

Villages selection for the project interventions

1. Farming system types, baseline data and community engagement

The interventions for the project will be targeted to three types of farming systems, characterized by different challenges and needs. These farming systems represent a common understanding of the situation in the NW Highlands of Vietnam, that the project team has developed based on partners and literature information, and that has been later validated during field visits. These types are (A) intensive systems in the lowlands with good access to markets and relatively better capacity for innovation, (B) mixed crop-livestock system in the mid-altitudes with mainly Thai ethnic minorities and (C) remote extensive systems in the high altitudes, with low access to market, fragile environment, mainly H'Mong ethnic minorities.

Stratification by type for the baseline was not possible at the time, as clear thresholds between types were lacking, and households were sampled randomly (more details in baseline survey documentation material). After the survey, system level variables describing the types were selected (market integration in % livestock products sold, feed integration in % of feed from crop lands, and land use intensity for livestock), and thresholds identified using the baseline data (more details in corresponding documentation material). Although these analyses provided an excellent characterization of the situation in Mai Son district, the approach is actually problematic when it comes to implementation. Indeed, we will have to approach communities at village level to propose trainings and cannot really classify farmers on the spot according to complex variables. In addition, the commune representatives and local staff in the project district considered the system level variables used for the clustering too difficult to understand and to use. Villages selection is also not evident from the baseline data, as there is often less than a handful of interviews by village. The need for simple criteria is also critical for future scaling and take up by local authorities.

2. Accessibility

Using a profile representation of the two intervention communes, it becomes clear here that altitude, ethnicity, and slope position are not useful to separate the farming system types (Figure 1). Likewise, current proportion of sales in agricultural production are not very useful, as it depends on many other factors beyond proximity to markets. For targeting purposes, it is the potential market orientation that is of interest, rather than the current one. Income and poverty are used by commune administration to define the three types but should be excluded as we are less interested in current performance than in potential for adoption. The more straightforward and practical criteria to characterize the types was identified as accessibility.

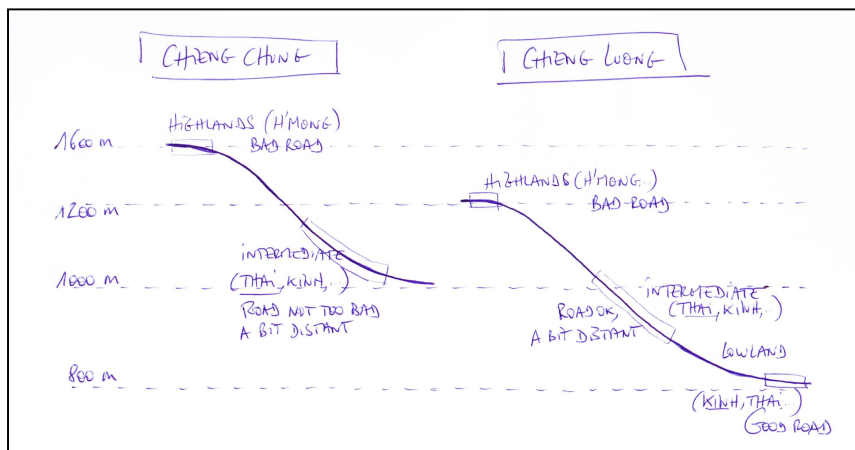


Figure 1. Profile representation of the two intervention communes

This criterion is very evident for extension services and local partners. Despite being a subjective criterion, with potentially different definition depending on the location, this matches well reality and people have a common understanding of it.

The idea with the accessibility criteria is that it gathers the concept behind the system level variables under a simpler criterion, straightforward for local staff. The hypothesis is that it is correlated to these three indicators, although they result a bit twisted in the process: for example, market orientation in the baseline is the current proportion of sales with respect to home consumption. When integrated in the accessibility concept, it becomes the *potential* proportion of sales. This is also fine: the interventions are directed to those who have good potential for success.

3. Villages classification

In Chieng Chung, accessibility was defined as the distance (in minute drive by motorbike) to the concrete road. Highlands and intermediate lands were very clearly separated. In Chieng Luong, accessibility was defined as the distance to Co Noi market (in km). Highland villages were again very easily defined, whereas consideration for the distance to people commune committee as well as commune maps (annexed files) were needed to separate types A and B villages in Chieng Luong. Phone and face-to-face interviews with commune chiefs and extension services were used to refine the classification. The final classification is presented in Table 1.

4. Villages selection

The aim was to have one village per type in each commune. In order to select them, additional criteria were used:

- endorsement of local authority: commune chiefs would in some case advise against a village because of its sensitivity, or the inactivity of the village head.
- typical system: outliers were discarded, for example a village with intensive and recent big pig farms led by people from another province. A would be mostly confined system and hybrid pigs, B would be both confined and grazing and hybrid pigs, and C would be mostly grazing and local pigs.

Table 1. Classification of Chiang Chung and Chiang Luong villages

Types	Ethnicity	Distance to concrete road (mins drive by motorbike)	Altitude (highest point in the village)	Distance to market ¹ (km)	Distance to commune people committee (km)	Livestock holdings	Confine or Grazing	Poverty rate end of 2019 (%)	Notes
Chiang Chung									
Bản Mế (Bảng Cang + Bản Mế)	B Thai	0	1400	18	4	few		4	Some Kinh got married to Thai
Bản Hạm	B Thai	0	1200	15	0	few		7	1 slaughter house
Bản ít hồ	C Hmong	30	1600	23	7	100 cattle	grazing	73	high altitude
Bản Khoa (Bản Khoa + ít Mai)	B Thai	0	1300	13	1.5	a lot	confined	4	several big pig farms
Bản Lòng Nghịu	B Thai	0	1200	16	2	few		5	
Bản Máy	B Thai	0	1200	16	2	few		9	1 slaughter house
Bản Nám (Bản Nám + Nà Men)	B Thai	3	1500	12	3	a lot of cattle	grazing	8	
Bản Nghiu Ten (Bản Nghi + Ten)	B Thai	0	1300	12	2.5	80 cattle	grazing + confined	7	
Bản Ngòi (Bản Ngòi + Nà Mế)	B Thai	0	1100	7	3	>100 cattle	confined	8	several big pig farms
Bản Tường Chung	B Thai, Muong, Tay, Mong, Xin, Mun	10	1000	18	5	few		24	low altitude
Bản Xam Ta	C Hmong	30	1700	17	8	60 cattle	grazing	84	high altitude
Chiang Luong									
Bản Phiêng Nọi	B Thai	15	818	18	8	20 cattle	grazing	65	Medium altitude
Bản Pó In	B Thai	5	740	2	5	>200 cattle	confined	13	
Bản Lù (Bản Lù 1 + Lù 2)	B Thai	5	966	7	5	>200 cattle	confined + grazing	10	
Bản Mập Sàng (Bản Mập + Sàng)	A Thai	0	815	8	2	>200 cattle	confined	10	
Bản Móm 2	B Thai	5	1000	10	5	>100 cattle	grazing	9	
Bản Móm 1	A Thai	0	970	6	0	150 cattle	confined + grazing	6	
Bản Lũng Tra (Bản Lũng Sàng + Tra)	A Hmong, Kho Mu	0	940	9	4	>100 cattle	confined + grazing	44	
Bản Kéo Lôm	B Hmong, Thai	0	1000	10	9	>60 cattle	grazing	76	
Bản Lạn Quyन्ह (Bản Lạn + Kịch)	A Thai	0	800	8	5	>200 cattle	confined + grazing	11	
Bản Chi 2	A Thai	0	811	7	6	>200 cattle	confined + grazing	24	
Bản Ý Luồng	A Thai	0	900	9	3	>200 cattle	confined + grazing	10	
Bản Chi 1	A Thai	0	810	7	5	>200 cattle	confined + grazing	19	
Bản Phú Luồng	A Kinh, Thai	0	800	7	5	3000 pigs; 50 cattle	confined	4	Big pig farms by migrated Kinh from Hung Yen province
Bản Tằng	B Thai	7	926	9	4	>100 cattle	confined + grazing	19	
Bản Búa Bon	C Hmong	25	1100	15	10	40 cattle	grazing	79	Poor
Bản Thảm Phẳng	C Hmong	30	1200	18	11	40 cattle	grazing	75	High altitude
Bản Buồm Khoang	C Hmong	30	1100	18	11	50 cattle	grazing	89	High altitude
Bản Nà Rằm	C Thai	30	1200->800	8	5	50 cattle	grazing + confined	29	High altitude (used to be on high mountain >1200m but was moved near Phu Luong due to stone slide)

¹ Mai Son market for Chiang Chung, Co Noi market for Chiang Luong. No slaughter house in Chiang Luong. There are seven in Co Noi market, they slaughter both cattle and pigs, including local pigs

The villages selected for interventions by this process are:

- Chiang Chung: Ban Khoa (Type B - 203 hhs), Xam Ta (Type C - 19 hhs)
 - Chiang Luong: Ban Mon 1 (type A – 154 hhs), Ban Mon 2 (type A – 154 hhs), Ban Oi (Type B – 112 hhs) and Buom Khoang (Type C – 37 hhs)
- We therefore have 2 villages for each type.

These villages were included in the baseline, although the overlap is minor for type C village. Only 37 baseline survey households are present in the 6 selected villages, including only 3 in the type C villages. The location of baseline households for the intervention villages is presented in Figure 2.

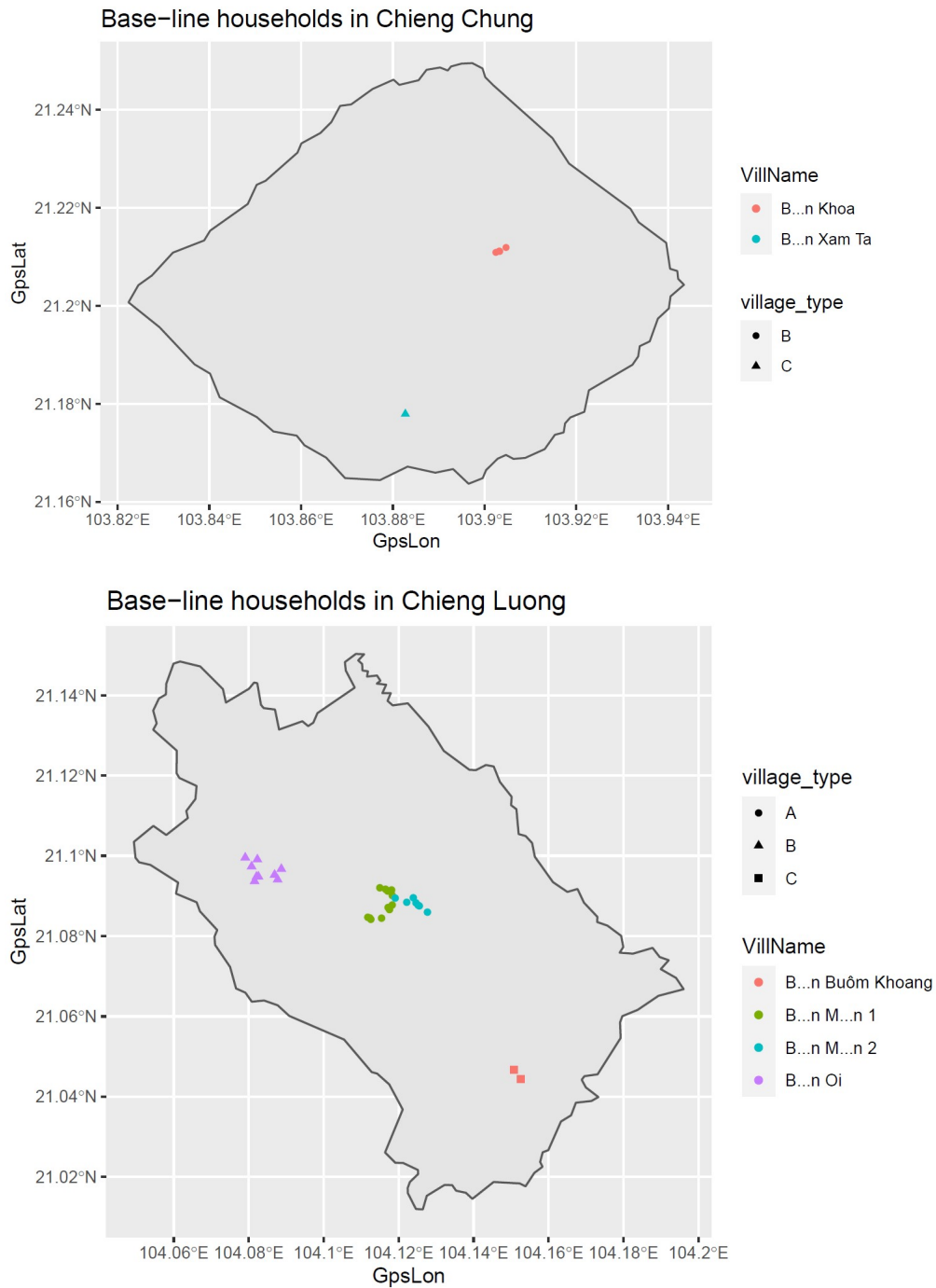


Figure 2. Overlap between baseline households and intervention villages

5. Consequences for evaluation

In terms of evaluation the following issues were raised:

- The baseline was conducted randomly across the communes, assuming that the types would be equally distributed. This is not the case, and we have very few types C.
- Originally, the baseline was designed to capture changes at commune level, as we thought this would be the appropriate unit of evaluation. This was too ambitious for the short project duration.
- Capture changes using the baseline will not be possible already end of 2021 (not enough baseline households in the intervention villages to allow quantitative analysis) but could be once we can expect spill-over from the project intervention villages to more villages, once we reach impact at commune level, i.e. in a follow-up project. For now, an evaluation snapshot would be only in intervention villages and matched controls.

Do more interviews in the intervention villages and matched control villages would still mean repeating the survey with a sample size of roughly 500 hh (Table 2), if we keep the minimum group size of 150 hh that was used for the baseline design. This does not seem worth and realistic for this short duration project.

Table 2. Sample size for eventual additional surveys in the intervention and control villages. Calculation: $(n \text{ unadjusted} \times \text{no. HH}) / (n \text{ unadjusted} + \text{no. HH} - 1) = n \text{ adjusted}$

variable	unit	mean	sd	min detect. diff	mdd rel to mean	n unadjusted	HH Type A	Finite adj Type A	HH Type B	Finite Adj Type B	HH Type C	Finite Adj Type C
cult area/farm	ha	1.58	1.4	0.47	0.3	137	308	96	315	96	80	51
tlu/farm	tlu	2.52	2.19	0.76	0.3	132	308	93	315	94	80	51
crop revenue	kVND	68,485	69,175	20,545	0.3	178	308	114	315	114	80	56
livestock revenue	kVND	59,957	85,895	26,981	0.45	159	308	106	315	106	80	54
non-farm inc shr	%	18	26	8.1	0.45	162	308	107	315	108	80	54
							Est.	100		100		50

Therefore, to ensure some sort of evaluation at the end of 2021, we will

- Identify matched villages for the intervention communes in the control communes, using the same criteria.
- Define qualitative indicators for evaluation
- Work on scaling strategy
- Use the baseline data for characterization purpose at this stage