Gender Analysis of GIZ project “Integrated Resource Management in Asian cities: the urban Nexus” – Ulaanbaatar, Mongolia

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<tr>
<td>ADB</td>
<td>Asian Development Bank</td>
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<tr>
<td>BMZ</td>
<td>Federal Ministry for Economic Cooperation and Development</td>
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<td>BPfA</td>
<td>Beijing Platform for Action</td>
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<td>CAPEX</td>
<td>Capital Expenditure</td>
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<td>CEDAW</td>
<td>Convention on the Elimination of All Forms of Discrimination Against Women</td>
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<td>GIZ</td>
<td>Deutsche Gesellschaft für Internationale Zusammenarbeit</td>
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<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
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<tr>
<td>GHG</td>
<td>Greenhouse gas</td>
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<td>HAP</td>
<td>Household air pollution</td>
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<td>HDI</td>
<td>Human Development Index</td>
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<td>ISE</td>
<td>Fraunhofer Institute for Solar Energy Systems</td>
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<td>LCDV</td>
<td>Law to Combat Domestic Violence</td>
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<td>LPG</td>
<td>Liquefied Propane Gas</td>
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<td>MDG</td>
<td>Millennium Development Goal</td>
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<td>NCAV</td>
<td>National Center Against Violence</td>
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<td>NCGE</td>
<td>National Committee on Gender Equality</td>
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<td>NPGE</td>
<td>National Program on Gender Equality</td>
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<td>SDC</td>
<td>Swiss Development Cooperation</td>
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<td>SDG</td>
<td>Sustainable Development Goal</td>
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<td>SGKh</td>
<td>State Great Khural of Mongolia (Parliament of Mongolia)</td>
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<tr>
<td>SRB</td>
<td>Sex ratio at birth</td>
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<td>TTR</td>
<td>Thermo-Technical Rehabilitation</td>
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<tr>
<td>Acronym</td>
<td>Description</td>
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<td>--------</td>
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<tr>
<td>UB</td>
<td>Ulaanbaatar</td>
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<tr>
<td>UN ECOSOC</td>
<td>United Nations Economic and Social Council</td>
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<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
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<td>WEF</td>
<td>World Economic Forum</td>
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1. Executive Summary

The consultant Mr. Sören Borghardt conducted the gender analysis on Mongolia, partner country of the project “Integrated Resource Management in Asian Cities: The Urban Nexus”. The urban nexus project promotes integrated resource management to identify potential synergies between the sectors water, energy and food security in cities. It is funded by the German Federal Ministry for Economic Cooperation and Development (BMZ) and takes place in twelve cities in seven different countries across Asia. The Mongolian partner city is Ulaanbaatar.

The project has been classified with the gender policy marker G-0. This implies, that gender equality is neither a principal nor a significant objective of this development measure. However, it does not remove the responsibility for discussing with partners how positive impacts on gender equality might nevertheless be realized at reasonable cost or specific steps taken to avoid negative results.

The gender analysis aims to provide background information on the state of gender equality in the partner country with a focus on the three Nexus sectors water, energy and food. Further, it aims at evaluating gender equality within the project and to recommend specific actions to be undertaken by the project to be gender-responsive. To realize this objective, a desk-based review of literature on gender relations and the manifestation of gender in political, social and economic spheres was performed. Moreover, studies and other documents elaborated by the GIZ Urban Nexus Project were analyzed regarding gender specific activities, interventions or impact.

The thermo-technical retrofitting (TTR) projects especially support the health of children, both inside and outside of school. As women are the main care-givers in Mongolia, they spend a lot of time supporting their children and other family members in case of sickness. Thereby, women can benefit from improved housing conditions not only in terms of their own health and comfort, but also indirectly in terms of less time that is spent on caring for others. The study recommends to perform Gender Mainstreaming at all project levels in order to address the practical needs and strategic interests of women and best harness this opportunity of improving their living conditions. Further, it recommends to ensure a gender balanced participation at all events.
2. Gender Analysis Mongolia

2.1 Introduction

Mongolia is a land-locked country, located in Central Asia between China and Russia. It is the most sparsely populated country in the world, and nearly half of its total population of 3.1 million people are living in its capital city, Ulaanbaatar (UB). UB holds the title as the coldest capital in the world, with a yearly average temperature of -1.3°C and winters with temperatures between -36 to -40°C. Mongolia is a lower-middle income economy and has grown substantially over the last 20 years. As a commodities exporter, Mongolia profited from the commodity price boom between 2000 and 2013, increasing its Gross Domestic Product (GDP) 11x during those years. The GDP per capita in Purchasing Power Parity and constant 2011 international dollar (to account for population growth, price differences and inflation) has increased from 4.655$ in 2000 to 11.361$ in 2016. The percentage of the population in extreme poverty decreased from 10.6% in 2002 to 0.4% in 2012. However, while extreme poverty was effectively eliminated, more than 20% of people continue to live below the national poverty line. In terms of gender equality, Mongolia is ranked 53rd/144 countries in the World Economic Forum’s (WEF) Global Gender Gap Report 2017, in between countries like the United States (49th) and Singapore (65th). It is noteworthy, that Mongolia is much better ranked

| Population: | 3.121.000 (135th/ 196 countries) |
| GDP/capita, nominal: | $ 3.392 (121th/ 187 countries) |
| GDP/capita (PPP): | $ 12.649 (93th/ 187 countries) |
| Human Development Index: | 0.735 (92th/ 188 countries) |
| Global Gender Gap Score: | 0.713 (53th/ 144 countries) |
| Government: | Unitary semi-presidential republic |
| Ethnic groups: | 96% Mongols, 4% Kazakhs |
| Religion: | 53% Buddhism, 38.6% Irreligious, 3% Islam, 2.9% Shamanism, 2.2% Christianity, 0.4% other |

1 UNDESA 2017
2 IMF 2017
3 Ibid.
4 UNDP 2017
5 WEF 2017
6 Worldatlas 2017
7 World Bank 2016a
8 World Bank 2016b
9 World Bank 2012
10 World Bank 2014a
on this index, compared to both its economic development and its Human Development Index (HDI).

Mongolians used to live as herders in a nomadic lifestyle for thousands of years. Mongolia used to be the heartland of many nomadic empires. Nowadays, one third of the population is still living nomadic or semi-nomadic. However, over the past thirty years urbanization has increasingly taken place. Under communism, Mongolia had strict controls in place regulating herd size and limiting the freedom of citizens to migrate from the countryside to the city. This changed during the 1990 Democratic Revolution, which brought the 70-year period of communism in Mongolia to an end. The regulations regarding herd size and location were abandoned. This led to growing urbanization and a large increase in livestock, especially of cashmere goats.\textsuperscript{11} While the larger numbers of livestock made it harder to find enough fodder in the steppe of Mongolia, the climate exacerbates the problems. Due to climate change the summers are getting drier, leading to harsher winters leaving cattle unable to find food and freezing to death – a phenomenon known as \textit{dzud}. Over the past few years, \textit{dzud} has occurred more frequently than before, killing huge numbers of livestock.\textsuperscript{12} Further, the collapse of the Soviet Union stopped the economic aid previously provided to Mongolia, which accounted up to 30\% of GDP in 1990. This left the government unable to support farmers during \textit{dzud}, increasing their vulnerability to fall into poverty, as in the severe winters of 1999 to 2001 and the strong winter of 2009/2010, which led to the loss of one-quarter of all livestock in Mongolia.\textsuperscript{13} Due to this circumstances, more and more people migrate to UB. Since the early 1990s, the city has tripled in size, with every year 30.000 to 50.000 people migrating from the countryside to UB.\textsuperscript{14,15} Most migrants live in traditional Mongolian ger settlements (Yurts). Ger can be built up within two hours and are ideal for a nomadic lifestyle. But they are inappropriate for living in urban areas and are usually not connected to sewerage, district heating and piped water supply.\textsuperscript{16}

The debate on gender in the context of development started to receive a broader attention at the end of the 1960s. The Declaration on the Elimination of Discrimination Against Women was adopted by the United Nations General Assembly in 1967 and served as an important precursor to the legally binding 1979 Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), a hallmark of gender equality. This development took place in parallel to the

\textsuperscript{11} NPR 2016  
\textsuperscript{12} Guardian 2017  
\textsuperscript{13} ADB 2005  
\textsuperscript{14} The Guardian 2014  
\textsuperscript{15} GIZ 2017a  
\textsuperscript{16} The Guardian 2014
“Second-wave feminism” in Western societies, which broadened the debate on gender equality by focusing on a wide range of issues, such as domestic violence, reproductive rights and the workplace. In comparison, the “First-wave feminism” of the 19th and 20th century had mainly focused on gaining the right to vote. The debate on the role of women in the context of development was brought to greater attention by the seminal work of Ester Boserup. Her book “Women’s Role in Economic Development”, published in 1970, changed the perception of women as solely mothers and caregivers towards acknowledging their contributions to national economies in both paid and unpaid work. Her work is perceived as one of the main inspirations for the UN Decade for Women between 1975 and 1985, which started after the First World Conference on Women in Mexico City in 1975 and included two follow-up conferences in Copenhagen in 1980 and in Nairobi in 1985. The UN Decade for Women focused on women and development. It increased the awareness of inequalities that women are facing among national leaders and the general public. It was followed by the Fourth World Conference on Women in Beijing in 1995. Main outcome of the conference was the Beijing Declaration and Beijing Platform for Action (BPfA), a landmark global agenda for gender equality, women’s human rights and women’s empowerment. Even 20 year later, it was referred to as “the most progressive blueprint ever for advancing women’s rights” by UN Women. It focuses on 12 critical areas of concern and states actions to be taken by governments, to a lesser extent also by international organizations, NGOs, academia and the private sector.

Following the Millennium Summit in September 2000 and its adoption of the Millennium Declaration, the General Assembly of the United Nations agreed unanimously to commit to the Millennium Development Goals (MDGs). Those are eight development goals for the years 2000 – 2015. While all goals have at least an indirect impact on gender equality, MDG 3 focuses exclusively on the promotion of gender equality and female empowerment. The MDGs were followed by the 2030 Agenda for Sustainable Development, including the Sustainable Development Goals (SDGs). The SDGs are a set of 17 development goals, which are composed of 169 targets and 230 individual indicators. The SDGs build upon the MDGs and are guiding international public policy for the years 2016 – 2030. They were adopted by the UN General Assembly in September 2015 in New York. They encompass a truly global outlook as they are to be implemented by all countries and deal with a diverse set of issues, such as quality education, affordable and clean energy or climate action. SDG number five deals exclusively with Gender

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17 Britannica 2018
18 UN Women 2015
Equality. However, the promotion of gender equality can also be found in other SDGs. For example SDG number six “Clean water and sanitation” addresses gender equality in its target 6.2, which says “By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations”.19

2.2 Institutions/ Laws

The Mongolian Constitution states in Article 14 (1) that “All persons lawfully residing within Mongolia shall be equal before the law and the courts.” Further, it features an explicit ban of discrimination, stating in Article 14 (2) that “No person shall be discriminated against on the basis of ethnic origin, language, race, age, sex [gender], social origin and status, property and assets, employment occupation and official position, religion and conscience, conviction and opinion, and education.”20 Mongolia was among first countries to ratify the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) in July 1981.21 In 2011, the Law of Mongolia on Promotion of Gender Equality was passed. It is the first law aiming specifically on gender equality in Mongolia and assigns responsibilities to public agencies in order to promote gender equality. It aims at promoting gender mainstreaming into all private and public spheres. Gender Mainstreaming is defined by the UN Economic and Social Council (ECOSOC res. 1997/2) as

“... the process of assessing the implications for women and men of any planned action, including legislation, policies or programs, in all areas and at all levels. It is a strategy for making women’s as well as men’s concerns and experiences an integral dimension of the design, implementation, monitoring and evaluation of policies and programs in all political, economic and societal spheres so that women and men benefit equally and inequality is not perpetuated. The ultimate goal is to achieve gender equality.”22

The National Committee on Gender Equality (NCGE) was founded in 2005. It consists of 33 members, including key ministers, civil society representatives and the private sector. Further, it has 22 sub-committees spread across the country and 25 sub-councils within all 16 ministries and 9 district governors administrative offices. NCGE is tasked to “ensure consultation, coordination and monitoring on the implementation of the National Program on Gender Equality”

19 UNDESA 2018  
20 Constitute Project 2018  
21 UNTC 2018  
22 UN ECOSOC 1997
The goal of the NPGE was to promote equal participation of men and women in development and to create favorable conditions for equal ownership and access to resources, by that improving the standard of life for men and women. The NPGE was implemented between 2003 and 2015. The Action Program of the Government of Mongolia for 2016-2020 dedicated two of its 361 targets to gender equality, calling for increased representation of women at the decision-making level and the implementation of the Law on Gender Equality. The 1999 Labor Law of Mongolia includes extensive provisions regarding pregnancy and parenthood in articles 100 to 108. Employers are prohibited to terminate the contract of a pregnant woman or a woman with a child under three years of age. This provision also applies to single fathers. Pregnant women, mothers of a child under 8 years of age, single mothers with a child under 16 years of age and single fathers with a child under 16 years of age do not have to work at night, overtime or go on assigned trips, unless they want to. The law grants an additional work break of up to two hours for breast-feeding and childcare. Mothers are granted maternity leave of 120 days, this also applies to women who deliver a stillborn child. The adoption of a new-born child also qualifies for maternity leave, until the child reaches 60 days of age. Upon the request of mothers or single fathers with a child under three years of age, they have to be granted child care leave. Once it expires, they can return to their previous position. In the category ‘Political empowerment’, Mongolia is ranked 107th by the WEF, much lower than its overall score of 53rd. This is due to about five times as many men as women being members of parliament, more than six times more men than women working as a minister and zero years with a female head of state.

2.3 Violence

Domestic violence appears to be very prevalent in Mongolia and is estimated to take place in one in three families. However, national statistics on domestic violence and violence against women continue to be unavailable. In February 2017 the amended Law to Combat Domestic Violence (LCDV) entered into force, for the first time in the country’s history making domestic violence a criminal offense. While the first instance of domestic violence leads only to administrative measures, such as fines or warnings, any repetition is viewed as a criminal offense and punishable. Rape is punishable by law with sentences of 15 to 25 years of imprisonment.

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23 SDC 2014  
24 NCGE 2002  
25 SGKh 2016  
26 SGKh 1999  
27 WEF 2017  
28 BBC 2017  
29 UN Women 2018  
30 Library of Congress 2017
According to local NGOs, many cases of rape in the past were not reported due to cultural norms as well as stressful police and judicial procedures. This might change, as police are required to treat domestic violence calls as a top priority, due to the LCDV and the new Law on Law Enforcement. The non-governmental organization (NGO) National Center Against Violence (NCAV) is the main organization supporting victims of domestic violence in Mongolia. It was founded in 1995 as one of the first NGOs after Mongolia transformed to democracy. It has supported more than 20,000 victims of domestic violence over the past twenty years, for example through the provision of shelter. Following the economic cooldown in 2014, the government decreased its funding of NCAV. This funding shortages led to the closure of five out of nine shelters in 2017. The sex ratio at birth (SRB) is balanced in Mongolia, indicating that there are no cases of 'missing women'.

2.4 Economic participation
Mongolia is ranked 20th in the WEF’s Global Gender Gap Report 2017 in the category ‘Economic participation and opportunity’. While the labor force participation rate is only 60.1% for women and 72% for men, the estimated earned income for women is 75% of the amount of men, a comparatively high amount. Further, 40% of legislators, senior officials and managers are women. The most striking is that nearly twice as many women than men work as professional and technical workers, leading to Mongolia being ranked 1st on this sub-category. The percentage of women older than 15 years of age with a bank account is 93.2%, while for their male counterparts it is 90.2%. The enrolment in higher education is much higher among women than among men, with 86.1% of women attending secondary education and 79.7% of women attending tertiary education, compared to 77.7% and 57.7% for men, respectively. Taken together, women account for 62% of college, university and institute graduates. One reason for this disparity is that in herding communities, boys may be asked to drop out of school to support the family in managing the herd, while girls can continue their education.

2.5 Marriage
The Mongolian constitution provides in Article 16 (11) that

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31 UB Post 2016
32 BBC 2017
33 WEF 2017
34 World Bank 2014e
35 World Bank 2014f
36 WEF 2017
37 NPR 2017
38 PRI 2017
“Men and women shall enjoy equal rights in political, economic, social, cultural fields and in marriage. The marriage shall be based on the equality and consensual relationship of the spouses who have attained the age determined by law. The State shall protect the interests of a family, motherhood and the child”.

In Mongolia, the minimum legal age of marriage is 18 years for both men and women. The percentage of 15-19 years old girls that were married, divorced or widowed declined from 15% in 1979 to 3.6% in 2000, indicating a change in societal acceptance of early marriage. While men and women can both file for divorce, pregnant women or women with a child under the age of one are not allowed to do so. Further, the cost of filing for divorce is prohibitive for many women.

Men and women have equal rights to inheritance under the Mongolian Civil Code in Article 520.

2.6 Sanitation

The percentage of people with at least basic access to drinking water increased from 65% in 2000 to 83% in 2015, alongside an overall rise in urbanization in Mongolia, from 57% of people living in urban areas in 2000 to 72% in 2015. While the proportion of population using improved water supplies in non-piped form increased from 39% to 64% from 2000 to 2015, over the same years the numbers for piped access decreased from 32% to 26%. Only 25% of people had water supply accessible on their premise in 2015. The proportion of people with access to at least basic sanitation increased from 48% in 2000 to 59% in 2015, with 31% relying on limited sanitation facilities and 10% practicing open defecation. The 59% of people using improved sanitation facilities in 2015 consist of 46% of people using latrines and 13% with sewer connections. While the total number of people with piped access to drinking water remained the same between 2000 and 2015 (763 thousand to 775 thousand, respectively), the numbers for non-piped access doubled (926 thousand to 1.8 million, respectively). The same pattern holds true for sanitation, where the total number of people using a sewer system saw only a slight increase between 2000 (365 thousand) and 2015 (392 thousand), while the number of people using latrines nearly doubled (779 thousand to 1.35 million, respectively).

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39 Constitute Project 2018  
40 OECD 2014  
41 Ibid.  
42 EBRD 2002  
43 WHO & UNICEF 2017  
44 Ibid.  
45 Ibid.  
46 WHO & UNICEF 2018
2.7 Energy

According to World Bank Data, 85% of the population in Mongolia had access to electricity in 2014 (99% of urban and 50% of rural population).

Household air pollution (HAP) is of high relevance in the context of gender, as globally more than 60% of all premature deaths from HAP in 2012 were among women and children.

Indoor and outdoor air pollution taken together lead to an estimated 6.5 million deaths worldwide in 2012, which is 11.6% of all global deaths in 2012.

Access to clean fuels and technologies for cooking, like Liquefied Propane Gas (LPG) or electricity remains to be low in Mongolia and has only increased from 27% of people in 2000 to 31% in 2014.

While 60.9% of the urban population are estimated to be using solid fuels like wood, dung or coal for cooking, in rural areas the figure is higher than 95%.

In Ulaanbaatar, most households rely on coal combustion and low pressure boilers for heating. Especially during the harsh winters, this is leading to massive air pollution. During the four winter months November to March 2017, the WHO guideline values were exceeded by factor 8-14.

The energy consumption per unit of GDP is 7 times higher than the global average, leading to emissions of CO2-eq per unit of GDP being 10 times higher than the global average.

Thus, Mongolia has a strong desire to reduce the resource-intensity of its economy, as expressed in its Green Development Policy.

2.8 Agriculture

Agriculture accounts for 13.2% of Mongolia’s GDP but employs 31.1% of the labor force, down from nearly 50% in 2000.

Mongolia has a long history of livestock herding, with the most prevalent animals nowadays being sheep and cashmere goats.

The harsh weather conditions, especially severe winters called dzud can lead to large losses of livestock. Women and girls are especially threatened by dzud conditions, as the loss of livestock can push families into poverty. This, in turn, limits the access of women and girls to sexual and reproductive health supplies and increases their vulnerability to gender-based violence.

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47 World Bank 2014c
48 WHO 2016a
49 WHO 2016b
50 World Bank 2014b
51 GACC 2018b
52 WHO 2018
53 MET 2015a
54 MET 2015b
55 CIA 2018
56 World Bank 2017
57 MOFA 2010
58 UNFPA 2017
3. Gender Analysis Urban Nexus project

3.1 Community Driven Land Re-adjustment Project Khoroo 19

Ulaanbaatar (UB, Mongolian: Улаанбаатар) is the capital and largest city of Mongolia. It has a population of about 1.4 million people and is the economic, cultural and political center of Mongolia. Ulaanbaatar is divided in nine municipal districts (düüreg), which are subdivided into khoroo. A khoroo usually consists of 2,000 to more than 10,000 people. The rapid population growth mainly caused by in-migrants from the country side led to the uncontrolled expansion of ger settlements on the peripheries of UB City. In 2012, 60% of UB’s population (about 840,000 people or 184,200 households) lived in ger districts, with the remaining 40% living in residential areas with apartment blocks. However, of all inhabitants of ger districts only 81,600 households lived in traditional Mongolian gers, with the remaining 100,300 households living in detached houses within the ger district.59 These settlements provide unhealthy living conditions, as they suffer from poor infrastructure, soil and groundwater contamination and heavy air pollution.

The project aims at improving the quality of life for the inhabitants of Khoroo 19 through land re-adjustment. As a first step, a Citizen’s interim council and later a cooperative have been created to improve the self-organization of the community and better structure the demands of the inhabitants. More than 180 households occupying 12 hectare of land have decided to participate in the project. The aim of the land re-adjustment is to improve the land usage, increase the land value, and develop neighborhoods with prevailing detached and row housing disposing of engineering and social infrastructure through pro-active community participation and land-pooling. Investment shall be attracted so that the amount and quality of residential housing increases, leading to better living conditions for the inhabitants of Khoroo 19. In order to fund the construction, the use of their land titles as collateral is seen as a possible way ahead.60 The project supports SDG 11.1, 11.3 and 16.7.

Gender issues and recommendations

- Improved housing conditions especially support the health of children, as it reduces their exposure to uncomfortable temperatures, molds and air pollution. Women benefit

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59 UB 2012
60 GIZ 2017a
indirectly, as they can follow their daily schedule and do not have to take their children to the doctor

- Enhance understanding on gendered impacts of inappropriate housing conditions
- Include Gender Mainstreaming in future studies to incorporate practical needs and strategic interests of women
- Ensure female participation within the Cooperative and at meetings, increase awareness of potential male dominance in the project’s participants
- Utilize mutual benefits as women can be beneficiaries and drivers of change to modern urban infrastructure and better livelihoods

3.2 Thermo-Technical Rehabilitation of Public and Apartment Buildings

Ulaanbaatar is relying on coal for energy generation and heating, leading to high levels of air pollution in particular caused by heating and cooking in the ger districts during the winter months. As its power plants operate at levels below international standards, they are causing a lot of CO2 emissions. While the demand for heat energy already exceeds the installed capacity, Ulaanbaatar city suffers from heat energy losses at the heat transmission network and in buildings.\(^\text{61}\) The housing stock of UB is still dominated by pre-cast concrete panel buildings from the 1970s, 80s and the early 90s. More than 20% of the over 1 million city’s population lives in these buildings. Total 1017 five to twelve story pre-cast-panel building blocks accommodate some 45,000 apartments. The buildings are in an inadequate state due to their age, poor or non-existent maintenance and lack of insulation. Rehabilitation of the buildings is required for social, environmental and economic reasons. It will not only improve the residents’ well-being but also prevent an important part of Ulaanbaatar’s housing stock from decaying and turning into slums.\(^\text{62}\) Further, UB is facing a shortage of schools due to high numbers of migration towards UB and the introduction of a 12-year schooling system. It is well-known that favourable schooling environment strongly enhances the mental and physical capabilities of adolescents. With the growing number of migrants from other Aimags settling down in UB the situation of missing adequate schooling facilities is critical in the Capital.\(^\text{63}\)

\(^{61}\) GIZ 2017b
\(^{62}\) GIZ 2013
\(^{63}\) GIZ 2018
The project aims at demonstrating heat energy savings through insulation of buildings and thereby improving the living conditions in the buildings. Further, the introduction of consumption based and cost covering heating tariffs is being pursued to increase resource efficiency and reduce CO2 emissions.

UB City adopted a Housing Program in May 2014 for all of UB, including the Thermo-Technical Rehabilitation (TTR) sub-program. UB City created a Project Steering Committee (PSC), whose Task Force is in charge of the technical project design. GIZ supports the Task Force during project implementation, the seeking of project finance, the selection of new technologies, site supervision and training. Several studies were conducted, indicating a CAPEX of USD 450 million for the thermo-technical rehabilitation of all pre-cast panel buildings in UB. In regards to Khoroo 16, the required investment amounts to a CAPEX of MNT 24.385.909.700 (Euro 8.210.750) for the TTR measures of apartment buildings and a CAPEX of MNT 5.026.410.000 (Euro 1.692.400) for the TTR measures and renovation of the heating and sanitation of non-apartment buildings (School No. 53, School No. 44, Kindergarten No. 82 and one orphanage). Khoroo 16 in Bayanzurkh district was selected as a location due to its undersupply of heat energy. Since then, the undersupply of energy has improved significantly due to the commissioning of Amgalan Heating Plant in 2015. The 16th Khoroo mainly consists of 5 (altogether 19 buildings) and few 9 (altogether 3 buildings) story pre-cast panel buildings, with a total of currently 1465 households or 4972 residents. The objective of the feasibility study was to provide necessary initial information required for the appraisal and approval of the TTR sub-program by the PSC, especially with regard to project location, technical feasibility, cost and financing. This feasibility study has been submitted to the Project Steering Committee and has been approved for future processing. Further, financial mechanisms for TTR program have been developed by XacBank and the TTR Sub-program has been submitted to UB City Council for approval.

The TTR of will improve the quality of life for the inhabitants, as it brings thermal comfort and a healthy environment. It is estimated to reduce both heat energy consumption and CO2 emissions by up to 50%. Thereby, it will lead to cleaner air and protect the environment. Further, TTR prolongs the life span of the buildings by up to 30 years, thereby leading to an increased market

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64 CDIA 2009
65 GITEC 2011
66 GIZ 2018
67 XacBank 2014

Gender issues and recommendations

- TTR especially supports the health of children, as it reduces their exposure to uncomfortable temperatures and molds. Women benefit indirectly, as they can follow their daily schedule and do not have to take their children to the doctor.
- As UB is the coldest capital in the world, proper heating systems are essential for health.
- Potentially up to 50% of heat energy consumption could be saved, once TTR measures are implemented. This was demonstrated during the Urban Development Program implemented by GIZ and financed by the BMZ between 2006-2012, which implemented TTR of a pre-cast panel building in 2007 (pilot for 29 families in Chingeltei District, Bayanburd, House No. 8). A study conducted after the thermo-technical rehabilitation was gender-balanced. **However, consumption-oriented and cost covering heat energy tariffs have to be introduced to provide for sufficient incentives to save energy.**
- TTR increases the value of buildings, thereby enhances the economic standing of the owners.
- TTR extends the lifespan of buildings by up to 30 years, thereby improving the supply of housing, which in turn benefits vulnerable groups of society.
- Include Gender Mainstreaming in studies to incorporate practical needs and strategic interests of women.
- TTR improves the thermal comfort and healthy environment in apartment buildings.

3.3 Thermo-Technical Rehabilitation and Sanitary Retrofitting of State-owned Schools and Kindergartens

Due to the growing population of UB and the introduction of a 12-year schooling system, UB urgently needs new schools and kindergartens. According to a study carried out by the Information and Monitoring department of the Ministry Education and Science in 2013, there is a need for the construction of 270 new kindergartens, 78 new schools, one dormitory and 14 gyms in UB. The retrofitting of the existing schools and kindergartens and hence prolongation of their life span would reduce the number of new facilities to be built.

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68 GIZ 2008
To support the city, the prefeasibility study “Thermo-Technical Retrofitting of State-owned Schools and Kindergartens”, covering all state owned schools and kindergartens in the six core districts of Ulaanbaatar city was conducted in March/April 2014 and has subsequently been presented to the Authorities.69

All together there are a total of 203 schools, out of which 115 are state owned schools and 431 kindergartens, out of which 168 are state-owned kindergartens operating in Ulaanbaatar. Most of the existing 115 state-owned school and 168 state-owned kindergarten buildings face excessive heat loss, leaking roofs, poor airtightness of windows and doors, poor ventilation, worn out and leaking water pipelines, excessive humidity and molds in classrooms, blocked horizontal and vertical pipelines, and in winter the temperature reaches as low as 10-17°C. The public schools and kindergartens in UB are spending 75-77.6% of the budget for utilities on heating energy supply. The implementation of thermo-technical retrofitting measures in public schools and kindergartens would help to reduce significantly this type of costs and creating a healthy and enhancing learning environment for the young Mongolian generation already strongly battered by air pollution and other environmental damages. This clearly demonstrates the urgent need for comprehensive thermo-technical and sanitary renovation.70 Under the Urban Development Program71 implemented by GIZ and commissioned by United States Agency for International Development (USAID), 3 schools in UB were retrofitted between 2006 and 2012. The project had a CAPEX of USD 1.5 million.72 The TTR benefitted the children tremendously.73 Out of 115 state-owned schools, 33% (38 school buildings) and out of 168 state-owned kindergartens, 29.7% (50 kindergarten buildings) are not connected to the central heating grid presenting optimal conditions for complementation with renewable energies (solar thermal) for warm water provision for hand washing, for the kitchens and eventually showering after sports.

5 school and 2 kindergarten building types being economical and technical wise feasible to be retrofitted were selected for TTR in the initial phase. 42 school (10 schools in ger districts) and 50 kindergarten buildings (4 in ger districts) or in total 92 buildings are proposed to be part of this initial phase. The total area of these 92 school and kindergarten buildings for TTR is 259.509m2.

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69 GIZ 2014
70 GIZ 2017c
71 GIZ 2012
72 USAID 2013
73 GIZ 2015
Based on unit cost of 258.865,00 MNT/m² (USD 145 or EUR 105) the CAPEX for thermo-technical retrofitting will require an investment of 23,664,907,000 MNT (ca. 8,102,864 Euro).

International donors (ADB, WB and KfW) are considering integrating experiences and proposals in their relevant Urban Development Projects and Programs. The Asian Development Bank (ADB) will finance construction of two kindergartens on basis of GIZ studies and experiences in UB (Urban Service Program). The bilateral GIZ Energy Efficiency Project is refurbishing schools, kindergartens and hospitals in Western Mongolia on this basis in collaboration with GIZ Nexus and Swiss SDC. In the beginning of 2018 GIZ Energy Efficiency Project started a project for the TTR of public buildings in UB financed by SDC and UB City. According to school officials and government officials, the thermo-technical retrofit project is projecting substantial reduction in annual heat loss by 50 percent so that schools can allocate more budgets for promoting quality of the education, teachers' training, and teaching materials. Also, it has been estimated that coal heating induced greenhouse gas (GHG) emissions will be reduced by 50%. The project supports the SDGs 3.9, 4.A, 7.3, 7.A, 7.B, 11.6, 12.2, 12.7 and 17.7.

Gender issues and recommendations

- Pupils can become aware of the relevance of personal hygiene through improved bathroom facilities, thereby improving their health and reducing the chance of infectious diseases spreading
- Better indoor bathroom facilities can greatly reduce the anxiety of girls, compared to former cold and unhygienic outdoor facilities
- Cleaner, safer and healthier environment for students, teachers and staff members, can lead to reduced absenteeism, higher student attendance and less discipline issues
- Improved health and sanitation can substantially reduce the number of sick students and teachers. This especially benefits women, as they are mainly responsible for care-taking of sick children and relatives
- TTR empowers teachers to apply positive learning approaches
- TTR can make students proud of their school, so that they develop a new eagerness to come on time and to preserve the school’s facilities
- Better infrastructure leads to higher enrollment and higher education achievement, as the school is able to function normally, regardless of weather conditions

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74 GIZ 2017c
75 Ibid.
• Women are overrepresented at all levels of education employees; 96% of primary teachers, 84.4% of lower secondary teachers and 74% of upper secondary teachers are female. Around 60 to 62% of teachers of higher education institutions and vocational schools are female. Thereby, the TTR measures benefit women especially.

3.4 Energy Master Plan for UB

Ulaanbaatar depends largely on coal for its energy and heat generation, whether in power plants, heat only boilers or individual heating stoves within ger districts. Especially during the winter months, this leads to very high levels of air pollution and CO2 emissions. A comprehensive strategy is required to solve UB’s pollution crisis, as short-term individual measures had only little impact in the past.

To support the city in making the energy sector of UB cleaner and more sustainable, an energy master plan has been elaborated and is soon to be completed. It is in line with the green development policy, which has been adopted by the Mongolian Parliament in June 2014. According to this policy the energy system efficiency should be improved by 20% until 2030, the share of renewable energies should increase by 20% in 2020 and by 30% in 2030. Further, it works towards achieving Mongolia’s Nationally Determined Contribution (NDC) under the Paris Agreement, to reduce greenhouse gas emissions by 14% in 2030.

As part of the study, a kick-off workshop has been conducted by the German Fraunhofer Institute for Solar Energy Systems (ISE) in May 2017. The study will elaborate options to achieve an optimized energy system of UB City primarily based on renewable energies. The study will assess all technologically possible options for actions, which allow a reduction of CO2 emissions and sustainable and climate-friendly energy supply in UB City. The study will provide recommendations and serve as an orientation guideline and roadmap to the government of UB, the Ministry of Energy and other institutions for a long-term transformation of the energy sector up to 2050. The project supports the SDGs 7.1, 7.2, 7.3, 7.A, 7.B, 9.4, 9.A, 11.6.

Gender issues and recommendations

• Household air pollution (HAP) is very gender sensitive, as it mainly affects women and children (see chapter 2.7).
• Improved health of children due to less air pollution benefits women, as they are the main care-givers within the family in Mongolia
• Include Gender Mainstreaming in future studies to incorporate practical needs and strategic interests of women
• Ensure equal and equitable access to and control over sustainable energy services for women and men
• Recognize women’s and men’s different needs for energy
• Recognize the potential of women and men to participate in energy supply
• Address (institutional) barriers that limit women’s participation in energy planning and production

3.5 General recommendations

Conduct Gender Mainstreaming and gender impact assessments at all project levels to

• Enhance understanding on gendered impacts of lacking insulation of buildings
• Increase awareness of potential male dominance at the project’s events
• Ensure that affected people are not treated as an aggregated, uniform group. Instead understand and address the different roles and needs that are related to gender, age, caste, class etc. (gender sensitivity as eye-opener for other social dimensions)
• Avoid (unintendedly) increasing gender inequality or poverty among women
• Utilize mutual benefits as women can be benefiters and drivers of change to modern urban infrastructure and better livelihoods
• Promote women’s participation in workshops, studies, technical trainings, visiting tours, the Nexus task force and city councils

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78 ENERGIA 2016
79 Ibid.
80 Ibid.
4. References


City Development Initiative for Asia (CDIA) 2009: Thermo-Technical Rehabilitation of Pre-Cast Panel Buildings in Ulaanbaatar, Pre-Feasibility Study Report


Deutsche Gesellschaft fuer Internationale Zusammenarbeit (GIZ)
- 2008: Thermo- and technical rehabilitation of a pre-cast panel building in Ulaanbaatar, Survey on the perception and satisfaction among the inhabitants of Bayanburd, House No. 8, Chingeltei District
- 2017a: Case Study Community-Driven Land Re-adjustment Project in Ger Area of UB City Khoroo 19, 
- 2017b: Case Study Thermo-Technical Rehabilitation of Apartment Buildings, UB, Mongolia, 
- 2017c: Case Study Thermo-technical rehabilitation and sanitary retrofitting of public buildings, 
- 2017d: Case Study Flyer Energy Master Plan, Ulaanbaatar (UB), Mongolia, 
- 2018: The thermos-technical rehabilitation of public and apartment buildings in Ulaanbaatar/ Mongolia (Project Design Document)


Global Alliance for Clean Cookstoves (GACC)


International Monetary Fund (IMF) 2017: World Economic Outlook Database April 2017, 

International Network on Gender & Sustainable Energy (ENERGIA) 2016: Mainstreaming Gender in Energy Sector Practice and Policy, http://www.energia.org/cm2/wp-

Ministry of Environment and Tourism (MET)
- 2015a: Mongolian Green Development Policy


National Public Radio (NPR)


Swiss Agency for Development and Cooperation (SDC) and IRIM 2014: Gender Overview Mongolia: A Desk Study, https://www.eda.admin.ch/dam/countries/countries-
State Great Khural of Mongolia (SGKh)


The Guardian

- 2014: Life in Ulaanbaatar’s tent city is hard - but Mongolians won’t give up their gers, https://www.theguardian.com/cities/2014/sep/03/mongolia-ulanbaatar-ger-yurt-tent-city (accessed on 17.04.18)


United Nations Department of Economic and Social Affairs (UNDESA)


United Nations Entity for Gender Equality and the Empowerment of Women (UN Women)


United States Agency for International Development (USAID) 2013: Evaluation of the Ulaanbaatar school buildings thermo-technical retrofitting project (Final report)


World Bank

- 2012: Poverty headcount ratio at $1.90 a day (2011 PPP) % of population in Mongolia, https://data.worldbank.org/indicator/SI.POV.DDAY (accessed on 03.04.18)
- 2014a: Poverty headcount ratio at national poverty lines (% of population) in Mongolia, https://data.worldbank.org/indicator/SI.POV.NAHC?locations=MN (accessed on 05.04.18)

World Health Organization (WHO)


World Health Organization (WHO) and United Nations Children's Fund (UNICEF)