

Map of the Kundasang area

The map of the area is submitted along with the rapport. It consists of five maps joined together. The five maps are from a seria of topographic maps in the scale of 1:12 500 covering the districts of Dareah and Ranau. The number of the five maps used are R.-676682, R-676526, R-676622, R-676628 and R-675662.

On the map KPD's four water intake's are pointed out. Furthermore, one sampling location (Naradaw) used by the water group is pointed out along with the location of the Kundasang Water Treatment Plant. This is done by using arrows. By circles the areas in which the agricultural group has conducted their interviews are marked.

Sabah Parks statistics 1997

	Climbers			Day visitors	Staying in the Park
	Malaysian	Foreign	Total		
January	675	715	1390	5610	3262
February	1015	829	1844	15.618	5147
March	1820	934	2754	7930	7536
April	1262	1176	2838	8399	6942
May	2855	1089	3944	16.277	9505
June	2133	1322	3455	13.447	8373
July	1654	1597	3251	10.661	8085
August	1558	1917	3475	12.357	7499
September	1759	1424	3183	11.137	7628
October	1356	499	1855	5413	5034
November	1698	527	2225	8975	5708
December	2070	918	2988	19.731	8459
Total	20.255	12.947	33.202	135.555	83.178

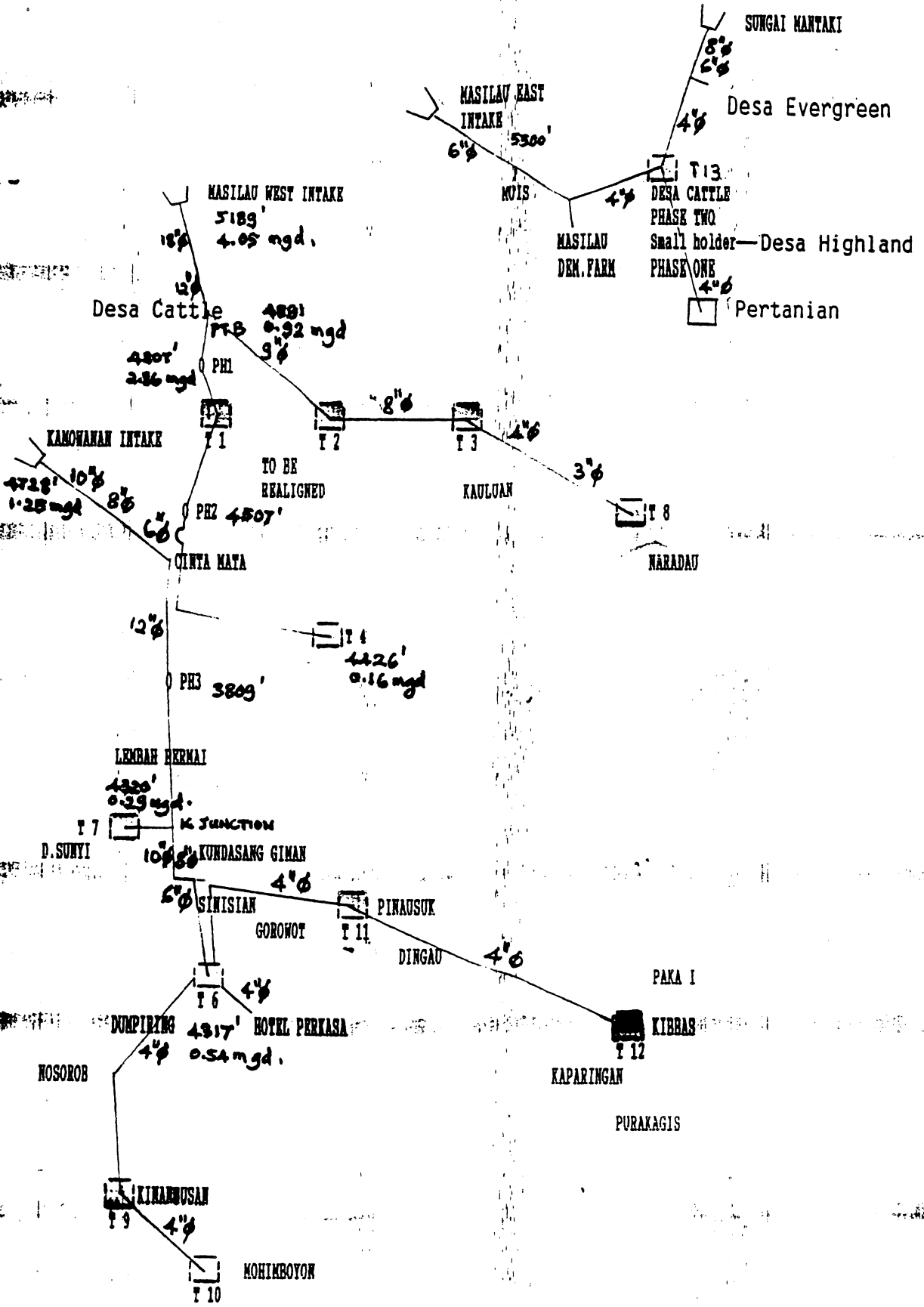
Malaysian tourists	Foreign tourists
7415	1457
19.398	1367
13.637	1829
12.967	2374
23.748	2034
18.374	3446
15.523	3223
16.510	3346
16.564	2201
9402	1045
13.701	982
26.581	1609
193.820	24.913

KGR Statistics september 1998

	Climbers	Non-climbers	Staying in the Park
Malaysian tourist	1955	2459	
Foreign tourists	1051	732	
Total	3006	3191	6197

KUNDASANG
SKETCH MAP: MASILAU IRRIGATION PROJECT

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Appendix 3

T1, T2, T3, T4, T7	= 150 000 GAL
T6	= 250 000 GAL
T8, T11, T9, T13	= 9 600 GAL
T10, T12	= 15 600 GAL

Questionnaire Matrix

OOOO = Highest score
 OOOO = High score

OOO = Medium score
 OO = Low score
 O = Lowest score

Define actors/ action										
Who is given the water										
Who is the polluter of the water										
Who is paying for the water										
Who has the best changes to receive more water										

Questions for interviewing farmers and local population

Introduction – who are we, what is our purpose and what is our questions about.

Irrigation water II. Drinking water

We are not from any government and either the KPD.

Background

1. Who is the decision-maker of this household ?
2. For how long time have you lived here?
3. How many people are living in the household ? Age ? Are they all living here all year?
4. How many animals?
5. How many fields do you cultivate? Ac.?
6. Are you cultivating permanently?
7. Who is supplying you with water both for the fields and household?
(KPD or private pipelines)

Irrigation water

8. Do you use water for irrigation?
9. So how much water do you use for irrigation?
10. Do you get as much as you need?
11. How do you water the fields?
12. How are the conditions of your sprinklers or pipelines?
(Ex. Blockage, price, material's quality...)
13. Who is fixing the sprinklers?

Drinking water

Quality

14. How is the quality of the drinking water ?
15. How can you tell if the water is good?

16. Do you treat your drinking water before consuming it?

17. Why do you do that? Or Why don't you treat your water?

18. If boiling: Do you think you would be able to drink the water if it was not boiled? and do you sometimes do it?

Quantity

19. How much drinking water do you need ?

20. Do you think you get the amount of drinking-water that you need?

22. How are the conditions of the pipes ?

23. If there is a leakage, who will fix it ? and will it be done right away ?

Administration

24. Does everybody get as much water as they should have? Also the people in the outer areas of Kundasang?

25. Can you make some groups of the users of water in Kundasang?

MATRIX

26. Do you think that it is fair that some people are using their own pipelines?

27. Is it legal to have private pipelines ?

28. Is there an agreement in the Kampong (if households in Downtown, then among the neighbours), how the private pipes are placed ?

29. Would it be preferable that everybody was supplied by the mixed system with their own private pipelines and KPD or would it be better, if there was only one way of getting water?

30. What is your opinion about KPD's work?

31. Do you prefer to join the programs of KPD or the local farmers' association or others?

32. Is the water in Kundasang different from other villages? Is it different in the way it is or in the amount of water?

Changes

33. Do you pay according to a water-meter or do you pay flat-rate?

34. Do you have a water-meter?

35. If a farmer with water-meter: Do you sometimes use the water from the sprinklers in the household?

36. KPD is trying to implement meter-system in Kundasang, what do you think of joining that?

37. Do you think your way of using water will change when you get a water-meter?

Or

Do you think your way of using water changed when you got the water meter?

38. How do you think the future will be in the water supplying system?

Interview with farmer in kampong XX??

Mr. Ramon

Christian Ohmsen was interviewing. Supervisor Peter was joining silently listening. We were sitting under the house by the back stairs. There is some nice stairs at the front and a more simple one at the back. A couple of dogs that don't belong to the house are lazily lying around and cats, chickens and children are walking around. Under the house fishing gear is hanging together with tools.

Government gives pipes, KPD helps fixing.

He pays 5 RM pr. month.

He has his own pipe to the nearest stream. Some houses in the kampong dig for water.

He has been living here 27 years, since he was born, also parents(?)

He has 2 fields, one at 2 ha, one at 1 ha. They are 3 miles away. There is 1/2 a mile from the house to the river. The river is far from the fields. He gets no irrigation water. (Later he will tell that they have their own sprinkler system.)

He does not get as much water as he wants in the dry season, that was 5 months last time.

The rain water that supplies his fields is of good quality. If there is too much of it, it is a problem for the vegetables, that happens especially in december. There is no protection build.

The Mesilau supplies the household.

In the household 7 people are living. His father (he has no mother), 2 brothers, 1 sister and 2 kids. 5 of them are living permanently, some go to Ranau, K.K. or Tambunen(?). All in all they are 8.

There is also 40 chicken and 6 cows.

The water is safe, there is no pollution upstream, and they get the water just from the foot of the hill.

The quality is checked by looking at the colour of the water, if it is clear then it is good. They boil the water because they want to be careful. They store it in a tank before the water reaches the house.

There is not only one tank. If one tank is dry they will get water from another tank.

KPD is fixing it, if the pipe gets blocked by leaves and branches.

In the dry season it is possible to dig a hole to get drinking water.

They are afraid of diarrhoea.

The only time there is a problem is in the dry season, when there is only enough water for drinking and cooking. They will wash in the river.

The pipes are in good condition.

In the house they fix them themselves, other places it is KPD (despite they have no irrigation!!).

Sometimes KPD is a bit late, that is one day.

Groups of users are Kampong Sebarang, Kampong Kepas. We ask him about farmers, hotel or golf course and he adds a school, farmers accommodations and Hotel Perkasa. Doing the matrix he says that farmers use too much water for sprinkling in the morning and the afternoon. The farmers use a lot when they are sprinkling. Even when the water is low the farmer will get water, he can't tell why. They have their own sprinkler system.

	Farmers	School	Hotel
Who is given = using the water	5	4	4

Pollutor	4	3	2
Who is paying	5	3	3
Best chances to receive more?	5	4	4 why are the chances less than the farmers? Because farmers can use water all day.
	5	3	2 Why? Just a guess

Farmers are paying 40 RM pr. ha pr month, for him that is a lot.

Pollution is by chemicals and chicken beeps. The school is also polluting because the tank runs over when it is full. The hotel is using soap for cleaning clothes.

He knows Ranau and that they use water meters. The difference of the water is, that they get it directly from the hill. Ranau treat the water first. He doesnt know much about the amount.

Are there any problems between those with their own and those without their own pipelines? No problems. Nobody is blaiming them for going far with the pipelines to get water if it is dry. There will still be water to those downstream, because they are not taking everything.

He is hopping for a new system, but he doesnt know who will be responsible for a new system.

Do you prefer your own or KPD's system? He prefers that he can get more water. Its about money, Why should he use KPD then he cannot afford his own system!

He pays 5 RM pr. month.

He doesnt know what he would think of implementation of a metersystem. But he doesnt want a meter because then it is not free to use the water. He doesnt know if it will be more than the 5 RM. He would change his behaviour by controlling and limiting washing and cooking.

#Maybe it also means something to get the ressource for free, even that prices for constructions are more expensive. It can be the question of who's nature it is and who can charge money for that.

CERTIFICATE OF CALIBRATION

Date 19/6/97

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Current Meter Model: OSS-PC1 Serial No. 97-05
 Fan No. 1 Serial No. 96-25
 Diameter: 50 mm Pitch: 0.05 m
 Type of Support: 9 mm diameter rod
 Method of Calibration: Average Value Equation

 n < 1.34 V = 0.0681 n + 0.0155 m/s
 1.34 < n < 6.79 V = 0.0577 n + 0.0295 m/s
 n > 6.79 V = 0.0531 n + 0.0608 m/s

Starting Velocity = 0.025 m/s
 Maximum Velocity = 2.000 m/s

Note: 'n' denotes the number of revolutions of the propeller per second and 'V' the water velocity in meters per second.

Date :19/6/97

INSPECTED: Subjeet Singh

CALIBRATION TABLE

Date 19/6/97

=====

Current Meter Model: OSS-PC1

Serial No. 97-05

Fan No. 1

Serial No. 96-25

Type of Table: Revs/sec vs m/s

Velocity in Meters/Second at Increments of 0.01 Revolution Per Second

n	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
0.1	*****	*****	*****	*****	0.025	0.026	0.026	0.027	0.028	0.028
0.2	0.029	0.030	0.031	0.031	0.032	0.033	0.033	0.034	0.035	0.035
0.3	0.036	0.037	0.037	0.038	0.039	0.039	0.040	0.041	0.041	0.042
0.4	0.043	0.043	0.044	0.045	0.046	0.046	0.047	0.048	0.048	0.049
0.5	0.050	0.050	0.051	0.052	0.052	0.053	0.054	0.054	0.055	0.056
0.6	0.056	0.057	0.058	0.058	0.059	0.060	0.060	0.061	0.062	0.063
0.7	0.063	0.064	0.065	0.065	0.066	0.067	0.067	0.068	0.069	0.069
0.8	0.070	0.071	0.071	0.072	0.073	0.073	0.074	0.075	0.075	0.076
0.9	0.077	0.078	0.078	0.079	0.080	0.080	0.081	0.082	0.082	0.083
1.0	0.084	0.084	0.085	0.086	0.086	0.087	0.088	0.088	0.089	0.090
1.1	0.090	0.091	0.092	0.093	0.093	0.094	0.095	0.095	0.096	0.097
1.2	0.097	0.098	0.099	0.099	0.100	0.101	0.101	0.102	0.103	0.103
1.3	0.104	0.105	0.105	0.106	0.107	0.107	0.108	0.109	0.109	0.110
1.4	0.110	0.111	0.111	0.112	0.113	0.113	0.114	0.114	0.115	0.116
1.5	0.116	0.117	0.117	0.118	0.118	0.119	0.120	0.120	0.121	0.121
1.6	0.122	0.122	0.123	0.124	0.124	0.125	0.125	0.126	0.126	0.127
1.7	0.128	0.128	0.129	0.129	0.130	0.131	0.131	0.132	0.132	0.133
1.8	0.133	0.134	0.135	0.135	0.136	0.136	0.137	0.137	0.138	0.139
1.9	0.139	0.140	0.140	0.141	0.142	0.142	0.143	0.143	0.144	0.144
2.0	0.145	0.146	0.146	0.147	0.147	0.148	0.148	0.149	0.150	0.150
2.1	0.151	0.151	0.152	0.152	0.153	0.154	0.154	0.155	0.155	0.156
2.2	0.157	0.157	0.158	0.158	0.159	0.159	0.160	0.161	0.161	0.162
2.3	0.162	0.163	0.163	0.164	0.165	0.165	0.166	0.166	0.167	0.167
2.4	0.168	0.169	0.169	0.170	0.170	0.171	0.172	0.172	0.173	0.173
2.5	0.174	0.174	0.175	0.176	0.176	0.177	0.177	0.178	0.178	0.179
2.6	0.180	0.180	0.181	0.181	0.182	0.182	0.183	0.184	0.184	0.185
2.7	0.185	0.186	0.187	0.187	0.188	0.188	0.189	0.189	0.190	0.191
2.8	0.191	0.192	0.192	0.193	0.193	0.194	0.195	0.195	0.196	0.196
2.9	0.197	0.197	0.198	0.199	0.199	0.200	0.200	0.201	0.202	0.202
3.0	0.203	0.203	0.204	0.204	0.205	0.206	0.206	0.207	0.207	0.208
3.1	0.208	0.209	0.210	0.210	0.211	0.211	0.212	0.213	0.213	0.214
3.2	0.214	0.215	0.215	0.216	0.217	0.217	0.218	0.218	0.219	0.219
3.3	0.220	0.221	0.221	0.222	0.222	0.223	0.223	0.224	0.225	0.225
3.4	0.226	0.226	0.227	0.228	0.228	0.229	0.229	0.230	0.230	0.231
3.5	0.232	0.232	0.233	0.233	0.234	0.234	0.235	0.236	0.236	0.237
3.6	0.237	0.238	0.238	0.239	0.240	0.240	0.241	0.241	0.242	0.243
3.7	0.243	0.244	0.244	0.245	0.245	0.246	0.247	0.247	0.248	0.248
3.8	0.249	0.249	0.250	0.251	0.251	0.252	0.252	0.253	0.253	0.254
3.9	0.255	0.255	0.256	0.256	0.257	0.258	0.258	0.259	0.259	0.260
4.0	0.260	0.261	0.262	0.262	0.263	0.263	0.264	0.264	0.265	0.266
4.1	0.266	0.267	0.267	0.268	0.269	0.269	0.270	0.270	0.271	0.271
4.2	0.272	0.273	0.273	0.274	0.274	0.275	0.275	0.276	0.277	0.277
4.3	0.278	0.278	0.279	0.279	0.280	0.281	0.281	0.282	0.282	0.283
4.4	0.284	0.284	0.285	0.285	0.286	0.286	0.287	0.288	0.288	0.289
4.5	0.289	0.290	0.290	0.291	0.292	0.292	0.293	0.293	0.294	0.294

Appendix for quantitative analyse

Kumawanan

	a1	a2	a3	a4	a5	a6
A(m ²)	0.17	0.35	0.44	0.53	0.46	0.18
rps	0.05	0.29	0.93	0.9	0.25	0.03
n	-	0.035	0.079	0.077	0.033	-
V(m ³ /s)	-	0.018	0.021	0.021	0.018	-
A*V(m ³ /s)	-	0.006	0.009	0.011	0.008	-

Total Water flow: $(0.006+0.009+0.011+0.008) \text{ m}^3/\text{s} = \mathbf{0,034 \text{ m}^3/\text{s}}$

Mesilau East

	a1	a2	a3	a4	a5	a6
A(m ²)	0.38	0.73	0.58	0.38	0.32	0.17
rps	0.21	0.7	1.4	0.93	0	0
n	0.03	0.063	0.11	0.079	-	-
V(m ³ /s)	0.018	0.02	0.023	0.021	-	-
A*V(m ³ /s)	0.007	0.015	0.013	0.008	-	-

Total water flow: $(0,007+0,015+0,013+0,008) \text{ m}^3/\text{s} = \mathbf{0,043 \text{ m}^3/\text{s}}$

Mesilaw West

	a1	a2	a3	a4	a5	a6
A(m ²)	0.13	0.27	0.29	0.29	0.29	0.14
rps	0.042	0.46	0.43	0.13	0.66	0.54
n	-	0.047	0.045	-	0.06	0.052
V(m ³ /s)	-	0.019	0.019	-	0.02	0.019
A*V(m ³ /s)	-	0.005	0.006	-	0.006	0.003

Total water flow: $(0,005+0,006+0,006+0,003) \text{ m}^3/\text{s} = \mathbf{0,02 \text{ m}^3/\text{s}}$

Appendix 7

Mantaki

	a1	a2	a3	a4
A(m ²)	0,11	0.11	0.24	0.11
rps	0	0.15	0.46	0.31
n	-	0.026	0.047	0.037
V(m ³ /s)	-	0.017	0.019	0.018
A*V(m ³ /s)	-	0.002	0.005	0.002

Total water flow: (0,002+0,005+0,002) m³/s = **0,009 m³/s**

Naradaw

	a1	a2	a3	a4	a5	a6
A(m ²)	0.449	0.936	1.024	1.097	0.902	0.341
rps	0.242	1.83	2.46	2.54	2.93	1.25
n	0.032	0.135	0.172	0.176	0.199	0.101
V(m ³ /s)	0.018	0.025	0.027	0.027	0.029	0.022
A*V(m ³ /s)	0.008	0.023	0.028	0.03	0.026	0.008

Total water flow: (0,008+0,023+0,028+0,030+0,026+0,008) m³/s = **0,123 m³/s**

First edition of semi-structured interview guide for households

1. Basic information

- a. Household composition (family members all year round)
- b. Labour (family, hired)
- c. Farm area, number of fields
- d. Crops: types, varieties (indigenous/exotic, HYV), subsistence/cash crops
- e. Cropping practice (shifting cultivation, permanent)
- f. Off-farm activities

Questions for an evaluation of degree of intensification of farming

2. Technology:

- | | |
|------------|--|
| Irrigation | a. Do you use irrigation? |
| | b. How do you irrigate? By what means do you irrigate? |
| | c. How often do you irrigate? |
| | d. Do you irrigate all your fields or only some of them? (Maybe only cash crops) |
| Fertilizer | e. Do you use fertilizer? |
| | f. What kind of fertilizer do you use? |
| | g. How much do you use (per year)? (Subsidized or bought) |
| | h. How often do you use fertilizer? |
| | i. Do you fertilize all your fields or only some of them? |
| Pesticides | j. Do you use pesticides? |
| | k. How much do you use (per year)? (Subsidized or bought) |
| | l. How often do you use pesticides? |
| | m. Do you use pesticides on all your fields or only on some of them? |
| Tools | n. What kind of tools do you use in the field work? (Mechanized) |

3. Market orientation:

- a. Do you grow crops for selling or only for your own use?
- b. How big a part of your fields (how many) are cash crops? (Or subsistence crops)
- c. How big a part of your time is spent on cash crops compared to subsistence crops?
- d. Where do you sell your products?
- e. To whom? (Has this changed in the last 5-10-15 years?)
- f. If you produce more, would you be able to sell it?
- g. How do you bring your products to the market?
- f. How much time do you spend on this transport?
(Has it always been like this? Have infrastructure improvements affected this?)

4. Cropping intensity:

- a Do you grow any permanent crops?
- b How often do you harvest (per year)?
- c Do you use fallow?
- d How long are your (different) fallow periods?

Questions concerning opportunities and constraints for agricultural intensification

Changes from past to present

1a) You have now described your present farming practice, but how will you characterize/describe your farming practice (5 - 10 - 15) years ago?

1b) What kind of changes have you experienced during the last (5 - 10 - 15) years regarding:

- yields
- cropping pattern: fallow and frequency
- crops (types, varieties)
- inputs (fertilizer, manure, pesticides, mechanization, irrigation, genetic material, labour)
- capital availability
- off-farm activities
- environment -, pests, diseases, weeds
- soil degradation/conservation practices (*if not mentioned, ask!*)

Question 2a to 6b only for farmers who have changed their farming practice

2a) Which of these changes in farming practice had most influence on your life as a farmer

2b) Why

3a) Why did you choose to change your agricultural practice (*ask for all of the changes the informant has mentioned*)

- income/capital
- increasing demand (internal/external)
- policy/subsidies
- New knowledge or skills
- security, risk minimization
- more time for other activities
- religious, traditions, social network
- access to land, labour, inputs
- environment, soil erosion

4a) What made these changes possible?

- Institutional support (Do you have any connections to organisations/extensions workers? What farming activities do these organisations encourage you to use?)
- support from friends, family,
- inputs
- traditions
- knowledge, skills
- labour
- land
- capital
- access to market
- environment conservation measures

4b) Not all farmers have experienced the same changes, why not?

5a) What kind of problems did you face in changing your agricultural practice

- labour
- market/demand
- technology (fertilizer, pesticides, irrigation....)
- land (small plots spread over a large area/long distance)
- traditions, ethnicity, religion
- knowledge/skills/social networks
- risk minimization
- allocation of time between different activities
- environment

6a) What are the advantages and disadvantages of the changes in farming practice you have experienced

6b) What advantages and disadvantages did you expect before you changed your farming practice

Question 7a to 8a only to farmers who have not changed farming practice

7a) Many farmers in the area have changed their farming practice within the last (5-10-15) years. Have you ever considered a change in farming practice? *If the answer is no, continue to question 8a*

7b) What kind of changes have you considered?

7c) What made you drop these plans?

Question 8a only for farmers who answered no in question 7a

8a) Why not?

Future changes

9a) What could make you change your farming practice in the future?

- demand/market

- technology
- land
- labour
- knowledge/skills
- income/capital
- environmental conservation measures

10a) Do you have any plans for the future regarding your farming practice?

Question 10b-10c only if the answer to 10a is yes

10b) What are you doing to fulfil these plans

10c) What problems are you facing regarding your future plans?

Soil erosion

Is the soil as good as it was some years ago? Why?

What changes have you noticed (colour, ease of tillage)?

Is there erosion? What do you then?

Do you re-surface the terraces (if there are)?

Is there anything you think you should do to improve it?

What happens to the soil under intense rainfall? Is this a problem? Does this happen every year?

Do you often need to re-seed or re-fertilize?

Reviewed interview guide for households

Basic information

1. How long have you been in this area? On this farm?
2. Household composition
3. Labour (family/hired)?
4. Crops?
5. Off farm activities?
6. Tourists?

Land tenure

7. Do you own any land? (Do you rent?)
8. Do you own the land you farm on? (Do you rent the land you farm on?)
9. Do you have any shared land?

Questions for owner:

10. Farm size/size of land owned?
11. How did you get your land?
12. Was it already developed? Did you clear it yourself?
13. Is all the land you own cultivated (used for vegetable production)?
14. Have you acquired more land since you started farming here?
15. Is the cultivated area bigger now than when you started?
16. Have you rented out or sold land? To who?
17. Would you like to have more land? Why/Why not?
18. Do you have access to more land (get, buy, rent)? Why/Why not?
19. Do you have plans to get more land in the future? Why/Why not?
20. Discuss labour problem: Is labour a problem for you?
21. Why do you think there are large uncultivated areas? Who owns them?

Questions for renter:

22. On what conditions do you rent?
23. Would you change your farming if the conditions were changed?
24. Are you renting from one or several people?
25. Is the rent period limited?
26. Why don't you own?
 1. Do you have access to more land?
 2. Discuss labour problem: Is labour a problem for you?
 3. Why do you think there are large uncultivated areas? Who owns them?

Water

30. Do you use irrigation?
31. How do you irrigate?
32. How often do you irrigate (in the dry season)?
33. Where do you get the water (stream, well, rainwater, KPD)?
34. If KPD, why? If not KPD, why?
35. Would it be possible for you to get water from KPD? (Criteria?)
36. Is your water supply reliable?
37. Is water shortage a (big) problem for you?

Fertilizer and pesticides/insecticides

38. Which kinds of fertilizer do you use?
39. How often do you fertilize (per crop/per year)?
40. Which kinds of pesticides/insecticides do you use?
41. How often do you spray for pests or insects?
42. How much pesticide/insecticide do you use per year?
43. Are insects or pests a (big) problem for you?

Market

44. Where do you sell your products? Alternative?
45. Is access to market a (big) problem?
46. Do you sell to middle men?
47. Do you sell to KPD, FAMA.....?
48. Do the prices for your products fluctuate? Is it a problem?
49. Do you respond in any way to these fluctuations?
50. If you produced more, would you be able to sell it?

Capital

51. Is access to new capital a (big) problem?
52. If you had to raise new capital, who would you turn to? Alternatives?

Organizations/policies

53. Do you have connections to any organizations (KPD, Local Farmers Association, FAMA.....)?
54. Do these organizations have an effect on how/what you farm?
55. What do you use the organization for/How does it help you?
56. How could the organization help you more?
57. KPD would like to see vegetable production on all land in the Kundasang area. How do you think they could encourage this?

Discussion of which are the major problems, pairwise ranking.....

We are students from Denmark who are examining the impact and preferences of tourists in and around Kinabalu National Park. We would therefore be grateful if you would answer the questions below and return the questionnaire at the park entrance when leaving.

1. Sex? Male Female
2. Age (years)? _____
3. Nationality? _____
4. Occupation? _____
5. How many days are you staying in or nearby the park? _____
6. Which hotel are you staying in during this period? _____
7. How are you traveling? Alone With family/friends In a group
8. Type of tour arrangement? Prepaid through an agency
Self arranged

9. How important were the following activities/sights in your decision to visit Kinabalu National Park?

1 = Not important	Mountain climbing	1	2	3
2 = Less important	Enjoying nature; (Trails & Botanical garden)	1	2	3
3 = Very important	Golf	1	2	3
	Climate	1	2	3
	Hot springs	1	2	3
	Visiting friends/family	1	2	3
	Others, please specify	_____ 1 2 3		

10. Please rate on a scale of 1-3 the impression of the places visited?

0 = Have not been there	Mountain climbing	0	1	2	3
1 = Not nice	Enjoying nature; (Trails & Botanical garden)	0	1	2	3
2 = Average	Golf	0	1	2	3
3 = Very nice	Climate	0	1	2	3
	Hot springs	0	1	2	3
	Others, please specify	_____ 0 1 2 3			

11. In connection with visiting the National Park how much have you spent (RM) on average per day on:

Local restaurants
0-10 11-30 31-50 more than 50

Local markets/shops
0-10 11-30 31-50 more than 50

12. If you climbed the mountain, what were your expenses (RM) to:

Guides/porters: _____

Please return this questionnaire at the park entrance when leaving the Park.

Thank you very much for your cooperation

Interview guide for hotels

- 1 Who are you - sex, age, local/nonlocal ?
- 2 What is your background ?
- 3 How old is this hotel ?
- 4 How many people can you accommodate a day?
- 5 What is the occupancy rate ?
- 6 What is your yearly accomodation ?
- 7 What are your room rates?
- 8 From where do you get your goods ?
- 9 How many employees do you have ?
- 10 How many employees are local ?
- 11 What are their monthly wages ?
- 12 How is your business going ?
- 13 Do you have any other sources of income ?
- 14 What do you do to promote the hotel ?
- 15 Are you a member of the Kundasang Motel and Resort Association ?
- 12 What are your future plans?

Interview guide for restaurents, shops and market stands

- 1 Who are you - sex, age, local/nonlocal ?
- 2 What is your background ?
- 3 How old is this business and for how long have you been the owner ?
- 4 From where do you get your goods ?
- 5 How many employees do you have ?
- 6 How many employees are local ?
- 7 What are their monthly wages ?
- 8 How much income and expences do you have ?
- 9 How is your business going ?
- 10 How many customers are tourists relative to locals ?
- 11 Do you have any other sources of income ?
- 12 What do you do to promote tour business ?
- 13 What are your future plans?

Hotel	Years	Owner	Back-ground	Other income	Beds	Occupancy rate	Price per person RM	Employees	Monthly wages RM	Promotion	Future Plans
Fairy Garden Golden Highlands KGR HQ.	1	Chinese Share Holding	From K.K.	Gambling machines	188	10%	17-30	12	350-450	None	None
KGR HQ.	3	?	?	Yes	52	30%	20-30	Full time 3 Part time 5	500	Agency in K.K.	?
KGR Messilau KGR	20	KGR	From K.K.	Other resorts	280	66%	12-115	61	400-500	Agency in K.K.	Improving service
KGR Laban Rata KGR	1/2	KGR	From K.K.	Other resorts	100	18.6%	17	Full time 26 Part time 7	400-500	Agency in K.K.	?
KGR Poring Mountain View	1/2	KGR	From K.K.	Other resorts	136	67%	30	11	400-500	Agency in K.K.	None
Haleluyah	1/2	KGR	From K.K.	Other resorts	94	50%	12-48	24	360	Agency in K.K.	Renovation
Perkasa	4	Local	From Ranau	Farming & cosmetics	50	11%	11-49	4	?	None	New hotel
Pine Resort	4	Local	?	Farming	100	20%	20	8	?	Agency in K.K.	New chalets
Rina Rira	18	Perkasa Joint Venture	?	Yes	148	46%	88-166	85	300	SHA	Five star hotel
Rose Garden Sunnys Village	4	From Ranau	From Ranau	No	132	56%	75-92	50	500	Agency in K.K.	Expansion
10 RM Tinumpok	6	From Ranau	From Ranau	Farming	50	20%	21	3	?	None	Expansion
U Merlin Wildlife Expedition	6	Chinese	From K.K.	Farming	30	30%	60	4	?	None	None
Zen Garden	8	Local	From Kudasang	Letting & guiding	20	50%	30	2	?	None	None
	6	Chinese	From Labuan	Farming	44	16.5%	10	3	500	Internet	Better promotion
	5	Chinese	?	Other resorts	80	50%	20-40	1	?	Agency	?
	5	Chinese	?	Other Hotels	40	10%	35-50	4	350-500	None	None
	4	Chinese	From K.K.	Expeditions	30	70%	?	10	400-500	Agency in K.K.	Letting more huts
	5	Chinese	From K.K.	No	250	70%	50-225	80	500-600	Agency in K.K.	New resort

Table 11.1: Differentiated expenditure among Malaysian and foreign tourists in restaurants and markets/shops

Price index (RM) ()=average price	Malaysian tourists		Foreign tourists	
	Restaurants	Shops/markets	Restaurants	Shops/markets
0-10 (5)	4	11	11	42
11-30 (20.5)	10	4	36	23
31-50 (40.5)	9	8	16	7
>50 (60.5)	8	8	16	7
Total	31	31	79	79

Source: Questionnaires (Appendix 9).

With the presented figures above an average expenditure of Malaysian and foreign tourists can be calculated.

Foreign tourists:

Restaurants: $(5 \cdot 11 + 20.5 \cdot 36 + 40.5 \cdot 16 + 60.5 \cdot 16) / 79 = 30.5$

Shops/Markets: $(5 \cdot 42 + 20.5 \cdot 23 + 40.5 \cdot 7 + 60.5 \cdot 7) / 79 = 17.6$

Malaysian tourists:

Restaurants: $(5 \cdot 4 + 20.5 \cdot 10 + 40.5 \cdot 9 + 60.5 \cdot 8) / 31 = 34.6$

Shops/Markets: $(5 \cdot 11 + 20.5 \cdot 4 + 40.5 \cdot 8 + 60.5 \cdot 8) / 31 = 30.5$

The expenditure of Malaysian tourists is higher in both categories.

To calculate the total expenditure of tourists per year, the total number of overnights have to be calculated. This will be based on interviews with hotel managers/staff. It should be mentioned that the accuracy of the listed occupancy rates is very dependent on the source, meaning that the hotel owners when interviewed were more accurate than the hotel employees (see table 11.2).

Appendix 11

Table 11.2: Overview of important data concerning hotel accommodation and balanced price level.

Hotel	Beds	Occupancy rate (%)	Overnights per day	Balanced Pricelevel ¹	Average expenditure RM
U Merlin	40	10	4	38,75	155
Mountain View	50	11	5,5	30	165
10 Ringgit	44	16,5	7,26	10	73
Rose Garden	30	30	9	60	540
Rina Ria	50	20	10	21,25	212,5
Sunny	20	50	10	30	300
Golden Kundasang	52	30	15,6	22,5	351
KGR, Mesilau	100	18,6	18,6	17	316
Fairy Garden	188	10	18,8	20,25	381
Haleluah	100	20	20	20	400
Wildlife Expedition	30	70	21	-	-
Tinompok	80	50	40	25	1000
KGR, Porring	94	50	47	21	987
Perkasa	148	46	68,08	107,5	7319
Pine Resort	132	56	73,92	79,5	5877
Zen Garden	250	70	175	93,75	16.406
KGR, HQ	280	66	184,8	37,75	6976
Laban Rata Hotel	136	67	91	30	2730
Total	1824		820		44.188
Total overnights per year			299.300		16.128.620

Note: ¹the balanced pricelevel is estimated to be ¾ of the lowest roomrate and ¼ of the highest roomrate, based on interviews with hotel managers/staff

The number of overnights is about 300.000 per year, which implies an average stay of 1.4 days per tourist if the visitor number of 219.000 per year is expected (see appendix 2).

Expenditure on hotels per tourist: $44188 / 820 = 53,9$

Table 11.3: The differentiated average expenditure per tourist visiting the area.

	Expenditure RM per day per tourist	
	Malaysian tourists	Foreign tourists
Restaurants	34.6	30.5
Shops/Market Stands	30.5	17.6
Hotels	53.9	53.9
Total	119	102

Employment.

The wages used in the calculations below are average estimates. We do not take into account that some of the wages are inclusive of food and accommodation and some of them are not.

Table 11.4: Wages generated in the tourist sector in the Kundasang area based on interviews.

	Number of employees	Average wages per month	Total income per year
Hotels	397	475	2,262,900
Restaurants	66	375	297,000
Guides :	60	700	504,000
Sabah Parks :	27	750	243,000
Golf course	40	270	131,400
Total	590	486	3,438,300

Sabah Parks

The calculation below are only based on the fixed income and expenses of the park. The variable costs and government subsidies are not included.

Table 11.5: Income and expenses for Kinabalu National Park (Sabah Park).

	Income	Expenses
Entrance fee ¹	RM 436,000	
Climber fee ²	RM 1,230,000	
Leasing accommodation	RM 400,000	
Expences (wages) ³		RM 810,000
Balance		RM 1,256,000

Note: ¹RM 2.0 per tourist * 218,000 tourists a year (Park statistics, 1997) = RM 436,000 a year. ² Foreign tourists; RM 50.0 * 64% of 30,000 = RM 960,000, Malaysian tourists; RM 25.0 * 36% of 30,000 = RM 270,000. ³ 90 employees * RM 750 a month * 12 months = RM 810,000 a year.