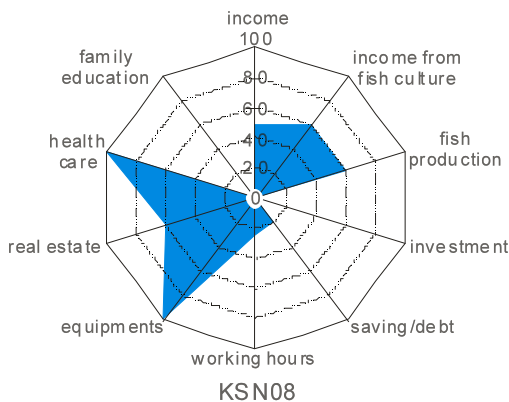
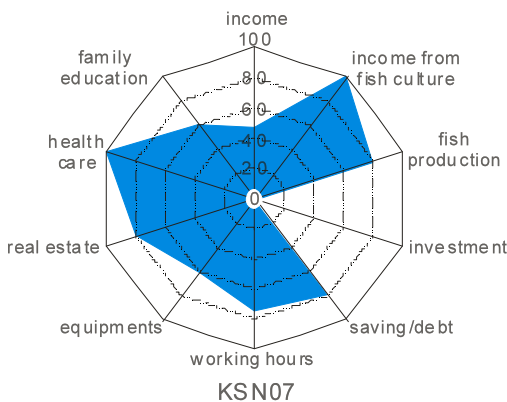
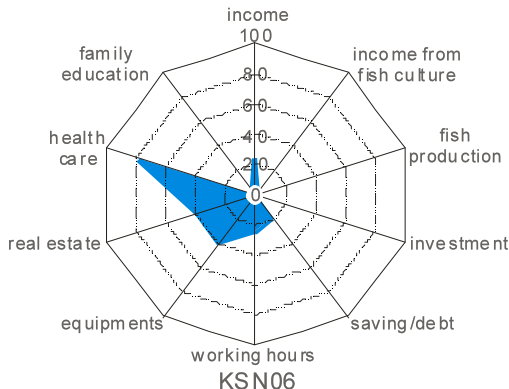
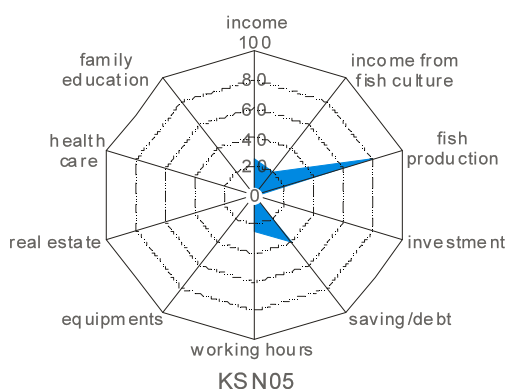
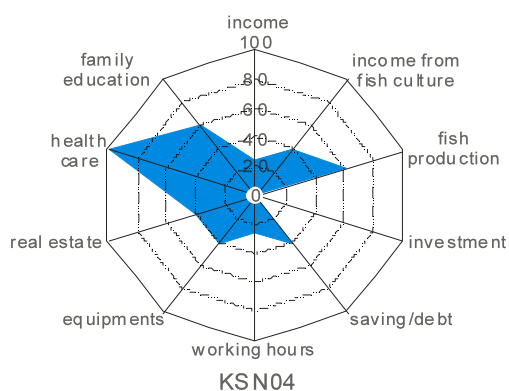
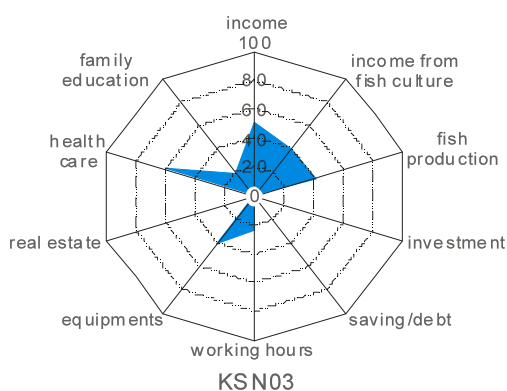
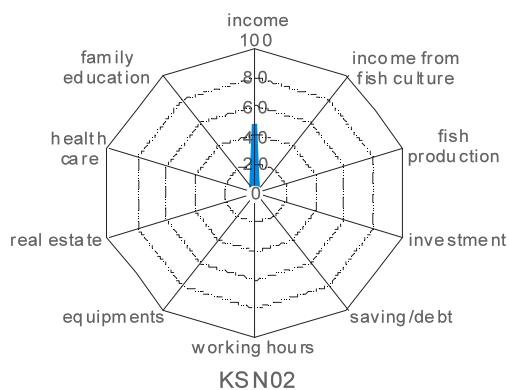
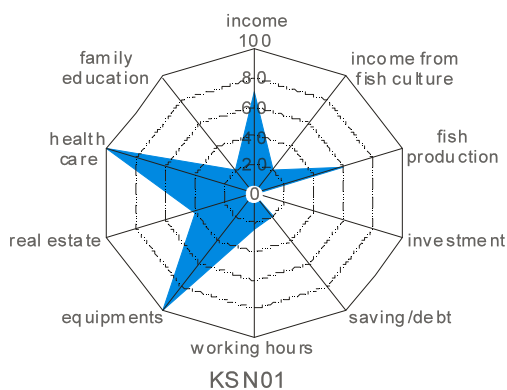
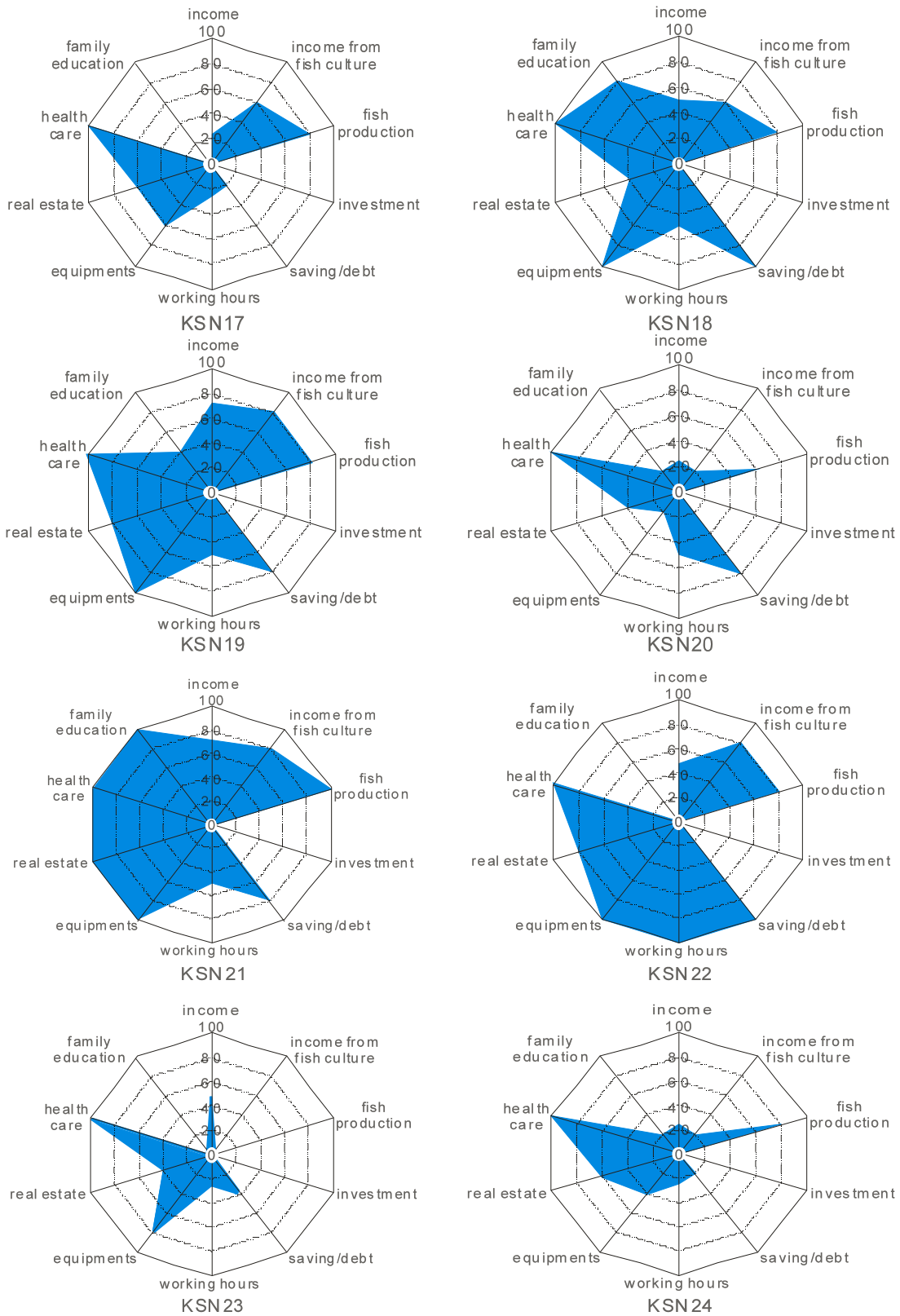
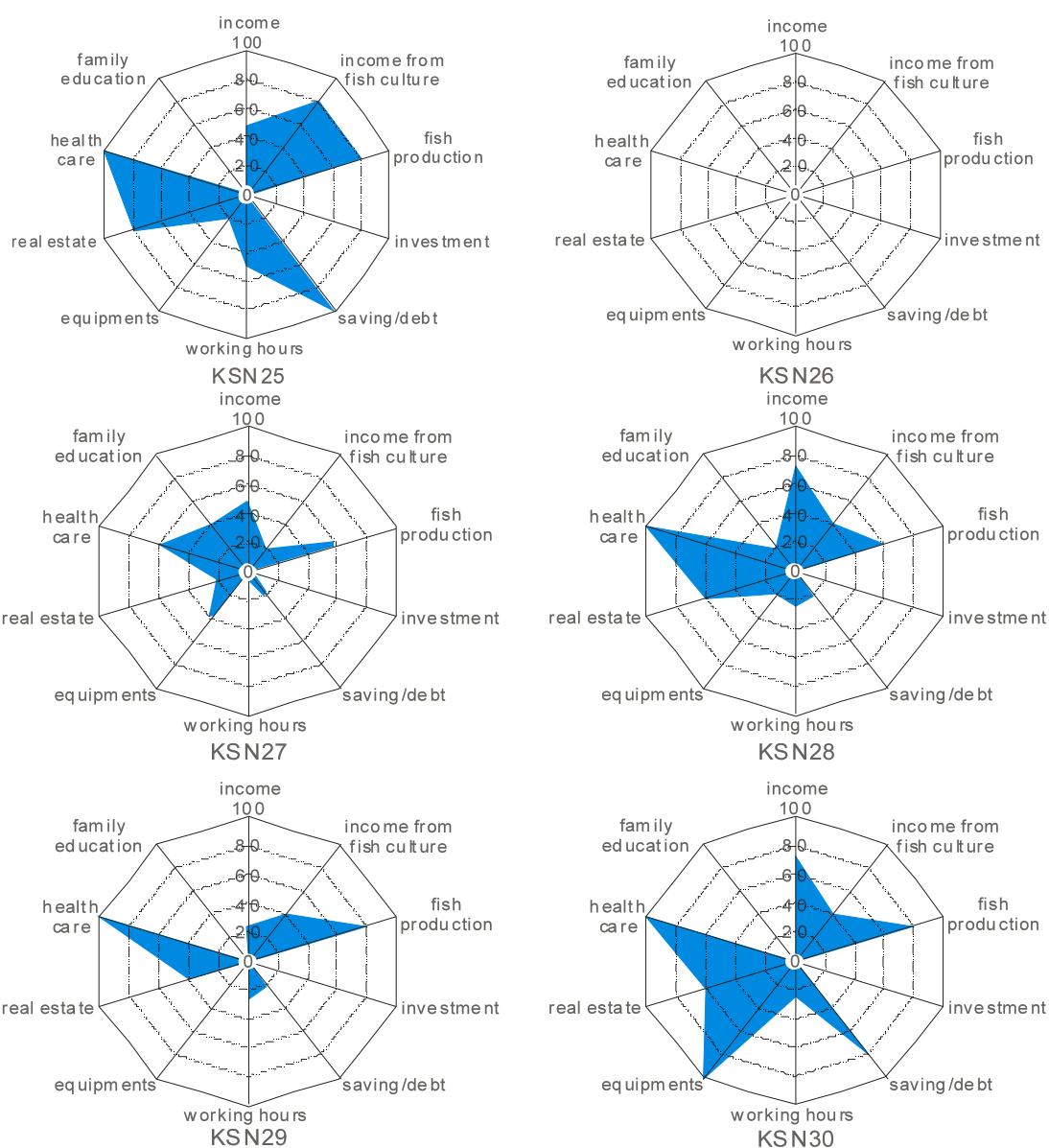


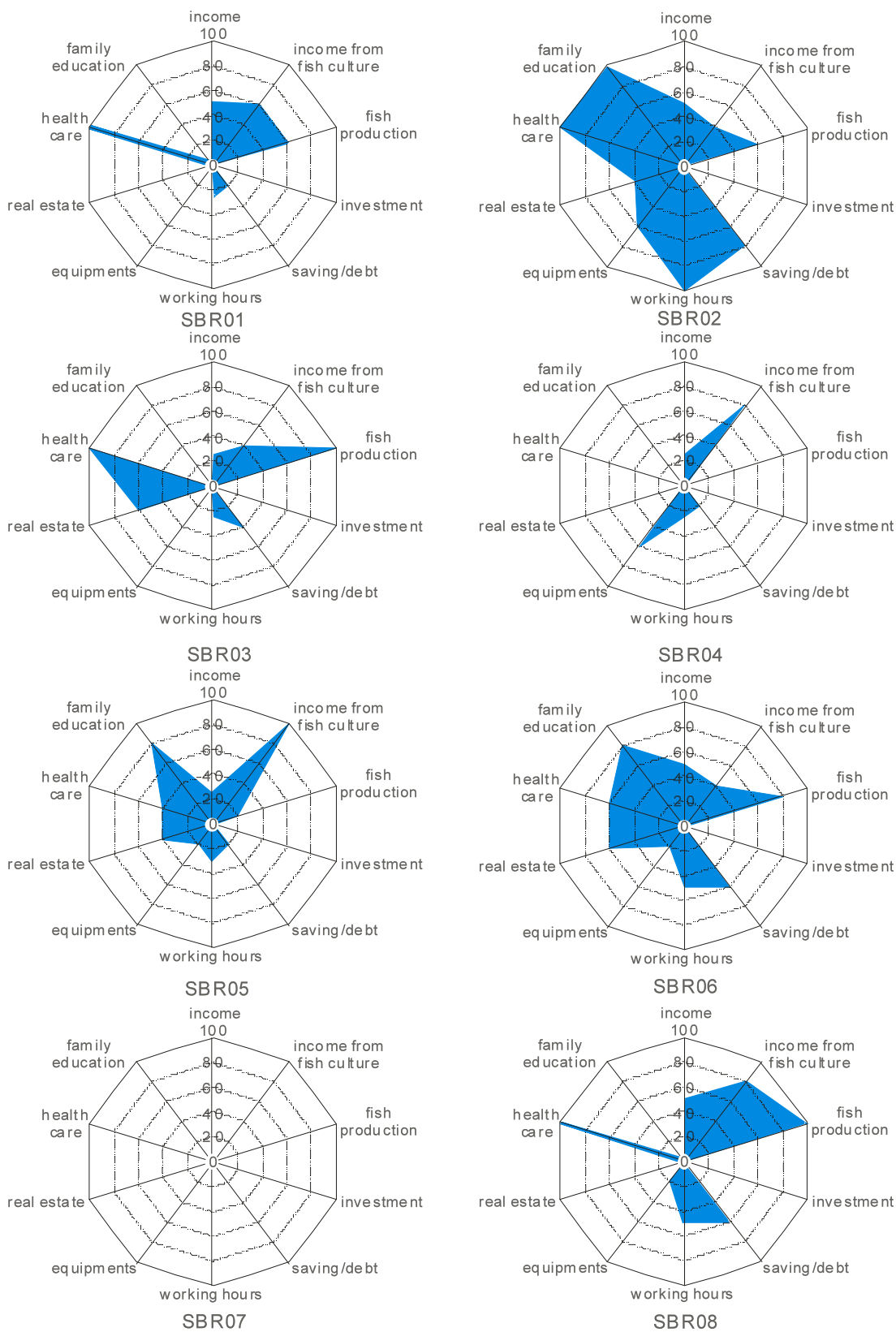
Appendix 9. Condition of Socio-Economic Farmers 2004 in Kuantan Singingi District (Shown by Kite Diagram)

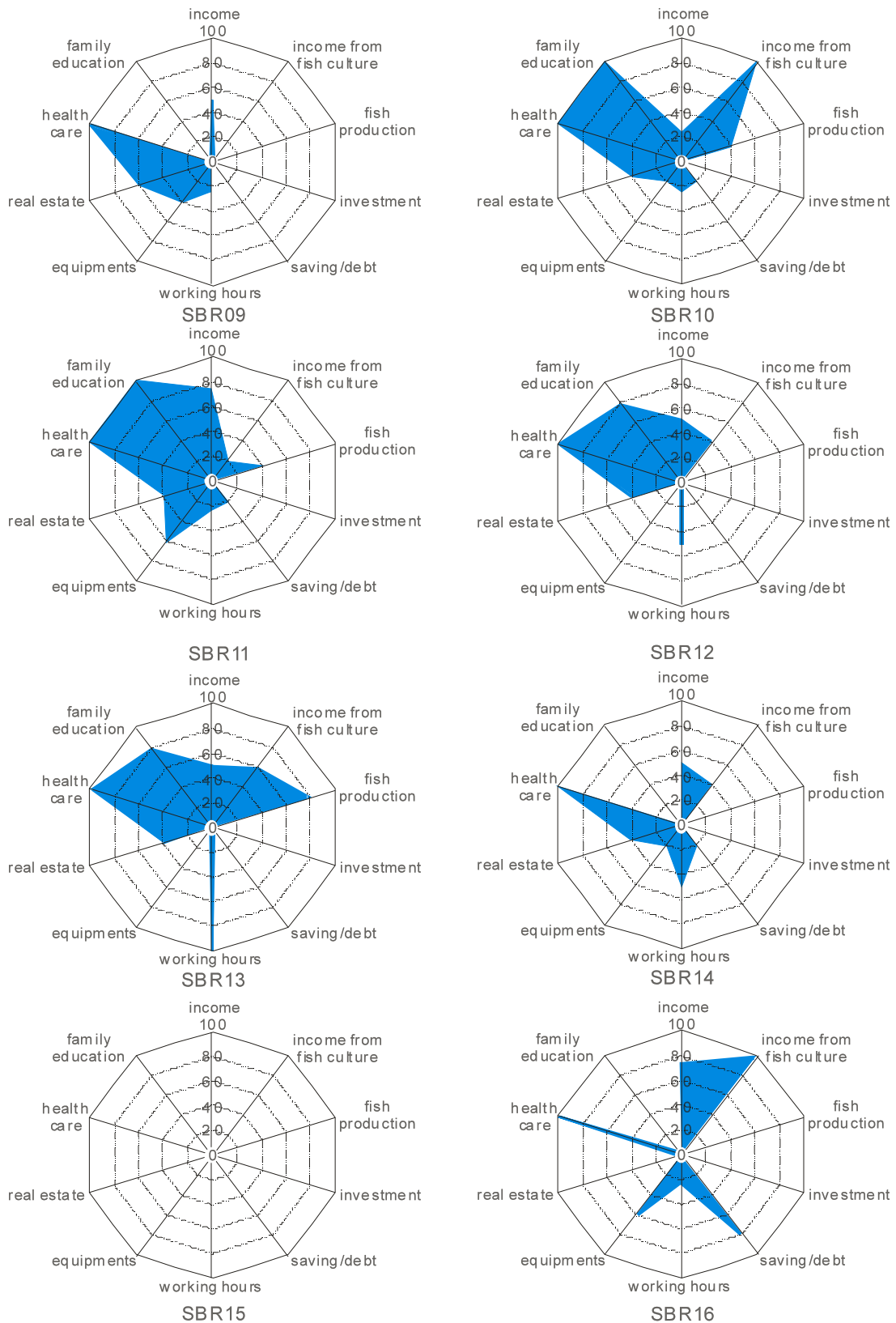


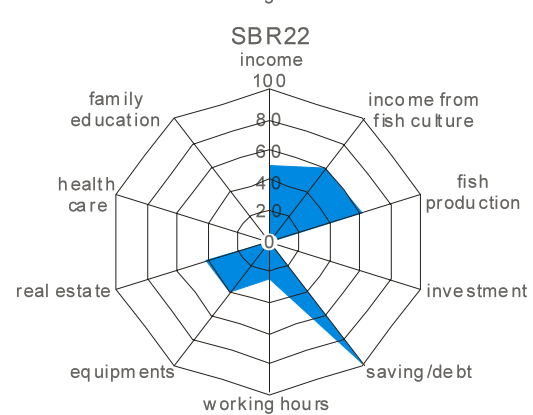
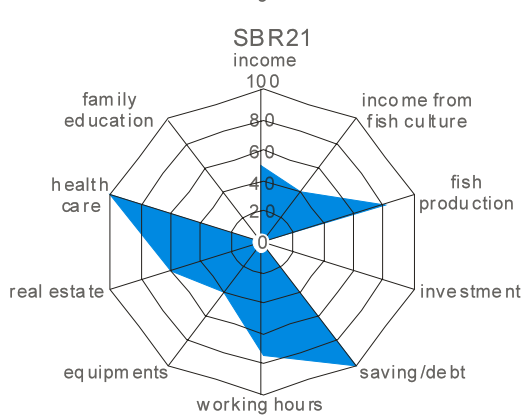
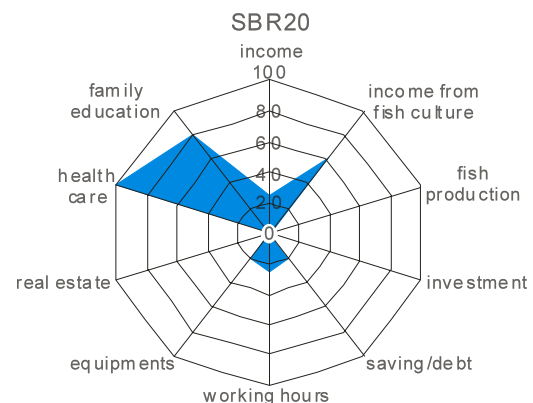
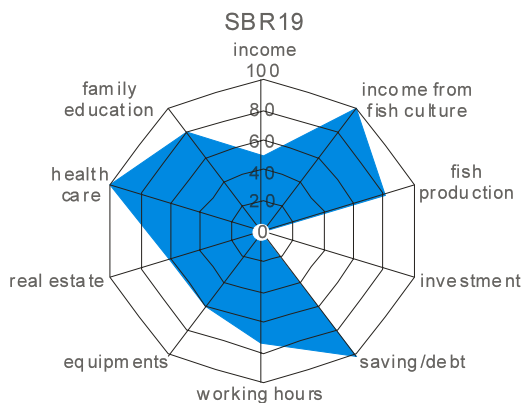
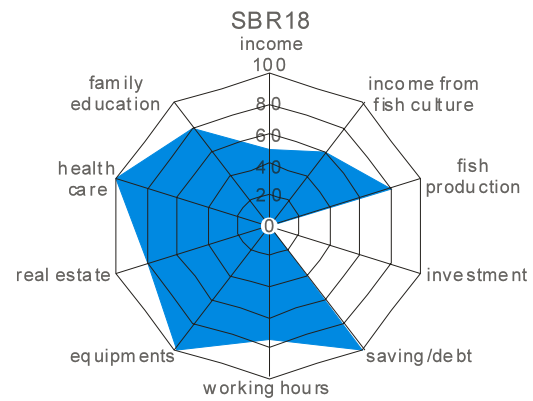
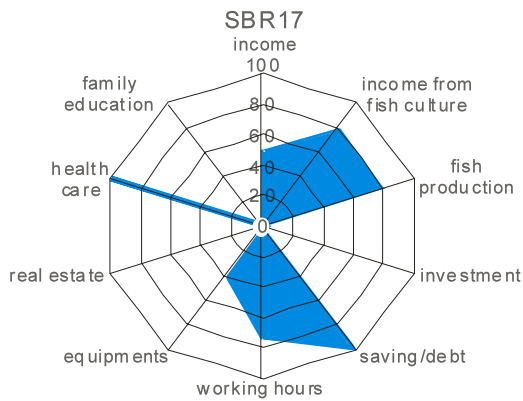
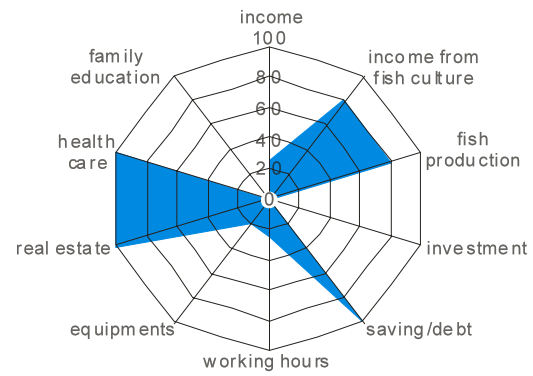
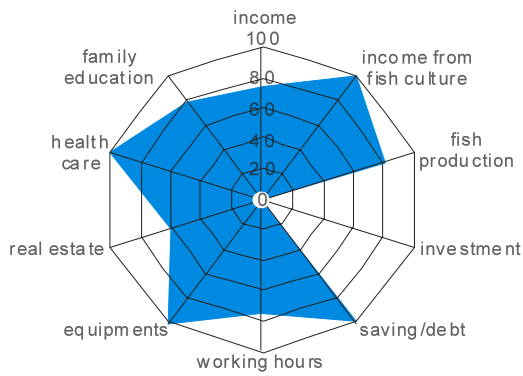


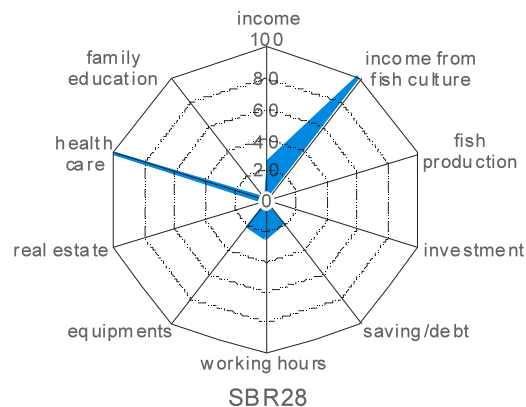
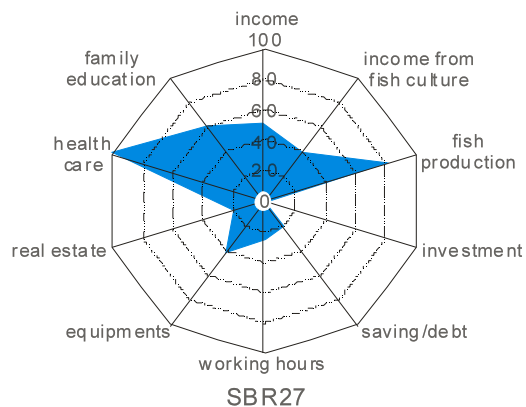
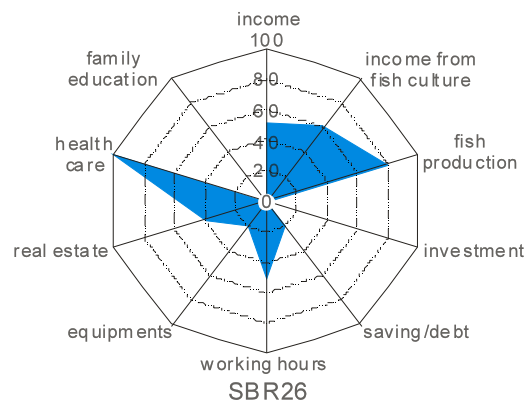
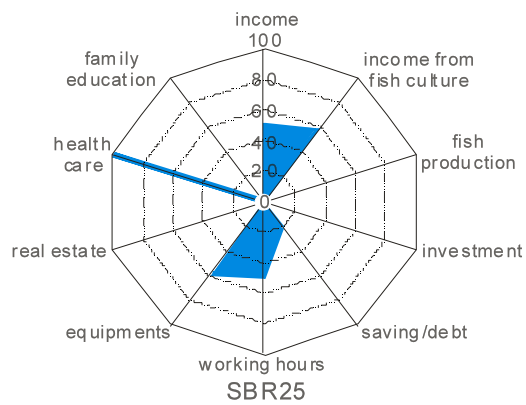


Appendix 10. Condition of Socio-Economic Farmers 2004 in Sawahlunto Sijunjung District (Shown by Kite Diagram)









Appendix 11. Field Survey Documentation in Bungo District, Jambi Province



Bungo District Fisheries Office, Jambi Province



The Location of BBI Tanah Tumbuh in Bungo District



Interview with Mr. Zulkifli and Syaiful (Fish Farmers) in Tanah Sepengal Sub District



Interview with Mr. Abdul Ghani (Fish Farmer) in Tanah Tumbuh Sub District



The Ponds to Produce of Common carp and Nile tilapia in Mr. Zulkifli Area, Tanah Sepenggal Sub District



Seed Production Ponds of Common carp and Nile tilapia in Mr. Endang Area, Tanah Sepenggal Sub District



"Karamba" Culture System, Property of Mr. Jaiz in Tanah Sepenggal Sub District



The Floating Cage Culture in Tanah Sepenggal Sub District



The Pellet Machine, Property of Mr. Endang in Tanah Sepenggal Sub District



Production of Pellets by Mr. Endang in Tanah Sepenggal Sub District



The Draining Process of Eggs Substrate (*Kakaban*) before Used Again



Activity in The Bungo Fish Market

Appendix 12. Field Survey Documentation in Batanghari District, Jambi Province



Batanghari District Fisheries Office, Jambi Province



Interview with Mr. Sabidi (Fish Farmer) in Bajubang Sub District



Seed Production Ponds of Nile tilapia, Property of Mr. Sabidi in Bajubang Sub District



A River Side of Batang Hari used by the Fish Farmers to Them floating Cage Culture



A River Side of Batang Hari Used by the Fish Farmers to Them floating Cage Culture



The Pellet Machine, Property of Mr. Sabidi in Bajubang Sub District

Appendix 13. Field Survey Documentation in North Bengkulu District, Bengkulu Province



North Bengkulu District Fisheries Office



A View of BBIS Marga Sakti in North Bengkulu District



Interview with Head of Fisheries Office in North Bengkulu District



Interview with Fish Farmers (Mina Sepakat Group) in North Bengkulu District



A View of the Brood Stock Ponds, Property of Mr. Saun in Padang Jaya Sub District



The Grow Out Ponds of Mr. Wawan Properties in Padang Jaya Sub District



A View of Ponds Area in Aquaculture System



The Breeding Pond of Common carp



The Grass Used for the Eggs Substrate in Breeding of Common carp in Padang Jaya Sub District



The Irrigation Used to Irrigating of the Fish Farmers Ponds

Appendix 14. Field Survey Documentation in Sawahlunto Sijunjung District, West Sumatera Province



Interview with Fish Farmers in Sawahlunto Sijunjung District



The Seed Production Pond in Sawahlunto Sijunjung District



The Pond Used to Breeding of Common carp



The Pond Used to Breeding of Common carp with *Kakaban* for the Eggs spread Substrate



"Karamba" Culture System in the River



A River Side of Sawahlunto Sijunjung used by the Fish Farmers to The Cage Culture

Appendix 15. Field Survey Documentation in Kuantan Singingi District, Riau Province



Kuantan Singingi District Fisheries Office, Riau Province.



A View of the Ponds in BBI Teso, Kuantan Singingi District



Interview with Fish Farmers to collect of Data in Pangean Sub District



"Bunuik Indah" is One of Group Fish Farmers in Kuantan Tengah Sub District

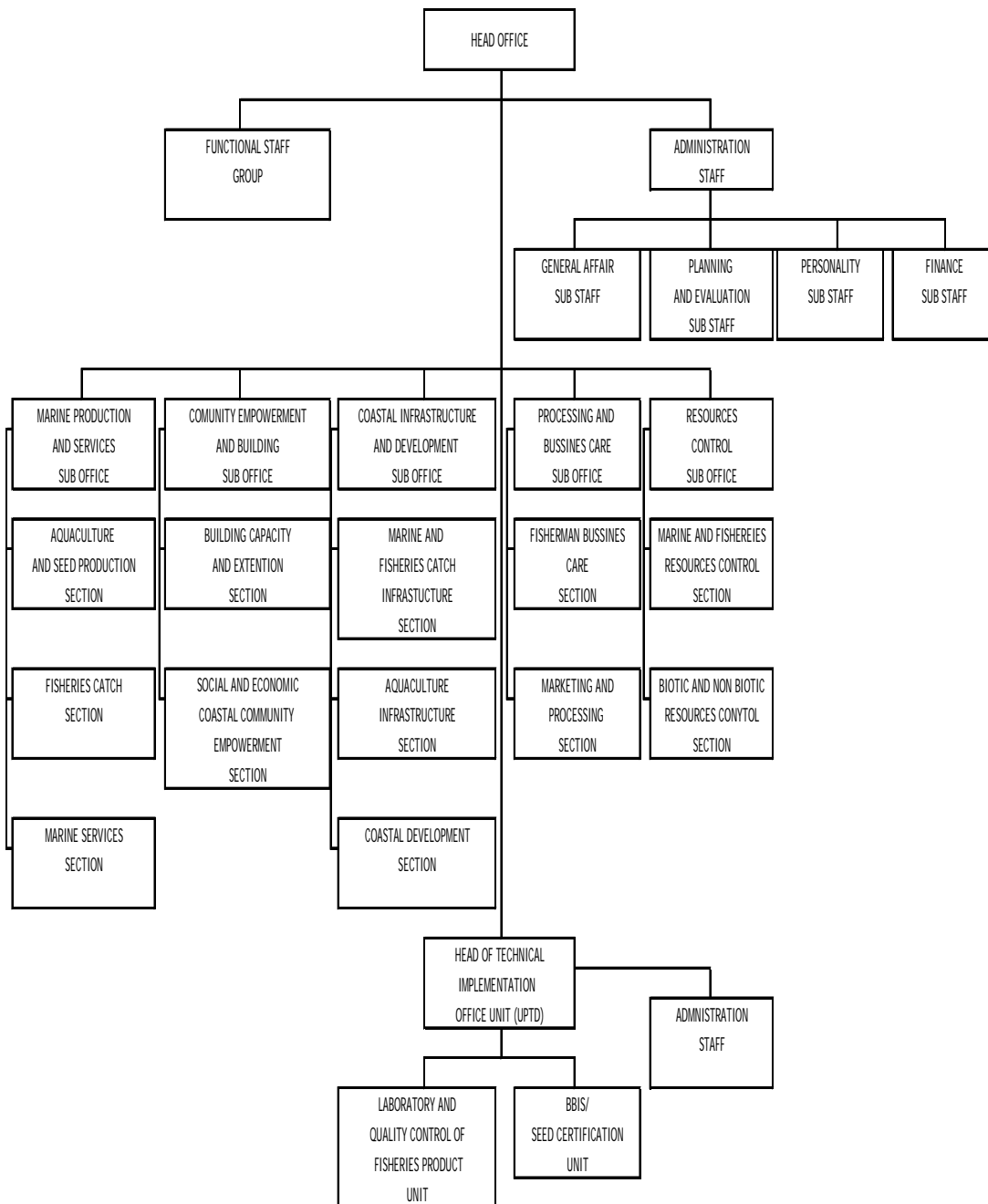


The Seed Production Ponds of Common carp and Nile tilapia, Property of Mr. Palery in Benai Sub District

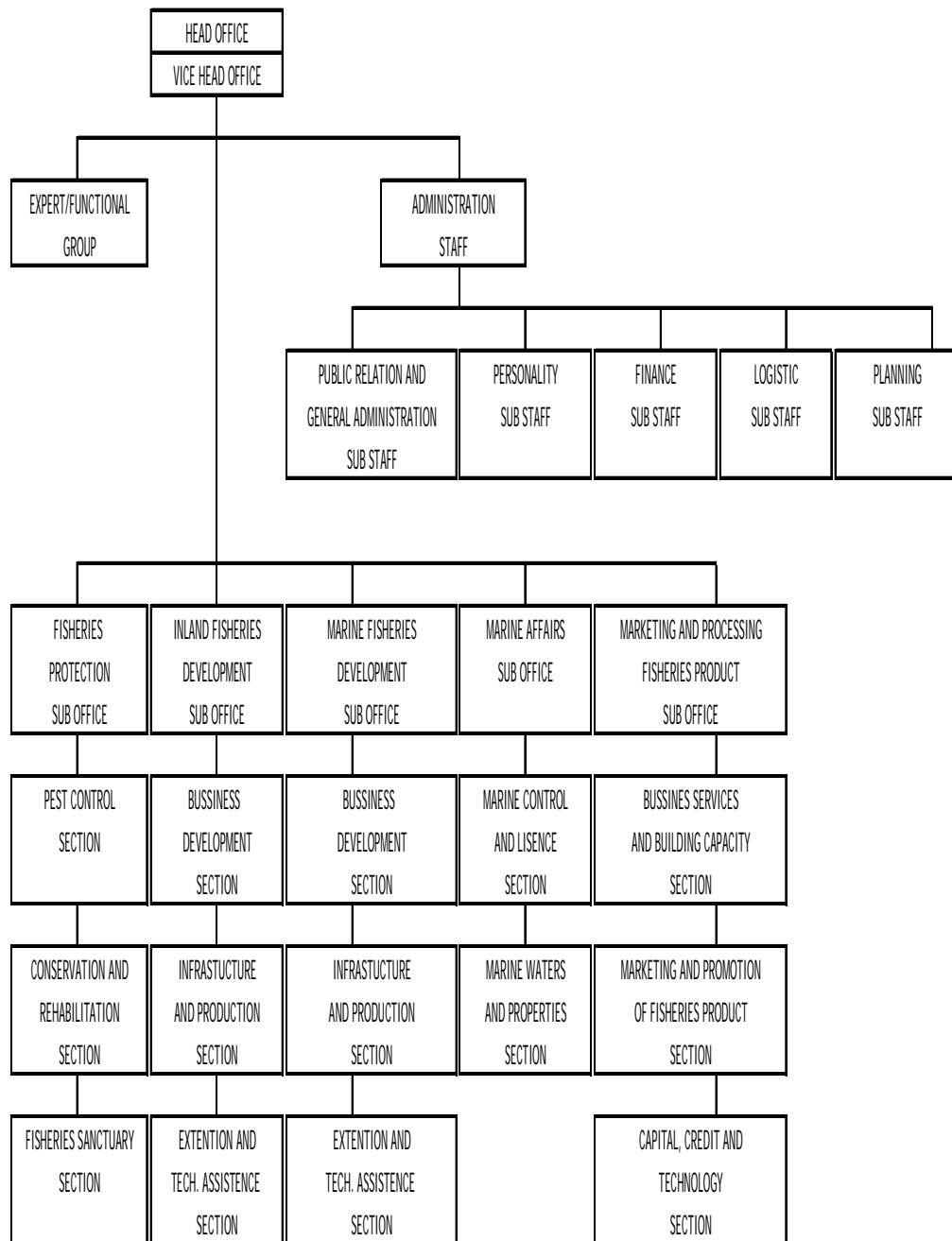


Longyam Culture System, Property of Mr. Ahmad in Pangean Sub District

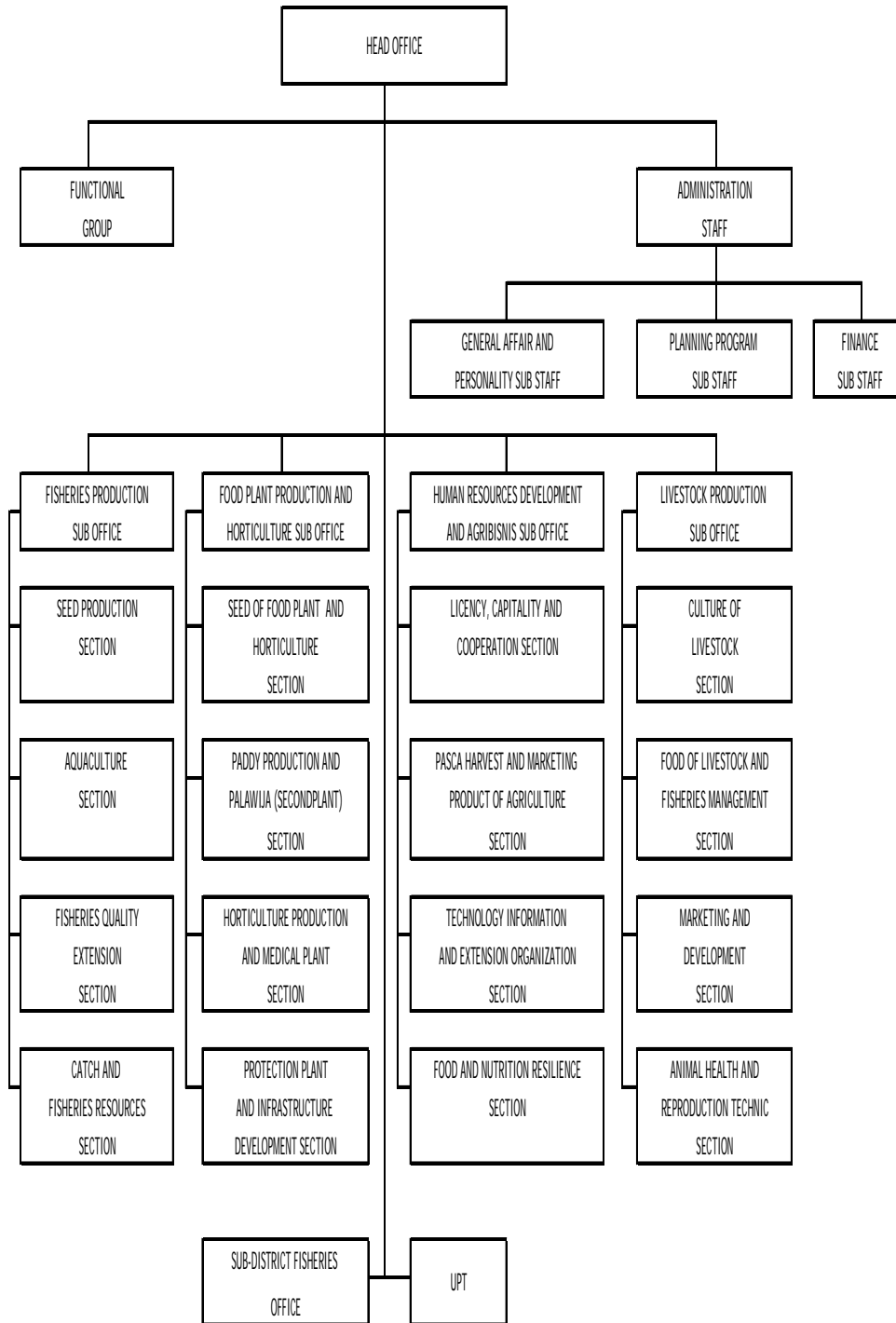
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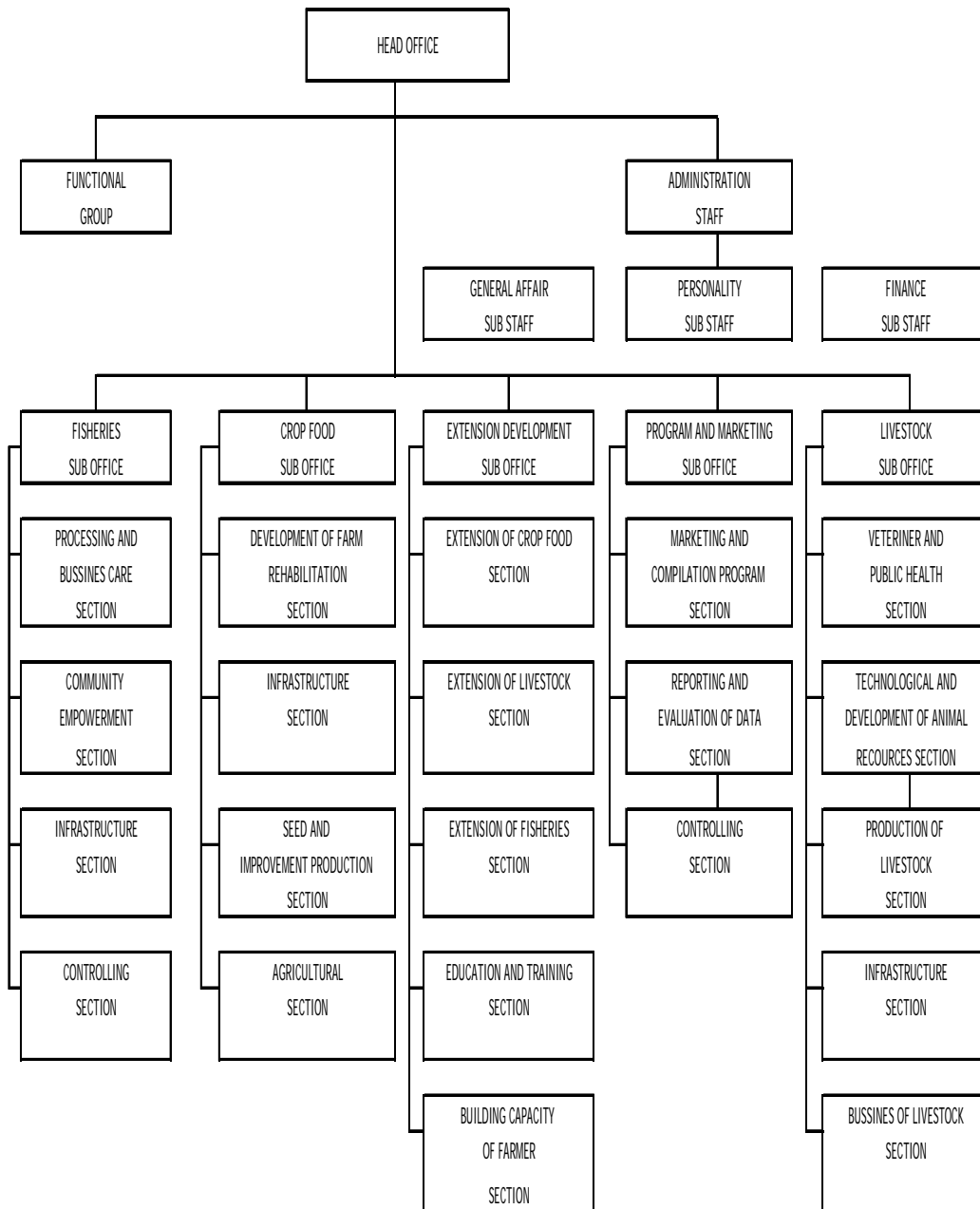
ORGANIZATION STRUCTURE OF RIAU PROVINCIAL FISHERIES OFFICE



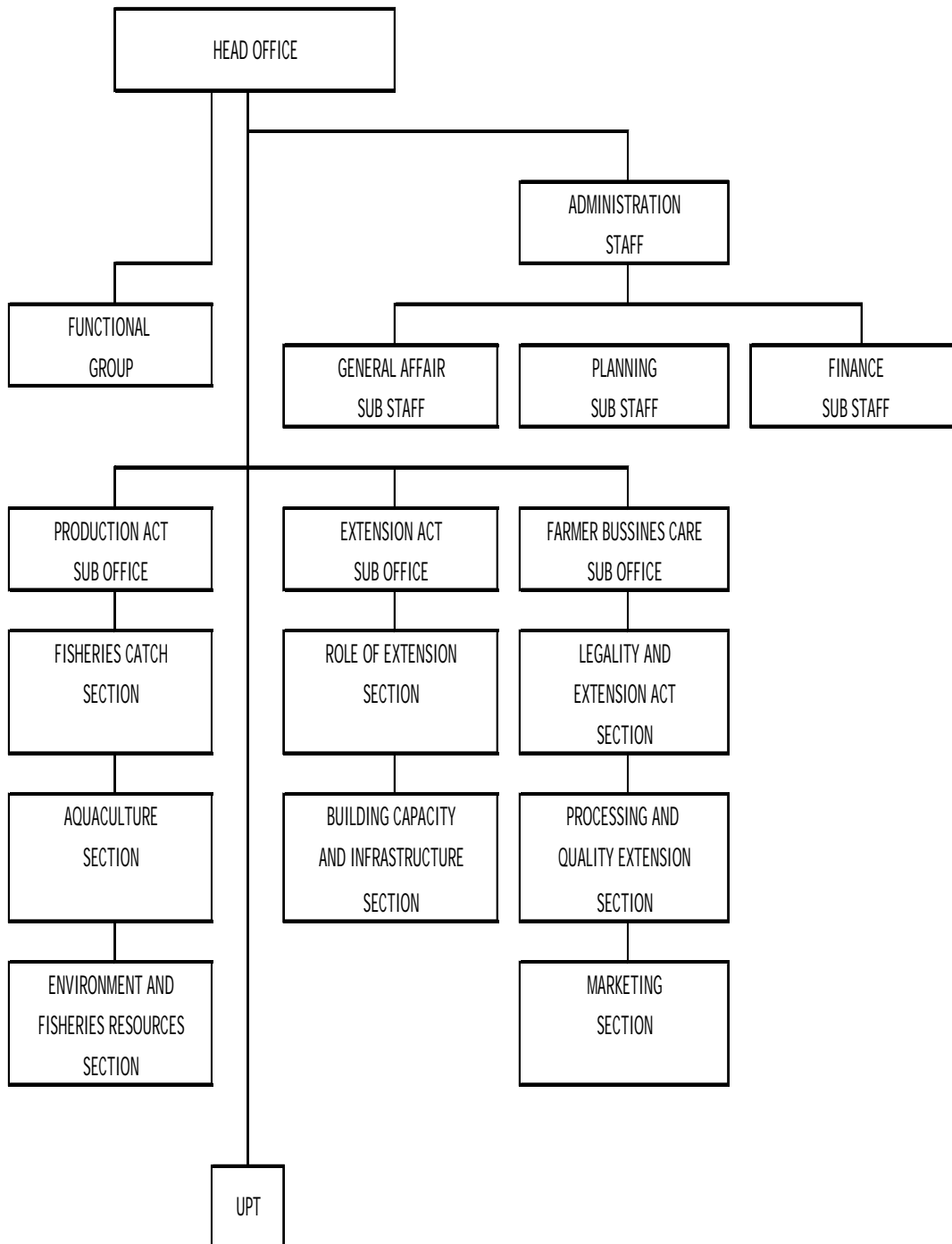
ORGANIZATION STRUCTURE OF BUNGO DISTRICT FISHERIES OFFICE



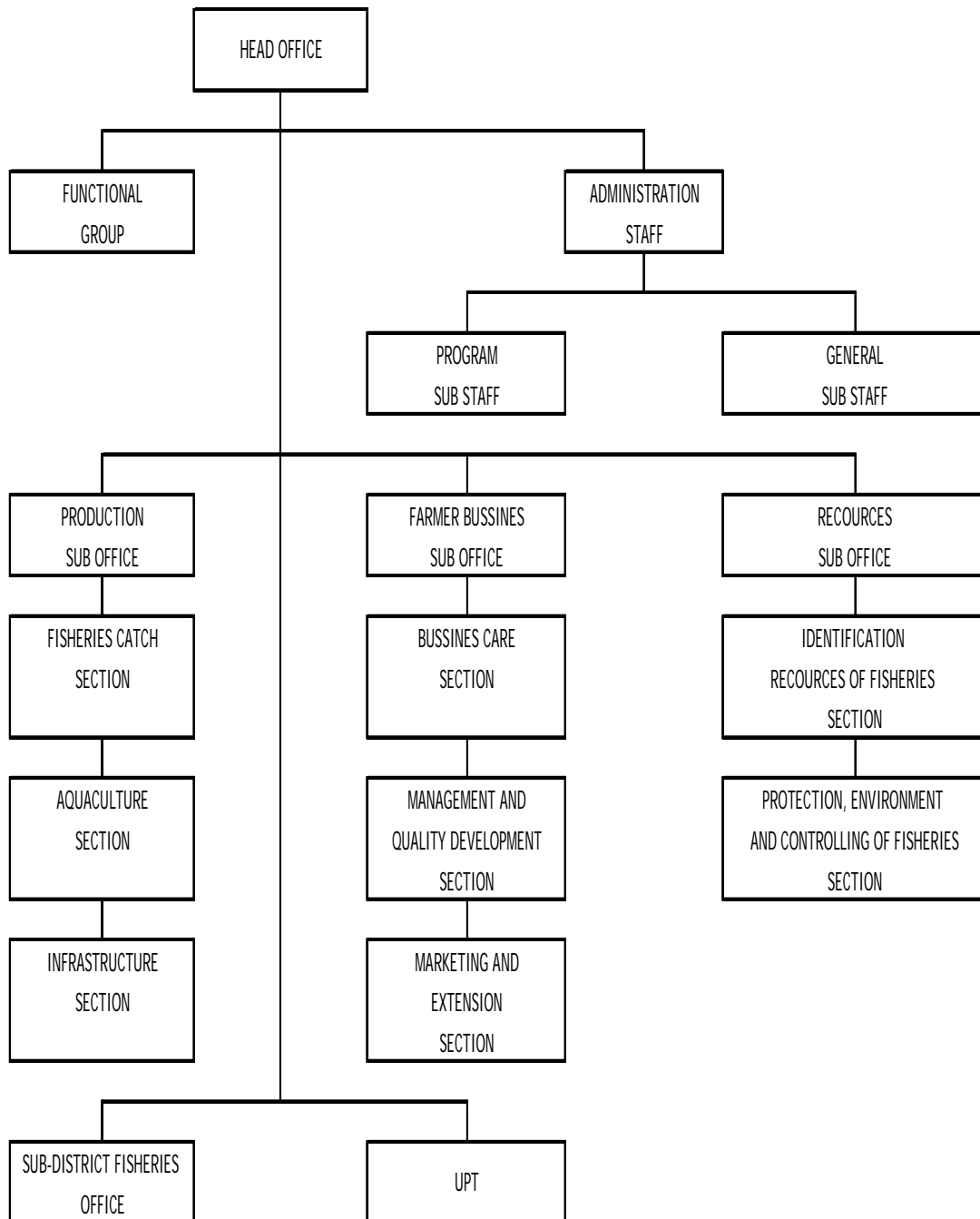
ORGANIZATION STRUCTURE OF BATANGHARI DISTRICT FISHERIES OFFICE



ORGANIZATION STRUCTURE OF NORTH BENGKULU DISTRICT FISHERIES OFFICE



ORGANIZATION STRUCTURE OF KUANTAN SINGINGI DISTRICT FISHERIES OFFICE



Appendix 16. Questionnaire for Fish Farmer in Base Line Study (Extension Evaluation Survey)

QUESTIONNAIRE FOR FISH FARMER

Identity of respondent

| | | | |
|----------------|---|-------|------------------|
| Name of farmer | : | ..... | age : years |
| Farmer's group | : | ..... |  |
| Address | : | ..... |  |
| | : | | |
| Desa | : | ..... |  |
| Kecamatan | : | ..... |  |
| Kabupaten | : | ..... |  |
| Propinsi | : | ..... |  |
| Date | : | ..... |  |
| Enumerator | : | ..... |  |
| No. Respondent | : | ..... |  |

Category of respondent

| | | |
|------------------|------------------------|-----|
| A. Seed producer | 1. ponds | [] |
| | 2. rice field | [] |
| | 3. hatchery (indoor) | [] |
| B. Nursery | 1. ponds | [] |
| | 2. rice field | [] |
| C. Grow-out | 1. stagnant ponds | [] |
| | 2. running water ponds | [] |
| | 3. cages | [] |
| | 4. floating nets | [] |

JICA second base line survey

I. GENERAL INFORMATION

1. Farmer's occupation

Main :
 Secondary :
 Tertiary :

2. Education and fisheries background :

2.1. Last formal education :

a. Elementary school c. Senior high school e. Other
 b. Junior high school d. Collage/Univ.

2.2. How do you learn fish culture technique ?

a. Self experience c. Parents
 b. Neighbor d. Other (explain)

2.3. Have you ever attended extension/training programs ?

a. No, (continue to the question 5) b. yes.

| Year | Length of Program (days) | Program's organizer | Topic of course | | | | |
|------|--------------------------|---------------------|---------------------------|--------------------|---------------------|-----------|------------------|
| | | | Seed production technique | Grow-out technique | Business Management | Marketing | Others (explain) |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

3. Experience in aquaculture :

a. Hatchery (..... years) b. Nursery (..... years) c. Grow-out (..... years)

4. Current fish culture activity :

a. Hatchery only c. Nursery only e. Growing out only
 b. Hatchery/nursery d. Nursery/growing-out f.
 Hatchery/nursery/growing-out

5. How long the activity was conducted : years, (since)

6. Type of used facilities :

a. Ponds c. Floating net e. Aquaria
 b. Cage d. Rice-field f. Others (explain)

7. Have you ever participated in farmer meeting ?

a. Yes, how many times ? b. No

8. Have you ever communicated with

a. Dinas (How many times ?) b. PPL/PPS (How many times ?)

9. Do you have production report book ?

a. Yes b. No

10. What kind of the information content are recorded in the production record book ?

a. b. c. d.

11. Are the content items changes since the beginning of using the production the recording books ?

a. Yes (increase/decrease) b. No

12. Is the production recording books making easy in managing the production ?

a. Yes b. No

13. During the last 2-3 years, have you get such extension program for your aquaculture activities ?

a. Yes b. No

14. If "yes", from which institution have you get the extension program ?

a. Local fisheries agency c. Farmer group e. Other :
 b. JICA d. Individual

15. How about the frequency of the extension service you have get ?
 - a. less than 2 times per month
 - b. 2 – 4 times per month
 - c. 5 – 10 times per month
 - d. more than 10 times per month
16. Do you think the extension program is useful for your aquaculture activity ?
 - a. very useful
 - b. moderately useful
 - c. useful
 - d. less useful
 - e. not useful
17. During the extension program, was there any training on aquaculture you joined in ?
 - a. Yes
 - b. No
18. If “yes”, during the last 2-3 years how many times you joined to the training ?
 - a. once
 - b. 2 – 4 times
 - c. more than 4 times
19. Do you think the training program is useful for your aquaculture activity ?
 - a. very useful
 - b. moderately useful
 - c. useful
 - d. less useful
 - e. not useful

II. PRODUCTION SYSTEM

2.1. Seed Production in the ponds/rice field

1. Whole land area :..... Ha (m²),
 Pond/rice field area :..... Ha (m²),
 Buildings, others :..... (m²)
 Possibility of pond extension :..... Ha (m²)

2. Construction and Dimension of ponds

| type of pond | Construction* | | | | Dimension**(m), number (unit) | | | | | Year of construction, cost | | Status*** |
|-----------------|---------------|-----|----|----|-------------------------------|---|---|--------------------|------|----------------------------|------------|-----------|
| | Tn | TTm | Tm | Bt | P | L | d | A(m ²) | Jml. | Year | Cost (Rp.) | |
| Broodstock pond | | | | | | | | | | | | |
| Spawning pond | | | | | | | | | | | | |
| Hatching pond | | | | | | | | | | | | |
| Nursery pond | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

*) Tn: Earth pond; TTm: earth pond with masonry dikes; Tm: Masonry; Bt: Concrete

***) P: Length; L: Width, d: Depth; A: Area; Jml.: Number

****) Fill as MS: Own: S: Rent; G: Work on; Or others (explain)

3. How to fill the ponds ?
 - a. without using pump
 - b. several using pump
 - c. all using pump
4. How to drainage the ponds ?
 - a. without using pump
 - b. several using pump
 - c. all using pump
5. If the pump is used, how many cm the maximum depth to be fill/drainage completed
 - a. < 0,2 m
 - b. 0,2 – 0,5 m
 - c. 0,5 – 1,0 m
 - d. > 1,0 m
6. Porosity of the ponds :
 - a. not porous
 - b. relatively porous
 - c. porous
 - d. extremely porous
7. Where is the water source come from ?
 - a. spring
 - b. river
 - c. irrigation canal
 - d. others.....(explain)
8. Is the available water-debit enough for whole activities ?

Final Report

a. extremely not enough b. not enough c. enough d. more than enough

9. Is the water source available through the year ?

a. normally available
)
 b. not available (month)
 c. flood (month

10. Water quality conditions:

a. clear b. fertile c. polluted.....(explain)

11. Main handling species :

12. Number of female used in each cycle : fish, size : kg/fish

13. Number of male use in each cycle : fish, size : kg/fish

14. Area of ponds used in each seed production cycle : m²

15. Number of production cycle per year :

16. Explain step by step activities based on following items

| No | item | Labor/Production Input/Yield | Prices (Rp) |
|-----|---------------------------------|------------------------------|-------------|
| 1. | Pond drying | days | |
| 2. | Pond rehabilitation | man.days | |
| 3. | Fertilizing | | |
| | a. Urea | Kg | |
| | b. TSP | Kg | |
| | c. Manure | Kg | |
| 4. | Liming | Kg | |
| 5. | Water conditioning | day | |
| 6. | Spawner weight (female) | kg | |
| 7. | Feeding | | |
| | a. Pellet | kg | |
| | b. Rice bran | kg | |
| | c. Others (explain) | | |
| | d. | | |
| 8. | Diseases control | | |
| | a. Antibiotic : (explain) | gram | |
| | b. Chemicals : (explain) | gram | |
| 9. | Labor | | |
| | a. Daily cost | man.day | |
| | b. Salary | man.month | |
| | c. Family labor | person | |
| 10. | Rearing period | days | |
| 11. | Harvested seed | | |
| | a. Size | cm | |
| | b. Number | fish | |
| 12. | Number of cycle per year | times | |

Please explain (on the back of this sheet) addition necessary notes in detail

2.2. Seed Production in hatchery (indoor system)

1. Broodstock rearing information
 - a. Broodstock pond : m²
 - b. Number of broodstock : fish/ kg
 - c. Type of feed :
2. Indoor facility
 - a. Building : m²
 - b. Number of aquarium : unit; dimension : x x cm³
3. Number of breeders used per cycle : fish = kg
4. Production cycle per year : times
5. Explain step by step activities based on following items

| No | item | Labor/Production Input/Yield | Prices (Rp) |
|----|---------------------------------|------------------------------|-------------|
| 1. | Preparation stage | | |
| | 1. Disinfecting | | |
| | a. Material | | |
| | b. Dosage | gram | |
| | c. Treatment period | hours | |
| 2. | Stocking density of eggs | eggs/aquarium | |
| 3. | Feeding | | |
| | a. Artemia | gram | |
| | b. Daphnia | gram | |
| | c. Tubifex | kg | |
| | d. Pellet | kg | |
| | e. Others (Explain) | | |
| | f. | | |
| 5. | Diseases control | | |
| | a. Antibiotic : (explain) | gram | |
| | b. Chemicals : (explain) | gram | |
| 6. | Labor | | |
| | a. Daily cost | man.day | |
| | b. Salary | man.month | |
| | c. Family labor | person | |
| 7. | Rearing period | days | |
| 8. | Harvested seed | | |
| | a. Size | cm | |
| | b. Number | fish | |

Please explain (on the back of this sheet) addition necessary notes in detail

2.3. Nursery in the ponds/rice field

1. Whole land area :..... Ha (m²),
 Pond/rice field area :..... Ha (m²),
 Buildings, others :..... (m²)
 Possibility of pond extension :..... Ha (m²)

2. Type of nursery :
 [...] Pond ;

Construction and Dimension of ponds

- a. Earth pond m (L) x m (W) x m (d)
 b. Earth pond with masonry dikes m (L) x m (W) x m (d)
 c. Masonry m (L) x m (W) x m (d)
 d. Concrete m (L) x m (W) x m (d)

- [...] Rice field ;

Dimension : m (L) x m (W) x m (d)

3. How to fill the ponds ?
 a. using pump b. several using pump c. all using pump d. without pump.
 4. How to drainage the ponds ?
 a. using pump b. several using pump c. all using pump d. without pump.
 5. If the pump is used, how many cm the maximum depth to be fill/drainage completed
 a. < 0,2 m b. 0,2 – 0,5 m c. 0,5 – 1,0 m d. > 1,0 m
 6. Porosity of the earth ponds :
 a. not porous b. relatively porous c. porous d. extremely porous
 7. Where is the water source come from ?
 a. spring b. river c. irrigation canal d. others.....(explain)
 8. Is the available water-debit enough for whole activities ?
 a. extremely not enough b. not enough c. enough d. more than enough
 9. Is the water source available through the year ?
 a. normally available b. not available (month) c. flood (month)
 10. Water quality conditions:
 a. clear b. fertile c. polluted.....(explain)
 11. Number of production cycle per year :

12. Pond/rice field area used in each cycle production : m²

13. Rearing species :

14. Production cycle per year :

15. Explain step by step activities based on following items

| No | Item | Labor/Production Input/Yield | Prices (Rp) |
|----|---------------------|------------------------------|-------------|
| 1. | Pond drying | day | |
| 2. | Pond rehabilitation | | |
| 3. | Fertilizing | | |
| | a. Urea | Kg | |
| | b. TSP | Kg | |
| | c. Manure | Kg | |
| 4. | Liming | Kg | |
| 5. | Water conditioning | day | |
| 6. | Stocking | | |
| | a. Carp | fish | |
| | b. Tilapia | fish | |
| | c. Patin | fish | |
| | d. | fish | |
| | e. | fish | |

| | | | |
|-----|---------------------------------|--|-----------|
| 7. | Feeding | | |
| | a. Pellet | | kg |
| | b. Rice bran | | kg |
| | c. Others (explain) | | |
| | d. | | |
| 8. | Diseases control | | |
| | a. Antibiotic : (explain) | | gram |
| | b. Chemicals : (explain) | | gram |
| 9. | Labor | | |
| | a. Daily cost | | man.day |
| | b. Salary | | man.month |
| | c. Family labor | | person |
| 10. | Rearing period | | days |
| 11. | Harvested seed | | |
| | a. Size | | cm |
| | b. Number | | fish |

Please explain (on the back of this sheet) addition necessary notes in detail

2.4. Grow-out in stagnant ponds

1. Whole land area :..... Ha (m²),
 Pond area :..... Ha (m²),
 Buildings, others :..... (m²)
 Possibility of pond extension :..... Ha (m²)
2. Construction and dimension of ponds
 - a. Earth pond m (L) x m (W) x m (d)
 - b. Earth pond with masonry dikes m (L) x m (W) x m (d)
 - c. Masonry m (L) x m (W) x m (d)
 - d. Concrete m (L) x m (W) x m (d)
3. How to fill the ponds ?
 - a. using pump
 - b. several using pump
 - c. all using pump
4. How to drainage the ponds ?
 - a. using pump
 - b. several using pump
 - c. all using pump
5. If the pump is used, how many cm the maximum depth to be fill/drainage completed
 - a. < 0,2 m
 - b. 0,2 – 0,5 m
 - c. 0,5 – 1,0 m
 - d. > 1,0 m
6. Porosity of the earth ponds :
 - a. not porous
 - b. relatively porous
 - c. porous
 - d. extremely porous
7. Where is the water source come from ?
 - a. spring
 - b. river
 - c. irrigation canal
 - d. others.....(explain)
8. Is the available water-debit enough for whole activities ?
 - a. extremely not enough
 - b. not enough
 - c. enough
 - d. more than enough

9. Is the water source available through the year ?

- a. normally available
 b. not available (month)
 c. flood (month)

10. Water quality conditions:

- a. clear b. fertile c. polluted.....(explain)

12. Number of production cycle per year :

13. Pond area used in each cycle production : m²

14. Rearing species :

15. Production cycle per year :

16. Explain step by step activities based on following items

| No | Item | Labor/Production Input/Yield | Prices (Rp) |
|-----|---------------------------------|------------------------------|-------------|
| 1. | Pond drying | day | |
| 2. | Pond rehabilitation | | |
| 3. | Fertilizing | | |
| | a. Urea | Kg | |
| | b. TSP | Kg | |
| | c. Manure | Kg | |
| 4. | Liming | Kg | |
| 5. | Water conditioning | day | |
| 6. | Stocking | | |
| | a. Carp | fish | |
| | b. Tilapia | fish | |
| | c. Patin | fish | |
| | d. | fish | |
| | e. | fish | |
| 7. | Feeding | | |
| | a. Pellet | kg | |
| | b. Rice bran | kg | |
| | c. Others (explain) | | |
| | d. | | |
| 8. | Diseases control | | |
| | a. Antibiotic : (explain) | gram | |
| | b. Chemicals : (explain) | gram | |
| 9. | Labor | | |
| | a. Daily cost | man.day | |
| | b. Salary | man.month | |
| | c. Family labor | person | |
| 10. | Rearing period | days | |
| 11. | Harvesting | | |
| | a. Size | cm | |
| | b. Number | fish | |

Please explain (on the back of this sheet) addition necessary notes in detail

2.5. Grow-out in running water ponds

1. Whole land area :..... Ha (m²),
 Pond area :..... Ha (m²),
 Buildings, others :..... (m²)
 Possibility of pond extension :..... Ha (m²)
2. Ponds :
 Dimension : m (L) x m (W) x m (d)
 Number : ponds
3. Where is the water source come from ?
 a. spring b. river c. irrigation canal d. others.....(explain)
8. Is the available water-debit enough for whole activities ?

 a. extremely not enough b. not enough c. enough d. more than enough
9. Is the water source available through the year ?
 a. normally available b. not available (month ...) c. flood (month.....)
10. Water quality conditions:
 a. clear b. fertile c. polluted.....(explain)
13. Number of production cycle per year :
14. Pond area used in each cycle production : m²
15. Rearing species :
16. Production cycle per year :
17. Explain step by step activities based on following items

| | Item | Labor/Production Input/Yield | Prices (Rp) |
|----|---------------------------------|------------------------------|-------------|
| 1. | Pond rehabilitation | | |
| 2. | Stocking | | |
| | a. Carp | fish | |
| | b. Tilapia | fish | |
| | c. Patin | fish | |
| | d. | fish | |
| 3. | Feeding | | |
| | a. Pellet | kg | |
| | b. Rice bran | kg | |
| | c. Others (explain) | | |
| | d. | | |
| 4. | Diseases control | | |
| | a. Antibiotic : (explain) | gram | |
| | b. Chemicals : (explain) | gram | |
| 5. | Labor | | |
| | a. Daily cost | man.day | |
| | b. Salary | man.month | |
| | c. Family labor | person | |
| 6. | Rearing period | days | |
| 7. | Harvesting | | |
| | a. Size | cm | |
| | b. Number | fish | |

Please explain (on the back of this sheet) addition necessary notes in detail

III. AQUACULTURE TECHNOLOGY ASSESMENT

3.1. Broodstock Management

Fish Farmer Target : UPR

Fish Species : Carp, Tilapia, Patin

| No. | Evaluation Point | Yes | No |
|-----|---|-----|-----|
| 1 | Broodstock are not reared separately | [] | [] |
| 2 | Broodstock are reared separately by its size and age | [] | [] |
| 3 | Broodstock are fed sufficiently | [] | [] |
| 4 | Male and female are reared separately | [] | [] |
| 5 | Broodstock are fed regularly and sufficiently | [] | [] |
| 6 | Breeders are spawned based on planned schedule management | [] | [] |
| 7 | Broodstock are sorted by species and strain to avoid any cross breeding | [] | [] |
| 8 | Next generation of broodstock are produced with high characteristic by their selective method | [] | [] |

3.2 Feeding Management

Fish Farmer Target : Nursery, Grow Out

Fish Species : All

| | | | |
|---|---|-----|-----|
| 1 | Regular time feeding are regularly practiced | [] | [] |
| 2 | Fish condition are observed everyday to minimize feed | [] | [] |
| 3 | Feeding method (time, frequency, amount) is based on : | | |
| | a. feeding responds | [] | [] |
| | b. fish species | [] | [] |
| | c. size and age | [] | [] |
| 4 | Amount of feed is calculated based on biomass of fishes | [] | [] |
| 5 | During rearing of the fish, type of pelleted feed, amount of feed, and growth of fish are recorded well | [] | [] |
| 6 | FCR and production cost based on feeding quantity and body weight at harvest time are calculated well | [] | [] |

3.3 Fish Nutrition

Fish Farmer Target : Nursery and grow out

Fish Species : All

| | | | |
|---|---|-----|-----|
| 1 | Feed always be available and fish is fed regularly | [] | [] |
| 2 | Feed are kept on standard quality stable and given for fish regularly | [] | [] |
| 3 | Nutrient element for fish culture, according to species and growth stage are understood | [] | [] |
| 4 | Fish feed able to be composed originally and produced by the farmer, according to fish species and objectively the cultured practiced | [] | [] |
| 5 | Fish feed is able to be produced cheaply and good quality | [] | [] |

3.4 Fish Diseases

Fish Farmer Target : All

Fish Species : All

| | | Yes | No |
|---|---|-----|-----|
| 1 | Infected fish are identified | [] | [] |
| 2 | Controlling of fish diseases are practiced | [] | [] |
| 3 | Some knowledge about fish disease and simple prevention are well understood | [] | [] |

3.5. Water Management

Fish farmer target : All

Kind of fish : All

| No. | Evaluation Point | | |
|-----|--|-----|-----|
| 1 | Basic water quality have been understood | [] | [] |

- | | | | |
|---|--|-----|-----|
| 2 | Basic water quality factor can be measures | [] | [] |
| 3 | Characteristic of water quality for fish culture in accordance with species and culture type are understood | [] | [] |
| 4 | Water quality condition regularly is monitored and recorded | [] | [] |
| 5 | Water quality condition by necessary measures such as control of inlet, water volume and aeration are maintained based on their water quality record | [] | [] |

3.6 General Culture Control

Fish farmer target : All

Kind of fish : All

- | | | | |
|---|--|-----|-----|
| 1 | Fish farm operated with regular maintenance of facilities and equipment | [] | [] |
| 2 | Fish species are selected in accordance with surrounding environment and water quality and quantity kept in the minimum level | [] | [] |
| 3 | Facilities and equipment are checked regularly and are kept in safe condition | [] | [] |
| 4 | Kind and characteristic of the facilities suitable for surrounding environment and fish of species are understood and built by correct design | [] | [] |
| 5 | Fish produced at their facilities suitable for fish species and environmental condition and sustainable and efficient fish production are attained | [] | [] |

3.7 Seed Production

Fish farmer target : Seed Production

Kind of fish : All

- | | | | |
|---|--|-----|-----|
| 1 | Spawning and hatching can be practiced but practiced them regularly | [] | [] |
| 2 | Spawning and hatching are practiced in planed schedule and proper method | [] | [] |
| 3 | Sufficient quantity of feed for fish larva on planned schedule is prepared | [] | [] |
| 4 | Fish seed can be sorted at proper time to equalize seed size and to improve seed quality | [] | [] |
| 5 | High quality and size equalized seed can be produced at survival rate of 60 % (seed size 2-3 cm) | [] | [] |

3.8. Whole Production Management

Fish farmer target : All

Kind of fish : All

- | | | | |
|---|--|-----|-----|
| 1 | Management condition of fish culture business are known | [] | [] |
| 2 | Rough figure of management condition have been known, but accurate profit from fish culture is not known | [] | [] |
| 3 | Fish culture activities some times be recorded weekly | [] | [] |
| 4 | Daily fish culture activities (fish quantity, record, growth, feed, etc) are recorded | [] | [] |
| 5 | Production cost and income are calculated based on the fish culture recorded | [] | [] |
| 6 | Plan for purchase fish seed, preparation of feed, etc can be planed and be practiced | [] | [] |

IV. SOCIO-ECONOMIC ASSESSMENT

1. What is your main job ?
a. farmer b. trader c. government employee d. other :
2. During last year, how much is your income in average ?
a. less than Rp. 500,000 c. Rp. 1,000,000 – Rp. 1,500,000
b. Rp. 500,000 – Rp. 1,000,000 d. More than Rp. 1,500,000
3. Compared with the condition before getting the JICA extension program, how about your income ?
a. increase more than double c. same e. decrease more than a half
b. increase less than double d. decrease less than a half
4. From your above gross income, how many percent come from aquaculture ?
a. less than 10 % b. 10-30 % c. 30-50 % d. 50-70 % e. more than 70 %
5. Based on the last 2-3 years experience, what do you think about your income from aquaculture ?
a. increase more than double c. same e. decrease more than a half
b. increase less than double d. decrease less than a half
6. During the last 2-3 years how is your fish production ?
a. increase more than double c. same e. decrease more than a half
b. increase less than double d. decrease less than a half
7. If you think that your fish production is increasing, what is the main factor of that so ?
a. good broodstock d. no disease
b. good management system e. don't know
c. increasing of ponds/cages number
8. Instead of you, do you have other labor join in your aquaculture ?
a. yes (go to no. 9) b. no
8. If "yes", where your worker is coming from ? How many people ? people
a. from family member b. from the same village c. from outside village
9. Do you have these items in your family ? (you may answer more than one)
a. motor bike d. washing machine g. HP
b. bicycle e. TV h. Play Station
c. refrigerator f. generator set i. VCD/DVD
10. The above items (in no. 9), which kind of the above items do you have before JICA extension program started ?
a. motor bike d. washing machine g. HP
b. bicycle e. TV h. Play Station
c. refrigerator f. generator set i. VCD/DVD
11. If you and your family member is getting sick, what do you usually do ?
a. always get a medical service d. very rare to get medical service
b. very often to get medical service e. never get medical service
c. sometimes get medical services, sometimes not
12. Are the above habit has also been done seen JICA extension program started ?
a. yes b. no, explain
13. During the last 3 years, how is your asset condition ?
13.1 Number of ponds : a. increasing b. same c. decreasing
13.2 Renewal the house : a. yes b. no
13.3 Land area : a. increasing b. same c. decreasing

14. When you started your aquaculture activity, did you lend money from other ?
a. yes b. no
15. If "Yes", where did you lend the money for aquaculture activities ?
a. bank b. cooperative c. farmer group d. individual
16. How about your repayment to your debt ?
a. very good c. sometimes good, sometimes bad e. very bad/can't pay
b. good d. bad
17. Do you have savings ?
a. yes (go to no.16) b. no (go to no.18)
18. If "Yes", in what form is your savings ?
a. bank account c. land e. others :
b. cooperative account d. livestock
19. During the last 2-3 years, what is the condition of your savings ?
a. increasing b. unchanged c. decreasing
20. How many hours per day used spend time for aquaculture activity ?
a. < 4 hours b. 4 – 6 hours c. 6 - 8 hours d. > 8 hours
21. Compared with the before JICA extension program started, your time is :
a. increase more than double c. same e. decrease more than a half
b. increase less than double d. decrease less than a half
22. How is education level of your children before participating in JilCA program?
a. No education,person
b. Graduation from SD,person
c. Graduation from SMP,person
d. Graduation from SMA,person
e. Graduation from university level,person
23. How is education level of your children after participating in JilCA program
a. No education,person
b. Graduation from SD,person
c. Graduation from SMP,person
d. Graduation from SMA,person
e. Graduation from university level,perso
24. Based on your experiences during the last 2-3 years, what is the most important problem in your aquaculture activity ?
a. seed money (capital) d. water quality
b. technical matter of aquaculture ? e. feed
c. seed/broodstock f. other :
25. Please explain the distribution channel of your fish production :
a. Pattern 1 : Farmer → intermediate → fish market
b. Pattern 2 : Farmer → fish market
c. Pattern 3 : Farmer → farmer group → intermediate → fish market
d. Other : _____
26. During the last 2-3 years, how is the fish price condition ?
a. tends to be increasing c. tends to be decreasing
b. tends to be stagnant (unchanged)
27. At present and the future years, what is the most important and expected for your aquaculture activity ?
a. capital aid c. new species of fish
b. technical aid d. I do not know