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Activity report

Implementation of the CSA Monitoring framework in Doyogena Climate-Smart Landscape, Ethiopia

EU-IFAD Project "Building livelihoods and resilience to climate change in East & West Africa: Agricultural Research for Development (AR4D) for large-scale implementation of Climate-Smart Agriculture".

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Gebermedihin Ambaw, Meron Tadesse, John Recha

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Contact:
CCAFS Program Management Unit, Wageningen University & Research, Lumen building, Droevendaalsesteeg 3a, 6708 PB Wageningen, the Netherlands. Email: ccafs@cgiar.org

Summary

Following up the workshop training held in Doyogena (Ethiopia), the implementation and data collection associated with the climate smart agriculture (CSA) monitoring was carried out between November 2-10, 2019 by a team of 7 enumerators and a supervisor. The main objective of this monitoring was to assess farmers' adoption/implementation of CSA practices and technologies over the last 12 months and the perceived effects of their implementation on: food security, crops productivity and income, adaptive capacity and gender aspects (labour, participation in decision making, access/control over generated resources). Eleven promising CSA options targeting the rehabilitation of degraded landscapes and ecosystems, and the enhancement of farmer resilience were addressed: Terraces with Desho grass (*Pennisetum pedicellatum)* a soil and water conservation measure; Controlled grazing; Improved wheat seeds (high yielding, disease resistant & early maturing); Improved bean seeds (high yielding); Improved potato seeds (high yielding, bigger tuber size); Cereal/potato-legume crop rotation (N fixing & non-N fixing); Residue incorporation of wheat or barley; Green manure: vetch and/or lupin during off-season (N fixing in time); Improved breeds for small ruminants; Agroforestry (woody perennials and crops) and Cut and carry for animal feed. The CSA monitoring targeted two persons of opposite sex involved in on-farm activities from a sample of household located in seven villages within the Doyogena Climate-Smart site area. Those included: Tula (01), Suticho (02), Gewada (03), Cholola2 (04), Tachignaw Genjo (05), Duna (06), Gatame 1(07). The households in the first 6 villages were direct beneficiaries of the CCAFS project whereas the ones visited in Gatame1 were non-beneficiaries or "additionals" (potentially non–adopters). Between November 2-10, 2019 a total of 140 households (227 individual farmers: 137 male and 140 females) were surveyed.

Keywords

Climate smart agriculture; monitoring, adaptation, food security, gender

About the authors

1. Gebermedihin Ambaw (G.Ambaw@cgiar.org), Research Officer, International Livestock Research Institute (ILRI) - Addis Ababa (CCAFS – East Africa)
   Role: Supervisor during data collection and report writer
2. Meron Tadesse (merrytade@gmail.com), CSA consultant, International Livestock Research Institute (ILRI) - Addis Ababa (CIAT)
   Role: Supervisor during training and helped in writing the report
3. John Recha (J.Recha@cgiar.org), Scientist – Climate-Smart Agriculture and Policy, International Livestock Research Institute – Nairobi (CCAFS - East Africa) Role: Overall activity coordinator and helped in writing the report

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Contents

Acronyms

AARC	Areka Agricultural Research Center
CCAFS	Climate Change, Agriculture and Food Security
CGIAR	Consultative Group on International Agricultural Research
CIAT	International Center for Tropical Agriculture
CSA	Climate smart agriculture
CSV	Climate smart village
GDP	Gross Domestic Product
SNNPR	Southern Nations Nationalities Peoples Region

Introduction

Even though Ethiopian economy is slowly shifting to industry and service, agriculture still contributes about 35% of the country's GDP (NBE, 2018). In Ethiopia, more than 95% of crop production is rainfall dependent and it has been produced by smallholders and subsistent farmers who have less capacity to adapt to climate change (MoFED, 2006).

In Ethiopia, climate change is manifesting through recurrent drought, flooding, increase of mean annual temperature and changes in precipitation pattern. Being dependent on rainfed agriculture, these conditions threaten the country's economy and food security. According to Emerta 2013, Ethiopia has lost a cumulative level of over 13% of its agricultural output between 1991 and 2008 in relation to climate change.

Farmers in Doyogena in Southern Ethiopia depend on agriculture as their main source of livelihood. They practice a mixed crop-livestock system where they grow staple cereals in mixture with legumes such as beans and vegetables alongside cattle, local poultry and small ruminants of sheep. However, agriculture is threatened by the changing climate and overexploitation of natural resources as most of the rural Ethiopian population depend on rainfed, small-scale, subsistence farming with increased vulnerability to climate-related risks. In Doyogena, there is greater variability in the expected onset and cessation of rainfall. In addition, heavy rains, storms/strong winds, low temperatures, frost, unpredictable rainfall and droughts are evident threats to agriculture and food security in the area. The area also suffers from land degradation and a decline in soil fertility. These extreme changes are likely to lead to increased crop failures, pest and disease outbreaks, and water scarcity.

To tackle climate-related challenges, farmers in the region are implementing existing and new land management systems and practices to build agricultural livelihoods that are both sustainable and resilient to climate change. This is part of so called climate-smart villages (CSVs) approach developed by the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) as a means of performing agricultural research for development (AR4D) that robustly tests technological and institutional options to manage climatic variability, achieve food security, enhance adaptation and mitigation strategies and build resilience. The CSV approach incorporates the participatory evaluation

of climate-smart technologies, practices, services, and processes relevant to local climatic risk management and identifies opportunities for maximizing adaptation gains from synergies across different interventions and recognizing potential maladaptation and trade-offs. The final aim of this collaborative work is to gather science-based evidence on which CSA options works where and under which conditions to draw out lessons and identify efficient pathways for scaling up and out (Aggarwal et al., 2018).

The CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) has established more than 20 CSV sites worldwide with the support of broad-based partnerships seeking to address the increasing challenges of climate change and declining food security on agricultural practices, policies and measures. One of the CSVs present in the CCAFS East African countries is located in Dogoyena (Ethiopia). There, locally relevant climate smart agriculture (CSA) practices are being tested and promoted with the strategic support of Inter Aide, Areka Agricultural Research Center (AARC), three CGIAR centers (International Center for Tropical Agriculture (CIAT), International Center for Agricultural Research in the Dry Areas (ICARDA), International Livestock Research Institute (ILRI)) and with support from the Feed the Future Africa RISING program of the United States Agency for International Development (USAID).

Since 2019 this initial work being fostered by the EU-IFAD funded project “Building livelihoods and resilience to climate change in East & West Africa” which seeks to support large-scale adoption of climate-smart agricultural technologies and practices. This reports relates to the project Activity 1.2 (Assessment of CSA options in climate-smart villages (CSVs): Testing of diverse options: soil and water management interventions, on-farm integration of high value agroforestry trees, animal feed/fodder, reforestation at larger landscape scale, nutrient management, solar-based irrigation). Together with Activity 1.1 (the identification of CSA options for the rehabilitation of degraded landscapes and ecosystems, and the enhancement of farmer resilience) it will it contribute to the Output 1: "Five technological or institutional CSA options that can be scaled up with smallholder farmers in Ethiopia" implemented by the CCAFS EA team in collaboration with CCAFS Flagship 2.

Doyogena Climate-Smart Village

Doyogena CSV is located in Kembata Tembaro zone, Southern Nations, Nationalities, and People's Region (SNNPR) of Ethiopia. The district where is the CSV is located has a mean annual minimum and maximum temperature of 12.6°C and 20°C, respectively. The mean annual rainfall of the district ranges from 1,000 – 1,400 mm. There are two rainfall seasons in the area; Belg (the short rainy season) from January to March and Meher (main rainy season) from June to October. The CSV is in a highland with altitude ranging from 2420 - 2740 meters above sea level (SNNPR Bureau of Finance and Economic Development, 2017).

The main economic activity in the study area involves mixed farming system with Enset-cereal - livestock production. The main types of cereal crops grown in the area are wheat, barley, legumes and vegetable like beans and potato. Enset (*Ensete ventricosum*) which is an important source of food is grown in the area by almost all households. Livestock production includes cattle, sheep and poultry. Agriculture is the main means of livelihood for the community. The majority are subsistent farmers with an average land size of 0.5 ha. The main source of income for the Kembata Tembaro zone is sale of wheat, beans, potatoes, livestock & livestock products, and rural/urban labouring.

Within Doyogena CSV seven villages namely Tula, Suticho, Gewada, Cholola 2, Tachignaw Genjo, Duna and Gatame 1 are covered. In the study area, soil erosion and loss of soil fertility are major challenges faced by the rural community coupled with climate change. The steep topography combined with high rainfall make the area highly vulnerable to soil erosion. Previous farming practices were aggravating the soil erosion problem. As a result, crop production was declining due to loss of soil fertility and some farmers were even forced to abandon part of their plots because it was no longer productive. In addition, land degradation caused shortage of fodder forcing farmers to buy fodder from their limited resources, put pressure on Enset as farmers were resorting to feeding their cattle Enset leaves and also put a burden on women and children who are mainly responsible for feeding and harvesting fodder. Lack of forage was also one of the constraining factors for breeding improved livestock varieties which have better productivity.

The CSA Monitoring: Assessing adoption and outcomes

As part of its Learning Platform 2 "Participatory evaluation of Climate-Smart Agricultural (CSA) practices and technologies in Climate-Smart Villages (CSVs)", CCAFS Flagship 2 has developed the CSA Monitoring Plan. This monitoring plan supports a global, systemic and standardized effort to build context-specific evidence on CSA adoption trends and drivers across diverse CSV sites and on CSA related outcomes at household level. Overall, it aims to better understand to which extent farmers 'implementation of CSA options might lead to positive socio-economic and biophysical changes.

The CSA monitoring framework consists of a set of robust indicators which allow tracking expected outcomes in the Productivity/Food Security and Adaptation pillars.
The key research questions addressed include:

- Who in the Dogoyena CSV is adopting which CSA technologies and practices and which are their motivations or constraining factors? and
- Which are the gender-disaggregated perceived effects of CSA options on farmers' livelihood (agricultural production, income, food security, food diversity and adaptive capacity) and on key gender dimensions (participation in decision making, participation in CSA implementation and dis-adoption, control and access over resources and labor).

Targeted practices

For the exercise 11 CSA practices which are implemented across the six villages through different stakeholders were monitored. Inter Aide has been leading the initiative of introducing CSA practices in the area since 2006. CGIAR are partnering with Inter Aide and AARC to intensify and diversify farmers production while preserving the environment to maintain its productive capacity and build the resilience of farmers to cope with climate changes.

The CSA practices that we assessed during the monitoring were (See Appendix 1):

1. Terraces + Desho grass (*Pennisetum pedicellatum)*: soil and water conservation with biological measure
2. Controlled grazing

3. Improved wheat seeds – (high yielding, disease resistance & early maturing)
4. Improved beans seeds – (high yielding)
5. Improved potato seeds – (high yielding, bigger tuber size)
6. Cereal/potato – legume crop rotation (N fixing & non-N fixing)
7. Residue incorporation for wheat or barley
8. Green Manure: vetch and/or lupin during off-season (N fixing in time)
9. Improved breeds for small ruminants
10. Agroforestry (woody perennials and crops)
11. Cut and carry for animal feed

Implementation

Preliminary steps

List of target households

The first step of the CSV monitoring was identification of "Beneficiary" households who might have or are implementing the promoted CSA practices and a set of "additional" households (for comparative purposes and to explore spill over effects on the medium/long term).

Accordingly, a total of 140 households were pre-identified: 120 households were CSA adopters/ implementers selected randomly from six villages (Tula, Suticho, Gewada, Cholola 2, Tachignaw Genjo and Duna) and 20 were additional households (non-CSA adopters) were selected from Gatame 1.

Field team selection

For the training and data collection a team comprised of CCAFS EA, CIAT, Inter Aide, AARC, Hawassa University and Project Partners from CCAFS-CIAT Cali Colombia were involved. Selection of the enumerators was done considering their previous experience working in the area and their educational background that enable them to fully understand the concept of CSA. The table below shows the details of the enumerators that were involved in the training and data collection.

Name	Organization	Position /Role	Contact
Osana Bonilla - Findji	CIAT-CCAFS Flagship 2	Science Officer - Climate-Smart Agricultural Technologies and Practices / CSA monitoring Trainer	O.Bonilla@cgiar.org
Dr. Anton Eitzinger	CIAT	Climate Change Scientist - Decision and Policy Analysis Research Area / CSA monitoring Trainer	A.Eitzinger@cgiar.org
Gebermedihin Ambaw	CCAFS East Africa	Research Officer/ Trainee and CSA monitoring Supervisor	G.ambaw@cgiar.org
Meron Tadesse	CIAT	Consultant Local Project Supervisor and activity Supervisor / Trainee	merrytade@gmail.com
Abrham Belay	Hawassa University	Lecturer (PhD candidate) / Trainee	abrish.z2010@gmail.com
Esayas Petros	Inter Aide	Field technician: Animal and rangeland / Trainee and enumerator	esayasp1@gmail.com
Gizachew Mirkano	Inter Aide	Field technician: Natural resource management / Trainee and enumerator	gmirkano@gmail.com
Mesele Gintamo	Inter Aide	Field technician: Agricultural economics / Trainee and enumerator	Meseleg56@gmail.com
Tesfaye Abiso	AARC	Fishery researcher / Trainee and enumerator	tesfayeab2011@yahoo.com
Zekariyas Basa	AARC	Agricultural economist researcher / Trainee and enumerator	aldadakajela@gmail.com
Endriyas Dako	AARC	Food science and post-harvest researcher/ Trainee and enumerator	endriasd@yahoo.com
Estifanos Endriyas	AARC	Animal nutrition junior researcher/ Trainee and enumerator	estifanosmessi10@gmail.com

Training workshop

Before data collection, between October 28 and November 1st, 2019, the enumerators received a five-day training at Hossana provided by CCAFS Flagship 2 team. During the training, which included theoretical and field practice sections within the CSV area, enumerators and field supervisor received a refreshment on the concept of climate smart agriculture and were then introduced to the CSA monitoring rational, framework, data collection instrument (Geofarmer) and associated questionnaire to be used (See Presentation: https://hdl.handle.net/10568/106231). To fully grab the concept behind each question, detailed discussion was done both in English and Amharic. On top of this, the

CSA practices that have been implemented within the CSV and were targeted for the monitoring were presented to the enumerators in detail. In the course, the enumerators got more familiarized with the questionnaire and practiced how to use the Geofarmer App among them and with dummy farmers. This was done with close guidance from the trainers and the team from CCAFS-F2 and CIAT. After the end of the first day of practice, the enumerators had a chance to comment about the overall experience of practice and based on their feedback some questions were modified.

Data collection

Results

The overall monitoring implementation activity took 14 days (5 days for training and 9 days for data collection). Data was collected from 140 households (237 farmers; 3 households didn't have a second person) in seven villages. On average, the enumerators took 90 minutes to complete each survey. The need for translation from Kembategna (local language) to Amharic is the reason the survey took longer time. Beyond the e-records in the Geofarmer App all the enumerators used a Field recording Sheet to register any additional comment (See Appendix 2)

Photos

Pictures from Doyogena CSV monitoring training and data collection are available here: https://www.flickr.com/photos/cgiarclimate/49162110112/in/album-72157712025629667/

Challenges

The challenges faced during data collection included:

- Bad internet connection to sync the data
- Unwillingness of some farmers to respond (replacement of unwilling farmers was done)
- The need for the supervisor to frequently go to each village to fix the app (sometimes the app didn't work offline so we had to connect to the internet)

Feedback

The feedback that we got from the enumerators are the following (and have been shared with the technical monitoring team for future improvement):

- The difficulty of the app as it stops suddenly and the need to connect to the internet in order to work offline
- Synchronization of data was difficult and needed taking the phones to Hossana
- Case sensitiveness of codes of farmers

Conclusions

Doyogena climate smart landscape is one of CCAFS sites where the area is prone to the effects of climate change. Agriculture in the area is threatened by variability in the expected onset and cessation of rainfall, heavy rains, storms/strong winds, low temperatures, frost, unpredictable rainfall and droughts. To tackle the effect of climate change CSA practices like physical soil and water conservation structures integrated with biological measures, crop rotation, crop residue management, restricted grazing, agroforestry and community forest rehabilitation are being implemented. For the first time, the CSA Monitoring framework was implemented in the Doyogena CSV. It covered 140 adopter and non-adopter households across 7 villages. Further data analysis will provide valuable insights to: 1) assess the level of farmers adoption of these promising CSA practices and their perceptions on the effects of those practices on productivity, livelihood and food security, adaptive capacity and gender dimensions.

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Appendix 1 Glossary of CSA practices covered by the Monitoring

GLOSSARY

CSA monitoring (Doyogena) 2019

villages

01 – Tula
02 - Suticho
03 - Gewada
04 - Cholola2
05 – Tachignaw Genjo
06 - Duna
07 – Gatame 1

CSA practices

1. Terraces with Desho grass (*Pennisetum pedicellatum)* a soil and water conservation measure
2. Controlled grazing
3. Improved wheat seeds (high yielding, disease resistant & early maturing)
4. Improved bean seeds (high yielding)
5. Improved potato seeds (high yielding, bigger tuber size)
6. Cereal/potato-legume crop rotation (Nitrogen fixing & non-N fixing)
7. Residue incorporation of wheat or barley
8. Green manure: vetch and/or lupin during off-season (N fixing in time)
9. Improved breeds for small ruminants (Sheep)
10. Agroforestry (woody perennials and crops)
11. Cut and carry for animal feed.

Climate events

1. Heavy rains
2. Irregular rains
3. Storms/strong winds
4. Low temperatures
5. Frost
6. Drought

GLOSSARY

CSA monitoring (Doyogena) 2019

1. Terraces with Desho grass (*Pennisetum pedicellatum*) a soil and water conservation measure

Photo credit: Dawit S.

Description (and CSA pillars covered)
A landscape where cropland is maintained with soil and water conservation structures with biological multipurpose biological measures. SWC practice terrace is built and Desho grass (*Pennisetum pedicellatum*) is planted to strengthen the structure and the grass is used for animal feed.

Criteria to differentiate from traditional/conventional practices
A cropland where soil and water conservation structures are not built. A biological measure (Desho grass) is not planted on the farm either. As a result the land is exposed to soil erosion.

2. Controlled grazing

Photo credit: Meron T.

Description (and CSA pillars covered)
A cropland where animals are not allowed to freely graze. This will reduce the compaction of soil as a result better pore space which allows roots to penetrate and perform in a better way.

Criteria to differentiate from traditional/conventional practices
A cropland where animals are allowed to graze freely.

GLOSSARY

CSA monitoring (Doyogena) 2019

3. Improved wheat seeds (high yielding, disease resistant & early maturing)

Photo credit: Dawit S.

Description (and CSA pillars covered)
This improved wheat seed are high yielding, disease resistant, and early maturing. By using this CSA practice, farmers reduce the risks associated with crop failure and improve food security. It also increases yield as a result income and enhance resilience. The varieties that the farmers are planting are Hidase, Huluka, Kingbird, Shorma, Ogolcho and Kekeba.
Criteria to differentiate from traditional/conventional practices
Traditionally, farmers grow wheat varieties which are less productive, susceptible to pests and taking long maturing period.

4. Improved bean seeds (high yielding)

Photo credit: Gebermedihin A.

Description (and CSA pillars covered)
This improved bean seed are high yielding. By using this CSA practice, farmers are able to get higher yield as a result improved income and food security and enhanced their resilience. The varieties that the farmers are planting are CS20DK, Dosha and Gebelcho.
Criteria to differentiate from traditional/conventional practices
Traditionally, farmers grow bean varieties which are less productive.

GLOSSARY

CSA monitoring (Doyogena) 2019

5. Improved potato seeds (high yielding, bigger tuber size)

Photo credit: Dawit S.

Description (and CSA pillars covered)
This improved potato seed are high yielding and have bigger tuber sizes. By using this CSA practice, farmers are able to get higher yield as a result improved income and food security and enhanced their resilience. The varieties that the farmers are planting are Gudene, Jalene and Belete.
Criteria to differentiate from traditional/conventional practices
Traditionally, farmers grow potato varieties which are less productive with smaller tuber size.

6. **Cereal/potato-legume crop rotation (Nitrogen fixing & non-N fixing)**

Photo credit: Dawit S.

Description (and CSA pillars covered)
Cereal/potato-legume crop rotation is the practice of growing a series of dissimilar or different types of crops in the same area in sequenced seasons. This CSA practice is done so that the soil of farms is not used for only one set of nutrients. It helps in reducing soil erosion and increases soil fertility and crop yield.
Criteria to differentiate from traditional/conventional practices
Traditionally, farmers grow the same crop or same family crops (e.g. wheat and barely) in sequenced seasons.

GLOSSARY

CSA monitoring (Doyogena) 2019

7. Residue incorporation of wheat or barley

Photo credit: Meron T.

Description (and CSA pillars covered)
Crop residue management is the practice of incorporating crop residue to the soil. This CSA practice provides seasonal soil protection from wind and rain erosion, adds organic matter to the soil, conserves soil moisture, and improves infiltration, aeration and tilth.

Criteria to differentiate from traditional/conventional practices
Traditionally, farmers remove the crop residue from their field or burn it.

8. **Green manure: vetch and/or lupin during off-season (N fixing in time)**

Photo credit: Gebermedihin A.

Description (and CSA pillars covered)
Green manuring is a practice where farmers grown nitrogen fixing crops such as vetch and lupin during off-season for the purpose of soil amendment and mulching.

Criteria to differentiate from traditional/conventional
Traditionally, farmers leave their cropland bare.

GLOSSARY

CSA monitoring (Doyogena) 2019

9. Improved breeds for small ruminants (Sheep)

Photo credit: Gebermedihin A.

Description (and CSA pillars covered)

Community Based Breeding program is a technology of choice for genetic improvement of small ruminants; measurable genetic gains in performance traits and impact on livelihoods; ensure food security under a changing climate, providing households with both nutrition and disposable income. Their small body size, flexible feeding habits and short generation intervals make them suited to climate-risk management. Their low investment costs are affordable to subsistence farmers and are often owned and tended by women and youth.

Criteria to differentiate from traditional/conventional practices

Traditionally, farmers use local breeds with less body weight and less ability to produce offspring. As a result, the productivity level is below its genetic potential. In addition, different production constraints and lack of appropriate breeding strategies developed for the breed in the production system contribute to less genetic potential.

10. Agroforestry (woody perennials and crops)

Photo credit: Gebermedihin A.

Description (and CSA pillars covered)

This practice is a dynamic, ecologically based natural resource management system through the **integration of trees on farms** and in agricultural landscapes which diversifies and sustains production for increased economic, social and environmental benefits for land users.

Criteria to differentiate from traditional/conventional practices

The main criteria that helps farmers are (i) if intentional (combinations of trees, crops and/or animals are intentionally designed and managed) (ii) if intensive (management wise to maintain their productive and protective functions) (iii) if interactive (biological and physical interactions between the tree, crop and animal components) (iv) if integrated (the tree, crop and/or animal components are structurally and functionally combined into a single integrated management unit)

GLOSSARY

CSA monitoring (Doyogena) 2019

11. Cut and carry for animal feed

Photo credit: Gebermedihin A.

Description (and CSA pillars covered)
In this CSA practice farmers produce forage on soil terrace built on their cropland and around their house. In addition to feeding to their livestock, farmers sell the forage to get additional income.

Criteria to differentiate from traditional/conventional practices
Traditionally, farmers don't produce forage on their cropland or around their house As a result, their livestock allowed to free graze.

Appendix 2: Enumerators field records

2019 CSA Monitoring - Doyogena Cliamte-Smart Village

Village	Household ID	First person code	First Person							Second person							Remark
			Gender	M1.A	M1.B	M1.D	M2	M3	M4	M5	Second person code	Gender	M1.A	M1D	M3	M4	M5	
Tula	doy-01-001	doy-01-001-f	Female		✓	✓	✓	✓	✓	✓	doy-01-001-m	Male	✓	✓	✓	✓	✓	M1A (in red) was previousely completed. It is not the data of this household
	doy-01-002	doy-01-002-f	Female	✓	✓	✓	✓	✓	✓	✓	doy-01-002-m	Male	✓	✓	✓	✓	✓	
	doy-01-023	doy-01-023-m	Male	✓	✓	✓	✓	✓		✓	doy-01-023-f	Female	✓	✓	✓	✓	✓	
	doy-01-004	doy-01-004-m	Male	✓	✓	✓	✓	✓		✓	doy-01-024-f	Female	✓	✓	✓	✓	✓	Female recorded under "doy-01-024-f": CORRECTION NEEDED TO doy-01-004-f
	doy-01-005	doy-01-005-m	Male	✓	✓	✓	✓	✓		✓	doy-01-005-f	Female	✓	✓	✓	✓	✓	
	doy-01-006	doy-01-006-m	Male	✓	✓	✓	✓	✓		✓	doy-01-006-f	Female	✓	✓	✓	✓	✓	
	doy-01-007	doy-01-007-m	Male	✓	✓	✓	✓	✓		✓	doy-01-007-f	Female	✓	✓	✓	✓	✓	
	doy-01-008	doy-01-008-m	Male	✓	✓	✓	✓	✓		✓	doy-01-008-f	Female	✓	✓	✓	✓	✓	
	doy-01-009	doy-01-009-m	Male	✓	✓	✓	✓	✓		✓	doy-01-009-f	Female	✓	✓	✓	✓	✓	
	doy-01-010	doy-01-010-m	Male	✓	✓	✓	✓	✓		✓	doy-01-010-f	Female	✓	✓	✓	✓	✓	
	doy-01-011	doy-01-011-m	Male	✓	✓	✓	✓	✓		✓	doy-01-011-f	Female	✓	✓	✓	✓	✓	
	doy-01-012	doy-01-01-012-m	Male	✓	✓	✓	✓	✓		✓	doy-01-01-012-f	Female	✓	✓	✓	✓	✓	CORRECTION NEEDED TO doy-01-012-m and doy-01-012-f
	doy-01-014	doy-01-014-m	Male	✓	✓	✓	✓	✓		✓	doy-01-014-f	Female	✓	✓	✓	✓	✓	
	doy-01-015	doy-01-015-m	Male	✓	✓	✓	✓	✓		✓	doy-01-015-f	Female	✓	✓	✓	✓	✓	
	doy-01-016	doy-01-016-m	Male	✓	✓	✓	✓	✓		✓	doy-01-016-f	Female	✓	✓	✓	✓	✓	
	doy-01-017	doy-01-017-m	Male	✓	✓	✓	✓	✓		✓	doy-01-017-f	Female	✓	✓	✓	✓	✓	
	doy-01-018	doy-01-018-m	Male	✓	✓	✓	✓	✓		✓	doy-01-018-f	Female	✓	✓	✓	✓	✓	
	doy-01-019	doy-01-019-m	Male	✓	✓	✓	✓	✓		✓	doy-01-019-f	Female	✓	✓	✓	✓	✓	
	doy-01-020	doy-01-020-m	Male	✓	✓	✓	✓	✓		✓	doy-01-020-f	Female	✓	✓	✓	✓	✓	
	doy-01-025	doy-01-025-m	Male	✓	✓	✓	✓	✓		✓	doy-01-025-f	Female	✓	✓	✓	✓	✓	NEW HH NUMBER CREATED NOT RESPECTING PROPOSED ORDER BUT NOT A BIG DEAL
Suticho	doy-02-001	doy-02-023-m	Male	✓	✓	✓	✓	✓		✓	doy-02-001-f	Female	✓	✓	✓	✓	✓	Male done with a new code i.e "doy-02-023-m" but female is done with the original code
	doy-02-002	doy-02-002-f	Female	✓	✓	✓	✓	✓	✓	✓	doy-02-002-m	Male	✓	✓	✓		✓	M1B, M2 and M4 completed by mistake for the second person (Male). REMOVE THOSE FROM THE SECOND PERSON - SPECIALLY M4
	doy-02-003	doy-02-003-m	Male	✓	✓	✓	✓	✓		✓	doy-02-003-f	Female	✓	✓	✓	✓	✓	
	doy-02-004	doy-02-004-f	Female	✓	✓	✓	✓	✓	✓	✓	doy-02-004-m							NO SECOND PERSON (male)
	doy-02-005	doy-02-005-m	Male	✓	✓	✓	✓	✓		✓	doy-02-005-f	Female	✓	✓	✓	✓	✓	
	doy-02-006	doy-02-06-m	Male	✓	✓	✓	✓	✓		✓	doy-02-06-f	Female	✓	✓	✓	✓	✓	MISSING CORRECT HH NUMBER: NEED TO CORRECT TO 006
	doy-02-021	doy-02-021-m	Male	✓	✓	✓	✓	✓		✓	doy-02-021-f	Female	✓	✓	✓	✓	✓	NEW HH NUMBER CREATED NOT RESPECTING PROPOSED ORDER BUT NOT A BIG DEAL
	doy-02-008	doy-02-008-f	Female	✓	✓	✓	✓	✓	✓	✓	doy-02-008-m							NO SECOND PERSON (male)
	doy-02-022	doy-02-022-m	Male	✓	✓	✓	✓	✓		✓	doy-02-022-f	Female	✓	✓	✓	✓	✓	NEW HH NUMBER CREATED NOT RESPECTING PROPOSED ORDER BUT NOT A BIG DEAL
	doy-02-010	doy-02-010-m	Male	✓	✓	✓	✓	✓		✓	doy-02-010-f	Female	✓	✓	✓	✓	✓	
	doy-02-011	doy-02-011-m	Male	✓	✓	✓	✓	✓		✓	doy-02-011-f	Female	✓	✓	✓	✓	✓	
	doy-02-012	doy-02-012-m	Male	✓	✓	✓	✓	✓		✓	doy-02-012-f	Female	✓	✓	✓	✓	✓	
	doy-02-013	doy-02-013-m	Male	✓	✓	✓	✓	✓		✓	doy-02-013-f	Female	✓	✓	✓	✓	✓	
	doy-02-014	doy-02-014-f	Female	✓	✓	✓	✓	✓	✓	✓	doy-02-014-m							NO SECOND PERSON (male)
	doy-02-015	doy-02-015-m	Male	✓	✓	✓	✓	✓		✓	doy-02-015-f	Female	✓	✓	✓	✓	✓	
	doy-02-016	doy-02-016-m	Male	✓	✓	✓	✓	✓		✓	doy-02-016-f	Female	✓	✓	✓	✓	✓	
	doy-02-017	doy-02-017-m	Male	✓	✓	✓	✓	✓		✓	doy-02-017-f	Female	✓	✓	✓	✓	✓	
	doy-02-018	doy-02-018-m	Male	✓	✓	✓	✓	✓		✓	doy-02-018-f	Female	✓	✓	✓	✓	✓	
	doy-02-019	doy-02-019-m	Male	✓	✓	✓	✓	✓		✓	doy-02-019-f	Female	✓	✓	✓	✓	✓	
	doy-02-020	doy-02-020-m	Male	✓	✓	✓	✓	✓		✓	doy-02-020-f	Female	✓	✓	✓	✓	✓	
Gewada	doy-03-001	doy-03-001-m	Male	✓	✓	✓	✓	✓		✓	doy-03-001-f	Female	✓	✓	✓	✓	✓	
	doy-03-002	doy-03-002-m	Male	✓	✓	✓	✓	✓		✓	doy-03-002-f	Female	✓	✓	✓	✓	✓	
	doy-03-003	doy-03-003-m	Male	✓	✓	✓	✓	✓		✓	doy-03-003-f	Female	✓	✓	✓	✓	✓	
	doy-03-004	doy-03-004-m	Male	✓	✓	✓	✓	✓		✓	doy-03-004-f	Female	✓	✓	✓	✓	✓	
	doy-03-005	doy-03-005-m	Male	✓	✓	✓	✓	✓		✓	doy-03-005-f	Female	✓	✓	✓	✓	✓	
	doy-03-006	doy-03-006-m	Male	✓	✓	✓	✓	✓		✓	doy-03-006-f	Female	✓	✓	✓	✓	✓	
	doy-03-007	doy-03-007-m	Male	✓	✓	✓	✓	✓		✓	doy-03-007-f	Female	✓	✓	✓	✓	✓	
	doy-03-008	doy-03-008-f	Female	✓	✓	✓	✓	✓	✓	✓	doy-03-008-m	Male	✓	✓	✓		✓	
	doy-03-009	doy-03-009-m	Male	✓	✓	✓	✓	✓		✓	doy-03-009-f	Female	✓	✓	✓	✓	✓	
	doy-03-010	doy-03-010-m	Male	✓	✓	✓	✓	✓		✓	doy-03-010-f	Female	✓	✓	✓	✓	✓	
	doy-03-011	doy-03-011-f	Female	✓	✓	✓	✓	✓	✓	✓	doy-03-011-m	Male	✓	✓	✓		✓	
	doy-03-012	doy-03-012-M	Male	✓	✓	✓	✓	✓		✓	doy-03-012-F	Female	✓	✓	✓	✓	✓	M&F is written in capital letter
	doy-03-013	doy-03-013-f	Female	✓	✓	✓	✓	✓	✓	✓	doy-03-013-m	Male	✓	✓	✓		✓	
	doy-03-014	doy-03-014-m	Male	✓	✓	✓	✓	✓		✓	doy-03-014-f	Female	✓	✓	✓	✓	✓	
	doy-03-015	doy-03-015-m	Male	✓	✓	✓	✓	✓		✓	doy-03-015-f	Female	✓	✓	✓	✓	✓	
	doy-03-016	doy-03-016-f	Female	✓	✓	✓	✓	✓	✓	✓	doy-03-016-m	Male	✓	✓	✓		✓	
	doy-03-017	doy-03-017-m	Male	✓	✓	✓	✓	✓		✓	doy-03-017-f	Female	✓	✓	✓	✓	✓	
	doy-03-018	doy-03-018-m	Male	✓	✓	✓	✓	✓		✓	doy-03-018-f	Female	✓	✓	✓	✓	✓	
	doy-03-019	doy-03-019-m	Male	✓	✓	✓	✓	✓		✓	doy-03-019-f	Female	✓	✓	✓	✓	✓	
	doy-03-020	doy-03-020-m	Male	✓	✓	✓	✓	✓		✓	doy-03-020-f	Female	✓	✓	✓	✓	✓	

Cholola 2	doy-04-023	doy-04-023	Male	✓	✓	✓	✓	✓		✓	doy-04-023-f	Female	✓	✓	✓	✓	✓	Male done with without "m" i.e. (doy-04-023) NEEDS CORERCTION
	doy-04-002	doy-04-002-	Male	✓	✓	✓	✓	✓		✓	doy-04-002-f	Female	✓	✓	✓	✓	✓	Male done with without "m" i.e. (doy-04-002-) NEEDS CORERCTION
	doy-04-003	doy-04-003-m	Male	✓	✓	✓	✓	✓		✓	doy-04-003-f	Female	✓	✓	✓	✓	✓	
	doy-04-024	doy-04-024-m	Male	✓	✓	✓	✓	✓		✓	doy-04-024-f	Female	✓	✓	✓	✓	✓	NEW HH NUMBER CREATED NOT RESPECTING PROPOSED ORDER BUT NOT A BIG DEAL
	doy-04-005	doy-04-005-m	Male	✓	✓	✓	✓	✓		✓	doy-04-005-f	Female	✓	✓	✓	✓	✓	
	doy-04-022	doy-04-022-m	Male	✓	✓	✓	✓	✓		✓	doy-04-022-f	Female	✓	✓	✓	✓	✓	NEW HH NUMBER CREATED NOT RESPECTING PROPOSED ORDER BUT NOT A BIG DEAL
	doy-04-007	doy-04-007-m	Male	✓	✓	✓	✓	✓		✓	doy-04-007-f	Female	✓	✓	✓	✓	✓	
	doy-04-021	doy-04-021-m	Male	✓	✓	✓	✓	✓		✓	doy-04-021-f	Female	✓	✓	✓	✓	✓	NEW HH NUMBER CREATED NOT RESPECTING PROPOSED ORDER BUT NOT A BIG DEAL
	doy-04-009	doy-04-009-m	Male	✓	✓	✓	✓	✓		✓	doy-04-009-f	Female	✓	✓	✓	✓	✓	
	doy-04-010	doy-04-010-m	Male	✓	✓	✓	✓	✓		✓	doy-04-010-f	Female	✓	✓	✓	✓	✓	
	doy-04-011	doy-04-011-m	Male	✓	✓	✓	✓	✓		✓	doy-04-011	Female	✓	✓	✓	✓	✓	Female without "f" i.e (doy-04-011) NEEDS CORERCTION
	doy-04-012	doy-04-012-f	Female	✓	✓	✓	✓	✓	✓	✓	doy-04-012-m	Male	✓	✓	✓		✓	
	doy-04-013	doy-04-013-m	Female	✓	✓	✓	✓	✓	✓	✓	doy-04-013-male	Male	✓	✓	✓		✓	For female "doy-o4-13-m" and for male "doy-o4-13-male" NEEDS CORERCTION
	doy-04-014	doy-04-014-f	Female	✓	✓	✓	✓	✓	✓	✓	doy-04-014-m	Male	✓	✓	✓		✓	
	doy-04-015	doy-04-015-m	Male	✓	✓	✓	✓	✓		✓	doy-04-015-f	Female	✓	✓	✓	✓	✓	
	doy-04-016	doy-04-016-m	Male	✓	✓	✓	✓	✓		✓	doy-04-016-f	Female	✓	✓	✓	✓	✓	
	doy-04-017	doy-04-017-f	Female	✓	✓	✓	✓	✓	✓	✓	doy-04-017-m	Male	✓	✓	✓		✓	
	doy-04-018	doy-04-018-m	Male	✓	✓	✓	✓	✓		✓	doy-04-018-f	Female	✓	✓	✓		✓	
	doy-04-019	doy-04-019-m	Male	✓	✓	✓	✓	✓		✓	doy-04-019-f	Female	✓	✓	✓	✓	✓	
	doy-04-020	doy-04-020-m	Male	✓	✓	✓	✓	✓		✓	doy-04-020-f	Female	✓	✓	✓	✓	✓	

Tachignaw Genjo	doy-05-001	doy-05-001-m	Male	✓	✓	✓	✓	✓		✓	doy-05-001-f	Female	✓	✓	✓	✓	✓	
	doy-05-002	doy-05-002-m	Male	✓	✓	✓	✓	✓		✓	doy-05-002-f	Female	✓	✓	✓	✓	✓	M2 completed for FEMALE by mistake
	doy-05-003	doy-05-003-m	Male	✓	✓	✓	✓	✓		✓	doy-05-003-f	Female	✓	✓	✓	✓	✓	M1B and M2 completed for FEMALE by mistake
	doy-05-004	doy-05-004-m	Male	✓	✓	✓	✓	✓		✓	doy-05-004-f	Female	✓	✓	✓	✓	✓	
	doy-05-005	doy-05-005-m	Male	✓	✓	✓	✓	✓		✓	doy-05-005-f	Female	✓	✓	✓	✓	✓	
	doy-05-006	doy-05-006-m	Male	✓	✓	✓	✓	✓		✓	doy-05-006-f	Female	✓	✓	✓	✓	✓	
	doy-05-007	doy-05-007-f	Female	✓	✓	✓	✓	✓	✓	✓	doy-05-007-m	Male	✓	✓	✓		✓	
	doy-05-008	doy-05-008-m	Male	✓	✓	✓	✓	✓		✓	doy-05-008-f	Female	✓	✓	✓	✓	✓	M1B and M2 completed for FEMALE by mistake
	doy-05-009	doy-05-009-m	Male	✓	✓	✓	✓	✓		✓	doy-05-009-f	Female	✓	✓	✓	✓	✓	
	doy-05-010	doy-05-010-m	Male	✓	✓	✓	✓	✓		✓	doy-05-010-f	Female	✓	✓	✓	✓	✓	
	doy-05-011	doy-05-011-m	Male	✓	✓	✓	✓	✓		✓	doy-05-011-f	Female	✓	✓	✓	✓	✓	
	doy-05-012	doy-05-012-m	Male	✓	✓	✓	✓	✓		✓	doy-05-012-f	Female	✓	✓	✓	✓	✓	
	doy-05-013	doy-05-013-f	Female	✓	✓	✓	✓	✓	✓	✓	doy-05-013-m	Male	✓	✓	✓		✓	
	doy-05-014	doy-05-014-m	Male	✓	✓	✓	✓	✓		✓	doy-05-014-f	Female	✓	✓	✓	✓	✓	
	doy-05-015	doy-05-015-m	Male	✓	✓	✓	✓	✓		✓	doy-05-015-f	Female	✓	✓	✓	✓	✓	
	doy-05-016	doy-05-016-m	Male	✓	✓	✓	✓	✓		✓	doy-05-016-f	Female	✓	✓	✓	✓	✓	
	doy-05-017	doy-05-017-m	Male	✓	✓	✓	✓	✓		✓	doy-05-017-f	Female	✓	✓	✓	✓	✓	
	doy-05-018	doy-05-018-m	Male	✓	✓	✓	✓	✓		✓	doy-05-018-f	Female	✓	✓	✓	✓	✓	
	doy-05-019	doy-05-019-m	Male	✓	✓	✓	✓	✓		✓	doy-05-019-f	Female	✓	✓	✓	✓	✓	
	doy-05-020	doy-05-020-m	Male	✓	✓	✓	✓	✓		✓	doy-05-020-f	Female	✓	✓	✓	✓	✓	

Duna	doy-06-022	doy-06-022-m	Male	✓	✓	✓	✓	✓		✓	doy-06-022-f	Female	✓	✓	✓	✓	✓	NEW HH NUMBER CREATED NOT RESPECTING PROPOSED ORDER BUT NOT A BIG DEAL
	doy-06-021	doy-06-021-m	Male	✓	✓	✓	✓	✓		✓	doy-06-021-f	Female	✓	✓	✓	✓	✓	NEW HH NUMBER CREATED NOT RESPECTING PROPOSED ORDER BUT NOT A BIG DEAL
	doy-06-023	doy-06-023-m	Male	✓	✓	✓	✓	✓		✓	doy-06-023-f	Female	✓	✓	✓	✓	✓	NEW HH NUMBER CREATED NOT RESPECTING PROPOSED ORDER BUT NOT A BIG DEAL
	doy-06-024	doy-06-024-m	Male	✓	✓	✓	✓	✓		✓	doy-06-024-f	Female	✓	✓	✓	✓	✓	NEW HH NUMBER CREATED NOT RESPECTING PROPOSED ORDER BUT NOT A BIG DEAL
	doy-06-025	doy-06-025-m	Male	✓	✓	✓	✓	✓		✓	doy-06-025-f	Female	✓	✓	✓	✓	✓	NEW HH NUMBER CREATED NOT RESPECTING PROPOSED ORDER BUT NOT A BIG DEAL
	doy-06-006	doy-06-006-m	Male	✓	✓	✓	✓	✓		✓	doy-06-006-f	Female	✓	✓	✓	✓	✓	
	doy-06-007	doy-06-007-m	Male	✓	✓	✓	✓	✓		✓	doy-06-007-f	Female	✓	✓	✓	✓	✓	
	doy-06-008	doy-06-008-m	Male	✓	✓	✓	✓	✓		✓	doy-06-008-f	Female	✓	✓	✓	✓	✓	
	doy-06-009	doy-06-009-m	Male	✓	✓	✓	✓	✓		✓	doy-06-009-f	Female	✓	✓	✓	✓	✓	
	doy-06-010	doy-06-010-m	Male	✓	✓	✓	✓	✓		✓	doy-06-010-f	Female	✓	✓	✓	✓	✓	
	doy-06-011	doy-06-011-m	Male	✓	✓	✓	✓	✓		✓	doy-06-011-f	Female	✓	✓	✓	✓	✓	
	doy-06-012	doy-06-012-m	Male	✓	✓	✓	✓	✓		✓	doy-06-012-f	Female	✓	✓	✓	✓	✓	
	doy-06-013	doy-06-013-m	Male	✓	✓	✓	✓	✓		✓	doy-06-013-f	Female	✓	✓	✓	✓	✓	M2 completed by mistake for FEMALE
	doy-06-014	doy-06-014-f	Female	✓	✓	✓	✓	✓	✓	✓	doy-06-014-m	Male	✓	✓	✓		✓	
	doy-06-015	doy-06-015-m	Male	✓	✓	✓	✓	✓		✓	doy-06-015-f	Female	✓	✓	✓	✓	✓	
	doy-06-016	doy-06-016-m	Male	✓	✓	✓	✓	✓		✓	doy-06-016-f	Female	✓	✓	✓	✓	✓	
	doy-06-017	doy-06-017-m	Male	✓	✓	✓	✓	✓		✓	doy-06-017-f	Female	✓	✓	✓	✓	✓	
	doy-06-018	doy-06-018-m	Male	✓	✓	✓	✓	✓		✓	doy-06-018-f	Female	✓	✓	✓	✓	✓	
	doy-06-019	doy-06-019-f	Female	✓	✓	✓	✓	✓	✓	✓	doy-06-019-m	Male	✓	✓	✓		✓	
	doy-06-020	doy-06-020-m	Male	✓	✓	✓	✓	✓		✓	doy-06-020-f	Female	✓	✓	✓	✓	✓	

Getame 1	doy-07-001	doy-07-001-m	Male	✓	✓	✓	✓	✓		✓	doy-07-001-f	Female	✓	✓	✓	✓	✓	
	doy-07-002	doy-07-002-m	Male	✓	✓	✓	✓	✓		✓	doy-07-002-f	Female	✓	✓	✓	✓	✓	
	doy-07-003	doy-07-003-m	Male	✓	✓	✓	✓	✓		✓	doy-07-003-f	Female	✓	✓	✓	✓	✓	
	doy-07-004	doy-07-004-m	Male	✓	✓	✓	✓	✓		✓	doy-07-004-f	Female	✓	✓	✓	✓	✓	
	doy-07-005	doy-07-005-m	Male	✓	✓	✓	✓	✓		✓	doy-07-005-f	Female	✓	✓	✓	✓	✓	
	doy-07-006(021)	doy-07-006-m	Male	✓	✓	✓	✓	✓		✓	doy-07-006-f	Female	✓	✓	✓	✓	✓	M1B completed by mistake for female
	doy-07-007	doy-07-007-m	Male	✓	✓	✓	✓	✓		✓	doy-07-007-f	Female	✓	✓	✓	✓	✓	
	doy-07-008	doy-07-008-f	Female	✓	✓	✓	✓	✓	✓	✓	doy-07-008-m	Male	✓	✓	✓		✓	
	doy-07-009	doy-07-009-m	Male	✓	✓	✓	✓	✓		✓	doy-07-009-f	Female	✓	✓	✓	✓	✓	
	doy-07-010	doy-07-010-m	Male	✓	✓	✓	✓	✓		✓	doy-07-010-f	Female	✓	✓	✓	✓	✓	
	doy-07-011	doy-07-011-m	Male	✓	✓	✓	✓	✓		✓	doy-07-011-f	Female	✓	✓	✓	✓	✓	
	doy-07-012	doy-07-012-m	Male	✓	✓	✓	✓	✓		✓	doy-07-012-f	Female	✓	✓	✓	✓	✓	
	doy-07-013	doy-07-013-m	Male	✓	✓	✓	✓	✓		✓	doy-07-013-f	Female	✓	✓	✓	✓	✓	
	doy-07-014	doy-07-014-m	Male	✓	✓	✓	✓	✓		✓	doy-07-014-f	Female	✓	✓	✓	✓	✓	
	doy-07-015	doy-07-015-m	Male	✓	✓	✓	✓	✓		✓	doy-07-015-f	Female	✓	✓	✓	✓	✓	
	doy-07-016	doy-07-016-m	Male	✓	✓	✓	✓	✓		✓	doy-07-016-f	Female	✓	✓	✓	✓	✓	
	doy-07-017	doy-07-017-m	Male	✓	✓	✓	✓	✓		✓	doy-07-017-f	Female	✓	✓	✓	✓	✓	
	doy-07-018	doy-07-018-m	Male	✓	✓	✓	✓	✓		✓	doy-07-018-f	Female	✓	✓	✓	✓	✓	
	doy-07-019	doy-07-019-m	Male	✓	✓	✓	✓	✓		✓	doy-07-019-f	Female	✓	✓	✓	✓	✓	
	doy-07-020	doy-07-020-m	Male	✓	✓	✓	✓	✓		✓	doy-07-020-f	Female	✓	✓	✓	✓	✓	