

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)

Report title: **Green Jobs Mapping Study of Mongolia**

Main author: Economic Policy and Competitiveness Research Center (EPCRC)

Address: San Business Center, 9th floor
Prime Minister Amar Street 29,
Sukhbaatar duureg
Ulaanbaatar, Mongolia

Key contacts

Lakshmi Boojoo	/Director General/
Odonchimeg Ikhbayar	/Manager of EPCRC, Project Coordinator/
Dr. Baigalmaa Sanjjav	/Consultant/
Prof. Dr. Handsuren Sovd	/Consultant/
Boldsukh Adiyadorj	/Consultant/

Tel: (+976) 11-321927

Fax: (+976) 11-321926

E mail: info@ecrc.mn

Website: www.ecrc.mn

ABBREVIATIONS AND ACRONYMS

CMTU	Confederation of Mongolian Trade Unions
EPCRC	Economic Policy and Competitiveness Research Center
ERC	Energy Regulatory Committee
GDP	Gross Domestic Production
GGGI	Global Green Growth Initiative
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 Pacific
LLC	Limited Liability Company
MBKA	Mongolian Bee-keepers Association
MEGD	Ministry of Environment and Green Development
MIFA	Ministry of Industry, Food and Agriculture
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 Organisation
WSRC	Water Sewerage Regulatory Council
WWF	World Wide Fund
yoy	Year on Year

CONTENTS

Contents	4
Executive Summary	5
1. Introduction	6
1.1 The purpose of the report	6
1.2 Defining "Green Jobs"	6
2. An overview of the approach.....	8
2.1 Preparing sector profiles	8
2.2 Developing environment screening criteria.....	8
2.3 Decent work criteria.....	8
2.4 Estimating employment in green sectors/ subsectors	9
2.5 Challenges and assumptions	10
3. The economy and employment in Mongolia.....	12
3.1 Introduction.....	12
3.2 An overview of the status of employment maintained in the economy.....	12
3.3 The informal sector	14
3.4 Labour force migrations.....	15
3.5 Conclusions	15
4. Green jobs in key economic sectors and industries	16
4.1 Agriculture, livestock and forestry.....	17
4.2 Energy Sector.....	22
4.3 Water and wastewater management.....	24
4.4 Solid waste management	26
4.5 Transport sector	27
4.6 Construction.....	28
5. Concluding notes	29
References.....	30
Appendix 1: Data Tables	32

Executive Summary

The report at hand gives an overview on green jobs in Mongolia. The mapping revealed that currently in the selected sectors of the Mongolian economy there are 569,921 places of employment¹. Of these, only 11.5% can be considered as Green jobs. This represents some 6.2 % of the total employment in Mongolia.

¹ 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.

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

Green Jobs in Mongolia in selected economic sectors

# Sectors	Employment	D Jobs	EF Jobs	Green jobs	%
1 Animal husbandry	342,882	42,512	252,915	42,512	12.4
2 Crop production	58,477	20,932	4,591		0
3 Forestry	3,923	3,923	3,923	3,923	100
4 Energy	14,500	14,500	1,231	1,231	8.5
5 Water, sewerage, water treatment	6,538	6,538	5,159	5,159	78.9
6 Solid waste management	1,401	300	1,401	300	21.4
7 Transport	72,900	72,900	12,506	12,506	17.1
8 Construction	69,300	69,300	3,610	0	0
Total (no)	569,921	230,905	285,336	65,631	11.5
Share of employment		40.5%	50.0%	11.5%	

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

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 adding activities in the country so that the 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 share 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.

The employment is growing with a steady rate, and it 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 by 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.

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

1. Introduction

Mongolia has expressed strong interest and commitment to 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 – recognized 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 undertake a green jobs mapping study, a mapping study on the employment aspects of greening the economy of Mongolia was commissioned. This mapping study will contribute to a broader stocktaking exercise meant to provide blueprint for coordinated action and outline future activities where PAGE can have highest impact.

The objective of the mapping study was to examine the potential for green employment by identifying sectors and activities, which could enhance green employment in the transition to a green economy. The study has assessed the environment – economy-employment linkages at the 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 having scope for Green Jobs and consider which policy options could be initiated 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”¹ the concept of “Green jobs” can be generically 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, minimize the production of waste and pollution or help adapt to climate change. In other words, estimating, as far as the available data allow, the number of those jobs that provide decent work conditions and thus, 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.”

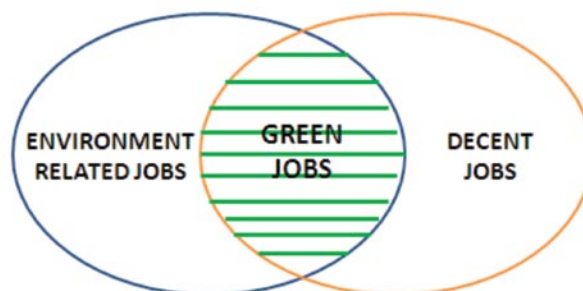
The report on “Green Jobs Mapping Studies in Asia (2010-2012)” published by ILO ROAP in 2013, was very useful as it had already proposed concept and methodology.² This methodological approach first piloted in Bangladesh and carried out in 5 other countries in Asia and the Pacific. It assesses the direct green jobs that contribute to low carbon development, environmental sustainability and adaptation to climate change. In a step-wise ap-

¹ Available at: http://www.ilo.org/global/publications/books/WCMS_153458/lang-en/index.htm

² The characterization of the direct green jobs is based on the review and application of environmental indicators and labour indicators throughout the sectors under consideration. In this context, specific green practices, products and services are researched and the main environmental and decent work screening criteria established through national consultation with tripartite constituents and national specialized agencies.

proach the core-environment related jobs are assessed, and among those jobs the ones that are decent work under ILO definition are 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 do 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.



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

2. An overview of the approach

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

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

2.1 PREPARING SECTOR PROFILES

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

During a workshop where relevant government staff, researchers and representatives of NGOs attended, we have 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, considering 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 in 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 in 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 activity-based approaches, 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 and employers and workers. It is based on the understanding that work is a source of personal dignity, family stability, peace in the community, democracies that deliver for people, and economic growth that expands opportunities for productive jobs and enterprise development.

The ILO works to develop "decent work"- oriented approaches to economic and social policy by promoting Decent Work Agenda. The Decent work agenda has four pillars such as:

- **Creating Jobs** – an economy that generates opportunities for investment, entrepreneurship, skills development, job creation and sustainable livelihoods.
- **Guaranteeing rights at work** – to obtain recognition and respect for the rights of workers. All workers, and in particular disadvantaged or poor 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 case of lost or reduced income and permit access to adequate healthcare.
- **Promoting social dialogue** – Involving strong and independent workers' and employers' organizations 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, decent work criteria for Mongolia consists of and in compliance with:

- Rules and regulations on minimum wage,
- 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 2.1 Screening criteria

Environmental criteria	Decent job criteria
Complies with relevant national laws on environment	Complies with rules and regulation on minimum wage
Complies with the national programs on green economy	Freedom of association and right to collective bargaining
Complies with industry and sector benchmarks and best practices	No forced or compulsory labour and elimination of discrimination in respect of employment and occupation
Activities based initiatives promoting positive environmental impacts, etc	Abolition of child labour and compliance with occupational safety and health

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:

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, the members of trade unions still need a lot of capacity building in order to increase their bargaining power.

2.4 ESTIMATING EMPLOYMENT IN GREEN SECTORS/SUBSECTORS

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, irrespectively of whether the sectors concerned are considered to be environmentally friendly or not

Lack of data on actual job estimates: In many cases there is no information of job estimates in the sector/sub-sector of interest. There are also no available estimates or official data for activities within a sector/subsector which has potential to generate green jobs.

Data disaggregation: Job data is often aggregated at a high level. For example, the job estimates for the transportation sector is 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 its corresponding green jobs generated.

	Sectors	Indicators	
		Process	Product
1	Agriculture		
1.1	Animal husbandry	Any activities that lead to proper pasture management;	<ul style="list-style-type: none"> • Reduction of the number of livestock and • Increase of the yield per animal • Engagement in intensified farming
		Actions to improve the health of livestock and land	Cooperation between herders and veterinarians.
		Any activities directed to store the ecological balance	Bee-keeping activities
1.2	Crop production	Any activities directed to improve the soil nutritional value and reduce desertification	<ul style="list-style-type: none"> • Growing plants, trees, and grass • Running green house
2	Energy	Any activities directed to reduce the CO2 emission by energy sector	<ul style="list-style-type: none"> • Renewable energy • New technologies on the use of coal and gas in energy sector
3	Water and waste water management	Any activities directed to maintain the water resources of the country	<ul style="list-style-type: none"> • Re-use of water • Water treatment
4	Waste management	Any activities directed to reduce the amount of solid waste and soil contamination;	<ul style="list-style-type: none"> • Waste processing • Waste classification
5	Transport	Any activities directed to reduce CO2 emission by transport sector	Any products that meet the objectives of the Government Policy on "The Mid-term Development Program" to introduce ecologically clean public transport
6	Construction	Any activities that help to reduce land degradation	Building auto roads Building water channels and pipes, building bridges

Due to limitations in time and resources, the extensive in-depth interview of the identified environment related sectors is not 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 organizations 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:

How to deal with job estimates of "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 could generate temporary jobs. However, there are no data available on jobs.

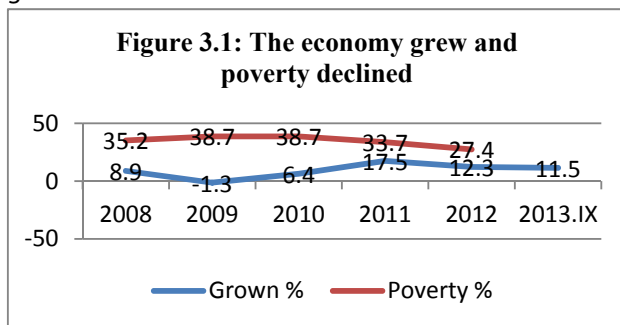
Congruence of data: Data from the National Statistical Office is often not identical with data published or obtained from the sectors. Therefore, the NSO data have been taken for all the survey.

3. The economy and employment in Mongolia

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

3.1 INTRODUCTION

The average annual growth of the Mongolian economy in the years between 2008 and 2012 was 8.7%. As of September 2013, real GDP grew by 11.5% year on year (yoy), which is 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% age points compared to 2009. Poverty decreased by 5% to 5.3% per annum during the last 3 years.

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 that contribute to GDP are mining and quarrying (21.4%), agriculture (14.8%), processing industry (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.

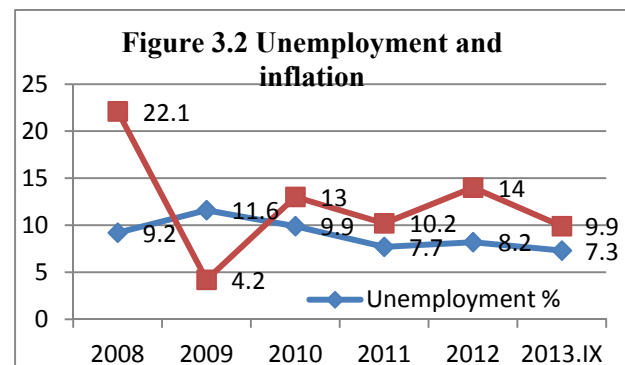
Economic growth also had a positive influence on employment. By October 2013, the unemployment rate had dropped to 7.3%, which is a decrease by 1.7% compared to the previous year. On the other hand, fluctuations in the exchange rate have had a negative impact on employment. During the first 10 months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

Compared to 2011, the foreign trade turnover in 2012 increased by 2.6% or USD 292.9 million; it reached USD 11,123.0 million comprising exports of USD 4,384.7

million, and imports of USD 6,738.3 million. 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% is products of high technology¹.

Source: Monthly bulletin November, 2013, NSO; www.nso.mn



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 these, 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.

Literacy rate in Mongolia is high. About 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 to 0.912.

In terms of education level, 19.8% of people of age 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 faster than for males. Between the two population censuses of

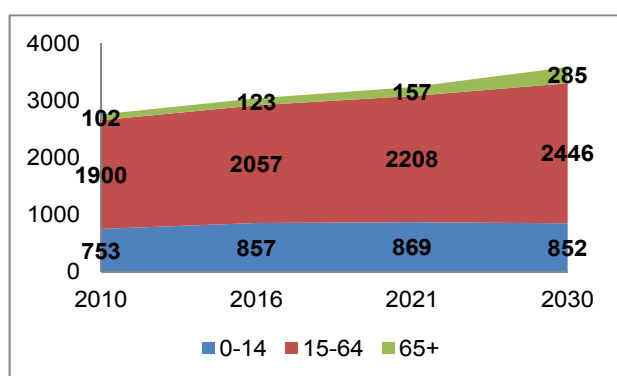
¹ NSO 2013: Statistical Yearbook 2012

² D. Ganbat, lecturer at Otgontenger Institute, 2013: A Survey on socio-economic impact of establishing a free trade agreement with Japan, page 23

2000 and 2010, the number of men with higher education increased two times, while the number of women with higher education has increased 2.8 times³.

The Mongolian population is ageing. In 2010 the share of the population aged under 14 years was 27.3%, the share of people between the age 14 to 64 was 68.9%, and the share of people aged above 65 was 3.7%. However, by 2030 these proportions will change to 23.8%, 68.3% and 7.9% accordingly. 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 population in 2012 comprised of 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 level⁴ (See Figure 3.3).

Between 2009 and 2012, labour participation level (66.8% to 63.5%) decreased for women, but increased for men. On the other hand, employment (88.4% to 91.8%) grew substantially with the same rate and the proportion of number of people employed is now relatively gender balanced (91.6%/91.9%). The proportion of women employed with stable wages is slightly less than men (47.4% – 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 occupied 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 at the household family business without salary. 0.9 are employers, and 0.2% do not belong to any of these categories⁵.

The Government of Mongolia (GoM) announced the year of 2011 as "Employment promotion year" and implemented several policies to support employment generation. As a result, from 2011 to 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 totally 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 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 sources 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"⁶.

The definition of GoM follows ILO decision to exclude agriculture from informal economy as it is difficult to define formal and informal activities within agriculture in developing countries.⁷ 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.

According to the NSO Employment Survey of 2012, about 174.5 thousand people work in the informal sec-

³ NSO 2013: Statistical Yearbook 2012

⁴ National Development Institute, 2012: "Population location, settlements and labour market survey", page 7

⁵ 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, 1st July 2009

⁶ Provision 1.3 of the Attachment 1 of the Resolution 1 of 2006 of the Mongolian Parliament "About Government Policy on Informal Employment"

⁷ NSO 2013: Employment Survey 2012, page 62. www.nso.mn

tor, 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 activities, 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 specialized 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).

3.4 LABOUR FORCE MIGRATIONS

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)⁸. 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 to support Mongolians living abroad to come back 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.

3.5 CONCLUSIONS

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 to the group of countries of lower-middle income⁹. The positive economic growth 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 with a relatively high annual rate of about 2%. The population is ageing however the share of people of working age until 2030 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 of employment 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 by 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.

⁸ D. Ganbat, lecturer of Otgontenger Institute, 2013: A Survey on socio-economic impact of establishing a free trade agreement with Japan, page 25

⁹ 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 resources¹. During the last 25 years, the world economy grew fourfold. On the other hand 60% of ecosystems became unstable due to improper use of natural resources. This is also true 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/\$ or 3.04 kgs.f./\$). By emission of CO₂ to GDP Mongolia is 10 times higher than the world average (0.75kg/\$ or 7.5 kg/\$) although by emission of CO₂ per person in Mongolia is lower than the world average². As the survey of 1940-2008 shows, the air temperature in Mongolia has increased by 2.14 degrees, which is 3 times higher than the world average.

¹ <http://data.worldbank.org/about/world-development-indicators-data/environment>

² NSO 2013: Statistical Yearbook, 2012

According to statistics for 2006, 64.4% of CO₂ gas emission is created by energy sector; 41.4% by animal husbandry and 13.3% by forestry and land use activities¹.

Therefore the energy sector is selected for estimating green jobs.

Furthermore, the sector of 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, and which is the most vulnerable sector to climate change, is also selected for estimating green jobs.

The transport sector is selected as government policy in Mongolia which stipulates ecologically clean public transport that would lead to the reduction of gas emissions. Water and waste water management 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 be as wide as one or more kilometers. Therefore, as building roads and bridges will channel traffic, the construction sector is also selected.

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

The mining sector is recognized 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 into selected sectors as it has created only 4.4% of employment with a growth rate of 3.5% and compared to energy and animal husbandry it does not have significant impact on CO₂ gas emission and is not 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**.”²

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 a Government Program called “Inhabited Mongolia”, approved on 12th 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 the 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 the society,
- Protection of land,
- Maintenance and security of environment safeties,
- Organization of proper waste management, and
- Risk mitigation

¹ M. Altanabagana, doctorate student, head of a sector of NDI, 28 Aug 2012: Lets involve herders into CO₂ emission fights by introducing bonus system matching to their participation, altanabagana44blog.spot.com/2012/08/blog-post.html#more

² <http://www.unep.org/greenconomy/aboutgei/whatisgei/tabid/29784/default.aspx>

The introduction of the Program is a willingness of Mongolia to support citizens' initiatives directed to reduce the factors that negatively influence the environment leading 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 aiming at ecologically efficient consumption, production of ecologically clean products through identification of eco-business projects and provision of financing opportunities through soft loans, trainings and thus 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 etc³.

In a nutshell, the government is not the only area leading the push towards Green Development. Elements of the private sector recognize 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 in this sector.

According to the 1st National Census of Agriculture of 2011, a total of 2455 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 hunting⁴.

ANIMAL HUSBANDRY

Nomadic herders are defined as people together with their family run 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 recognized as a 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 the 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 all labour force and 84.3% of all workers in the agricultural sector. Of all herders, 43.9% are female, 56.1% are male; about 340,157 herders work on household basis and 2,310 work for establishments. In addition, of 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

№	Professionals	Total	Of which	
			Male	Female
1	Veterinarians	438	220	218
2	Animal husbandry engineers	416	213	203
3	Professional farmers	317	165	152
4	Others (managers, accountants, commodity specialists)	3710	2135	1575
	Total	4881	2733	2148

Source: The summary of the 1st National Agricultural Survey of 2011, page 56, NSO 2012

the data on jobs of agricultural sector differs from the Statistical data. For further elaborations of green jobs the researchers took the data of the Census.

³ A detailed description of Government programmes and policies as well as MNCCI initiatives are described in the 'Stocktake of Mongolia's Green Economy' report produced by the EPCRC.

⁴ NSO 2012: Summary of the 1st National Agricultural Census of 2011, page 27, 47;

Due to a policy to support Intensive farming which has a goal to supply population with high quality food, the number of intensive farms has increased up to 1,706 (increase by 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 farms⁵.

Bee-keeping is one of the recovering sectors of farming in Mongolia. Bees are recognized as insects that play an important role on keeping ecological balance on Earth and have 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 often bee-hives are placed near the 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 efforts of World Vision, WWF and others, there are many positive changes. Honey produced by Mongolian bee-keepers now fulfills the criteria of Green labeling of MNCCI.

The Mongolian Bee-keepers Association (MBKA) has organized the Census of bee-keepers in December 2013 for the first time in Mongolia. According to the bee-keepers census there are 415 job places⁶ that shall 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 organized many activities directed to facilitate herder groups to possess their common pastures in the long-term, to increase the yield per animal, to start intensified farming, to take actions 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. There is estimation 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 units⁷. The national average of carrying capacity of 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 migration of herders, the problem of pasture degradation occurs strongly 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 14.3 times⁸. These aimags have a total of 89,967 herders; which we 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 and they do not pay their fees to Social Insurance Fund. Most of the assistant herders are paid by goods, not in cash.

Of all herder families, 19.1% or 40,000 people have paid social insurance fees and 84.4% or 176,800 paid health insurance premiums⁹. 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.¹⁰ Also, of 4,881 professional workers in animal husbandry 202 are employed by public institutions and business entities and 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 and 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:

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

⁵ NSO 2013: Agriculture in 2012, page 28; http://www.mofa.gov.mn/new/images/banners/report/tanilts_livestock.pdf

⁶ MBKA 2013: News "The results of bee-keeping farms are ready", www.monapi.mn/news/see/29

⁷ A.Bakei, B. Chimid-ochir 2010: Livelihood of herder's family: contributing factors and the ways to improve, page 10 <http://www.maas.edu.mn>

⁸ NSO 2013: Agriculture in 2012, page 29 http://www.mofa.gov.mn/new/images/banners/report/tanilts_livestock.pdf

⁹ NSO 2012: Summary of the 1st National Agricultural Census of 2011, page 35,273

¹⁰ Ibid.

CROP PRODUCTION

The size of arable land in 2012 was 115.4 million hectares, which is a decrease of 0.1 million hectares or 0.1% compared to the previous year. Of these, 96.2% of arable land is 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 fodder¹¹.

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 thousand employees in crop production are professionals¹². 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 supplying the population with high quality Mongolian original agricultural products. For instance, the 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 the 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 to implementation a "Khalkhgo" project has an objective to start using the old and new crop fields in Khalkhgo 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 of Korean high 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 had paid 50% of the total cost of green houses¹³.

According the Agricultural census, 6,437 families and 804 business entities have green houses, 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 a National Program on "Green job place – Sea-buckthorn".



Within the "Green job place - sea-buckthorn" program, enough of sea-buckthorn seedlings were nursed 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 are growers of sea-buckthorn. Green label was given to sea-buckthorn oil and seabuckthorn juice by MNCCI within "Made in Organic Mongolia" initiative.

Environmentally friendly job in crop production

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

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

All the other jobs in the crop production sector cannot be recognized as environmentally friendly as of all land used for crop production 61.9% have 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 was used per hectare of agriculture land; and 0.9 kg of chemicals per hectare was used to abolish insects.

Table 4.2: Number of families and business entities with agricultural facilities such as green houses, warehouses and storehouses and garages, 2011

Families with agricultural facilities, total	6,437	Business entities with agricultural facilities, total	804
With greenhouses	1,428	With green houses	199
With warehouses	125	With warehouses	305
With warehouses	5,421	With warehouses	395
With granary	15	With granary	142
Garages for agricultural machineries	211	Garages for agricultural machines	109
		Repair of Machines	60

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

¹¹ MolFA 2013: Bulletin "Timely information" No. 2013/04, page 16 <http://www.mofa.gov.mn/new/images/banners/report/tu04.pdf>

¹² NSO 2012: Summary of the 1st National Agricultural Census of 2011, page 35, 59

¹³ MolFALI 2013: Activities carried out in 2007-2012 in the direction to develop soil protected industries, http://mofa.gov.mn/new/index.php?option=com_content&view=article&id=71&Itemid=155

Decent work in crop production

All employees of business entities (7,532) are covered with social and health insurance schemes, while 40% (13.4 thousand people) of all working in family business 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 as decent as there is no evidence that they are covered with social and health insurance. There is no available data on social and health protection for seabuckthorn producers as well.

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

Green jobs in crop production

Even 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 follow up, more in-depth, case by case study is needed for 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 on 1,475.5 thousand hectares of forest about 32.6 thousand hectares of trees have dried 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, 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 about 345 thousand to 2.4 million cubic meters of wood is cut illegally.

Government policy on Forestry

The GoM approved a National Program on Forestry by its resolution 248 of 2001. The program has 3 stages of implementation: 1st phase from 2001 to 2005, 2nd phase

from 2006-2010 and the 3rd phase from 2011-2015.

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.¹⁴ 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 2812¹⁵, which includes 442 workers who plant trees, 1996 workers engaged in forest cleaning and rehabilitation and 372 assistant workers.

In addition there are 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 to forest user groups. There are 600 forestry user groups. Unfortunately there are 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 which should be considered as environmentally friendly jobs.

Decent jobs in forestry

Of total expenditures of forestry business 25% (MNT 746.7 million) was paid as salaries and wages of employees; and according to NSO in 2012 an 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 employees, their wages are higher than the Country's minimum wage level, and covered with social and health insurance schemes.

The jobs that are created by business entities are all seasonal, expect the workers on management position and few jobs in tree nursery greenhouses. However, according to the NSO definition these can be considered

¹⁴ NSO 2012: Summary of the 1st national agricultural census of 2011, page 228-229

¹⁵ NSO 2012: Summary of the 1st national agricultural census of 2011, page 4

full time-employees¹⁶. 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 as 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 that have created 106 full time job places, of which 26.2% are female¹⁷. However, the data regarding the jobs in the fishing was considered as confidential information. Therefore, no estimation of green jobs in fishing has been undertaken.

4.2 ENERGY SECTOR

The demand for energy is increasing in line with the economic growth of Mongolia. In 2012, the energy sector occupies 6% of the GDP, and compared to 2009, the energy production has 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 transport and communications, 0.1% in agriculture and 8.9% in other sectors¹⁸.

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 above the current level by 2020. Due to the current low energy capacity, about 100 newly built buildings could not be connected to central heating system in 2013.

The energy sector employs about 14.5 thousand people, which is an increase by 51.9% compared to that in year 2009. This represents some 14.5% of all 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 staff¹⁹.

Government policy in Energy Sector

The GoM's strategy for the energy sector is:

1. Create new sources of energy; build local/regional energy grids;
2. Support the development of renewable energy production through tax reduction and tax ex-

emption 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 on the use of coal and gas, and support innovations.

Environmentally friendly jobs in energy sector

The research team has hypothesized 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 Khatanbulag soum Dornogovi aimag and the other is "Salkhit" power station (50 MW) located in Sergelen soum Tuv aimag. The data about the employment in those two power stations are included in the above mentioned 639 jobs.

There are 8 solar power stations with a total capacity of producing up to 100 kW of energy that are operational in the country, including in Umnugobi (1), Gobi-Altai (3), Bayanhongor (1) and Bayan Ulgee aimags (3) and 3 solar and wind power stations with total installed capacity of 150-200 kW²⁰. 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 persons.

There are 11 hydropower stations with installed capacity of 11kW to 2000kW. They have created total of 137 job places²¹.

The Government Program "100 thousand solar panels" 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 2013²². 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 utilization of coal and gas can be considered as green jobs as they contribute to the development of alternative energy sources.

¹⁶ 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".

¹⁷ NSO 2012: Summary of the 1st National Agricultural Census of 2011, page 47

¹⁸ www.nree.mn/index.php?pid=2

¹⁹ NSO 2013: Employment Survey 2012

²⁰ ERC 2013: Some renewable energy power stations that operate in Mongolia, www.erc.mn/mn/renewable_energy

²¹ Ms. Otgonchimeg, scientist officer of Geo-ecological research institute

²² Green World Environment (GWE) NGO 2013: Best Green Awards-2013, www.gwe.mn/medee/baigal-orchnii-salbariin-medee/1663-best-green-awards/2013.html

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 technology²³. All companies in this field together have 437 employees²⁴.

There are some initiatives to produce pressed fuel out of coal that should contribute to reduction of air pollution in urban settlements, but unfortunately no formal and aggregated data about jobs created could be obtained.

²³ Central Database of Petroleum 2013, www.petrolium.mn/en/companys/hiin-companys/181-2011-04-12-08-45/html

²⁴ NSO 2013: Employment survey of 2012

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, also they have provided with uniforms and 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 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

Years	Workers paid social insurance fees	Full time employees	Average monthly salary	Average monthly salary of engineers and technicians
2009	9.5	9.5	297.3	314.3
2010	12.4	12.4	337.5	363.2
2011	11.9	11.9	411.3	430.6
2012	14.5	14.5	540.8	596.8

Source: Statistical Yearbook 2012, NSO

4.3 WATER AND WASTEWATER MANAGEMENT



Environmental problems

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 square 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 in connection to proper water management and to further 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.

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 discharges²⁵. Since 2007, a total of about 2,913 rivers, streams, lakes, springs have disappeared due to various different 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.

²⁵ 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 by 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 of at least 1 staff per aimag (total 21 persons)²⁶; the Water Supply and Sewerage Authority of Ulaanbaatar city (USUG) with 1488 employees²⁷, 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 workers²⁸ and the Water, Climate and Environment Research Office, employs 138 personnel for biological and chemical control of water resources²⁹.

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 centralized water pools that supply water to apartment residents, and 1,369 for non-centralized water pools that are in charge of supply of water to ger district residents³⁰.

There are also many non-governmental organizations, 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 wage³¹.

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 plans³². 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 environment 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 as Green jobs.

Green jobs in the sewerage and water supply management sector

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

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

26 MEGD 2014: Water reserve of Mongolia www.mne.mn/v3/?p=1673#UtGV-PsmWSO

27 USUG 2013: Report 2013, www.usug.ub.gov.mn/index.php/mega-menu/2012-07-30-0526-22/321-tailan2013

28 National consultation of Water basins, Ulaanbaatar, 18-19th December 2013

29 D. Tumurtsooj 2013: Master study "The water pollution and the calculation of it"

30 NSO 2013: Employment survey 2012

31 WSRC 2013: Report on supervision on 2012 balance sheets and reports of entities engaged in water sewerage activities, page 1, www.wsrc.mn/2013-11-12-2012онХэргэмзэн.pdf

32 Ibid

4.4 SOLID WASTE MANAGEMENT

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 considering 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, 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 the next generations. Solid waste pollutes the air and soil, and thus damages 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 items³³.

During the meeting of the Board of Directors of the Association of Waste Exporters that took place in October 2010, the number of Directors 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 started to distribute 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 negative 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 places to collect, disinfect and process solid waste contribute to environmental protection and can be considered as environmentally friendly jobs.

Recently MNCCI has organized an exhibition titled "Environmentally friendly Technology 2012", where 42 solid waste processing companies participated³⁴. 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% of 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 jobs³⁵.

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 organizations 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 the workers of Ulaanbaatar municipality. In 2013 their 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 the job places. Besides, they have to 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 is considered as decent works. Further, there are an unknown number of scavengers that are part of the informal sector. However 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 made 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 was built newly,

33 News.mn 2012: "Get acquainted with work of garbage classification centers", 29 February, 2012; www.news.mn/content/98670.html

34 <http://www.mongolchamber.mn/index.php/home-page/home/2012-08>

35 NSO 2013: Employment survey 2012

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% are automobiles, 27.8% are trucks and Lorries, 4.8% are buses, 3.3% are tractors and other vehicles, and 2.7% are cars for mining. There are 700,000 people who have driving license.

Of all cars 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 recognized 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 Initia-

tive (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 are some available statistical data saying that there are 35,946 auto vehicles of 1 to 3 years of utilization and about 11,878 vehicles that consume gas³⁶, there is no data on how many jobs are created. However, 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 be also considered as environmentally friendly jobs, as rail transport does not harm the soil, and do not 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 people³⁷, 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 3,958 persons³⁸.
- 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 purposes transports
- 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 drivers³⁹.

Drivers and all the jobs in rail and air transport can

36 National Auto transport Center 2013: Statistics www.teever.gov.mn/head/статистика

37 National Auto transport Center 2013: Statistics www.teever.gov.mn/head/илажиллагаа-зорчигч тээвэр

38 www.teever.gov.mn/#head/ ил ажиллагаа зорчигч тээвэр- хот хоорондын нийтийн зорчигч тээврийн ААНБ-ын дэлгэрэнгэйд судалгаа 2013

39 www.нийтийн тээвэр.mn

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.

4.6 CONSTRUCTION

In 2012, some 2.3% of the GDP was created 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/a/50/a/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 jobs⁴⁰

Therefore, a total of 3,610 jobs are considered as environmentally friendly jobs. However, the road construction still needs an adaptation to new ecologically clean technologies. Also, after the road construction has finished, local government shall 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 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 of 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.

40 NSO 2013: Employment survey 2012

5. Concluding notes

As decent employment conditions or stable labour market is one of the main pillars of sustainable development, standardizing 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 broadening 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 of 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 job and collection and processing of relevant data may be efficient.



References

- ILO 2013 "Sustainable development, decent work and green jobs", Report V. International Labour Conference, 102nd Session, 2013 http://www.ilo.org/wcmsp5/groups/public/---ed_norm/---relconf/documents/meetingdocument/wcms_207370.pdf
- IGES 2013 "Green jobs mapping study in Malaysia: An overview based on initial desk research" <http://apgreenjobs.ilo.org/project/green-jobs-malaysia/project/green-jobs-malaysia/resources/research-and-study/>
- Mongolian National Program on "Inhabited Mongolia" (in Mongolian language)
- Mongolian National Program on "Green job place-Sea-buckthorn" (in Mongolian language)
- Mongolian National Program on Intensive Farming (in Mongolian language)
- Mongolian National Program on "Water" (in Mongolian language)
- Mongolian Government Action Plan of 2012 – 2016 (in Mongolian language)
- Ministry of Industry, Food and Agriculture (MolFA) 2013: Bulletin "Timely information" No. 2013/04, <http://www.mofa.gov.mn/new/images/banners/report/tu04.pdf>
- MolFA 2013: Activities carried out in 2007-2012 in the direction to develop soil protected industries, http://mofa.gov.mn/new/index.php?option=com_content&view=article&id=71&Itemid=155
- Energy Regulatory Agency(ERC) 2013: "Some renewable energy power stations that operate in Mongolia", www.erc.mn/mn/renewable_energy
- The Parliament of Mongolia 2006: Resolution No.1 "About Government Policy on Informal Employment" Attachment 1, Provision 1.3.
- Chairman of NSO and Minister of Social Welfare and Labour 1st July 2009: Joint resolution on "Methodology of calculations of statistical indicators of employment and labour force"
- National Development Institute 2012: "Population location, settlements and labour market survey"
- M. Altanabagana, doctorate student, Head of a sector of NDI, President Office 28 Aug 2012: "Lets involve herders into CO2 emission fights by introducing bonus system matching to their participation", <http://www.altanabagana44blog.spot.com/2012/08/blog-post.html#more>
- A.Bakei, B. Chimid-ochir 2010: Livelihood of herder's family: contributing factors and the ways to improve, page 10, http://www.maas.edu.mn/index.php?option=com_content&view=article&id=310:2010-03-01-17-35-51&catid=27:2010-02-16-22-57-16&Itemid=247
- D. Tumurtsooj 2013: Master study "The water pollution and the calculation of it"
- D. Ganbat, lecturer of Otgontenger Institute, 2013: A Survey on socio-economic impact of establishing a free trade agreement with Japan, page 23
- Green World Environment (GWE) NGO 2013: Best Green Awards-2013, www.gwe.mn/medee/baigal-orchnii-salbariin-medee/1663-best-green-awards/2013.html
- Central Database of Petroleum 2013, www.petroleum.mn/en/companys/hiin-companys/181-2011-04-12-08-45/html
- Ministry of Environment and Green Development (MEGD) 2014: Water reserve of Mongolia www.mne.mn/v3/?p=1673#UtGV-PsmWSO
- Water Supply and Sewerage Authority of Ulaanbaatar City 2013: Report 2013, www.usug.ub.gov.mn/index.php/mega-menu/2012-07-30-0526-22/321-tailan2013
- National Consultation of Water Basins, Ulaanbaatar, 18-19th December 2013
- Water Sewerage Regulatory Council (WSRC) 2013: Report on supervision on 2012 balance sheets and reports of entities engaged in water sewerage activities, page 1, www.wsrc.mn/2013-11-12-2012онНэгтгэл.pdf
- News.mn 2012: "Get acquainted with work of garbage classification centers", 29 February, 2012; www.news.mn/content/98670.html

- National Statistical Office of Mongolia (NSO) 2013: Statistical Year Book 2012
- NSO 2013: Employment Survey 2012
- NSO 2012: Summary of the 1st National Agricultural Census of 2011
- NSO 2013: Monthly Bulletin of November, 2013; www.nso.mn
- NSO 2010: Summary on Population and Housing Census 2010;
- Web sites
- Parliament of Mongolia - <http://www.parl.gov.mn>
- Government of Mongolia - <http://www.open government.mn>
- Ministry of Industry, Food and Agriculture - <http://www.mofa.gov.mn>
- Ministry of Labour – <http://www.mol.gov.mn>
- Ministry of Roads and Transport – <http://www.mrt.gov.mn>
- Ministry of Environment and Green Development – [hppt://www.mne.gov.mn](http://www.mne.gov.mn)
- Ministry of Construction and Urban Development – <http://www.mcul.gov.mn>
- Bank of Mongolia – <http://mongolbank.mn>
- Road and transport department, Government implementation agency - <http://www.rta.gov.mn>
- Energy Regulatory Commission – <http://www.erc.mn>
- Central Database of Petroleum – <http://www.petroleum.mn>
- National Water Committee – [hppt://www.water.mn](http://www.water.mn)
- Water Supply and Sewerage Authority of Ulaanbaatar City – <http://www.usug.ub.gov.mn>
- Water Sewerage Regulatory Council – <http://www.wsr.gov.mn>
- National auto transport center – <http://www.teever.gov.mn>
- Ulaanbaatar Municipality – <http://www.ub.gov.mn>
- Ulaanbaatar Public Transport Department – <http://www.нийтийнтээвэр.mn>
- Mongolian Academy of Agricultural Science – <http://maas.edu.mn>
- National Statistical Office online resources - <http://www.nso.mn>
- Mongolian National Chamber of Commerce and Industry online resources - <http://www.mongolchamber.mn>
- Green World Environment NGO – <http://www.gwe.mn>
- Mongolian Bee Keepers Association – <http://www.monapi.mn>
- Online newspapers - <http://www.news.mn>; <http://www.mongolnews.mn>
- International Labour Organisation – <http://www.ilo.org>
- World Bank – <http://www.worldbank.org>

Appendix 1: Data Tables

Table 1: GDP and its growth, by sectors

Sector		2008	2009	2010	2011	2012
Agriculture, forestry and fishing	share GDP	19.2	17.9	14.3	12.3	14.8
	growth in %	4.7	3.6	(-16.6)	(-0.5)	21.3
Mining and quarrying	share GDP	20.6	19.8	23.6	24.1	21.4
	growth in %	-1.6	5.8	3.6	7.3	8.9
Manufacturing	share GDP	8.3	8.3	8.4	7.8	8.0
	growth in %	2.7	(-9)	6.1	8.3	9.7
Electricity, gas, steam and air conditioning supply	share GDP	1.8	2.4	2.1	1.7	1.6
	growth in %	8.1	6.3	0.1	8.0	7.6
Water supply; sewerage, waste management and remediation activities	share GDP	0.4	0.4	0.4	0.4	0.4
	growth in %	8.7	4.8	-4.0	11.4	10.0
Construction	share GDP	2.5	1.6	1.7	2.3	2.3
	growth in %	-13.8	(-34)	16.5	35.6	25.6
Transportation and storage	share GDP	6.5	8.3	7.8	7.2	6.6
	growth in %	19.3	8.0	7.0	9.1	12.8
Information and communication	share GDP	3.9	3.8	3.4	3.1	3.1
	growth in %	19	7.5	6.4	5.2	19.5
Financial and insurance activities	share GDP	3.6	3.3	2.9	3.4	3.6
	growth in %	30.4	-15.6	0.3	38.5	25.7
Other	share GDP	33.2	34.2	35.4	37.7	38.1
	growth in %	20.1	21.4	23.5	33.9	8.6
Total	growth in %	8.9	-1.3	6.4	17.5	12.3

Source: Statistical Yearbook 2008-2012, NSO

Table 2: Labour market indicators of Mongolia

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

Source: Statistical Yearbook 2012, NSO

Table 3: Employees by sectors

Economic sector		2008	2009	2010	2011	2012
Agriculture and forestry	no	377.6	348.8	346.6	342.8	370.0
	growth %	(-2.3)	(-7.6)	(-0.6)	(-1.1)	(7.9)
Mining and quarrying	no	46.5	34.8	34.1	45.1	46.7
	growth %	(5.44)	(-25.2)	(-2.0)	(32.2)	(3.5)
Manufacturing	no	47.5	62.7	64.8	65.8	64.9
	growth %	(-0.85)	(32.1)	(3.3)	(1.6)	(-1.3)
Electricity and gas; steam and air conditioning supply	no	30.1	9.5	12.4	11.9	14.5
	growth %	(-3.2)	(-68.3)	(29.9)	(-3.7)	(21.5)
Water supply; sewerage, waste management and remediation activities	no		6.1	7.8	5.1	6.7
	growth %		(100.0)	(27.8)	(-34.1)	(30.5)
Construction	no	66.8	49.6	48.8	52.0	59.2
	growth %	(114.7)	(-25.8)	(-1.7)	(6.6)	(13.9)
Wholesale and retail trade	no	169.7	160.3	146.2	152.5	131.3
	growth %	(4.6)	(-5.5)	(-8.8)	(4.3)	(-13.9)
Transport and storage activities	no	35.8	68.7	76.5	75.8	56.1
	growth %	(10.5)	(91.8)	(11.5)	(-0.9)	(-26.0)
Communications	no	10.5	10.2	14.5	11.5	14.7
	growth %	(-3.7)	(-2.9)	(42.1)	(-20.5)	(27.5)
Financial and insurance activities	no	19.8	12.3	15.2	16.6	17.4
	growth %	(13.7)	(-38.1)	(23.6)	(9.4)	(4.9)
Public administration	no	50.9	65.0	70.4	64.8	76.2
	growth %	(4.94)	(27.8)	(8.3)	(-8.0)	(17.6)
Others	no	186.5	178.4	196.4	193.8	198.7
	growth %	(1.57)	(-4.3)	(10.1)	(-1.3)	(2.5)
Total	no	1041.7	1006.4	1033.6	1037.7	1056.4
	growth %	(1.71)	(-3.4)	(2.7)	(0.4)	(1.8)

Source: Statistical Yearbook, 2012; NSO

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

		Total			Location		
		2011	2012	/+ - /	Urban	Of which in UB	Rural
Total	Total	137893	174 477	+26.5	125 124	76 541	49 353
	Primary	130189	164 874	+26.6	120 835	74 940	44 039
	Secondary	7704	9 603	+24.6	4 289	1 601	5 314
Male	Total	79776	98 175	+23.0	69 231	44 215	28 944
	Primary	75809	92 373	+21.4	66 769	43 085	25 604
	Secondary	3967	5 802	+46.2	2 462	1 130	3 340
Female	Total	58117	76 302	+31.2	55 893	32 326	20 409
	Primary	54380	72 501	+33.3	54 066	31 855	18 435
	Secondary	3737	3 801	+1.7	1 827	471	1 974

Source: Employment survey 2011-2012, NSO

Table 5: Number of people working in the informal sector by types of economic activities and sex

Type of economic activities	Indicator	Year		Sex			
				Male		Female	
		2011	2012	2011	2012	2011	2012
Mining and quarrying	#	6762	6134	4714	4669	2048	1465
	(+,-)		-9.3		-1.0		-28.5
Manufacturing	#	22195	27436	11282	14981	10913	12455
	(+,-)		23.6		32.8		14.1
Electricity, gas, steam, air conditioning; Water supply, sewerage, waste management and remediation of water	#	1402	767	972	456	430	311
	(+,-)		-45.3		-53.1		-27.7
Construction	#	10070	10090	7154	7716	2916	2374
	(+,-)		0.2		7.9		-18.6
Wholesale and retail trade	#	55010	77399	22802	32636	32208	44763
	(+,-)		40.7		43.1		39.0
Transport and storage	#	28308	29988	26190	28409	2118	1579
	(+,-)		5.9		8.5		-25.4
Communication	#	837	1627	600	1140	237	487
	(+,-)		94.4		90.0		105.5
Financial and insurance	#	170	110	54	48	116	62
	(+,-)		-35.3		-11.1		-46.6
Public administration	#	710	1434	280	556	430	878
	(+,-)		102.0		98.6		104.2
Others	#	12429	19492	5728	7564	6701	11928
	(+,-)		56.8		32.1		78.0
Total %	#	137893	174477	79776	98175	58117	76302
	(+,-)		26.5		23.1		31.3

Source: Employment survey, 2011-2012, NSO

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

Occupation	2011		2012		Change %
	number	%	number	%	
Managers	1843	1.3	3562	2.0	+0.7
Experts	3257	2.4	4795	2.7	+0.3
Technicians and other support staff	1744	1.3	2174	1.2	-0.1
Clerks	184	0.1	644	0.4	+0.3
Sales persons	55050	39.9	79062	45.3	+5.4
Specialists of agriculture, forestry, and fishing	578	0.4	903	0.5	+0.1
Workers specialized in production, construction, handicrafts, and other related work	33629	24.4	39876	23.0	-1.4
Operators of machinery and equipment	27999	20.3	31308	17.9	-2.4
Support workers	13609	9.9	12153	7.0	-2.9
Total, %	137893	100	174477	100	

Source: Employment survey, 2011-2012, NSO

Table 7: Number of cars, by years of utilization

	Type	2009	2010	2011	2012	Change 2012/2009	2012 share %
Type of car	Total	224 068	254 486	312 542	345 473	54. 2	
	Automobile	153 906	172 583	208 514	228 650	48. 6	66. 2
	Trucks/lorries	47 291	61 841	75 090	83 718	77.0	24. 2
	Autobus	16 136	16 366	22 547	21 642	34. 1	6. 3
	Special	6 735	3 696	6 391	11 463	70. 2	3. 3
Years of exploitation	Up to 3 years	14 950	8 585	10 770	20 325	36.0	5. 9
	4-9 years	24 897	54 283	46 114	79 022	217. 4	22. 9
	>10 years	72 855	191 618	255 658	246 126	237. 8	71. 2
	>11 years	111 366	-		-		-

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.