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# REPORT ON THE SURVEY ON DIETARY DIVERSITY CONDUCTED IN SEVEN COMMUNITIES OF RI-BHOI DISTRICT

BY THE STUDENTS OF 3rd SEMESTER BSW, MLCU



Derived from the "Guidelines for Measuring Household and Individual Dietary Diversity, FAO, Rome"

REPORT ON THE SURVEY ON  
**DIETARY DIVERSITY**  
CONDUCTED IN SEVEN VILLAGES  
**OF RI-BHOI DISTRICT**  
BY THE STUDENTS OF 3rd SEMESTER BSW, MLCU

**By**

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**“NO ONE SHALL BE LEFT BEHIND” INITIATIVE**



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## INTRODUCTION

A diverse diet is an important element to meet the requirement of essential nutrients. The Dietary Diversity Score (DDS) is an indicator of a diverse diet that quantifies the number of food groups consumed. According to the Food and Agriculture Organisation of the United Nations (FAO) guidelines on dietary diversity, it recommends the intake of five or more food groups to ensure a healthy and balanced diet. Findings of DDS study have shown that most communities did not meet the required DDS. Nutritional campaigns were initiated across communities to create awareness on health and nutrition encouraging the consumption of diverse diet. Awareness was created through home visits, cooking demonstrations, community programmes and distribution of IEC materials. To understand the effectiveness of the nutritional campaigns, a study was conducted by students from the Department of Social Work, Martin Luther Christian University in seven villages in Ri Bhoi District. To assess the change in the consumption pattern of participants, a weekly monitoring of diets was done through home visits and 24-hour food recall over a period of four weeks. The DDS was used as an indicator for measuring the change in consumption pattern.

## METHODOLOGY

**Training:** Prior to conduct of the study, students were given an in-house training on understanding the purpose of the survey and briefed on the 24-hour food recall exercise. The 10 food groups, the functions and source were explained and entering data in the required format was shared.

**Respondents:** The study was aimed at assessing intra-household variations for which 10 or more respondents were required. An attempt was made to ensure uniformity in the number of respondents from each village. This was achieved in all villages with 19 respondents in each, except two villages, Umwang Them and Khliehumstem with 15 and 16 respondents respectively. This is because of reluctance of households to take part in the study. Although the number of household varied, it fulfilled the primary criterion. The respondents interviewed were females who are the ones mostly engaged in preparation of meals for the family.

**Data Collection:** After selection and verbal consent of respondents a weekly dietary 24-hour recalls were conducted over a period of four weeks. In the first week of data collection, the respondents were explained the purpose of DDS. In each visit, the participants was advised to include a diverse diet to ensure that nutrient requirement of the family is met. In the entire village, data was collected for four weeks, except for two villages, Liarfluid and Madanrtiang where data for the fourth week could not be collected as communities were engaged in preparation for community programme.

## RESULTS AND DISCUSSIONS

### Dietary Diversity Score

The highest average DDS was recorded from Umwang Them, which had an average DDS of 8.10. It was followed by Khliehumstem and Madanrtiang, both showing an average score of more than five (i.e., they reached the minimum food groups). During the entire survey period the average DDS score for these three villages did not go below five. This was however not the case with Borgang Margnar and Umwang Nongbah whose average DDS score for the entire study period was not only below five but for the individual weeks as well the score did not reach the minimum benchmark. Khweng and Liarsluid are above these two villages but below the top three had a couple of weeks where the score was above five but low score in the other weeks bringing down the average to five. Thus, in terms of dietary diversity, except Umwang Them, Khliehumstem and Madanrtiang the rest of the villages had a low dietary diversity and they lack at least six food groups from their diet.

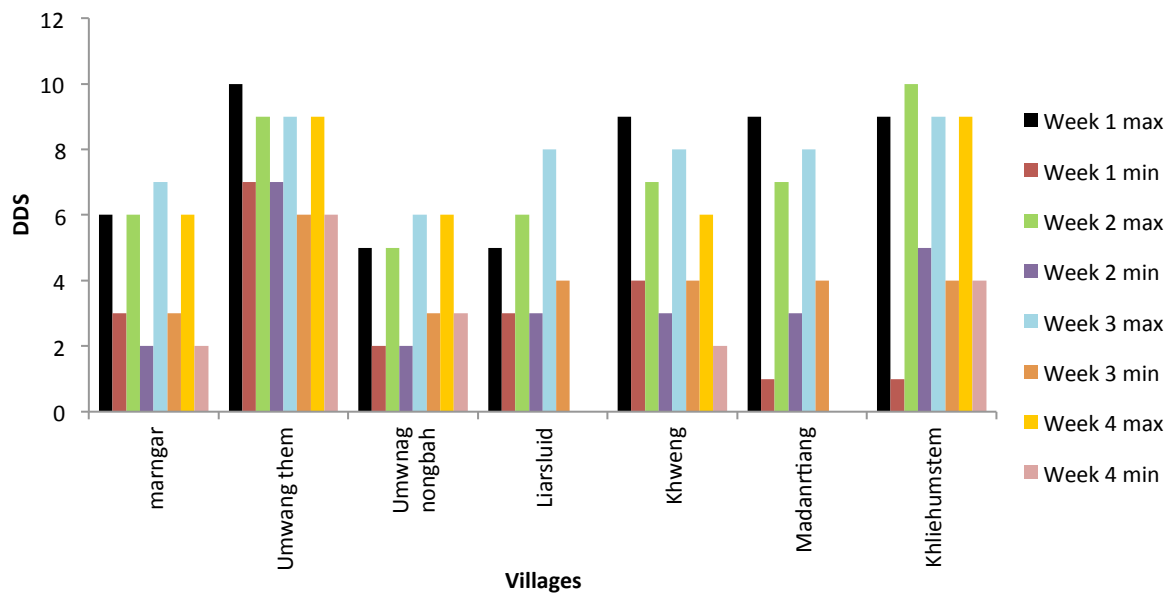
**Table 1:** Average DDS during the study period

Villages	Week 1	Week 2	Week 3	Week 4	Total Average
Umwang Them	8.67	8.00	8.00	7.73	<b>8.10</b>
Khliehumstem	6.19	7.44	6.75	6.56	<b>6.73</b>
Madanrtiang	4.74	5.47	6.11		<b>5.44</b>
Khweng	5.63	4.68	5.42	4.05	<b>4.95</b>
Liarsluid	4.11	4.84	5.47		<b>4.81</b>
Borgang Margnar	4.21	3.89	4.63	4.05	<b>4.20</b>
Umwang Nongbah	3.63	3.63	4.16	4.79	<b>4.05</b>

Liarsluid is adjacent to Khweng which recorded high agrobiodiversity. Both the villages have similar diversity and farming practices; however, the finding indicates that having a rich Agrobiodiversity does not necessarily translate into a diverse diet. This can be attributed to the food habits of the people, whose diet mostly include staple and proteins. Umwang Nongbah and Umwang Them are situated close to each other; however, while the latter recorded as the best performing village, the former is ranked the lowest in dietary diversity. It may be noted that while community members of Umwang Them are engaged in both farming as well as non-agricultural activities, many in Umwang Nongbah are engaged in non-agriculture activities as daily laborers. This would mean the latter would have to depend



on market for meeting a diverse diet. In Borgang Margnar, plantation farming of pineapples and tea may have reduced the agrobiodiversity and hence, accessibility to diverse diet.



**Figure 1:** Maximum and Minimum DDS at the villages

However this does not mean that no one in the villages that had low diversity were able to reach the minimum benchmark. The highest DDS recorded in Marngar and Umwang Nongbah recorded a maximum DDS of 7 but were mostly had a DDS of 5. The villages in the middle category though Khweng and Liarsluid recorded a maximum of 9 DDS initially in the beginning of the survey and had an average maximum DDS of more than 6. For the top three villages, some households reached even the 10 DDS (i.e., perfect score). But when the minimum DDS was analysed it was found that only Umwang Them had minimum score of more than five. In the remaining villages, the minimum DDS was as high as five to as low as one. High variations in the village were thus, a very important finding. This means that except Umwang Them other villages had households suffering from lack of dietary diversity.

The biggest difference between the highest and lowest DDS was found from Khliehumstem and Madanrtiang (villages falling in the middle group) who recorded a difference of more than five. Maximum DDS recorded from all villages reaches the benchmark of five and some recorded DDS of 10, indicating that all food groups are locally available. The wide variation between the minimum and maximum score in some villages



may be due to the differential capacity of individual household to access the different food groups in order to reach the minimum DDS.

The variation is well reflected when the proportion of households who reached the minimum dietary diversity were assessed, i.e., households that reached the average figure of five. More than half of the households in Umwang Them, Khliehumstem and Madanrtiang had households that reached the minimum score of five. On an average, Khweng also had more than half of the households that reached the minimum benchmark but in two of the weeks, the number of such households was less than half. This indicates weekly fluctuations in the dietary score. In Borgang Marngar and Umwang Nongbah, although on an average less than 40% of the households could not reach the score of five, in one of the weeks, more than half of the households had a score of five. This means that the diet did not remain stable throughout the study period but had weekly variations. The weekly fluctuation in DDS can be due to factors such as variation of days on which food plants are harvested or on market days.

Table 2: Percentage of households who reached the DDS of 5 during the study period

Villages	Percentage of people that reached 5				Average
	Week 1	Week 2	Week 3	Week 4	
Borgang Marngar	31.58	31.58	52.63	42.11	39.47
Umwang them	100.00	100.00	100.00	100.00	100.00
Umwang Nongbah	21.05	21.05	36.84	73.68	38.16
Liarsluid	21.05	68.42	84.21		57.89
Khweng	84.21	47.37	68.42	42.11	60.53
Madanrtiang	57.89	68.42	89.47		71.93
Khliehumstem	75.00	100.00	93.75	93.75	90.63

In terms of the average DDS score, the lowest score was recorded during the 1<sup>st</sup> week in Liarsluid, Madanrtiang, Khliehumstem and Madanrtiang. The following weeks the average score was higher. It seems that DDS improved in these four villages after the study began. Borgang Marngar also recorded the lowest DDS very early in the study -- 2<sup>nd</sup> week. In case of Khweng and Umwang Them, though the average DDS was lowest in the last week, i.e., the 4<sup>th</sup> week. For Umwang Them it is not a concern because the average DDS is well above five. For Khweng though the average DDS was more than five in the first week but decline to just around four by the last week. Khweng thus, experienced a decline in dietary diversity during the study period.

**Table 3:** Lowest Average DDS and % of households that reached five DDS

Villages	Lowest Average DDS	Percentage Of Households That Reached 5 DDS
Borgang Marngar	2nd Week	1st And 2nd Week
Umwang Them	4th Week	All Week
Umwang Nongbah	1st And 2nd Week	1st And 2nd Week
Liarluid	1st Week	1st Week
Khweng	4th Week	Fourth Week
Madanrtiang	1st Week	1st Week
Khliehumstem	1st Week	1st Week

But when analysed in terms of households that reached the minimum benchmark of five all the villages except Khweng, again recorded the lowest during the 1<sup>st</sup> week. After that the proportion of households that reached a minimum score of five increased. In the case of Umwang Them there was no variation since all the households had a score of five throughout the week. This particular village seems to be the best in the entire study in terms of dietary diversity. Khweng, on the other hand, seems to be curious case, in the middle in terms of DDS and showed a decline in it as the study wore on. Decline in the propensity of household to consume a minimum of five or more food groups in the last week of the study, indicate that while regular visit help build awareness, a longer period of monitoring would be needed to bring about a sustained change in food habits.

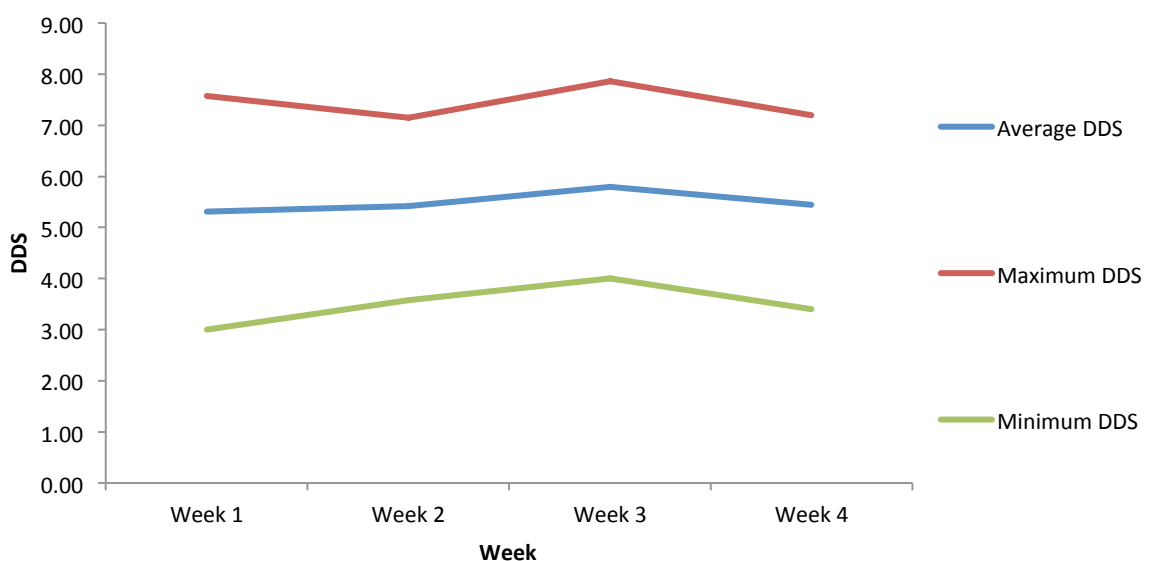
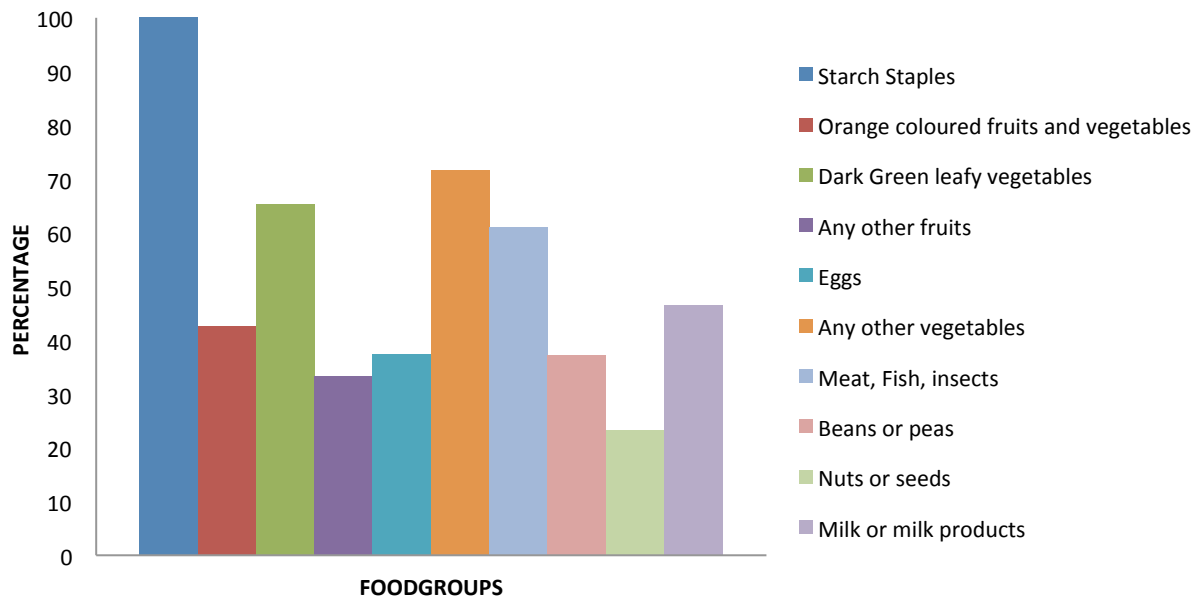


Figure 2: Trend of average, maximum and minimum DDS during the study period



**Figure 3:** Food group diversity consumed during the study period

Overall it seems that the third week is the one in which the villages experienced the highest average, maximum and minimum DDS. This is a very important period as it is after the households have become accustomed to the visit of the surveyors. The surprising thing though is that the DDS went for a nosedive right after this. So the high was immediately followed by a low. Significantly, even though the score was lower it was still slightly higher than from the initial period. This was true of average and minimum DDS which means that the improvement in average DDS has been driven mostly by the increase in the minimum DDS. So the study had an impact on improving DDS, through regular visits. The maximum DDS though was lower from the first week but importantly higher than five. This could be due to limited availability food plants during the winter months, during which the study was conducted, when production of food plants are low and fields are being cleared for next planting season. However, there has not been a perceptible decline in the overall DDS throughout the study period. So it can be said that the study had an impact of encouraging households to consume a more diversified diet and improve their DDS along the way.

### **Diversity by Food Groups**

When analysing the overall diversity in food groups being consumed in the period of one month, it was found that staple, constituted mostly by rice, is consumed by all the participants. More than half of the total household studied consume green leafy vegetables and other vegetables, meeting the requirement of vitamins and minerals like vitamin A and

Iron. Animal flesh food is the main source of protein for more than half of the population, while only 37.45% and 37.08 % consume eggs and beans and pulses to supplement for protein in the diet. Market bought Red lentil (*Masoor dal*) constitute the main pulse consumed throughout the year, while locally grown beans and legumes are consumed when fresh when in season and not usually stored to last for more than few months.

Less than half of households include orange coloured fruits and vegetables in the diet. Nuts and Seeds (23.17%), Fruits (33.32%) are food groups least consumed. Perilla seeds and black sesame seeds are the most common food plants consumed under the nuts and seeds category however, in all the villages, the cultivation of these plants are low and have to depend on the market to obtain this food group. Though pumpkin seeds and chestnuts are also consumed but are not sufficient to supplement the diet regularly. Most of the fruits ready to be harvested in the winter are citrus fruit and less preferred contributing to low consumption of this food group.

## CONCLUSION

The findings of the study showed that Umwang Them is the best performing village on the basis of mean DDS and on the basis of per cent of people consuming food from five or more food groups while, Umwang Nongbah is amongst the poorest performing village. The extremities of dietary diversity score between the two neighbouring villages, located in a similar landscape provide a scope for further study for the barriers in the consumption of diverse diet in the low performing village. The increasing trend in the weekly mean DDS observed in Madanrtiang, Liarsluid, Umwang Nongbah and Borgang Margnar, reflects the positive correlation between the weekly monitoring of diet quality and behavioural change in food habits of respondents. The weekly DDS was recorded highest on the 3<sup>rd</sup> week. This indicates that home visits and consistent reminder of the health benefits of consumption of a diverse diet results in improvement in the consumption pattern. Informing about the food groups missing from the diet and their benefits can contribute to enhancing the dietary diversity for a stable DDS.

The consumption of dark green leafy vegetables at 65.15% shows the success of the nutrition IEC in disseminating the benefits of this food group for addressing Iron deficiency causing anaemia. However, the poor consumption of nuts and seeds, beans and pulses, fruits can result in low diet diversity. Communities can be encouraged to increase the production of these food groups.

According to the results, interventions have an overall positive impact on the consumption pattern and have been effective in increasing or improving the knowledge, attitude and practice of the participants. Structured and consistent monitoring of diets over a longer period of time will contribute to change in attitude towards consumption of a diverse diet. Interventions to sustain a stable DDS can be designed by further studies on the barriers to consuming of diverse diet.

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