transport.

According to the Employment survey of 2012, 72.9 thousand people work in this sector, of which 20.3% work in railway transport, 59.9% in automobile transport, 5.4% in air transport, 1.2% in postal transport and 3.3% in storage and support transport.

In 2013, 1,702.3 km of paved road were newly built.
increasing the length of paved roads per 1000 square km to 6.06 km. 60.2% of improved roads are paved, 21.8% are gravel and 18% are improved dirt roads.

According to 2012 data, there are 345,473 registered cars in Mongolia, of which 66.2% are passenger cars, 24.2% trucks and Lorries, 6.3% buses, and 3.3% are special purpose cars. During last 6 years, 48.1 thousand cars were imported annually on average, of which 61.4% were automobiles, 27.8% trucks and Lorries, 4.8% buses, 3.3% tractors and other vehicles, and 2.7% cars for mining. There are 700,000 people who have driving license.

Of total automobiles, 5.9% are in use for up to three years, 22.9% for 4-9 years, and 71.2% are in use for more than 10 years (see table 7 in the annex).

66.3% or 228.9 thousand cars are registered in Ulaanbaatar and of this 8.9% are for public transport and cars for special purposes. About 60% of Ulaanbaatar residents use public transport.

Ulaanbaatar is recognised as one of most polluted cities in the world: it produces dust particles 70 to 80 times higher than the standard set up by WHO on average per day. There are many studies that prove that the pollution of Ulaanbaatar has bad influences on soil and vegetation, and also on the health of its residents. One of the causes of air pollution of Ulaanbaatar is the transport sector; due to prevailing number of old, energy inefficient cars often without catalyzers, and of cars that consume diesel fuel.

**Government policy of transport sector**

“The Mid-term Development Program” of Mongolia stipulates that the ecologically clean public transport shall be introduced in Ulaanbaatar in order to decrease air pollution. Another important government paper, the “National Action Plan on Environment Changes” stipulates that one of the strategic objectives is to implement an economic policy that would lead to the reduction of gas emissions, introduction of environmentally friendly technologies, and to increase the efficiency of the energy sector.

There are several initiatives to reduce the bad influence of transport on air pollution such as “Building a Subway”, “Introducing ecologically clean Public Transport”, and “Green Transport” and their objectives are fully in line with Government development programs and strategies.

The Project “Green Transport” has an objective to reduce gas emissions by replacing the engines in 800 coach buses and 1,500 mini buses from diesel consumption to ecologically clean fuel.

The Project was initiated and is implemented by Mongolian Government and Global Green Growth Initiative (GGGI). The initiative to work together with GGGI in the field of green growth has started in Mongolia in November 2011 when the former Ministry of Environment and Tourism had signed a MoU with GGGI.

**Environmentally friendly jobs in the transport sector**

Although there is some statistical data available indicating that there are 35,946 auto vehicles of 1 to 3 years of utilisation and about 11,878 vehicles that consume gas50, there is no data on how many jobs are being created from this. However, the state owned “Electricity transport” LLC has built 2 hybrid buses for local public transport that consume petrol and gas. This has created 6 new jobs.

The 12,500 jobs of the railway sector can also be considered as environmentally friendly jobs, as rail transport does not harm the soil, nor does it have a negative impact on biodiversity.

**Decent work in the transport sector**

The following jobs can be considered as decent work:

- There are 46 companies engaged in public transport in between cities, they have 262 coach buses, 214 small buses and 413 mini buses, and employ 1,193 people51, of which 1007 are drivers and remaining 186 are managers, engineers and supervisors.
- In the cities, 21 private companies and 3 state owned companies run public transport in 133 different directions. All together they have 1,100 buses and trolleybuses and employ 3,959 persons52.
- Financial and diplomatic institutions as well as companies with foreign investment have created about 20,500 job places in the transport sector. These jobs can be considered to be decent jobs, as all these institutions employ drivers, the drivers have decent labour contract, and their wages are higher than the minimum wage, and there is no discrimination.
- There are 11,500 job places for special purpose transport.
- There are 10 border points with Russia and China, 11 companies are engaged in cross border transport and they employ about 1,500 people.
- There are 16 companies that have official licence to run taxi service in Ulaanbaatar, and they employ about 12,625 taxi drivers53.

Drivers and all jobs in rail and air transport can be considered as decent work. Therefore there are about 67,100 decent job places in this sector.

**Green jobs in the transport sector**

There are 12,506 green jobs in transport sector.

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50 National Auto transport Center 2013: Statistics www.teever.gov.mn/head/статист
52 www.teever.gov.mn/Head/Уул анхиаллага гарччч тээврүү зөвлөлийн нийтийн зорчигч тээврүүдийн ААНБ-ын Валлериний сүлээллээ 2013
53 http://www.transport.ab.gov.mn/
4.6 CONSTRUCTION

In 2012, some 2.3% of the GDP was generated by the construction sector, and the sector employs 5.6% of all the labour force of Mongolia.

Government policy in the construction sector

The fact that the Mongolian Government has launched a 100,000 apartments program and introduced mortgage loans of 8% interest rate per annum that is well below normal interest rates, has contributed to a rapid growth of the construction sector.

Within the framework of rapid growth and high investments in the construction sector, in 2013 the Minister of Construction and Urban Development, the Minister of Labour, and the Minister of Population Development and Social Welfare jointly issued the order No. 52/а/50/а/26/ to introduce training programs that would enforce labour safety and sanitation standards of the “Blue Card” in the construction sector in line with the 4th Program on Labour Safety and Sanitation.

Environmentally friendly job places in the construction sector

Building bridges, water channels and roads are considered as environmentally friendly jobs, as they help to reduce land degradation. They include the following jobs:

- Building auto roads: 3,286 jobs
- Building water channels and pipes: 290 jobs, and
- Building bridges 34 jobs

Therefore, a total of 3,610 jobs are considered as environmentally friendly jobs. However, road construction still needs adapt to new ecologically clean technologies. Also, after road construction has finished, local government enforce land rehabilitation activities from the construction companies.

Currently there are no standards for environmentally friendly buildings and constructions, although there is an MoU between the Ministry of Environment and Green Development and Ulaanbaatar Municipality on “Cooperation in 2013-2016 to introduce financial means that support energy efficient houses and buildings (Green housing and building), as well as to enforce MNS 5973:2009 standards on Green fields for buildings”.

Decent work in the construction sector

There are total of 69,300 people who work formally and informally in the construction industries, of which about 10,100 work in informal sector (see the table 5 in the Annex). That’s why 59,200 jobs can be considered as decent work. There are 31,880 persons that work on housing construction, 10,195 persons that work on engineering constructions and 17,129 works as special support work.

Green jobs in construction sector

Theoretically 3,610 jobs that are environmentally friendly could be considered as green jobs if they meet decent work criteria. However, at the moment there are no available authentic data on their wages, social protection coverage and safety on job that would constitute to decent work criteria. A follow up, more in-depth study which comprises case by case interviews and data collecting and verifying is needed to further investigate the green jobs in construction sector. Therefore, within the limitations of this study and the desktop review of all official data, the assumptions could not be verified. Another point that contributes to vulnerability of job places is a seasonality of jobs; vast majority of workers have only temporary job contracts. Therefore these jobs are not considered to be green jobs.

5. Concluding notes

Since decent employment conditions and a stable labour market is one of the main pillars of sustainable development, standardising and attaining a viable level of green jobs constitutes an important role in achieving long term developments goals through the most efficient and competitive strategies. Therefore, it is important to identify priority actions related to Green jobs within the framework of the PAGE project in Mongolia and further broaden its linkage to the National Green Development Strategy.

In order to further investigate the current status and trends of green jobs in Mongolia, a follow up study on Green jobs in Mongolia comprising a more rigorous and constitutive methodologies such as input-output table may be useful. Such actions will help further clarify the results of this mapping study and would help link them to the above mentioned National Green Development Strategy, once formally adopted.

Furthermore, consultancy services for National Statistical Office and sector ministries in introducing a common definition for green jobs as well as collection and processing of relevant data would be efficient.
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# Table 1: GDP and its growth, by sectors

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<td>1.7</td>
<td>2.3</td>
<td>2.3</td>
</tr>
<tr>
<td>growth in %</td>
<td>-13.8</td>
<td>(-34)</td>
<td>16.5</td>
<td>35.6</td>
<td>25.6</td>
</tr>
<tr>
<td>Transportation and storage</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>share GDP</td>
<td>6.5</td>
<td>8.3</td>
<td>7.8</td>
<td>7.2</td>
<td>6.6</td>
</tr>
<tr>
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<td>19.3</td>
<td>8.0</td>
<td>7.0</td>
<td>9.1</td>
<td>12.8</td>
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<tr>
<td>Information and communication</td>
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<td>3.8</td>
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<td>3.1</td>
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<td>7.5</td>
<td>6.4</td>
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<td>19.5</td>
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<td>Financial and insurance activities</td>
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<td></td>
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</tr>
<tr>
<td>share GDP</td>
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<td>3.3</td>
<td>2.9</td>
<td>3.4</td>
<td>3.6</td>
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<tr>
<td>growth in %</td>
<td>30.4</td>
<td>-15.6</td>
<td>0.3</td>
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<td>Other</td>
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<td>38.1</td>
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<td>8.6</td>
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<td>share GDP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>growth in %</td>
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<td>-1.3</td>
<td>6.4</td>
<td>17.5</td>
<td>12.3</td>
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</table>

Source: Statistical Yearbook 2008-2012, NSO

# Table 2: Labour market indicators of Mongolia

<table>
<thead>
<tr>
<th>Indicators</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population of age 15 and above (’000)</td>
<td>1 853.5</td>
<td>1 863.4</td>
<td>1 798.4</td>
<td>1 812.1</td>
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<tr>
<td>change%</td>
<td>0.5 - 3.5</td>
<td>- 3.5</td>
<td>0.8</td>
<td></td>
</tr>
<tr>
<td>Employed (’000)</td>
<td>1 006.3</td>
<td>1 033.7</td>
<td>1 037.7</td>
<td>1 056.4</td>
</tr>
<tr>
<td>change%</td>
<td>2.7</td>
<td>0.4</td>
<td>1.8</td>
<td></td>
</tr>
<tr>
<td>Participation level of labour force,%</td>
<td>66.8</td>
<td>61.6</td>
<td>62.5</td>
<td>63.5</td>
</tr>
<tr>
<td>- Male</td>
<td>61.0</td>
<td>67.2</td>
<td>68.7</td>
<td>69.0</td>
</tr>
<tr>
<td>- Female</td>
<td>61.3</td>
<td>56.2</td>
<td>56.8</td>
<td>58.4</td>
</tr>
<tr>
<td>Employment rate,%</td>
<td>88.4</td>
<td>90.1</td>
<td>92.3</td>
<td>91.8</td>
</tr>
<tr>
<td>- Male</td>
<td>88.4</td>
<td>89.5</td>
<td>91.9</td>
<td>91.6</td>
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<tr>
<td>- Female</td>
<td>88.4</td>
<td>90.8</td>
<td>92.6</td>
<td>91.9</td>
</tr>
<tr>
<td>Unemployment rate,%</td>
<td>11.6</td>
<td>9.9</td>
<td>7.7</td>
<td>8.2</td>
</tr>
<tr>
<td>- Male</td>
<td>11.6</td>
<td>10.5</td>
<td>8.1</td>
<td>8.4</td>
</tr>
<tr>
<td>- Female</td>
<td>11.5</td>
<td>9.2</td>
<td>7.4</td>
<td>8.1</td>
</tr>
<tr>
<td>Women, paid for their work in sectors other than agriculture, %</td>
<td>47.4</td>
<td>47.5</td>
<td>46.5</td>
<td>47.8</td>
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Source: Statistical Yearbook 2012, NSO
Table 3: Employees by sectors

<table>
<thead>
<tr>
<th>Economic sector</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture and forestry</td>
<td>no</td>
<td>377.6</td>
<td>348.8</td>
<td>346.6</td>
<td>342.8</td>
</tr>
<tr>
<td>growth %</td>
<td>(-2.3)</td>
<td>(-7.6)</td>
<td>(-0.6)</td>
<td>(-1.1)</td>
<td>(7.9)</td>
</tr>
<tr>
<td>Mining and quarrying</td>
<td>no</td>
<td>46.5</td>
<td>34.8</td>
<td>34.1</td>
<td>45.1</td>
</tr>
<tr>
<td>growth %</td>
<td>(5.44)</td>
<td>(-25.2)</td>
<td>(-2.0)</td>
<td>(32.2)</td>
<td>(3.5)</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>no</td>
<td>47.5</td>
<td>62.7</td>
<td>64.8</td>
<td>65.8</td>
</tr>
<tr>
<td>growth %</td>
<td>(-0.85)</td>
<td>(32.1)</td>
<td>(3.3)</td>
<td>(1.6)</td>
<td>(-1.3)</td>
</tr>
<tr>
<td>Electricity and gas; steam and air conditioning supply</td>
<td>no</td>
<td>30.1</td>
<td>9.5</td>
<td>12.4</td>
<td>11.9</td>
</tr>
<tr>
<td>growth %</td>
<td>(-3.2)</td>
<td>(-68.3)</td>
<td>(29.9)</td>
<td>(-3.7)</td>
<td>(21.5)</td>
</tr>
<tr>
<td>Water supply; sewerage, waste management and remediation activities</td>
<td>no</td>
<td>6.1</td>
<td>7.8</td>
<td>5.1</td>
<td>6.7</td>
</tr>
<tr>
<td>growth %</td>
<td>(100.0)</td>
<td>(27.8)</td>
<td>(-34.1)</td>
<td>(30.5)</td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>no</td>
<td>66.8</td>
<td>49.6</td>
<td>48.8</td>
<td>52.0</td>
</tr>
<tr>
<td>growth %</td>
<td>(114.7)</td>
<td>(-25.8)</td>
<td>(-1.7)</td>
<td>(6.6)</td>
<td>(13.9)</td>
</tr>
<tr>
<td>Wholesale and retail trade</td>
<td>no</td>
<td>169.7</td>
<td>160.3</td>
<td>146.2</td>
<td>152.5</td>
</tr>
<tr>
<td>growth %</td>
<td>(4.6)</td>
<td>(-5.5)</td>
<td>(-8.8)</td>
<td>(4.3)</td>
<td>(-13.9)</td>
</tr>
<tr>
<td>Transport and storage activities</td>
<td>no</td>
<td>35.8</td>
<td>68.7</td>
<td>76.5</td>
<td>75.8</td>
</tr>
<tr>
<td>growth %</td>
<td>(10.5)</td>
<td>(91.8)</td>
<td>(11.5)</td>
<td>(-0.9)</td>
<td>(-26.0)</td>
</tr>
<tr>
<td>Communications</td>
<td>no</td>
<td>10.5</td>
<td>10.2</td>
<td>14.5</td>
<td>11.5</td>
</tr>
<tr>
<td>growth %</td>
<td>(-3.7)</td>
<td>(-2.9)</td>
<td>(42.1)</td>
<td>(-20.5)</td>
<td>(27.5)</td>
</tr>
<tr>
<td>Financial and insurance activities</td>
<td>no</td>
<td>19.8</td>
<td>12.3</td>
<td>15.2</td>
<td>16.6</td>
</tr>
<tr>
<td>growth %</td>
<td>(13.7)</td>
<td>(-38.1)</td>
<td>(23.6)</td>
<td>(9.4)</td>
<td>(4.9)</td>
</tr>
<tr>
<td>Public administration</td>
<td>no</td>
<td>50.9</td>
<td>65.0</td>
<td>70.4</td>
<td>64.8</td>
</tr>
<tr>
<td>growth %</td>
<td>(4.94)</td>
<td>(27.8)</td>
<td>(8.3)</td>
<td>(-8.0)</td>
<td>(17.6)</td>
</tr>
<tr>
<td>Others</td>
<td>no</td>
<td>186.5</td>
<td>178.4</td>
<td>196.4</td>
<td>193.8</td>
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<td>growth %</td>
<td>(1.57)</td>
<td>(-4.3)</td>
<td>(10.1)</td>
<td>(-1.3)</td>
<td>(2.5)</td>
</tr>
<tr>
<td>Total</td>
<td>no</td>
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<td>1006.4</td>
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<td>growth %</td>
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<td>(2.7)</td>
<td>(0.4)</td>
<td>(1.8)</td>
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Source: Statistical Yearbook, 2012; NSO

Table 3.4: Number of people working in the informal sector, 2011-2012 by sex and location

<table>
<thead>
<tr>
<th>Location</th>
<th>2011</th>
<th>2012</th>
<th>/+- /</th>
<th>Urban</th>
<th>Of which in UB</th>
<th>Rural</th>
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<tbody>
<tr>
<td>Total</td>
<td>137893</td>
<td>174477</td>
<td>+26.5</td>
<td>125124</td>
<td>76541</td>
<td>49353</td>
</tr>
<tr>
<td>Primary</td>
<td>130189</td>
<td>164874</td>
<td>+26.6</td>
<td>120835</td>
<td>74940</td>
<td>44039</td>
</tr>
<tr>
<td>Secondary</td>
<td>7704</td>
<td>9603</td>
<td>+24.6</td>
<td>4289</td>
<td>1601</td>
<td>5314</td>
</tr>
<tr>
<td>Male</td>
<td>79776</td>
<td>98175</td>
<td>+23.0</td>
<td>69231</td>
<td>44215</td>
<td>28944</td>
</tr>
<tr>
<td>Primary</td>
<td>75809</td>
<td>92373</td>
<td>+21.4</td>
<td>66769</td>
<td>43085</td>
<td>25604</td>
</tr>
<tr>
<td>Secondary</td>
<td>3967</td>
<td>5802</td>
<td>+66.2</td>
<td>2462</td>
<td>1130</td>
<td>3340</td>
</tr>
<tr>
<td>Female</td>
<td>58117</td>
<td>76302</td>
<td>+31.2</td>
<td>55893</td>
<td>32326</td>
<td>20409</td>
</tr>
<tr>
<td>Primary</td>
<td>54380</td>
<td>72501</td>
<td>+33.3</td>
<td>54066</td>
<td>31855</td>
<td>18435</td>
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<tr>
<td>Secondary</td>
<td>3737</td>
<td>3801</td>
<td>+1.7</td>
<td>1827</td>
<td>471</td>
<td>1974</td>
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Source: Employment survey 2011-2012, NSO
### Table 5: Number of people working in the informal sector by types of economic activities and sex

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<tr>
<th>Type of economic activities</th>
<th>Indicator</th>
<th>Year</th>
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<th>Female</th>
<th>Male</th>
<th>Female</th>
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<tbody>
<tr>
<td>Mining and quarrying</td>
<td>#</td>
<td>6762</td>
<td>6134</td>
<td>4714</td>
<td>4669</td>
<td>2048</td>
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<tr>
<td></td>
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<td>-9.3</td>
<td>-1.0</td>
<td>-28.5</td>
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<tr>
<td>Manufacturing</td>
<td>#</td>
<td>22195</td>
<td>27436</td>
<td>11282</td>
<td>14981</td>
<td>10913</td>
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<tr>
<td></td>
<td>(+,-)</td>
<td>23.6</td>
<td>32.8</td>
<td>14.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricity, gas, steam, air conditioning; Water supply, sewerage, waste management and remediation of water</td>
<td>#</td>
<td>1402</td>
<td>767</td>
<td>972</td>
<td>456</td>
<td>430</td>
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<td></td>
<td>(+,-)</td>
<td>-45.3</td>
<td>-53.1</td>
<td>-27.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>#</td>
<td>10070</td>
<td>10090</td>
<td>7154</td>
<td>7716</td>
<td>2916</td>
</tr>
<tr>
<td></td>
<td>(+,-)</td>
<td>0.2</td>
<td>7.9</td>
<td>-18.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wholesale and retail trade</td>
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<td>55010</td>
<td>77399</td>
<td>22802</td>
<td>32636</td>
<td>32208</td>
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<td></td>
<td>(+,-)</td>
<td>40.7</td>
<td>43.1</td>
<td>39.0</td>
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<td></td>
</tr>
<tr>
<td>Transport and storage</td>
<td>#</td>
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<td>29988</td>
<td>26190</td>
<td>28409</td>
<td>2118</td>
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<td></td>
<td>(+,-)</td>
<td>5.9</td>
<td>8.5</td>
<td>-25.4</td>
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<td></td>
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<tr>
<td>Communication</td>
<td>#</td>
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<td>1627</td>
<td>600</td>
<td>1140</td>
<td>237</td>
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<td>Financial and insurance</td>
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<td>110</td>
<td>54</td>
<td>48</td>
<td>116</td>
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<td></td>
<td>(+,-)</td>
<td>-35.3</td>
<td>-11.1</td>
<td>-46.6</td>
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<td>280</td>
<td>556</td>
<td>430</td>
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<td>102.0</td>
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<td>Others</td>
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<td>5728</td>
<td>7564</td>
<td>6701</td>
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<td>56.8</td>
<td>32.1</td>
<td>78.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>%</td>
<td>137893</td>
<td>174477</td>
<td>79776</td>
<td>98175</td>
<td>58117</td>
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</tbody>
</table>

Source: Employment survey, 2011-2012, NSO

### Table 6: People working in the informal sector, by occupation and profession

<table>
<thead>
<tr>
<th>Occupation</th>
<th>2011</th>
<th>2012</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>number</td>
<td>%</td>
<td>number</td>
</tr>
<tr>
<td>Managers</td>
<td>1843</td>
<td>1.3</td>
<td>3562</td>
</tr>
<tr>
<td>Experts</td>
<td>3257</td>
<td>2.4</td>
<td>4795</td>
</tr>
<tr>
<td>Technicians and other support staff</td>
<td>1744</td>
<td>1.3</td>
<td>2174</td>
</tr>
<tr>
<td>Clerks</td>
<td>184</td>
<td>0.1</td>
<td>644</td>
</tr>
<tr>
<td>Sales persons</td>
<td>55050</td>
<td>39.9</td>
<td>79062</td>
</tr>
<tr>
<td>Specialists of agriculture, forestry, and fishing</td>
<td>578</td>
<td>0.4</td>
<td>903</td>
</tr>
<tr>
<td>Workers specialized in production, construction, handicrafts, and other related work</td>
<td>33629</td>
<td>24.4</td>
<td>39876</td>
</tr>
<tr>
<td>Operators of machinery and equipment</td>
<td>27999</td>
<td>20.3</td>
<td>31308</td>
</tr>
<tr>
<td>Support workers</td>
<td>13609</td>
<td>9.9</td>
<td>12153</td>
</tr>
<tr>
<td>Total, %</td>
<td>137893</td>
<td>100</td>
<td>174477</td>
</tr>
</tbody>
</table>

Source: Employment survey, 2011-2012, NSO
### Table 7: Number of cars, by years of utilization

<table>
<thead>
<tr>
<th>Type of car</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>Change 2012/2009</th>
<th>2012 share %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>224 068</td>
<td>254 486</td>
<td>312 542</td>
<td>345 473</td>
<td>54.2</td>
<td></td>
</tr>
<tr>
<td>Automobile</td>
<td>153 906</td>
<td>172 583</td>
<td>208 514</td>
<td>228 650</td>
<td>48.6</td>
<td>66.2</td>
</tr>
<tr>
<td>Trucks/lorries</td>
<td>47 291</td>
<td>61 841</td>
<td>75 090</td>
<td>83 718</td>
<td>77.0</td>
<td>24.2</td>
</tr>
<tr>
<td>Autobus</td>
<td>16 136</td>
<td>16 366</td>
<td>22 547</td>
<td>21 642</td>
<td>34.1</td>
<td>6.3</td>
</tr>
<tr>
<td>Special</td>
<td>6 735</td>
<td>3 696</td>
<td>6 391</td>
<td>11 463</td>
<td>70.2</td>
<td>3.3</td>
</tr>
<tr>
<td>Years of exploitation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 3 years</td>
<td>14 950</td>
<td>8 585</td>
<td>10 770</td>
<td>20 325</td>
<td>36.0</td>
<td>5.9</td>
</tr>
<tr>
<td>4-9 years</td>
<td>24 897</td>
<td>54 283</td>
<td>46 114</td>
<td>79 022</td>
<td>217.4</td>
<td>22.9</td>
</tr>
<tr>
<td>&gt;10 years</td>
<td>72 855</td>
<td>191 618</td>
<td>255 658</td>
<td>246 126</td>
<td>237.8</td>
<td>71.2</td>
</tr>
<tr>
<td>&gt;11 years</td>
<td>111 366</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Statistical Yearbook 2012, NSO
This report has been prepared as part of the PAGE inception phase. This mapping study will contribute to a broader stocktaking exercise meant to provide a blueprint for coordinated actions and outline future activities where PAGE can have the highest impact.

Whilst every effort has been made to ensure accuracy, this report is not an exhaustive treatment of the area of law discussed and no responsibility for any loss occasioned to any person acting or refraining from action as a result of material in this report.

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