

Measuring own use production of goods based on reported activities in a diary and information captured in questionnaires

Mongolia

Todgerel Sodbaatar

Statistician

Population and Social statistics department

National Statistics Office of Mongolia

Contents

- Progress of TUS 2019
- Mixed mode of data collection in TUS 2019
- Data quality

Survey methodology of TUS 2019

Sampling design and size

- Representative national and regional level
- Multi-stages sample method
- Total sample is 4,000 households
- Data collected by quarterly

Classification

- International classification of activities for time use statistics (ICATUS 2016)
- International standard industrial classification (ISIC 4.0)
- International standard classification of occupation (ISCO 08)

Survey methodology of TUS 2019 (cont.)

Questionnaires

- **Household questionnaire**
- HH living condition
- Individual information (demographic, education, functioning, marital status, employment)
- **Children under 5 questionnaire**
- Refers to child illness related to air pollution and parents how many hours and money spend for caring their children (**additional**)
- **Diary**
- Main and parallel activities, and contextual information (location, with whom)

Data collection mode

- **Household questionnaire**
- face-to-face interview using tablet (CAPI)
- **Children under 5 questionnaire**
- face-to-face interview using tablet (CAPI)
- **Diary:**
- Using paper diary (Q1 and Q2)
- **Using paper and smart phone application (Q3, Q4)**

Stages of survey implementation

4. Report development and dissemination
3 months

Dissemination
Report writing

3. Data processing
11 months

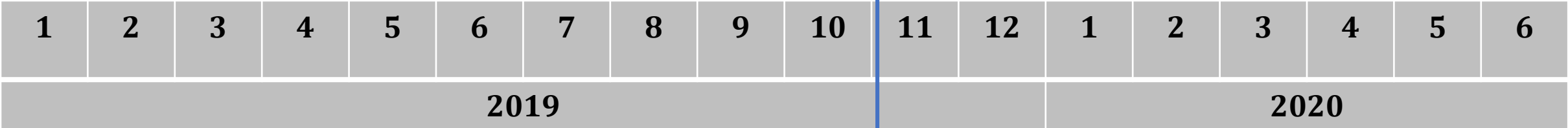
Cross check data
Cross check data
Cross check data
Cross check and Secondary editing
Data analyses

2. Data collection
10 months

Monitoring
Data collection
Training
Monitoring
Data collection
Monitoring
Data collection
Monitoring
Data collection

1. Preparation
2.5 months

Under 5 questionnaire
Applications development
Smart phone app development
Academy request
Survey plan, Questionnaire development



NOW we are here

Smart phone application

- Develop apps for android, ios, and web based platform.
- App and platform has admin, interviewer, respondent menu
- Conducting pre-test on June: 17 individuals of 13 households
- Do integrated coding

Process diagram of data collection using smart phone application

Google Play Store



Apple App Store



Selected PSUs



Selected households

Paper diary

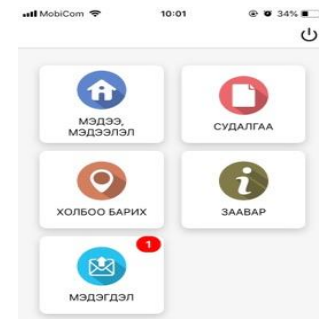


Number of visits: 3



Number of visits: 1

Smart phone app

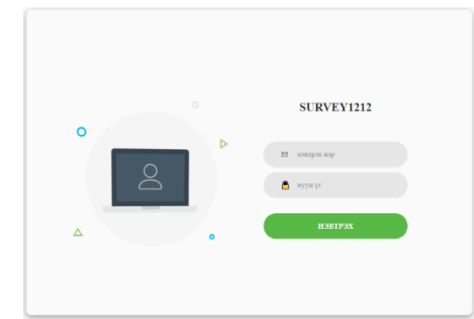


Respondent receive notification



Дүнрүг аялал	Огнооног УТ	Уруул	Утас	Утас	IC нууц	Бүтэц	Ажлын
1430	09:10	Гарна	МОНГОЛЫН СТАТИСТИК	Утас	Утас	0	
15:10	09:20	МОНГОЛЫН СТАТИСТИК	МОНГОЛЫН СТАТИСТИК	Утас	Утас	0	
07:00	08:10	Гарна	МОНГОЛЫН СТАТИСТИК	Утас	Утас	0	
15:20	08:20	Гарна	МОНГОЛЫН СТАТИСТИК	Утас	Утас	0	
15:30	08:30	Гарна	МОНГОЛЫН СТАТИСТИК	Утас	Утас	0	
10:00	10:10	Огнооног	МОНГОЛЫН СТАТИСТИК	Утас	Утас	0	
15:10	14:20	Огнооног	МОНГОЛЫН СТАТИСТИК	Утас	Утас	0	
15:30	14:30	Огнооног	МОНГОЛЫН СТАТИСТИК	Утас	Утас	0	
15:30	14:30	Огнооног	МОНГОЛЫН СТАТИСТИК	Утас	Утас	0	
15:30	14:30	Огнооног	МОНГОЛЫН СТАТИСТИК	Утас	Утас	0	
15:30	14:30	Огнооног	МОНГОЛЫН СТАТИСТИК	Утас	Утас	0	
15:30	14:30	Огнооног	МОНГОЛЫН СТАТИСТИК	Утас	Утас	0	
15:30	14:30	Огнооног	МОНГОЛЫН СТАТИСТИК	Утас	Утас	0	
15:30	14:30	Огнооног	МОНГОЛЫН СТАТИСТИК	Утас	Утас	0	
15:30	14:30	Огнооног	МОНГОЛЫН СТАТИСТИК	Утас	Утас	0	

Interviewer sent notification to respondent phone app when diary is not completed or there is some error.



Interviewer monitor respondent diary using web based platform

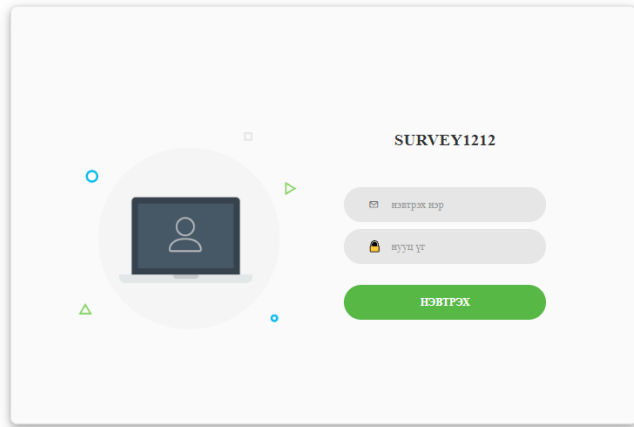
Appearance of application (on the phone)

The screenshot shows a mobile application form with several sections and callouts:

- What do you do (main activity)?**: Callout pointing to the text input field labeled "Та юу хийсэн бэ?".
- Location?**: Callout pointing to the dropdown menu labeled "Гэртээ".
- Start time: automatic** and **End time: choose in 10 mines**: Callouts pointing to the "Эхэлсэн цаг" (07:10) and "Дууссан цаг" (07:30) buttons in the "Үйл ажиллагаа #1" section.
- With whom?**: Callout pointing to the dropdown menu labeled "Хэнтэй үйлдсэн бэ?".
- Start time: choose in 10 mines** and **End time: choose in 10 min**: Callouts pointing to the "Эхэлсэн цаг" (07:10) and "Дууссан цаг" (07:20) buttons in the "Давхар хийсэн үйл ажиллагаа #1" section.
- What do you do simultaneously (parallel activity)?**: Callout pointing to the text input field labeled "Та давхар юу хийсэн бэ?".

The screenshot shows the "Цаг ашиглалтын судалгаа" (Time usage analysis) screen. It features a timeline with various activities and callouts:

- ЛХАГВА**, **ПҮРЭВ**, **БААСАН**: Filter tabs at the top.
- Үйл ажиллагаа нэмэх**: Green button to add a new activity.
- Гэртээ**: Location for the first activity (06:00~06:10).
- Хувцсаа өмсөж нүүрээ будав**: Activity description for the second activity (06:10~07:10).
- Гэртээ**: Location for the third activity (07:30~07:50).
- Хүүхдүүдээ хувцаслаж, хооллов**: Activity description for the fourth activity (07:30~07:50).
- Замд/ тээврийн хэрэгсэлд**: Location for the fifth activity (07:50~08:30).
- Автобусаар явав**: Activity description for the fifth activity (07:50~08:30).



Interviewers and supervisors are using web based platform to monitor diary and do code activities

<http://srv.nso.mn/Survey1212/>

Summary
 HH: 111, Total number of person who able to do diary using app: 468, Not closed diary: 366, Completed diary: 102

Сайн уу: M01 | Гарах

Өрхийн жагсаалт / Мэдэгдэл илгээх

Но of PSU	HH registration #	Сурнаг	Хайр	Но of person who able to do diary	Статус
175	13	1116671304531	НЭМЭХ ШИНЭБАЯР	2	0 2
175	14	1116671203931	ШАРАВЖАМЦ ЭРДЭНЭЦЭЦЭГ	1	0 1
175	16	1116671108931	ЦЭРЭНБАЗАР НЯМЦЭРЭН	1	0 1
175	19	1116671108531	ХУНБИШ ОЮУНЭРДЭНЭ	1	0 1
175	20	1116671200531	NULL NULL	4	0 4
179	1	1116931810028	АМГАЛАН ЧОЙЖИЛСҮРЭН	2	2 0
179	2	1116934201641	НАНСАЛМАА ГАНЗОЛБОО	1	1 0
179	15	1116931511995	ТҮМЭНБАЯР ЭНХБАЯР	1	0 1
179	16	1116931511008	ШАРАВ АЛТАНБИЛЭГ	1	1 0
183	6	1119631004531	НЯМСҮРЭН ОТГОНЖАРГАЛ	1	0 1
183	7	1119631006031	ЦЭВЭЭНДОРЖ НАСАНТОГТОХ	1	1 0
183	11	1119631909962	ПҮРЭВ ДАШ	6	6 0
183	16	1119631609953	ЧОГСОМ АРИУНАА	1	1 0
187	1	1119870705131	ГОМБОЖАВ ДАЛАЙХҮҮ	1	1 0
187	19	1119870404931	ВАЙЛИНЧИЙ ЗАНДАНМЯДАГ	5	0 5
191	1	1122690603831	ГАЛБАЙ ОТГОНЖАМЦ	1	0 1
191	3	1122690406631	ЧАНЦАЛ АМАРСАНАА	4	0 4
191	5	1122690408431	ЯНПИЛ БААТАРСҮРЭН	1	0 1
191	6	1122691509899	ТОГТОХБАЯР БАЯРМАА	3	0 3
191	7	1122691609881	ЦЭДЭНИШ ЭНХЖАРГАЛ	1	0 1

Нийт өрхийн тоо: 111, Нийт судалгаа өгөх хүний тоо: 468, Хаагдаагүй: 366, Хаагдсан: 102

Өмнөх 1 2 3 4 5 6 Дараагийг

No of PSU

HH registration #

No of person who able to do diary

No of HH

Surname and given name of HH head

Status of diary

ӨРХИЙН ЖАГСААЛТ							
НИЙТ	20	Хайх: ТНД, овог, нэрээр хайх					
Түүврийн нэгж	Өрхийн №	Өрхийн бүртгэлийн дугаар	Өрхийн тэргүүлэгчийн овог	Өрхийн тэргүүлэгчийн нэр	Судалгаа өгөх хүний тоо	Хаагдаагүй	Хаагдсан
175	13	1116671304531	НЭМЭХ	ШИНЭБАЯР	2	0	2
175	14	1116671203931	ШАРАВЖАМЦ	ЭРДЭНЭЦЭЦЭГ	1	0	1
175	16	1116671108931	ЦЭРЭНБ				
175	19	1116671108531	ХҮНБИШ				
175	20	1116671200531	NULL				
179	1	1116931810028	АМГАЛАЙ				
179	2	1116934201641	НАНСАЛ				
179	15	1116931511995	ТҮМЭНБ				
179	16	1116931511008	ШАРАВ				
183	6	1119631004531	НЯМСҮР				
183	7	1119631006031	ЦЭВЭЭН				
183	11	1119631909962	ПҮРЭВ	ДАШ	6	6	
183	16	1119631609953	ЧОГСОМ	АРИУНАА	1	1	
187	1	1119870705131	ГОМБОЖАВ	ДАЛАЙХҮҮ	1	1	
187	19	1119870404931	ВАЙЛИНЧИЙ	ЗАНДАНМЯДАГ	5	0	
191	1	1122690603831	ГАЛБАЙ	ОТГОНЖАМЦ	1	0	
191	3	1122690406631	ЧАНЦАЛ	АМАРСАНАА	4	0	
191	5	1122690408431	ЯНПИЛ	БААТАРСҮРЭН	1	0	
191	6	1122691509899	ТОГТОХБАЯР	БАЯРМАА	3	0	
191	7	1122691609881	ЦЭДЭНИШ	ЭНХЖАРГАЛ	1	0	

Нийт өрхийн тоо: 111, Нийт судалгаа өгөх хүний тоо: 468, Хаагдаагүй: 366, Хаагдсан: 102

Өмнөх 1 2 3 **4** 5 6

Өрхийн жагсаалт / Өрхийн гишүүд

САЙН УУ : M01 [ГАРАХ](#)

ГЭР БҮЛИЙН ГИШҮҮД			
#	Эцэг/эхийн нэр	Өөрийн нэр	Эхэлсэн эсэх?
20377	Буянтогтох	Зулгэрэл	<input type="button" value="Тийм"/>
20378	Лонжид	Цогбадрах	<input type="button" value="Тийм"/>

Start time	End time	Where	With who	Main activities	code	Select code
		Баасан	Бямба			
Ө эхэлсэн цаг	Ө дууссан цаг	📍 хаана	👥 хэнтэй	🕒 юу хийсэн	Code	үйл ажиллагааны код
04:00	08:00	Гэртээ	Эцэг/ эх, Өрхийн 12 хүртэлх насны гишүүн, Өрхийн бусад гишүүн	Унтав	911	--Сонгоно уу--
08:00	08:10	Гэртээ	Эцэг/ эх, Өрхийн 12 хүртэлх насны гишүүн, Өрхийн бусад гишүүн	Сэрэв	912	--Сонгоно уу--
08:10	08:20	Гэртээ	Эцэг/ эх, Өрхийн 12 хүртэлх насны гишүүн, Өрхийн бусад гишүүн	Хувцаслав	931	--Сонгоно уу--
08:20	08:30	Гэртээ	Эцэг/ эх, Өрхийн 12 хүртэлх насны гишүүн, Өрхийн бусад гишүүн	Гар нүүрээ угаав	931	--Сонгоно уу--
08:30	08:40	Гэртээ	Эцэг/ эх, Өрхийн 12 хүртэлх насны гишүүн, Өрхийн бусад гишүүн	Өглөөний цай чанав	311	--Сонгоно уу--
08:40	10:20	Гэртээ	Өрхийн 12 хүртэлх насны гишүүн	хоол хийв	311	--Сонгоно уу--
10:20	10:40	Гэртээ	Өрхийн 12 хүртэлх насны гишүүн	хоолоо идэв	921	--Сонгоно уу--

Using smart phone application

	Advantage	Disadvantage
Respondent burden	More option/choice to respondent – some people prefer to using application instead of write down on the paper	
Time	Save time – no need to data entry, just coding on web based platform	
Budget	Save cost – not using paper	Additional budget – given phone data to respondent
Coding activities	Integrated coding (it will reduce non sampling error on activities coding)	
Monitoring	We can monitor during data collection	
Data quality	Not clear yet	

Data collection

Quarter	No of households	No of individuals who write diary		
		Paper	Smart phone application	
1				
2				
3				

DATA QUALITY

- Measuring own use production of goods based on reported activities in a diary and information captured in questionnaires
 - **Only Animal production**
 - Only Crop and plant production
 - Mixed crop and animal production

Data quality

Household information

1. **NSO Mongolia has population and household registration database**
(which including livestock information: number of livestock)
2. **Additional questions (since Q2)**
 - ✓ Does your household has livestock?
 - ✓ Does the animal product is used for household consumption or for income generation?

Individual information

1. **Employment information (16 questions)**
 - ✓ EP6. Occupation of main job
 - ✓ EP7. Industrial activities of main job
 - ✓ EP8. Employment status
 - ✓ EP9. Location of job

Diary

1. **Activities related own use production of goods**
 - ✓ 122 (Raising animals for the market in household enterprises)
 - ✓ 212 (Farming of animals and production of animal products, for own final use)

DATA QUALITY (animal production)

Cross check individual vs household information

- EP6 vs EP7 (occupation vs industry)
- EP6 vs EP8 (occupation vs employment status)
- EP6 vs EP9 (occupation vs location)
- EP6 vs livestock (occupation vs hh has livestock)
- EP8 vs livestock (employment status vs hh has livestock)
- EP9 vs livestock (location vs hh has livestock)

Cross check individual information vs diary

- EP6=61 or 63 vs activity_code

DATA QUALITY

Cross check household information vs diary

- Hh has livestock vs diary (122 or 212)
- Does the livestock product is used for household consumption or for income generation vs diary (122 or 212)

Cross check survey data vs other data source (PHRD)

- Survey data (Q2) vs PHRD
- Number of livestock (PHRD) vs diary (122 or 212)

Question EP6 (ISCO 08)

- **61 Market oriented skilled agricultural workers**
- 6121 market oriented skilled agricultural workers – livestock and diary producers
- 6130 Mixed crop and animal producer
- **63 Subsistence farmers, fishers, hunters and gatherers**
- 6320 subsistence livestock farmer

Question EP7 (ISIC 4.0)

- **14 Animal production**
- 141 raising of cattle and buffaloes
- 142 raising of horses and other equines
- 143 raising of camel and camelids
- 144 raising of sheep and goats
- 146 raising of poultry
- 149 raising of other animals

Number of individuals who live in household which covered TUS 2019

age group	Q1	Q2	Total
<12	808	913	1721
12+	2029	2547	4576
Total	2837	3460	6297

Occupation vs industrial classification

Quarter	Industrial classification EP7		Classification of occupation EP6			Total
			6121	6130	6320	
Q1	141	Raising of cattle and buffaloes	11			11
	142	Raising of horses and other equines	5			5
	143	Raising of camels and camelids	2			2
	144	Raising of sheep and goats	373			374
	146	Raising of poultry	0			2
	149	Raising of other animals	113			113
		wrong code (147, 8521, 6121 etc)	10			10
		Total	514			517
Q2	113	Growing of vegetables and melons, roots and tubers	0	0	0	2
	141	Raising of cattle and buffaloes	37	2	0	39
	142	Raising of horses and other equines	10	0	0	10
	144	Raising of sheep and goats	316	0	1	317
	149	Raising of other animals	139	0	0	138
	210	Silviculture and other forestry activities	0	0	0	1
		wrong code (88, 8521, 6121 etc)	6	0	0	7
		Total	508	2	1	515

Occupation vs employment status

Quarter	Employment status EP8	Classification of occupation EP6			Total
		6121	6130	6320	
Q1	Paid employee: permanently	6			6
	Paid employee: temporary	4			4
	Employers in household market enterprises	22			22
	Own account workers in household market enterprises without employees	297			297
	Contributing family worker	185			185
	Total	514			514
	Q2	Paid employee: permanently	36	0	0
Paid employee: temporary		5	0	0	5
Paid employee: contractors		3	0	0	3
Employers in corporation		2	0	0	2
Employers in household market enterprises		12	0	0	12
Own account workers in household market enterprises without employees		269	1	1	271
Contributing family worker		181	1	0	182
Total		508	2	1	511

Occupation vs location of job

Quarter	Location of work EP9	Classification of occupation EP6			Total
		6121	6130	6320	
Q1	At home	80			80
	Employer's home	3			3
	No specific location	336			336
	Other place	95			95
	Total	514			514
Q2	At home	99	2	1	102
	Employer's home	2	0	0	2
	Employer's business/ activity premises	3	0	0	3
	Intensive farmer	4	0	0	4
	No specific location	295	0	0	295
	Other place	105	0	0	105
	Total	508	2	1	511

Employment status vs livestock information

Quarter	Employment status EP8	whether HH has livestock?		Total
		No livestock	Has livestock	
Q1	Paid employee: permanantly	5	3	8
	Paid employee: temporary	3	1	4
	Employers in household market enterprises	0	22	22
	Own account workers in household market enterprises without employees	21	277	298
	Contributing family worker	14	171	185
	Total	43	474	517
	Q2	Paid employee: permanantly	4	34
Paid employee: temporary		2	3	5
Paid employee: contractors		1	2	3
Employers in corporation		0	2	2
Employers in household market enterprises		2	10	12
Own account workers in household market enterprises without employees		30	239	269
Contributing family worker		14	164	178
Total		53	454	507

Location of job vs livestock information

Quarter	Location of work EP9	whether HH has livestock?		Total
		No livestock	Has livestock	
Q1	At home	8	72	80
	Employer's home	1	2	3
	Employer's business/ activity premises	2	0	2
	No specific location	23	314	337
	Other place	9	86	95
	Total	43	474	517
Q2	At home	13	89	102
	Employer's home	2	0	2
	Employer's business/ activity premises	1	3	4
	Эрчимжсэн аж, ахуй	2	2	4
	No specific location	17	277	294
	Farmland	2	0	2
	Other place	16	83	99
Total	53	454	507	

1. Cross check additional question and PHRD (hh number)

		PHRD	
		No livestock	Has livestock
Whether HH has livestock CA4 (from survey data)	No livestock	12	28
	Has livestock	34	189

		Does the animal product is used for household consumption or for income generation? CA5	
		For household	For income generation
Number of total livestock (from PHRD)	1-49	27	2
	50-99	8	3
	100-249	37 (26%)	11 (23%)
	250+	71 (50%)	30 (65%)
Total		143	46

2. Cross check activities with additional question (household number)

		122	212
Whether HH has livestock CA4	Has livestock	66	192
	No livestock	1	29
Does the animal product is used for household consumption or for income generation? CA5	For household	31	166
	For income generation	35	26
	Total		

3. Cross check activities with PHRD (individual number)

		122			212		
		Q1	Q2	Total	Q1	Q2	Total
Whether HH has livestock	No livestock	4	6	10	25	27	52
	Has livestock	61	97	158	324	293	617
Number of total livestock	1-49	3	4	7	13	22	35
	50-99	2	3	5	21	11	32
	100-249	7	20	27	84	70	154
	250+	49	70	119	206	190	396

4. Cross check activities with employment information (individual number)

		122			212		
		Q1	Q2	Total	Q1	Q2	Total
Occupation of main job EP6	6121 market oriented skilled agricultural workers – livestock and diary producers	65	102	167	348	320	668
	6130 Mixed crop and animal producer		2	2		2	2
	6320 subsistence livestock farmer			0		1	1

Further action

- Cross check additional question and PHRD information
- Check data quality collected by smart phone app
- Prepare secondary editing general guide

THANK YOU FOR YOUR ATTENTION