

## APPENDIX 1: Calculations and results for the valuation exercise.

Farmers were asked to choose five NTFPs that they normally valued most, and to put those five products in order of importance. They were asked to do the same for a year of poor rainfall. The ranks were converted to values as follows: rank 1 = value 5; rank 2 = 4; rank 3 = 3; rank 4 = 2; rank 5 = 1. Some farmers chose 5 products without ranking them; these were given a value of 3, each. If farmers had ranked a product group (e.g. ‘mushrooms’) instead of a single species, the highest ranking product of that group was given that value.

The values ( $v$ ) were used to calculate the relative importance of each product (Table 3). The sum of values ( $V$ ) per product  $p$  per resource group  $r$  was divided over the sum of values that was given by farmers in each ward ( $V_w$ ) to obtain a weighted value ( $WV$ , Eq. A1 – A3). This weighted value was corrected because the non-food products had only been included in the ranking exercise in Dendenyore, and therefore their relative value was calculated based on the sum of values for Dendenyore only ( $V_w^D$ ). Multiplication with a correction factor ( $C$ ) allowed cross-comparison of all values (Eq. A4, A5) and finally the numbers were multiplied by 100 (Table A.1.1).

Eq. A1. The value of a product ( $V_{p,y}^r$ ) was calculated as:

$$V_{p,y}^r = \sum_{h=1}^n v_{p,h,y}^r ,$$

where  $V$  is the value of product  $p$  for resource group  $r$  in year  $y$ , and  $v$  is the value of product  $p$  for household  $h$  ( $h = 1, 2, \dots, n$ ) in year  $y$ . Year  $y$  is either good or bad.

Eq. A2. Total of all values awarded in a resource group within a ward was calculated as:

$$VW_y^{w,r} = \sum_{h=1}^m \sum_{p=1}^n v_{p,h,y}^{w,r} ,$$

where  $Vw$  is the sum of the values of all products  $p$  ( $p = 1, 2, \dots, n$ ) for all households  $h$  ( $h = 1, 2, \dots, n$ ) in resource group  $r$  in ward  $w$  in year  $y$ . The wards  $w$  are Ushe ( $U$ ) and Dendenyore ( $D$ ).

Eq. A3. The weighted value of a product per resource group was calculated as:

$$\left\{ \begin{array}{l} pt = F \Rightarrow WV_{p,y}^r = \frac{V_{p,y}^r}{\sum_{w=1}^n VW_y^{w,r}} \\ pt = NF \Rightarrow WV_{p,y}^r = \frac{V_{p,y}^r}{VW_y^{D,r}} \end{array} \right. ,$$

where  $pt$  is the product type, either food ( $F$ ) or non-food ( $NF$ ), and  $WV$  is the weighted value of product  $p$  for resource group  $r$  in year  $y$ .  $Vw^D$  is the sum of the values of all products  $p$  for all households  $h$  in resource group  $r$  in Dendenyore ward.

Eq. A4. The resource-group specific correction factor was calculated as:

$$C_y^r = \sum_{p=1}^n WV_{p,y}^r,$$

where  $C$  is the correction factor for resource group  $r$  in year  $y$ .

Eq. A5. The relative value of a product per resource group was calculated as:

$$RV_{p,y}^r = \frac{WV_{p,y}^r}{C_y^r} * 100,$$

where  $RV$  is the relative value of product  $p$  for resource group  $r$  in year  $y$ .

**Table A1.1: Farmer's valuation of NTFPs, based on a valuation exercise in which farmers selected the NTFPs that were most important to their household and ranked these.** Values shown are relative values, and can be compared vertically, horizontally and between product groups. Total values in an entire column add up to 100.

Product name	Year of normal rainfall				Year of poor rainfall			
	Value per product per RG				Value per product per RG			
	RG 1	RG 2	RG 3	Total	RG 1	RG 2	RG 3	Total
<u>Fruits</u>								
<i>Parinari curatellifolia</i>	2	3	0	2	27	31	22	26
<i>Uapaca kirkiana</i>	10	7	14	10	8	20	10	12
<i>Strychnos spinosa</i>	2	2	3	2	2	5	2	3
<i>Azanza garckeana</i>	5	5	3	4	0	0	0	0
<i>Vitex payos</i>	1	4	0	2	5	4	0	3
<i>Dovyalis caffra</i>	3	0	0	1	0	0	0	0
<i>Ficus sycamorus</i>	0	0	4	1	3	0	0	1
Total fruits	30	22	23	26	47	65	42	50
<u>Vegetables</u>								
<i>Corchorus oditorius</i>	0	0	4	1	4	0	1	2
<i>Gynandropsis gynandra</i>	0	2	0	1	2	0	0	1
<i>Amaranthus</i> spp	0	0	3	1	0	0	0	0
Total vegetables	3	2	12	6	8	0	5	5
<u>Herbs and medicines</u>								
<i>Lippia javanica</i>	0	0	0	0	0	0	0	0
<i>Dicoma anomala</i>	0	2	7	3	0	0	2	1
Herbs total	1	6	9	5	1	4	3	2
<u>Roots/tubers</u>								
<i>Coleus esculentus</i>	0	0	0	0	0	0	7	2
Total roots/tubers	0	0	0	0	3	0	7	4
<u>Mushrooms</u>								
<i>Amanita zambiana</i>	2	4	4	3	4	4	0	3
Total mushrooms	8	10	9	9	6	10	3	6
<u>Insects</u>								
Termites, alate	13	1	0	6	2	0	2	2
Termites, soldier	3	0	0	1	2	4	0	2
<i>Eulepida masnana</i>	0	0	0	0	1	0	3	1
Grasshoppers	3	0	3	2	4	2	3	3
<i>Coimbrasia belina</i>	0	0	0	0	0	0	3	1
Total insects	19	1	3	9	8	6	11	9
<u>Wild animals</u>								
Common duiker	0	3	3	2	0	0	4	1
Cape hare	7	4	0	4	3	0	4	3
'Mice'	1	0	0	0	1	0	0	0
'Birds'	3	3	3	3	0	0	1	0
Wild pig	0	0	0	0	2	0	0	1
'Fish'	3	0	3	2	0	0	0	0
Total wild animals	14	11	9	12	6	0	9	6
<u>Non-food</u>								
Firewood	14	23	16	17	13	16	0	9
Leaf litter	0	0	0	0	0	0	11	4
Poles	0	16	7	7	0	0	0	0
Thatch	4	9	4	5	6	0	0	2
Grazing	6	0	0	2	1	0	8	4
Total non-food	26	48	33	34	21	16	19	19