

Midterm Report on  
**Rebuilding Nutritional Security of Golden 1000 Days Earthquake hit Families in Kavre**

**Implementing partner:**

Asta-Ja Research and Development Centre (Asta-Ja RDC)  
Kathmandu, Nepal

**Rebuilding Nutritional Security of Golden 1000 Days Earthquake hit Families** is an interdisciplinary food cum health project being implemented by Asta-Ja Research and Development Center (Asta-Ja RDC) with support from the United Nations Children's Fund (UNICEF). It is on-going in Banepa municipality-4 (formerly Ugrachandi Nala VDC ) of Kavre district. We signed the contract on February 1, 2017 and funds became available on the third week of February. We coordinated with stakeholders, procured and distributed the food storage related supplies to the households by March 21, 2017.

Following activities have been achieved until now.

- **Pre-consultation meetings and pre-survey of project sites in Kavre**
  - District and local level meetings carried in presence of several representatives including Public Health, Agricultural Development, Local Development and UNICEF's regional office.
- **Project inception and stakeholder meeting** held in March in DADOs office, Dhulikhel with participations from DPHO, DADO, LDO, UNICEF, NTAG, Asta-Ja RDC, NAF seeds and decided to involve the FCHVs at Nala health post.
  - Project coordinator and field coordinator on part time basis recruited.
- **Meeting and Orientation of FCHVs** at Nala health post. FCHVs were oriented about the project objectives, activities and their assistance used in selecting the experimental HHs particularly targeting 1000 Golden Days households that also regularly produce paddy and maize.
  - Ward numbers 4 (partial), 5, 6, 7, 8 and 9 of Ugrachandi Nala VDC (now part of Banepa municipality) were selected as the project sites.
  - Information on HHs in these wards collected and identified the HHs for storage experiment in each ward.

- **Procurement and Distribution of Hermetic bags and electric corn shellers**

- Meetings and consultations carried with distributors of hermetic bags (PICS bag) and corn sheller.
- Selected NAF seeds for PICS bag and Dahal Trading Concern for corn shellers.
- Organized distribution program with the assistance of FCHVs in each ward.
- Procurement of smart phone to use **ODK** and record monitoring activities electronically.

**Table.** Summary of distribution of hermetic bags and corn sheller and porous cotton bag to HHs of Banepa municipality (formerly Ugrachandi Nala VDC).

Wards	Total HHs	Golden 1000 Days	Sample HHs	Bags	Sheller	Cotton bag
4	55	12	3	440	2	3
5	246	43	6	2000	6	6
6	194	16	6	1182	5	6
7	210	24	6	1696	6	6
8	184	28	6	1400	5	6
9	166	23	6	1280	5	6
<b>Total</b>	<b>1055</b>	<b>146</b>	<b>33</b>	<b>7998</b>	<b>29</b>	<b>33</b>

- **Baseline survey for HH information, grain types and collection of initial samples**

- With the assistance of FCHVs, we identified HHs for experimental research on nutrition of stored food grains in each of these wards.
- A total of 33 HHs selected, 15 HHs for maize and 15 HHs for rice and 3 HHs having both grain types (refer table above).
- Selected HHs also received porous cotton bag to store control samples.
- One kg of sample of rice/maize was collected in plastic bags with sample information in April and submitted to Zest laboratory, Balkot, Bhaktapur.

- **Monitoring and evaluation**

- A team of Asta-Ja RDC specialists initially interacted with HHs and checked the storage in hermetic and control bags.
- We have been doing monitoring in team and individually using the FCHVs.
- Regional staff of UNICEF also visited and supervised the sites at HH level in selected wards.
- During the course of our interaction with HHS, we have shared the nutrition message from UNICEF as well.
- Team led by UNICEF Country Chief, Mr. Stanley Chitekwe and his associates Mr. Anirudra Sharma and Mr. Yadav KC, Mr. Babu Ram Acharya along with Asta-Ja RDC team of Dr. Jwala Bajracharya, Dr. Bishnu Chapagain and Hari Bhusal visited the field on July 12, 2017. UNICEF team appreciated the ongoing project at Kavre. The chief even procured the hermetic bags for his family in his native country in Africa. This was a self telling moment for Asta-Ja RDC.



Monitoring and Evaluation: Field visit by UNICEF Chief Mr. Stanley Chitekwe and Mr. Anirudra Sharma at Nala bazaar, Nala-4, Kavre. The first observation was on maize drying at the farms (left) followed by welcome by FCHV Mrs. Ambika Sanjel (right).







Insect control was identified as one of the key achievements of the intervention: hermetic packaging.



Note that corn is getting ready for harvest on the background when Mr. Anirudra Sharma explains issues of interaction to Mr. Stanley Chitekwe.

### Key observations and achievements:

- Mismatch between project initiation and food harvest time. Food was already deteriorated when we reached for the intervention at the village. Food was partially consumed too. Some HHs also sold the food stored in the hermetic bags. Out of 1055 HHs, only 536 HHs used hermetic bags. Most of rice and corn seeds was planted in the field. Thus, all distributed bags have not been used.
- We are convincing HHs to use the bags for foods harvested during the dry periods that can be **dried to processing moisture content only. Drying to suitability to processing MC is pre-requisite to using hermetic bags for grains harvested during the rainy season.**
- Some HHs are storing fermented mustard leaves (Gundruk) in hermetic bags. This was an unexpected use of the bag. However, one can store all dry products at proper MC in the hermetic bags
- Damaged grains fed to the chicken, livestock. However, aflatoxins in foods are carried to the animal products. For example, **AFB1 is metabolized in the liver and secreted as AFM1 within 12 hours.**
- Clear **insect control** observed by HHS and appreciated by UNICEF team members.
- **Corn shellers** have been well appreciated by mothers.
- For nutrition and quality test, selected HH have saved grains in hermetic and porous control samples.
- Quality test has been done at Zest lab but **initial food quality and innate nutrient contents unknown.** We have submitted a separate proposal to address the innate quality parameters in freshly harvested corn and rice.

### Laboratory assays

- We held series of consultative meetings with several laboratories and identified Zest laboratory as a collaborator. Zest lab is a private ISO certified food and pharmaceutical laboratory.

Details of the laboratory test for 33 samples of paddy and maize are presented in the table below.



S. No.	Code: Asta Ja RDC	Wt. of 100 grain (g)	Moisture %w/w	Carbohydrate (% w/w)	Thiamin (mg/kg)	Total Aflatoxins (ppb)	Damaged Grain (%)	Live Insects (%)	Dead Insects (%)	Foreign Matter (%)
1	Paddy-7111	2.72	14.70	0.46	3.21	18.63	0.65	0.01	0.00	0.23
2	Paddy-41111	2.57	15.30	0.46	2.87	7.73	1.14	0.00	0.01	0.00
3	Paddy-301111	2.29	14.20	0.20	2.14	1.16	0.79	0.01	0.00	0.00
4	Paddy-425111	2.31	14.10	0.31	3.43	21.73	1.00	0.00	0.00	1.38
5	Paddy-538111	2.40	15.90	0.31	2.09	0.00	1.67	0.00	0.00	1.20
6	paddy-555111	2.20	13.50	0.39	3.00	13.80	1.43	0.00	0.00	0.16
7	Paddy-589111	2.73	14.20	0.36	3.53	16.85	1.42	0.01	0.01	0.09
8	Paddy-594111	2.37	15.50	0.41	2.93	16.11	0.68	0.00	0.02	0.28
9	Paddy-641111	1.77	14.70	0.46	1.67	26.56	1.17	0.00	0.01	0.19
10	Paddy-732111	1.71	12.70	0.51	1.35	9.70	3.52	0.00	0.00	0.59
11	Paddy-737111	2.39	11.80	0.46	2.02	2.95	2.18	0.00	0.00	0.59
12	Paddy-837111	2.28	14.70	0.34	1.04	6.77	1.71	0.00	0.00	0.13
13	Paddy-150111	1.93	11.00	0.39	1.38	4.98	4.02	0.00	0.00	0.95
14	Paddy-871111	3.02	14.20	0.44	1.29	13.21	2.66	0.00	0.00	1.06
15	Paddy-420111	2.78	15.60	0.41	0.84	22.76	0.77	0.04	0.00	0.02

S. No.	Sample code	100 grain (g)	Moisture %w/w	Carbohydrate (% w/w)	Thiamin (mg/kg)	Total Aflatoxins (ppb)	Damaged Grain (%)	Live Insects (%)	Dead Insects (%)	Foreign Matter (%)
1	Maize -145211	44.00	14.50	0.46	2.0	28.5	5.2	0.0	0.0	0.0
2	Maize -171211	25.56	10.50	0.34	2.1	25.2	2.5	0.0	0.0	0.1
3	Maize-176211	29.37	14.90	0.28	2.2	7.1	2.6	0.0	0.0	0.2
4	Maize-177211	32.17	15.20	0.64	2.4	30.0	5.4	0.0	0.0	0.4
5	Maize-250211	31.04	14.50	0.46	2.4	25.4	7.1	0.0	0.0	0.2
6	Maize-287211	33.92	14.60	0.54	ND	31.0	16.5	0.0	0.0	0.3
7	Maize -289211	33.92	15.20	0.46	ND	2.6	10.5	0.0	0.0	0.0
8	Maize-302211	37.82	11.10	0.41	0.5	2.6	11.9	0.0	0.0	0.1
9	Maize -536211	30.24	10.60	0.54	0.9	1.1	5.1	0.0	0.0	0.0
10	Maize-579211	36.72	14.60	0.49	0.8	4.8	3.4	0.0	0.0	0.0
11	Maize-640211	31.98	13.90	0.74	1.0	3.6	17.4	0.0	0.0	0.4
12	Maize-642211	32.61	11.00	0.56	3.2	1.2	13.4	0.0	0.0	0.0
13	Maize-739211	29.35	14.20	0.39	2.4	3.3	7.1	0.0	0.0	0.1
14	Maize-848211	36.60	13.30	0.31	1.7	4.9	9.5	0.0	0.0	0.2
15	Maize-857211	33.34	13.00	0.41	1.6	1.4	3.6	0.0	0.0	0.0
16	Maize-870211	36.28	14.30	0.39	1.7	6.3	1.4	0.0	0.0	0.0
17	Maize-900211	33.41	12.60	0.39	1.5	2.4	2.2	0.0	0.0	0.1
18	Maize-172111	39.84	14.20	0.41	1.9	2.4	4.5	0.0	0.0	0.1

1. Carbohydrate content is calculated as Reducing Sugar as maltose, %w/w

2. Moisture Content is determined using Wile 55 moisture meter.

Currently, we cannot discuss much about the effect of the intervention because these are results from baseline samples. We will analyze and compare samples for both intervention and control treatments in November/December, 2017.

- Other details activities can be found at: <http://www.astajardcnepal.org/nepal-aflatoxins-and-dry-chain-project.html> that will be updated with the current mid-term report.