SANDEE Working Paper Questionnaire No. 2- 03

Title of the paper: 'Poverty, Private Property and Common Pool Resource Management: The Case of Irrigation Tanks in South India', by R. Balasubramanian and K. N. Selvaraj, SANDEE Working Paper No.2-03

Abstract: Irrigation tanks are one of the oldest and most important common property water resources in the resource-poor regions of South India. Tanks are also important from an ecological perspective because they serve as a geographically well-distributed mechanism for the conservation of soil, water and bio-diversity. Unfortunately, tank irrigation has undergone a process of rapid decline in the recent past, much of which can be attributed to the disintegration of traditional irrigation institutions. In response, people adopt various coping strategies such as migration, non-agricultural employment, and private tube-wells. Adoption of private coping mechanisms has serious implications for community coping mechanisms, i.e., for collective conservation efforts. Against this background, this study tries to understand the main causes of tank degradation and the complex interrelationships among poverty, private coping mechanisms and community coping mechanisms that affect tank performance. Primary and secondary data are used to estimate three regressions models: a macro model on tank degradation, a household-level model on collective action, and a production function incorporating collective action as an input.

In general, poor people are more dependent on tanks for various livelihood needs and hence they contribute more towards tank management compared to non-poor households. The analysis of tank degradation shows that there has been a decline in the performance of tanks. Population pressure is found to have accelerated the process of tank degradation. Though the emergence of private tube-wells contributes towards mitigating tank degradation within a narrow range, a continuous increase in the number of wells beyond limits exacerbates the process of tank degradation. This result is further validated by the micro-level econometric model of collective action towards tank management, which indicates that the increase in the number of private wells has a strong negative effect on the participation of rural communities in tank management. The size of the user group has a negative impact on cooperation, while the existence of traditional governance structures, such as rules for water allocation, promotes collective action. Wealth inequality is found to have a U-shaped relationship with collective action. The production function analysis shows that collective action has a positive and significant impact on the rice yields. Therefore, collective action is important for higher productivity and income. The study proposes several policy measures to revive and sustain tanks so as to provide livelihood security to the poor, who are the most affected by resource degradation.

Date of Survey: March 2001 to May 2002

Place of Survey: 30 villages in Rajapalayam and Paramakudi blocks of Ramanathapuram and Virudhunagar districts in the state of Tamil Nadu, India. The villages are:

1. Sendeneri	2. Melaillupilakulam	3. Periakulam
4. Zaminkolakondan	5. Kulasekara Eri	6. Tholakudi Kanmai
7. Vadakarai	8. Cholaseri Kanmoi	9. Atchankulam
10. Puttur	11. Pambur	12. Mummudichatan
13. Akramesi	14. Thalaiyadikottai	15. Vepankulam
16. Keezhaparuthiyur	17. Devaneri	18. Keelakottai
19. Ariyakudiperiakan	20. Kothankulam	21. Allikanmoi
22. Sunnampoorani	23. Manalikanmoi	24. Vettimadaikanmoi
25. Periyakumarathakudi Kanmoi	26. Irattaikanmoi	27. Koovanakanmoi
28. Muraikanmoi	29. Boothanikanmoi	30. Erikanmoi

Type of Survey: Rural Household

Language Translated to: Tamil

Number of Respondents: 300

Sponsored By: South Asian Network for Development and Environmental Economics (SANDEE)

APPENDIX 1

Analysis of Interrelationship between Poverty, Private Property and Common Property Natural Resource Management in South India

(Research Project funded by the South Asian Network for Development and Environmental Economics, (SANDEE), Nepal)

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Questionnaire for tank level survey

1. Name of the tank:
2. Block: District:
3. Village and Beneficiaries:

S. No	Name of the villages	Total ayacut area	Actual area irrigated			
			2000-01	1999-2000	1998-99	1997-98
1. 2. 3. 4.						

4. Demographic details:

Sl. No.	Villages	Total population			Number of households
		Male	Female	Total	
1. 2. 3. 4.					

5. A) Caste composition:

Caste	Number of households	Approximate % of land owned by these households in the tank command
i. ii iii iv v Others		
Total households		

5. B) Non-agricultural employment

Particulars	No. of persons engaged	Approx. income/ person	No. of days engaged
I) Throughout the year			
II) If seasonal, how many (approximate) no. of days engaged: a) During normal year b) During current year (Drought year)			

5. C) Migration

Caste	No. of families completely migrated	No. of families in which one or more members have migrated	Reason for migration
1. 2. 3. 4. 5. 6. 7.			

6. Indicators of prosperity levels and village infrastructure

i.. No. of houses with RCC ceilings
ii. No. of tiled houses
iii. No. of thatched houses
iv. No. of following items owned by the households in the village:
   a) Tractors
   b) Power tillers
   c) Threshers
   d) Bullock carts
   e) Motor cycles / scooters
   f) Mopeds
   g) Power sprayers
   h) Household telephone connections
   i) Grinders or Mixers
   j) L.p.gas connection
   k) Bio-gas plant
   l) Household television sets
   m) No. of households with cable connection
   n) No. of children studying in English medium school
v. Village infrastructure
   a) No. of petty shops (within the village)
   b) No. of tea stalls (within the village)
   c) Distance to nearest town
   d) Distance to the nearest bus stop
   e) No. of bus trips per day
   f) Distance to primary health center
   g) Distance to commercial bank
   h) Distance to Cooperative trade society
   i) Distance to agricultural input depot
   j) Distance to cooperative milk society
   k) Distance to post office
   l) Distance to village office
   m) Distance to

      Primary school:

      Middle school / high school:

      Higher secondary school:

      College:

7. Cropping Pattern in a normal Year

Name of the village	Season - I		Season - II		Season - III	
	Crop	Area	Crop	Area	Crop	Area

8. Land transfers and tenancy

a) Were there any significant land transfers (buying and selling of land) in the village: Yes \ No
b) If yes, in which year did significant transfers take place?
c) What were the reasons?

d) Approximate extent of tenant cultivation in the tank command area :
e) Average rent paid for leased-in land (Rs/acre) :
f) Mode of payment of rent : Kind \ cash

9. Details of wells in the tank command area

a) No. of wells in the tank command area : Head reach :_____ Tail reach : _____
b) Depth of wells (in feet) **: Min._____ Max._____**

	Normal year	**Drought Year**
c) Duration of water supply available from wells for irrigation (in months) :		
d) Approximate area irrigated per well :		
e) Area under different crops cultivated with well-water during non-tank season (for the tank common as a whole) :		
f) Extent of sales /purchase of well water during tank-water scarcity :		
i) No. of buyers :		
ii) No. of sellers :		
iii) Price of well-water :		

10. Community well

i) No. of community wells :
ii) Year of digging :
iii) Dug by : Govt. / P.U / Farmers / NGO assisted
iv) Describe its usefulness in terms of
a) No. of users :
b) Extent of usage in normal year :
c) Extent of usage in dry year :
d) Extent of usage during the beginning and end of the season :

a) What are the operational rules regarding:
- Timing of usage
- Pump set operated by
- Decision-making on the
- Operation and the management
- How the costs are shared?
- How the accounts are maintained?

11. Are the farmers knowledgeable about tanks in chain? Yes / No

12. If yes, how many tanks are there in the chain? _____

13. How many in the upstream? _____

14. How many in the downstream? _____

15. Number of tank flooding in the past 10 years. _____

16. What are the perceived non-agricultural roles of tanks in the village economy? Ask the villagers to rank the various uses of tank on a scale of 1 to 10.

Role	Priority ranks
1.Drinking water-Direct use 2.Drinking water-indirect use (Recharging wells) 3.Other domestic uses (Bathing, washing) 4. Sale of silt 5.Ground water recharge 6. Forestry 7.Grazing ground for livestock during off-season 8. Source of water for livestock 9. Fish culture 10. Duck rearing	

17. Property rights regime over the various tank usufructs
Who has the authority over management of different tank usufructs?

Sl.No	Uses	Assigning Authority	Right holders	First priority to
1.	Social forestry			
2.	Duck rearing			
3.	Fishing			
4.	Silt collection			
5.	Livestock grazing			
6.	Livestock drinking			
7.	Washing and bathing			
8.	Drinking			

18. Perception of problem of deterioration

a. Do the farmers think that the tanks have degraded over years? **Yes / No**

b. If yes, how do they perceive the decline / degradation? Rank the reasons on a 10-point scale)

Reasons	Ranks
1. Reduction in water received by the tank	
2. Siltation in the waterspread area	
3. Reduction in area irrigated	
4. Catchment degradation	
5. Poor condition of supply channels	
6. Increase in encroachment in waterspread area	
7. Increase in encroachment in supply channel	
8. Increase in number of private wells in the tank command	
9. Weak bunds and sluice	
10. Poor distribution network	

19.What are the reasons for lack of maintenance/revival effort? Rank the reasons on 10-point scale.

Factors	Rank
1.Restoration of tank is State's duty	
2.Catchments degradation and encroachment are multivillage problem, so villagers cannot take action to remove the encroachments	
3.Caste conflict in the village – hence no cooperation	
4. Non-cooperation from well-owners	
5. Poverty / financial constraints	
6. Declining role of agriculture in village economy and hence villagers are not interested in maintaining the tank	
7. The tank is a multi-village tank. So, co-operation is difficult	
8. Non-agricultural use of tank is meager	
9. Income from tank usufructs is not sufficient to take up repair work by the village community.	
10. The villagers do not have the authority to take up repairs and the PU/PWD is not taking up repairs.	

20. Maintenance (Give details of improvements/repairs done in the last five years).

Repair / improvement	Farmers	PWD	PU	Quality of work and impact
Catchment improvement Supply channel Tank bund Water spread area Sluice Distribution network Surplus weir				

21. Improvements made to tank structures in the last 10 years (by the farmers)
Who carried out the actual work? Farmers / Hired Labour / both
If work-wise break-up is not available give the total amount spent on (a) thru' (g)

Work	Year	Financial outlay (Rs.)		
		Farmers' contribution	Source of finance	Mobilized thru' NGOs
a. Desilting and repairing supply channels b. Desilting waterspread area c. Eviction of encroachment d. Strengthening the bund e. Repairing the sluice f. Repairing the surplus water g. Others (Specify)				

22. Present condition of different tank structures

a) Catchment : Good \ Eroded\ Encroached \ Barren
b) Supply channel : Good \ Encroached \Silted
c) Tank bund : Strong – no breaches
Weak –Breaches
d) Waterspread area : Silted slightly \ moderately \ heavily
Encroached slightly \ moderately \ heavily
e) Sluice : Good \ moderate \ Poor condition
f) Distribution network : Good \ moderate \ Poor condition
g) Surplus weir : Good \ moderate \ Poor condition

23. Impact of improvements

a) Extent of increase in storage capacity :
b) Extent of increase in cropped area :
c) Increased income due to increase in cropped area \ water availability :

d) Increase in revenue generated through other means . Give details.
1. Fish culture
2. Tree cultivation
3. Herbal \ Vegetable cultivation on tank bund
4. Others (Specify)

24. Water users' association (WUA)

a) Whether water users' association is present? Yes \ No

b) If yes, mention whether the WUA is : Formal/informal
Active/inactive
Traditional / newly formed

c. If there is no WUA, why?

d. What is the structure of the WUA? Who is empowered to formulate and implement rules and regulations for water use and management decisions?

e. What are the functions or role of organization?

f. What are the roles of various social and economic groups in the WUA?
1.Role of social groups (caste based)
2.Role of economic groups (rich or poor)

h. What are the problems faced by WUA?

j. What is your assessment regarding the performance of WUA / farmers' cooperation in tank management?

k. Were there any changes in rules governing tank management in the last 10 years with respect to the following? If so, explain briefly the reasons and the impact of new rules.

	Role	Assessment			Reasons for poor / better performance
		Good performance	Satis-factory	Poor	
1.	Bringing / diverting water to tank				
a.	Catchment management				
b.	Supply channel maintenance				
c.	Removal of encroachment				
2.	Water management				
a.	Sluice operation				
b.	Maintenance of field channels				
c.	Water distribution within the sluice				
3.	Resource mobilization				
a.	Forestry				
b.	Fisheries				
c.	Labour				
4.	Conflict resolution				
5.	Deciding crop choice				
6.	Lobbying with PWD / PU				

	Old rules / norms	Changes made	Impact of changes (Positive / negative)
i. Cleaning supply channel ii. Removal of encroachment iii. Desilting iv. Sluice operation v. Cleaning distribution network vi. Water distribution vii. Fish culture viii. Harvesting trees ix. Sharing fishes x. Sharing income from tank usufructs			

25. Revenue mobilization: (Rupees/year) (Last 3 years)

Year	Farmers' levy / subscription to WUA	Fishing	Duck rearing	Social forestry	Tree crops	Sale of silt	Crops raised on bunds	Grazing on tank-bed
2000 1999 1998								

a. How is fish culture practiced in the tank?

b. Who lets fingerlings in the tanks?
Naturally grown \ FFDA \ Farmers \ All villagers

c. Who harvests the fishes?
FFDA \ Tank farmers \ All villagers\ Allowed free catch by other farmers

26. Management of village common fund and its utilization.

a. Sources of revenue for village common fund other than tank usufructs.

Source of Revenue	Amount mobilized				
	Year 1	Year 2	Year 3	Year4	Year 5
1.Sale of trees in village common lands 2. Household levy 3. Others (Specify)					

b. Do all the households contribute to the household levy? Yes \ No

c. Who does not? Why?

d. How are the funds maintained?
Deposited in bank / By the village committee

e. Are the funds mobilized from tank usufructs maintained as a separate account or added to village common funds?

f. What are the actual uses for which the village common funds were utilized in .the last 5 years?

Purpose	Amount utilized			
	Year 1	Year2	Year3	Year4
Temple renovation Tillage festivals Lobbying for village infrastructure Others (specify)				

27. Water control and management:

a. Is there any restriction for particular use / users in the tank? Give reasons?

b. Who irrigates the field?

Neerkatti / Farmers

c. When is the tank water made available for irrigation?

As soon as tank gets adequate water / Only at the time of preparatory tillage

d. If sluices are opened only at the time of transplanting / preparatory tillage, how do the non-well owners raise nursery? Give number of farmers under each practice
Purchase well water / Purchase seedlings /
Other means for nursery raising / (specify)

e. How many farmers raise nursery before tank gets water? Give number of farmers.

All well-owners / Not all well-owners / Well-owners + some non-well owners as well

f. Who appoints neerkatti / neer paichchi (common irrigator) ?

Water Users' Association appoints him every year / Neerkatti belongs to a particular family which inherits the right over generations

g. Payment for 'neerkatti':
   * Mode of payment
   * Quantity
   * Frequency of payment
h. Is there any water kept in the tank as reserve? Yes/No
i. If yes, when and how much of water (%) is kept as reserve?
j. Who decides it?
k. For what purpose is it used?

Purpose — Priority Rank

a. Recharge wells
b. Watering livestock
c. Fish culture
d. Drinking water / washing

l. What rights do the landless people have regarding the use of tank water?

28. Coping mechanism

A. Individual Coping Mechanism

How do farmers cope with decline in tank performance / during drought years?

Coping mechanism		Number / percentage of farmers
1.	Own well water	
2.	Purchase of well water	
3.	Non agricultural employment	
4.	Seasonal migration	
5.	Charcoal making	
6.	Wage labour in agriculture	
8.	Reduction in cropped area	
9.	Crop pattern changes	
10.	Remittance income	
11.	Others (specify)	

B. Is there any other CPR / open access resource in the village on which poor people depend during dry seasons / drought years? Give details on extent of such CPRs such as common or open access forests

i) Area under trees

ii) Area under grazing

C. Community Coping Mechanism

Coping mechanism		Extent of participation / compliance	
		Well-owners	Non-well owners
1.	Cleaning supply channels / distribution channels		
2.	Sluice rotation		
3.	Lobbying with upstream tanks for water		
4.	Imposing proportional limitation in command area to be cultivated		
5.	Imposing crop restriction		
6.	Lobbying with PWD/PU to repair tank structure		
7.	Pumping from tank		
8.	Others (Specify)		

D. Collect detailed information on the following aspects:

i) How and who devises the community coping mechanisms?
ii) What is the penalty for non-participation/non-compliance with the coping mechanisms?

29. Conflicts:

a. Are there any conflicts among the water users? Yes / No
b. If yes,
   i. When?
   ii. Between Whom?
   iii. What are the reasons for conflict?
c. How are these settled?
d. If the tank is a multi-village tank is there any inter-village conflicts in sharing water? Yes \ No
e. If yes, when and for what reasons does it arise and how was it solved?
f. Are there any unresolved conflicts, which severely disrupted water sharing \ distribution among users?
g. If yes, give reasons.

30. Details on crop production

a. Paddy yield in the tank command:
Max. :
Min. :
Average :

b. Approximate area cultivated with tank water in the last 3 years.

	2000-01	1999-2000	1998-1999
Tank season (Sep-March)			
Non-tank season (Apr-August)			

c. Market infrastructure

1. Distance to nearest market
   (i) For inputs :
   (ii) For outputs :

2. Approximate marketable surplus of

(i) Paddy :
(ii) Cotton :
(iii) Vegetables :
(iv) Others :

3. Any new crops introduced in the last 10 years? Give reasons

4. Sale of crop output

Local (itinerary) merchants : _____ % of total crop output
Sold in nearest market : _____ % of total crop output

31. Party politics in the village

a. Political activities of the villages
Very active \ Moderate \ Inactive

b. Patronage enjoyed by the village from politicians
MLAs \ MPs \ Minister \ Others

c. Political affiliation of the villagers

- Caste-based affiliation
- No strong relationship between caste and political patronage

32. Power structure in the village

a. Is there a system of village leadership such as
Naattamaikkarar \ Ambalakkar \ Village Headman

b. If so, to which caste does he belong?

c. How is he appointed?

d. Is there any ward member \ panchayat president \ district panchayat member from this village?

e. If so, to which caste he belongs?

f. How do the dalits participate in the village life ?

1. Village festivals
2. Temple maintenance
3. Do the dalits have a stake in village common funds? If yes describe. If no , give reasons
4. What is the major occupation of Dalits?
   Agri. Labour \ Non-agri labour \ others

5. If Dalits own lands in the village,
   Dryland \ wetland (tank command)
6. If dalits (scheduled caste people) own land in tank commands where ,
   Head \ middle \ tail reach
7. Do the dalits get a share in fishes grown in tank ? How much?

33. Indicators of social capital

a. Do you think that there is all round erosion of local leadership and authority in recent years? Why do you say this?

- Decrease in interdependence among households
- Increase in intra-village conflict
- Decrease in participation in common welfare activities
- Decrease in village meetings (Oor kootam \ Oor panchayat)
- Decrease in Oor kattupaddu
- Increase in open political affiliation and consequent division among households
- Increase in migration

Give reasons:

b. Are there any members in the state-level \ District level farmers' association ? Yes \ No
   If so, how many farmers?

c. Is there a system of exchange labour in the village ? Yes / no
d. If yes, extent
√ No. of households engaged in exchange of labour
√ In which season and for which operations
√ Is there a decline in this system in recent years?

e. Is there any hiring in \ hiring out of bullock pair for ploughing within the village
   If yes , extent:

APPENDIX 2

Questionnaire for Household Survey

PART I (Production)

Code

1. General particulars

a) Name of the village:

b) Name of the block:

c) Name of the respondent:

2. Family particulars

S.No	Relation to head	Age	Sex	Educational status Mention exact std./class up to which the family member has studied	Occupation	
					Primary	Secondary

3. Land holdings

S.No.	Particulars (in acres)				Area in other ayacut areas	Remarks (State whether all the lands are located in the same village / different villages)
		Wet	Garden	Dry		
1	Owned					
2	Leased in					
3	Leased out					
4	Mortgage in					
5	Mortgage out					

4. Assets other than land

S.No	Asset	No.	Value at purchase / construction	Year of purchase / construction	Remarks
1.	Farm machinery & implements a) Tractor b) Power tiller c) Tractor drawn implements d) Pump-set e) Bullock cart f) Thresher g) Other implements				
2.	Farm buildings (Threshing floor/storage godown)				
3.	House Type : Thatched/tiled/RCC				
4.	Television (Colour / B&W)				
5.	Radio				
6.	Two wheelers (Mention type)				
7.	Others (Mention) a) b) c)				

5. Livestock

Sl. No	Particulars	No	Income from sale of milk / hire charges received from draught animals / income from poultry	Present value of animals
1.	Draught animals			
2.	**Milch animals** a.Desi-Cow b.Buffaloes c. Hi-bred cow			
3.	Calves and Heifers (Below 1 year)			
4.	Sheep and goat			
5.	Poultry			

6. Cropping pattern

S.No.	Crops	1998-99		1999-2000		2000-01		Remarks (Reasons for crop failure if any)
		Area(ac)	Yield	Area (ac)	Yield	Area (ac)	Yield	
1	Season I Crop1..... Crop2..... Crop3.....							
2	Season II Crop1..... Crop2..... Crop3.....							
3	Season III Crop1..... Crop2..... Crop3.....							

7. Coping mechanisms

a) Particulars of salary income for the household

S.No.	Source of income	No. of persons employed	Income	Remarks
1	Government employees in the family			
2.	Private sector employees in the family			
3	Business			

b) Income from self-employment

Nature of self employment	No. of family members engaged	Duration of employment	Income / month	Income per year
a) Petty business				
b) Charcoal making				
c) Others (mention) i) ii) iii) iv)				

c) Employment pattern in and income from informal sector

S.No.	Particulars	On-Farm		Off-Farm		Non-Farm		Remarks
		Total days employed	Wage rate (Rs)	Total days employed	Wage rate (Rs)	Total days employed	Wage rate (Rs)	
1	Head of the family							
2	Other family members							
	a.							
	b.							
	c.							

d) Out - migration details

S.No	Type of Migration	Period of Migration (months)	Migrant				Remittance income received by family from the migrant
			Male	Female	Age	Wage rate	
1	Seasonal / temporary Place						
2	Permanent Place						

e) Other coping mechanisms

i) If none of the above coping mechanisms (business/non-agri. employment/migration) are followed, then how do you manage the failure of agriculture? Briefly explain.

ii) Do you resort to borrowing to meet consumption expenditure? Yes / No

8. Particulars of wells and water market

S.No	Particulars	Tank command		Non-tank command (garden land)	
		Well 1	Well 2	Well 1	Well 2
1	Year of digging				
2	Cost of digging				
3	Year of deepening				
4	Cost of deepening				
5	Type of well (open, open-cum-bore, bore)				
6	Present depth				
7	Type of lift (electric motor, diesel engine)				
8	Capacity (HP)				
9	Duration of pumping in hours per day a) Normal year b) Dry year				
10	Crops irrigated (acres) a) Normal year b) Dry year				
11	Water level in the well in feet a) Tank season b) Non-tank season				
12	Extent of conjunctive use (in months) in combination with tank a) Normal year b) Dry year				

9. Participation in tank maintenance activities

Nature of activity	Latest year (2000-2001)			Year before latest year (1999-2000)		
	No of days participated	Amount of money contributed	Reason for non-participation	No. of days participated	Amount of money contributed	Reason for non-participation
a) Cleaning & repairing the supply channel						
b) Diverting and bringing more water to your supply channel						
c) Lobbying with upstream farmers to bring more water to your tank						
d) Desilting the tank						
e) Removal of encroachment						
f) Cleaning field channel which brings water to your field						
g) Lobbying with PU / PWD for repairing the tank						
k) Others (Mention)						

10. What do you think are the reasons for the non-cooperation among villagers in tank maintenance?

a) Caste conflict
b) Backward agriculture
c) Uncertainty in tank-water supply
d) No financial resources in the village for tank maintenance activities
e) Non-participation by well-owners
f) People have resorted to non-agricultural employment / migration, so the villagers are not interested in tanks
g) Others (specify)

11. Crop-wise cost and returns from crop cultivated in the tank ayacut (2000-2001)

	Season ..... Crop ..... Area		Season ..... Crop ..... Area		Season ..... Crop ..... Area	
	Quantity	**Value**	**Quantity**	**Value**	**Quantity**	**Value**
A Irrigation Particulars						
1) Frequency of irrigation						
2) Number of irrigations actually given to the crop						
3) Hours to irrigate the crop one time for the entire area						
4) Height of water-level in the field						
5) Who irrigated the field (Neerkatti / farmer himself)						
B. Cost Particulars						
1) Human labour used (man days)						
i) Nursery raising						
a) Family labour						
b) Hired labour						
ii) Preparatory tillage						
a) Family labour						
b) Hired labour						
iii) Weeding						
a) Family labour						
b) Hired labour						
iv) Harvesting						
a) Family labour						
b) Hired labour						
v) Transport						
a) Family labour						
b) Hired labour						
2) Bullock labour (bullock pair days)						
3) Machine hours						
4) Seeds / planting material						
5) Manure (cart loads)						
6) Fertilizer type (Kgs)						
a)						
b)						
c)						
d)						
e)						

	Season ..... Crop ..... Area		Season ..... Crop ..... Area		Season ..... Crop ..... Area	
	Quantity	**Value**	**Quantity**	**Value**	**Quantity**	**Value**
7) Plant protection chemicals a) Liquid (ml/litres) b) Dust (kg) 8) Transport, packing, marketing costs 9) Main product yield (mention the units of measurement) 10) Price of main product 11) By product (mention the units of measurement)						
A Irrigation Particulars 1) Frequency of irrigation 2) Number of irrigations actually given to the crop 3) Hours to irrigate the crop one time for the entire area 4) Height of water level 5) Who irrigated the field (Neerkatti / farmer himself) **B. Cost Particulars** 1) Human labour used (man days) i) Nursery raising a) Family labour b) Hired labour ii) Preparatory tillage a) Family labour b) Hired labour iii) Weeding a) Family labour b) Hired labour iv) Harvesting a) Family labour b) Hired labour v) Transport a) Family labour b) Hired labour 1) Bullock labour (bp days) 2) Machine hours 3) Seeds / planting material 4) Manure (cart loads)						

Contd.

	Season ..... Crop ..... Area		Season ..... Crop ..... Area		Season ..... Crop ..... Area	
	Quantity	**Value**	**Quantity**	**Value**	**Quantity**	**Value**
5) Fertilizer type (Kgs) a) b) c) d) e) 7) Plant protection chemicals a) Liquid (ml/litres) b) Dust (kg) 8) Transport, packing, marketing costs 9) Main product yield (Kgs / qntls / tonnes / baskets) 10) Price of main product 11) By product (Kgs / qntls / tonnes/ baskets)						
A. IRRIGATION PARTICULARS 1) Frequency of irrigation 2) Number of irrigations actually given to the crop 3) Hours to irrigate the crop one time for the entire area 4) Height of water level 5) Who irrigated the field (Neerkatti / farmer himself) **B. COST PARTICULARS** 6) Human labour used (man days) i) Nursery raising a) Family labour b) Hired labour ii) Preparatory tillage a) Family labour b) Hired labour iii) Weeding a) Family labour b) Hired labour iv) Harvesting a) Family labour b) Hired labour						

Contd.

	Season ..... Crop ..... Area		Season ..... Crop ..... Area		Season ..... Crop ..... Area	
	Quantity	**Value**	**Quantity**	**Value**	**Quantity**	**Value**
v) Transport a) Family labour b) Hired labour 7) Bullock labour (bp days) 8) Machine hours 9) Seeds / planting material 10) Manure (cart loads) 11) Fertilizer type (Kgs) a) b) c) d) e) 12) Plant protection chemicals a) Liquid (ml/litres) b) Dust (kg) 13) Transport, packing, marketing costs 14) Main product yield (Kgs / qntls / tonnes / baskets) 15) Price of main product 16) By product (Kgs / qntls / tonnes/ baskets)						

Contd.

11 Contd... Crop-wise cost and returns from crop cultivated in the tank ayacut
(Use separate sheets for each crop)

	**Season ……..... Crop ……..... Area ……..... **		**Season ……..... Crop …..……..... Area …...……...**		**Season ……..... Crop ……..... Area ……..……**	
	Quantity	**Value**	**Quantity**	**Value**	**Quantity**	**Value**
A. Irrigation Particulars 1) Frequency of irrigation 2) Number of irrigations actually given to the crop 3 Hours to irrigate the crop one time for the entire area 4) Water level in the field 5) Who irrigated the field (Neerkatti / farmer himself)						
	Quantity	**Value**	**Quantity**	**Value**	**Quantity**	**Value**
B. COST PARTICULARS 6) Human labour used (man days) i) Nursery raising a) Family labour b) Hired labour ii) Preparatory tillage a) Family labour b) Hired labour iii) Weeding a) Family labour b) Hired labour iv) Harvesting a) Family labour b) Hired labour v) Transport a) Family labour b) Hired labour 1) Bullock labour (bp days) 2) Machine hours 3) Seeds / planting material 4) Manure (cart loads) 5) Fertilizer type (Kgs) a) b) c) d) e)						

	Season ..... Crop ..... Area		Season ..... Crop ..... Area		Season ..... Crop ..... Area	
	Quantity	**Value**	**Quantity**	**Value**	**Quantity**	**Value**
12) Plant protection chemicals a) Liquid (ml/litres) b) Dust (kg) 13) Transport, packing, marketing costs 14) Main product yield (Kgs / qntls / tonnes / baskets) 15) Price of main product 16) By product (Kgs / qntls / tonnes/ baskets)						

12. A. Economics of crops on lands other than tank-irrigated land (1999-00)

Type of crop	Dry / wet / garden	Crop Economics								
		Season I			Season II			Season III		
		Acre	output	Net income	Acre	Output	Net income	Acre	Output	Net income
A) Seasonal										
1										
2										
3										
4										
B) Perennial										

B. Economics of crops on lands other than tank-irrigated land (2000-2001)

Type of crop	Dry / wet / garden	Crop Economics								
		Season I			Season II			Season III		
		Acre	output	Net income	Acre	Output	Net income	Acre	Output	Net income
A) Seasonal										
1										
2										
3										
4										
B) Perennial										

PART II (Consumption)

13. Quantity consumed of various food items (Three day recall method)

Food items	Quantity cooked yesterday	Quantity cooked today	Quantity to be cooked tomorrow	Farm produced/ purchased	If purchased, give price per kg	Approx. monthly consumption	Approx. monthly expenditure on the items
Rice							
Wheat							
Cholam							
Ragi							
Cumbu							
Red gram dhal							
Green gram dhal							
Black gram dhal							
Cowpea							
Vegetables							
Cooking oil used							
Egg							
Mutton							
Chicken							
Fish							
Pork							
Milk consumed							
Curd							
Tea							
Coffee							
Milk powder							
Sugar							
Horlicks							
Other baby food							
Other food items (Specify)							

13. Periodicity of consumption

Particulars	Male	Female	Children	Remarks
Total no. of meals / day				
a. Thrice				
b. Twice				
c. Once				

14. Other consumption expenditure

Expenditure items	Expenditure (Rs./month)	If the expenditure details are not available on monthly basis Expenditure (Rs./year)	Others
1.Education			
2.Health (Medical)			
3.Kerosene			
4.Cooking gas (LPG)			
5.Electricity			
6.Telephone			
7.Celebraiton of festival			
8.Entertainment (Cinema, Cable TV charges, etc.)			
9.Dressing			
10. Others (Specify) a) b) c) d) e)			