

Appendix 6-5-1 delta-L VALUES BY ROAD LINK

Study Route No.	Length /1 Road Links	1					2					3					4					5				
		L	L.V.		H.V.		L	L.V.		H.V.		L	L.V.		H.V.		L	L.V.		H.V.		L	L.V.		H.V.	
		$\Delta L$	L+ $\Delta L$	$\Delta L$	L+ $\Delta L$	$\Delta L$	L+ $\Delta L$	$\Delta L$	L+ $\Delta L$	$\Delta L$	L+ $\Delta L$	$\Delta L$	L+ $\Delta L$	$\Delta L$	L+ $\Delta L$	$\Delta L$	L+ $\Delta L$	$\Delta L$	L+ $\Delta L$	$\Delta L$	L+ $\Delta L$	$\Delta L$	L+ $\Delta L$	$\Delta L$	L+ $\Delta L$	
Project Road Links	1 {	7.0	2.5	9.5	4.1	11.1	12.2	4.0	16.2	6.7	18.9	10.3	3.2	13.5	5.3	15.6	17.0	5.1	22.1	8.5	25.5	5.0	1.6	6.6	2.6	7.6
		(7.0) <sup>/2</sup>	(1.6)	(8.6)	(2.3)	(9.3)	(12.2)	(2.5)	(14.7)	(3.8)	(16.0)	(10.3)	(2.2)	(12.5)	(3.2)	(13.5)	(17.0)	(3.4)	(20.4)	(5.1)	(22.1)	(5.0)	(1.1)	(6.1)	(1.6)	(6.6)
	2 {	6.0	1.8	7.8	3.0	9.0	8.0	2.4	10.4	4.0	12.0	19.7	5.9	25.6	9.9	29.6	8.0	2.4	10.4	4.0	12.0	10.5	5.3	15.8	10.5	21.0
		(6.0) <sup>/2</sup>	(1.2)	(7.2)	(1.8)	(7.8)	(8.0)	(1.6)	(9.6)	(2.4)	(10.4)	(19.7)	(3.9)	(23.6)	(5.9)	(25.6)	(8.0)	(1.6)	(9.6)	(2.4)	(10.4)	(10.5)	(2.1)	(12.6)	(3.2)	(13.7)
	3 {	20.3	6.2	26.5	10.3	30.6	7.7	2.5	10.2	4.1	11.8	8.8	2.7	11.5	4.5	13.3	7.0	2.2	9.2	3.6	10.6	7.0	3.6	10.6	7.1	14.1
		(20.3) <sup>/2</sup>	(4.2)	(24.5)	(6.2)	(26.5)	(7.7)	(1.7)	(9.4)	(2.5)	(10.2)	(8.8)	(1.9)	(10.7)	(2.7)	(11.5)	(7.0)	(1.5)	(8.5)	(2.2)	(9.2)	(7.0)	(1.5)	(8.5)	(2.2)	(9.2)
	4 {											7.7	2.4	10.1	4.0	11.7										
												(7.7) <sup>/2</sup>	(1.6)	(9.3)	(2.4)	(10.1)										
Other Roads	11	13.5	0.1	13.6	0.1	13.6	28.2	-	28.2	-	28.2	39.0	0.1	39.1	0.1	39.0	32.0	6.6	38.6	9.8	41.8	5.0	1.1	6.1	1.6	6.6
	12	27.9	8.6	36.5	14.2	42.1	39.0	0.1	39.1	0.1	39.1	21.3	-	21.3	-	21.3	38.3	7.9	46.2	11.7	50.0	19.0	5.9	24.9	9.7	28.7
	13	41.6	8.4	50.0	12.6	54.2	38.8	11.8	50.6	19.6	58.4	2.5	-	2.5	-	2.5	44.1	8.9	53.0	13.3	57.4	28.0	5.8	33.8	8.6	36.6
	14	6.0	1.2	7.2	1.8	7.8	32.0	9.8	41.8	16.2	48.2	41.6	8.4	50.0	12.6	54.2	6.0	1.2	7.2	1.8	7.8	20.0	-	20.0	-	20.0
	15	11.3	2.3	13.6	3.4	14.7	21.3	-	21.3	-	21.3	6.0	1.2	7.2	1.8	7.8	7.6	1.6	9.2	2.4	10.0	32.0	6.6	38.6	9.8	41.8
	16	17.5	-	17.5	-	17.5	2.5	-	2.5	-	2.5	11.3	2.3	13.6	3.4	14.7	15.8	3.4	19.2	4.9	20.7	13.0	2.7	15.7	4.0	17.0
	17	9.5	2.0	11.5	3.0	12.5	20.0	4.1	24.1	6.1	26.1	9.5	2.0	11.5	3.0	12.5	6.8	-	6.8	-	6.8	19.3	4.0	23.3	5.9	25.2
	18	47.0	14.6	61.6	24.1	71.1	21.6	4.3	25.9	10.8	32.4	31.0	0.1	31.1	0.1	31.1	7.8	-	7.8	-	7.8	1.0	-	1.0	-	1.0
	19	4.0	-	4.0	-	4.0	6.0	1.2	7.2	1.8	7.8	33.3	10.2	43.5	16.9	50.2	3.5	0.9	4.4	1.3	4.8	17.0	3.5	20.5	5.2	22.2
	20	15.0	-	15.0	-	15.0	11.3	2.3	13.6	3.4	14.7	20.2	6.2	26.4	10.2	30.4	13.0	-	13.0	-	13.0	28.0	5.6	33.6	8.4	36.4
	21	7.2	0.2	7.4	0.2	7.4	9.5	2.0	11.5	3.0	12.5	28.2	-	28.2	-	28.2	11.3	2.3	13.6	3.4	14.7	31.0	6.3	37.3	9.4	40.4
	22	28.2	-	28.2	-	28.2	31.0	0.1	31.1	0.1	31.1						9.5	2.0	11.5	3.0	12.5	8.5	2.6	11.1	4.3	12.8
	23	4.0	1.0	5.0	1.4	5.4	33.3	10.2	43.5	16.9	50.2						33.3	10.2	43.5	16.9	50.2	24.3	5.1	29.4	7.5	31.8
	24																31.0	0.1	31.1	0.1	31.1	22.6	11.5	34.1	22.8	45.4
	25																27.9	8.6	36.5	14.2	42.1	15.0	4.7	19.7	7.7	22.7
	26																					23.5	4.8	28.3	7.2	30.7

Remarks /1 Road Link Nos. are referred to "Road Network and Traffic Zones" in Appendix 6-3-5

/2 Figures in parentheses are delta-L Values for With Project case.

Abbreviations: L.V. : Light Vehicles H.V. : Heavy Vehicles  
L : Length (Km)  $\Delta L$  : delta-L (Km)

Appendix 6-5-1 delta-L VALUES BY ROAD LINK (1) (Continued)

Study Route No. Road Links	Length L	6				7				8				9				10/11								
		L.V.		H.V.		L.V.		H.V.		L.V.		H.V.		L.V.		H.V.		L.V.		H.V.						
		$\Delta L$	L+ $\Delta L$	$\Delta L$	L+ $\Delta L$	$\Delta L$	L+ $\Delta L$	$\Delta L$	L+ $\Delta L$	$\Delta L$	L+ $\Delta L$	$\Delta L$	L+ $\Delta L$	$\Delta L$	L+ $\Delta L$	$\Delta L$	L+ $\Delta L$	$\Delta L$	L+ $\Delta L$	$\Delta L$	L+ $\Delta L$	$\Delta L$	L+ $\Delta L$			
Project Road Links	1 {	22.6	11.5	34.1	22.8	45.4	25.0	12.5	37.5	18.2	43.2	15.0	7.6	22.6	15.1	30.1	15.0	7.6	22.6	15.1	30.1	12.6	4.0	16.6	6.5	19.1
		(22.6)	(4.7)	(27.3)	(7.0)	(29.6)	(25.0)	(7.1)	(32.1)	(10.2)	(35.2)	(15.0)	(3.1)	(18.1)	(4.6)	(19.6)	(15.0)	(3.1)	(18.1)	(4.6)	(19.6)	(12.6)	(2.7)	(15.3)	(4.0)	(16.6)
	2 {	15.0	4.7	19.7	7.7	22.7	16.7	10.6	27.3	19.5	36.2	6.2	3.2	9.4	6.3	12.5	6.2	3.2	9.4	6.3	12.5	9.8	3.4	13.2	5.4	15.2
		(15.0)	(3.2)	(18.2)	(4.7)	(19.7)	(16.7)	(4.7)	(21.4)	(6.8)	(23.5)	(6.2)	(1.2)	(7.4)	(1.9)	(8.1)	(6.2)	(1.2)	(9.4)	(1.9)	(8.1)	(9.8)	(2.2)	(12.0)	(3.1)	(12.9)
3 {	5.0	1.6	6.6	2.6	7.6							28.3	17.1	45.4	31.2	59.5	11.3	4.1	15.4	6.4	17.7	1.3	0.6	1.9	0.9	2.2
	(5.0)	(1.1)	(6.1)	(1.6)	(6.6)							(28.3)	(6.2)	(34.5)	(9.0)	(37.3)	(11.3)	(2.4)	(13.7)	(3.5)	(14.8)	(1.3)	(0.4)	(1.7)	(0.5)	(1.8)
4 {																						5.0	1.7	6.7	2.7	7.7
																						(5.0)	(1.2)	(6.2)	(1.7)	(6.7)
Other Roads	11	17.0	3.5	20.5	5.2	22.2	14.7	0.4	15.1	0.4	15.1	11.3	4.1	15.4	6.4	17.7	28.3	17.1	45.4	31.2	59.5	10.7	2.2	12.9	3.3	14.0
	12	34.1	7.0	41.1	10.4	44.5	13.9	0.5	14.4	2.3	16.2	9.3	2.0	11.3	2.9	12.2	9.3	2.0	11.3	2.9	12.2	5.0	1.0	6.0	1.5	6.5
	13	-	-	-	-	-	7.2	1.5	8.7	2.3	9.5	23.5	7.1	30.6	11.8	35.3	23.5	7.1	30.6	11.8	35.3	15.4	8.2	23.6	15.9	31.3
	14	47.9	-	47.9	-	47.9	23.2	-	23.2	-	23.2	10.0	3.0	13.0	5.0	15.0	10.0	3.0	13.0	5.0	15.0	20.0	4.1	24.1	6.1	26.1
	15	-	-	-	-	-	45.3	11.2	56.5	16.3	61.6	42.5	8.6	51.1	12.9	55.4	42.5	8.6	51.1	12.9	55.4	10.0	2.0	12.0	3.0	13.0
	16	27.5	-	27.5	-	27.5	32.0	-	32.0	-	32.0	28.0	5.6	33.6	8.4	36.4	28.0	5.6	33.6	8.4	36.4	30.8	6.3	37.1	9.3	40.1
	17	39.6	-	39.6	-	39.6	21.5	4.8	26.3	7.0	28.5	17.0	3.5	20.5	5.2	22.2	17.0	3.5	20.5	5.2	22.2	6.0	1.2	7.2	1.8	7.8
	18	5.0	1.2	6.2	1.7	6.7	16.5	0.5	17.0	0.5	17.0	47.9	-	47.9	-	47.9	47.9	-	47.9	-	47.9	16.6	3.7	20.3	5.4	22.0
	19	40.0	12.2	52.2	20.2	60.2	41.9	-	41.9	-	41.9	27.5	-	27.5	-	27.5	27.5	-	27.5	-	27.5	11.0	2.7	13.7	3.8	14.8
	20	30.0	9.2	39.2	15.2	45.2	28.9	7.0	35.9	10.3	39.2	39.6	-	39.6	-	39.6	39.6	-	39.6	-	39.6	19.7	4.1	23.8	6.1	25.8
	21	9.3	3.0	12.3	4.9	14.2	30.1	8.4	38.5	12.0	42.1	5.0	1.2	6.2	1.7	6.7	5.0	1.2	6.2	1.7	6.7	6.3	1.3	7.6	1.9	8.2
	22	1.8	0.6	2.4	0.7	2.5	47.5	-	47.5	-	47.5	34.0	6.9	40.9	10.3	44.3	34.0	6.9	40.9	10.3	44.3	17.0	3.4	20.4	5.1	22.1
	23	11.9	2.6	14.5	3.8	15.7						5.0	1.0	6.0	1.5	6.5	5.0	1.0	6.0	1.5	6.5	17.0	5.3	22.3	8.7	25.7
	24											25.0	5.0	30.0	7.5	32.5	25.0	5.0	30.0	7.5	32.5	7.0	1.4	8.4	2.1	9.1
	25											13.1	4.2	17.3	6.9	20.0	13.1	4.2	17.3	6.9	20.0	16.1	3.3	19.4	4.9	21.0
	26											22.0	6.8	28.8	11.2	33.2	22.0	6.8	28.8	11.2	33.2	14.0	7.5	21.5	14.5	28.5
	27											15.0	4.6	19.6	7.6	22.6	15.0	4.6	19.6	7.6	22.6					
	28											30.0	9.2	39.2	15.2	45.2	30.0	9.2	39.2	15.2	45.2					

Appendix 6-5-1 delta-L VALUES BY ROAD LINK (2) (Continued)

Study Route No. Length Road Links	6				7				8				9				10/11					
	L	$\Delta L$	L.V. L+ $\Delta L$	H.V. $\Delta L$ L+ $\Delta L$	L	$\Delta L$	L.V. L+ $\Delta L$	H.V. $\Delta L$ L+ $\Delta L$	L	$\Delta L$	L.V. L+ $\Delta L$	H.V. $\Delta L$ L+ $\Delta L$	L	$\Delta L$	L.V. L+ $\Delta L$	H.V. $\Delta L$ L+ $\Delta L$	L	$\Delta L$	L.V. L+ $\Delta L$	H.V. $\Delta L$ L+ $\Delta L$		
29									22.6	11.5	34.1	22.8	45.4	22.6	11.5	34.1	22.8	45.4				
30									15.0	4.7	19.7	7.7	22.7	15.0	4.7	19.7	7.7	22.7				
31									5.0	1.6	6.6	2.6	7.6	5.0	1.6	6.6	2.6	7.6				
32									32.0	9.8	41.8	16.2	48.2	32.0	9.8	41.8	16.2	48.2				
33									9.3	3.0	12.3	4.9	14.2	9.3	3.0	12.3	4.9	14.2				
34									1.8	0.6	2.4	0.7	2.5	1.8	0.6	2.4	0.7	2.5				
35									25.0	7.6	32.6	12.6	37.6	25.0	7.6	32.6	12.6	37.6				

Appendix 6-5-1 delta-L VALUES BY ROAD LINK (Continued)

Study Route No.	12						13				14				15				16							
	Length	L.V.		H.V.		L	L.V.		H.V.		L	L.V.		H.V.		L	L.V.		H.V.		L	L.V.		H.V.		
		L	$\Delta L$	L+ $\Delta L$	$\Delta L$		L+ $\Delta L$	$\Delta L$	L+ $\Delta L$	$\Delta L$		L+ $\Delta L$	$\Delta L$	L+ $\Delta L$	$\Delta L$		L+ $\Delta L$	$\Delta L$	L+ $\Delta L$	$\Delta L$		L+ $\Delta L$	$\Delta L$	L+ $\Delta L$	$\Delta L$	L+ $\Delta L$
Project Road Links	15.4	8.2	23.6	15.9	31.3	18.9	9.9	28.8	17.6	36.5	16.8	8.5	25.3	16.9	33.7	8.7	3.4	12.1	5.4	14.1	13.1	4.2	17.3	6.9	20.0	
	(15.4)	(3.2)	(18.6)	(4.7)	(20.1)	(15.5)	(4.0)	(19.5)	(5.9)	(21.4)	(16.8)	(3.5)	(20.3)	(5.1)	(21.9)	(8.5)	(1.8)	(10.3)	(2.7)	(11.2)	(13.1)	(2.9)	(16.0)	(4.2)	(17.3)	
	2 {					7.1	2.2	9.3	1.8	10.3	8.4	4.7	13.1	8.9	17.3											
						(8.5)	(1.8)	(10.3)	(2.7)	(11.2)	(7.6)	(1.5)	(9.1)	(2.3)	(9.9)											
Other Roads	11	20.0	4.1	24.1	6.1	26.1	4.0	1.4	5.4	1.8	5.8	15.0	-	15.0	-	15.0	5.5	1.2	6.7	1.8	7.3	5.0	1.0	6.0	1.5	6.5
	12	10.0	2.0	12.0	3.0	13.0	8.0	2.7	10.7	4.3	12.3	21.5	5.3	26.8	7.5	29.0	16.5	0.1	16.6	0.1	16.6	25.0	5.0	30.0	7.5	32.5
	13	15.4	3.1	18.5	4.6	20.0	27.1	6.1	33.2	8.8	35.9	27.1	6.1	33.2	8.8	35.9	16.6	3.3	19.9	5.0	21.6	6.5	1.3	7.8	2.0	8.5
	14	15.4	3.2	18.6	4.7	20.1	16.5	0.4	16.9	0.4	16.9	16.5	0.4	16.9	0.4	16.9	6.5	1.3	7.8	2.0	8.5	16.6	3.3	19.9	5.0	21.6
	15	17.0	3.4	20.4	5.1	22.1	22.9	-	22.9	-	22.9	22.9	-	22.9	-	22.9	7.5	-	7.5	-	7.5	16.5	0.1	16.6	0.1	16.6
	16	7.0	1.4	8.4	2.1	9.1	25.2	8.2	33.4	13.3	38.5	4.0	-	4.0	-	4.0	30.7	0.1	30.8	0.1	30.8	38.2	0.1	38.3	0.1	38.3
	17	6.3	1.3	7.6	1.9	8.2	15.0	-	15.0	-	15.0						22.0	-	22.0	-	22.0	22.0	-	22.0	-	22.0
	18	19.7	4.1	23.8	6.1	25.8	12.5	2.7	15.2	4.0	16.5						14.0	2.9	16.9	4.3	18.3	35.7	-	35.7	-	35.7
	19	16.1	3.3	20.4	4.9	21.0	5.0	1.2	6.2	1.7	6.7						40.7	0.1	40.8	0.1	40.8	21.1	0.1	21.2	0.1	21.2
	20	11.0	2.7	13.7	3.8	14.8	4.0	-	4.0	-	4.0						29.4	6.4	35.8	9.3	38.7	20.1	4.1	24.2	6.1	26.2
	21	17.0	5.3	22.3	8.7	25.7															32.5	6.5	39.0	9.8	42.3	
	22	12.6	4.0	16.6	6.5	19.1															27.6	5.6	33.2	8.4	36.0	
	23	11.1	4.0	15.1	6.3	17.4															34.0	6.9	40.9	10.3	44.3	
	24	14.0	7.5	21.5	14.5	28.5															26.0	5.3	31.3	7.9	33.9	
	25	5.0	1.7	6.7	2.7	7.7															7.0	1.4	8.4	2.1	9.1	
	26	5.0	1.0	6.0	1.5	6.5															30.6	6.1	36.7	9.2	39.8	
	27	10.7	2.2	12.9	3.3	14.0															18.1	3.7	21.8	5.5	23.6	
	28	16.6	3.7	20.3	5.4	22.0															37.5	7.7	45.2	11.5	49.0	
	29	6.0	1.2	7.2	1.8	7.8															29.4	6.5	35.9	9.5	18.9	

Appendix 6-5-1 delta-L VALUES BY ROAD LINK (Continued)

Study Route No.	17					18					19					20					21					
	Length	L.V.		H.V.		L	L.V.		H.V.		L	L.V.		H.V.		L	L.V.		H.V.		L	L.V.		H.V.		
Road Links	L	ΔL	L+ΔL	ΔL	L+ΔL		ΔL	L+ΔL	ΔL	L+ΔL		ΔL	L+ΔL	ΔL	L+ΔL		ΔL	L+ΔL	ΔL	L+ΔL		ΔL	L+ΔL	ΔL	L+ΔL	ΔL
Project Road Links	1 {	6.5	2.2	8.7	3.5	10.0	16.0	6.0	22.0	9.2	25.2	9.9	3.9	13.8	6.5	15.4	4.5	2.4	6.9	4.6	9.1	22.7	7.6	30.3	12.1	34.8
		(6.5)	(1.5)	(8.0)	(2.2)	(8.7)	(16.0)	(3.4)	(19.4)	(5.0)	(21.0)	(9.2)	(2.1)	(11.3)	(3.1)	(12.3)	(4.5)	(1.0)	(5.5)	(1.5)	(6.0)	(18.4)	(3.9)	(22.3)	(5.7)	(24.1)
	2 {	8.4	4.4	12.8	8.6	17.0						5.4	2.4	7.8	4.6	10.0	10.5	5.8	16.3	11.0	21.5					
	(8.4)	(1.9)	(10.3)	(2.7)	(11.1)						(5.4)	(1.2)	(6.6)	(1.7)	(7.1)	(10.5)	(2.2)	(12.7)	(3.3)	(13.8)						
	3 {																									
Other Roads	11	17.2	3.5	20.7	5.3	22.5	20.1	4.1	24.2	6.1	26.2	21.2	0.1	21.3	0.1	21.3	21.2	0.1	21.3	0.1	21.3	15.9	5.4	21.2	8.6	21.2
	12	14.6	3.0	17.8	4.5	19.1	21.1	0.1	21.2	0.1	21.2	26.8	5.7	32.5	8.3	32.5	12.5	-	12.5	-	12.5	15.3	3.2	18.5	4.7	20.0
	13	7.9	1.7	9.6	2.5	10.4	13.0	2.7	15.7	4.0	17.0	11.0	0.6	11.6	0.6	11.6	9.5	0.4	9.9	0.4	9.9	32.0	6.9	38.9	10.4	42.4
	14	16.6	3.6	20.2	5.3	21.9	35.7	-	35.7	-	35.7	12.4	-	12.4	-	12.4	11.0	0.6	11.6	0.6	11.6	11.0	2.4	13.4	3.5	14.5
	15	4.3	0.4	4.7	0.4	4.7	18.1	3.7	21.8	5.5	23.6	3.0	0.7	3.7	1.0	4.0	12.4	-	12.4	-	12.4	25.0	-	25.0	-	25.0
	16	18.1	3.7	21.8	5.5	23.6	30.6	6.1	36.7	9.2	39.8	21.1	0.4	21.5	0.4	21.5	17.0	5.3	22.3	8.7	25.7	12.5	5.0	17.5	7.5	20.0
	17	30.9	6.2	37.1	9.3	40.2	24.5	5.0	29.5	7.5	32.0	27.3	5.7	33.0	8.4	35.7	10.5	2.3	12.8	3.4	13.9	19.0	7.3	26.3	11.2	30.2
	18						7.0	1.4	8.4	2.1	9.1	14.0	2.8	16.8	4.2	18.2	23.9	7.8	31.7	12.6	36.5	15.0	0.5	15.5	0.7	15.7
	19						26.0	5.3	31.3	7.9	33.9	14.0	4.6	18.6	7.4	21.4	26.8	5.7	32.5	8.3	35.1	40.0	-	40.0	-	40.0
	20						27.6	5.6	33.2	8.4	36.0	9.5	0.4	9.9	0.4	9.9						27.2	0.7	27.9	0.7	27.9
	21						32.5	6.5	39.0	9.8	42.3	17.0	5.3	22.3	8.7	25.7						26.8	5.7	32.5	8.3	35.1
	22											13.0	-	13.0	-	13.0						17.0	5.3	22.3	8.7	25.7
	23											12.4	-	12.4	-	12.4						25.0	5.1	30.1	7.6	32.6
	24											10.5	2.3	12.8	3.4	13.9						-	-	-	-	-
	25																					12.0	2.8	14.8	4.0	16.0
	26																					24.0	5.1	29.1	7.5	31.5
	27																					33.2	0.2	33.4	0.2	33.4
	28																					29.2	-	29.2	-	29.2
	29																					35.6	7.2	42.8	10.8	46.4
	30																					56.8	0.5	57.3	0.5	57.3

Appendix 6-5-1 delta-L VALUES BY ROAD LINK (Continued)

Study Route No.	22					23					24					25					26					
	Length Road Links	L.V.		H.V.		L	L.V.		H.V.		L	L.V.		H.V.		L	L.V.		H.V.		L	L.V.		H.V.		
		L	ΔL	L+ΔL	ΔL		L+ΔL	ΔL	L+ΔL	ΔL		L+ΔL	ΔL	L+ΔL	ΔL		L+ΔL	ΔL	L+ΔL	ΔL		L+ΔL	ΔL	L+ΔL	ΔL	L+ΔL
Project Road Links	15.9 (14.2)	5.4 (2.9)	21.3 (17.1)	8.6 (4.4)	24.5 (18.6)	16.8 (16.8)	6.9 (3.4)	23.7 (20.2)	11.3 (5.0)	28.1 (21.8)	37.0 (37.0)	21.0 (9.4)	58.0 (46.4)	39.3 (13.7)	76.3 (50.7)	20.5 (20.5)	9.0 (5.2)	29.5 (25.2)	14.0 (7.5)	34.5 (27.5)	18.5 (18.5)	11.5 (7.3)	30.0 (25.8)	22.4 (14.0)	40.9 (32.5)	
	2 {					20.7 (20.7)	10.5 (4.2)	31.2 (24.9)	19.8 (6.3)	40.5 (27.0)	13.0 (13.0)	8.0 (3.0)	21.0 (16.0)	14.6 (4.4)	27.6 (17.4)	20.0 (20.0)	10.3 (6.7)	30.3 (26.7)	17.5 (10.6)	37.5 (30.6)						
	3 {					8.6 (8.6)	4.7 (1.8)	13.3 (10.4)	9.0 (2.7)	17.6 (11.3)	11.7 (11.7)	11.3 (5.7)	23.0 (17.4)	18.0 (6.6)	29.7 (18.3)	12.0 (12.0)	5.4 (2.8)	17.4 (14.8)	7.9 (4.1)	19.9 (16.1)						
	4 {					7.7 (7.7)	2.5 (1.6)	10.2 (9.3)	4.1 (2.4)	11.8 (10.1)																
Other Roads	11	15.3	3.2	18.5	4.7	20.0	9.9	2.0	11.9	3.0	12.9	1.7	0.1	1.8	0.1	1.8	3.0	0.1	3.1	0.1	3.1	19.0	-	19.0	-	19.0
	12	29.2	5.8	35.0	8.8	38.0	9.9	2.3	12.2	3.3	13.2	16.6	3.5	20.1	5.2	21.8	38.5	10.0	48.5	14.6	53.1	14.2	8.6	22.8	16.9	31.1
	13	17.8	3.6	21.4	5.3	23.1	16.0	3.6	19.6	5.2	21.2	20.7	4.2	24.9	6.3	27.0	39.5	-	39.5	-	39.5	17.7	11.1	28.8	21.6	39.3
	14	17.8	3.7	21.5	5.4	23.2	14.2	2.8	17.0	4.3	18.5						29.2	-	29.2	-	29.2	49.6	-	49.6	-	49.6
	15	21.1	0.2	21.3	0.2	21.3	10.9	2.4	13.3	3.5	14.4										54.8	33.8	88.6	75.1	129.9	
	16	24.7	-	24.7	-	24.7	15.0	3.1	18.1	4.6	19.6										15.0	3.0	18.0	4.5	19.5	
	17	11.0	0.3	11.3	0.3	11.3	15.3	3.2	18.5	4.7	20.0										15.0	3.0	18.0	4.5	19.5	
	18	17.0	3.5	20.5	5.2	22.2	17.8	3.7	21.4	5.4	23.2										10.0	2.2	12.2	3.2	13.2	
	19	27.3	5.7	33.0	8.4	35.7	22.0	3.9	25.9	5.8	27.8										25.6	0.2	25.8	0.2	25.8	
	20	25.0	5.0	30.0	7.5	32.5	17.8	3.7	21.5	5.4	23.3										14.2	0.2	14.4	0.2	14.4	
	21	22.7	7.6	30.0	12.1	34.8	21.1	0.2	21.3	0.2	21.3										24.1	3.2	27.3	8.1	32.2	
	22						20.1	4.1	24.2	6.1	26.2										28.9	3.8	32.7	9.5	38.4	
	23						35.7	0.3	36.0	0.3	36.0										15.7	-	15.7	-	15.7	
	24																				6.4	0.2	6.6	0.2	6.6	
	25																				10.9	-	10.9	-	10.9	
	26																				28.0	9.1	37.1	14.7	42.7	
	27																				37.1	-	37.1	-	37.1	
	28																				33.0	20.1	53.1	40.0	73.0	
	29																				33.3	-	33.3	-	33.3	
	30																				32.0	10.7	42.7	20.3	52.3	
	31																				17.1	5.6	22.7	14.2	31.3	

Appendix 6-5-1 delta-L VALUES BY ROAD LINK (1) (Continued)

Study Route No.	27					28					29					30					31					
	Length Road Links	L.V.		H.V.		L.V.		H.V.		L.V.		H.V.		L.V.		H.V.		L.V.		H.V.		L.V.		H.V.		
		L	$\Delta L$	L+ $\Delta L$	$\Delta L$	L+ $\Delta L$	L	$\Delta L$	L+ $\Delta L$	$\Delta L$	L+ $\Delta L$	L	$\Delta L$	L+ $\Delta L$	$\Delta L$	L+ $\Delta L$	L	$\Delta L$	L+ $\Delta L$	$\Delta L$	L+ $\Delta L$	L	$\Delta L$	L+ $\Delta L$	$\Delta L$	L+ $\Delta L$
Project Road Links	17.7	14.7	32.4	30.4	48.1	9.0	5.0	14.0	9.5	18.5	13.4	7.1	20.5	13.8	27.2	26.0	8.8	34.8	14.0	40.0	15.7	5.3	21.0	8.4	24.1	
	(17.6)	(7.1)	(24.7)	(13.4)	(31.0)	(9.0)	(1.8)	(10.8)	(2.7)	(11.7)	(13.4)	(2.8)	(16.2)	(4.1)	(17.5)	(25.6)	(5.2)	(30.8)	(7.8)	(33.4)	(15.7)	(3.2)	(18.9)	(4.8)	(20.5)	
						11.0	6.1	17.1	11.6	22.6						12.0	4.2	16.2	6.6	18.6	12.1	7.4	19.5	14.5	26.6	
						(11.0)	(2.2)	(13.2)	(3.3)	(14.3)						(11.5)	(2.3)	(13.8)	(3.5)	(15.0)	(11.6)	(4.5)	(16.1)	(8.7)	(20.3)	
																9.6	3.1	12.7	5.1	14.7	9.2	5.8	15.0	11.2	20.4	
																(9.6)	(2.0)	(11.6)	(3.0)	(12.6)	(9.2)	(3.6)	(12.8)	(6.9)	(16.1)	
																					19.0	11.9	30.9	23.2	42.2	
																					(19.0)	(7.5)	(26.5)	(14.4)	(33.4)	
Other Roads	11	14.2	8.6	22.8	16.9	31.1	35.0	7.1	42.1	10.6	45.6	28.5	-	28.5	-	28.5	6.7	-	6.7	-	6.7	26.0	8.8	34.8	14.0	40.0
	12	18.5	11.5	30.0	22.4	40.9	23.8	4.8	28.6	7.1	30.9	18.9	-	18.9	-	18.9	8.1	-	8.1	-	8.1	6.7	-	6.7	-	6.7
	13	19.0	-	19.0	-	19.0	68.2	18.8	87.0	32.9	101.1	20.0	-	20.0	-	20.0	27.3	-	27.3	-	27.3	50.8	-	50.8	-	50.8
	14	49.6	-	49.6	-	49.6	25.3	5.1	30.4	7.6	32.9	3.8	0.1	3.9	0.1	3.9	17.0	5.8	22.8	9.2	26.2	29.0	10.0	39.0	15.8	44.8
	15	54.8	33.8	88.6	75.1	129.9						15.0	3.1	18.1	4.6	19.6	15.4	-	15.4	-	15.4	57.7	-	57.7	-	57.7
	16	15.0	3.0	18.0	4.5	19.5						17.3	3.6	20.9	5.3	22.6	28.0	9.5	37.5	15.1	43.1	10.3	2.1	12.4	3.1	13.4
	17	15.0	3.0	18.0	4.5	19.5						7.0	2.7	9.7	4.9	11.9	16.2	0.1	16.3	0.1	16.3	11.1	-	11.1	-	11.1
	18	10.0	2.2	12.2	3.2	13.2											11.3	0.1	11.4	0.1	11.4	17.3	-	17.3	-	17.3
	19	25.6	0.2	25.8	0.2	25.8											46.4	-	46.4	-	46.4	31.5	-	31.5	-	31.5
	20	14.2	0.2	14.4	0.2	14.4											10.3	2.1	12.4	3.1	13.4	32.0	10.7	42.7	17.1	49.1
	21	24.1	3.2	27.3	8.1	32.2											8.3	1.8	10.1	2.6	10.9	10.9	-	10.9	-	10.9
	22	28.9	3.8	32.7	9.5	38.4											40.1	13.1	53.2	21.1	61.2	9.4	-	9.4	-	9.4
	23	15.7	-	15.7	-	15.7											42.6	8.6	51.2	12.9	55.5	11.4	-	11.4	-	11.4
	24	6.4	0.2	6.6	0.2	6.6											19.0	11.9	30.9	23.2	42.2	10.1	3.1	13.2	5.2	15.3
	25	10.9	-	10.9	-	10.9											12.0	4.3	16.3	6.7	18.7	18.1	11.2	29.3	21.9	40.0
	26	28.0	9.1	37.1	14.7	42.7															43.0	25.6	68.6	51.0	94.0	
	27	31.1	-	37.1	-	37.1															31.0	10.4	41.4	16.6	47.6	
	28	33.0	20.1	53.1	40.0	73.0															42.6	8.6	51.2	12.9	55.5	

Appendix 6-5-1 delta-L VALUES BY ROAD LINK (2) (Continued)

Study Route No. Road Links	27					28				29				30				31			
	Length L	L.V. $\Delta L$ L+ $\Delta L$		H.V. $\Delta L$ L+ $\Delta L$		L	L.V. $\Delta L$ L+ $\Delta L$		H.V. $\Delta L$ L+ $\Delta L$		L	L.V. $\Delta L$ L+ $\Delta L$		H.V. $\Delta L$ L+ $\Delta L$		L	L.V. $\Delta L$ L+ $\Delta L$		H.V. $\Delta L$ L+ $\Delta L$		
29	33.3	-	33.3	-	33.3																
30	32.0	10.7	42.7	20.3	52.3																
31	17.1	5.6	22.7	14.2	31.3																
32																					



## Appendix 6-7-1 (1), INPUT DATA FOR ESTIMATION OF DEVELOPMENT BENEFIT

Route No.	Zone Group	Amp. Code	Planted Area (1,000 rai)	Cultivable Area (1,000 rai)	Growth rate of Planted Area (W)			Share of Crops					Yield (kg/rai)					Annual Growth Rate of Yield (Without Project)					Annual Growth rate of Planted Area (W)		
					1979	1987	1993	Rice	Maize	Beans	Sugar-cane	Other Major	Rice	Maize	Beans	Sugar-cane	Other Major	Rice	Maize	Beans	Sugar-cane	Other Major	1985	1987	1993
					{ 1986	{ 1992	{ 2000																	{ 1980	{ 1992
1.	①	0112	70	0	0	0	0	0.13	0.39	0.27	-	Cass. 0.10	0.37	0.45	0.12	-	2.05	0.001	0	0	-	0	0	0	
	②③④	0110	150	11	0.01	0	0	0.45	0.21	0.17	-	Sorg. 0.08	0.33	0.40	0.13	-	0.36	0.001	0	0	-	0	0.01	0	0
	⑦	0109	25	0	0	0	0	0.89	0.03	0.05	-	Sorg. 0.03	0.33	0.34	0.06	-	0.36	0.001	0	0	-	0	0	0	
2.	①②	0112	120	0	0	0	0	0.13	0.39	0.27	-	Cass. 0.1	0.37	0.45	0.12	-	2.05	0.001	0	0	-	0	0	0	
	③	0109	80	0	0	0	0	0.89	0.03	0.05	-	Sorg. 0.03	0.33	0.34	0.06	-	0.36	0.001	0	0	-	0	0	0	
3.	①②	0108	201	0	0	0	0	0.24	0.31	0.12	-	Sorg. 0.25	0.33	0.41	0.12	-	0.36	0.001	0	0	-	0	0	0	
	③⑧	0112	167	0	0	0	0	0.13	0.39	0.27	-	-	0.37	0.45	0.12	-	-	0.001	0	0	-	0	0	0	
	④	0109	61	0	0	0	0	0.89	0.03	0.05	-	-	0.33	0.34	0.06	-	-	0.001	0	0	-	-	0	0	
4.	①②	0109	114	0	0	0	0	0.89	0.03	0.05	-	Sorg. 0.03	0.33	0.34	0.06	-	0.36	0.001	0	0	-	0	0	0	
	③④	0111	135	12	0.01	0.005	0	0.69	0.25	0.04	-	-	0.33	0.30	0.10	-	-	0.001	0	0	-	-	0.01	0.008	
5.	①	0104	150	0	0	0	0	0.70	-	0.13	0.14	-	0.33	-	0.14	8.0	-	0.001	-	0	0	-	0	0	
	②③⑥	0105	136	0	0	0	0	0.87	-	0.01	-	-	0.30	-	0.12	-	-	0.001	-	0	-	-	0	0	
6.	②	0103	119	0	0	0	0	0.77	0.08	0.12	0.03	-	0.33	0.30	0.10	7.5	-	0.001	0	0	0	-	0	0	
	①	1504	41	0	0	0	0	0.54	0.10	0.13	0.09	Sorg. 0.1	0.42	0.36	0.10	6.0	0.36	0	0	0	0.004	0	0	0	
	③	0104	107	0	0	0	0	0.70	-	0.13	0.14	-	0.33	-	0.14	8.0	-	0.001	-	0	0	-	0	0	
7.	①②	1706	34	21	0.03	0.017	0.01	0.49	0.41	0.04	-	-	0.50	0.21	0.12	-	-	0	0	0	-	-	0.03	0.03	
	③	1704	90	3	0.008	0	0	0.21	0.60	0.10	-	Sorg. 0.03	0.30	0.37	0.11	-	0.36	0.001	0	0	-	0	0.008	0	
8.	①	1503	83	32	0.01	0.008	0.006	0.76	0.06	0.09	0.07	-	0.38	0.32	0.09	5.4	-	0	0	0	0.004	-	0.01	0.03	
	②	1504	25	30	0.03	0.017	0.01	0.54	0.10	0.13	0.09	Sorg. 0.10	0.42	0.36	0.15	6.0	0.36	0	0	0	0.004	0	0.03	0.03	
	⑧	1505	94	24	0.01	0.008	0.006	0.72	0.15	0.01	0.10	-	0.42	0.36	0.15	6.0	-	0	0	0	0.004	-	0.01	0.03	
9.	①②	1503	156	32	0.01	0.008	0.006	0.76	0.006	0.09	0.07	-	0.38	0.32	0.09	5.4	-	0	0	0	0.004	-	0.01	0.03	
	⑧	1505	94	24	0.01	0.008	0.006	0.72	0.15	0.01	0.10	-	0.42	0.36	0.15	6.0	-	0	0	0	0.004	-	0.01	0.03	

## Appendix 6-7-1 (1) INPUT DATA FOR ESTIMATION OF DEVELOPMENT BENEFIT (Continued)

Route No.	Zone Group	Amp. Code	Planted Area (1,000 rai)	Multiva-ble Area (1,000 rai)	Growth rate of Planted Area (W)			Share of Crops					Yield (kg/rai)					Annual Growth Rate of Yield (Without Project)					Annual Growth rate of Planted Area (W)			
					1979	1987	1993	Rice	Maize	Beans	Sugar-cane	Other Major	Rice	Maize	Beans	Sugar-cane	Other Major	Rice	Maize	Beans	Sugar-cane	Other Major	1985	1987	1993	
					{ 1986	{ 1992	{ 2000																	{ 1980	{ 1992	{ 2000
10/11	① ②	0203	109	0	0	0	0	0.90	0.10	-	-	-	0.38	0.37	-	-	-	0	0	-	-	-	0	0	0	
	③	0206	42	0	0	0	0	0.66	0.21	0.12	-	-	0.40	0.40	0.1	-	-	0	0	0	-	-	0	0	0	
	⑦	0201	32	0	0	0	0	0.73	0.12	0.14	-	-	0.44	0.40	0.13	-	-	0	0	0	-	-	0	0	0	
12.	① ③	0206	110	0	0	0	0	0.66	0.21	0.12	-	-	0.36	0.36	0.09	-	-	0.001	0	0	-	-	0	0	0	
	②	0202	82	7	0.01	0	0	0.90	0.05	0.05	-	-	0.40	0.27	0.09	-	-	0	0	0	-	-	0.01	0	0	
	⑧	0201	46	0	0	0	0	0.73	0.12	0.14	-	-	0.40	0.36	0.12	-	-	0	0	0	-	-	0	0	0	
13.	① ④ ⑨ ⑩ ⑪	0203	78	0	0	0	0	0.90	0.10	-	-	-	0.38	0.37	-	-	-	0	0	-	-	-	0	0	0	
	② ⑤	0201	41	0	0	0	0	0.73	0.12	0.14	-	-	0.44	0.40	0.13	7.0	-	0	0	0	0	-	-	0	0	0
	③	0207	33	0	0	0	0	0.90	0.04	0.04	-	-	0.39	0.30	0.11	-	-	0	0	0	-	-	0	0	0	
14.	② ③	1706	39	12	0.01	0.008	0	0.49	0.41	0.06	-	-	0.50	0.21	0.12	-	-	0	0	0	-	-	0.01	0.03	0	
	①	0207	40	0	0	0	0	0.90	0.04	0.04	-	-	0.35	0.27	0.11	-	-	0.001	0	0	-	-	0	0	0	
	④	0203	50	0	0	0	0	0.90	0.10	-	-	-	0.34	0.33	-	-	-	0.001	0	-	-	-	0	0	0	
15.	①	0307	74	0	0	0	0	0.82	0.08	0.08	-	-	0.36	0.22	0.11	-	-	0.001	0	0	-	-	0	0	0	
	② ③ ④	0201	131	0	0	0	0	0.73	0.12	0.14	-	-	0.40	0.36	0.12	-	-	0	0	0	-	-	0	0	0	
16.	①	1507	52	18	0.01	0.008	0.006	0.67	0.13	0.10	0.08	-	0.42	0.36	0.15	6.0	-	0	0	0	0.004	-	0.01	0.01	0	
	②	1505	57	19	0.01	0.008	0.006	0.72	0.15	0.01	0.10	-	0.42	0.36	0.15	6.0	-	0	0	0	0.004	-	0.01	0.01	0	
17.	① ② ③ ⑦	0308	221	0	0	0	0	0.59	0.22	0.17	-	-	0.34	0.25	0.15	-	-	0.001	0	0	-	-	0	0	0	
18.	①	1407	38	15	0.01	0.008	0.006	0.51	0.04	0.39	0.02	-	0.27	0.19	0.135	3.9	-	0.001	0	0	0.008	-	0.01	0.03	0	
	②	1406	22	23	0.03	0.017	0.01	0.89	0.01	0.09	-	-	0.37	0.19	0.135	-	-	0.001	0	0	0.008	-	0.03	0.03	0.03	
19.	①	0302	76	0	0	0	0	0.32	0.30	0.30	-	-	0.35	0.35	0.13	-	-	0.001	0	0	-	-	0	0	0	
	②	0303	20	0	0	0	0	0.32	0.37	0.27	-	-	0.38	0.18	0.11	-	-	0	0	0	-	-	0	0	0	
20	① ② ③	0303	71	106	0.03	0.017	0.01	0.32	0.37	0.27	-	-	0.38	0.18	0.11	-	-	0	0	0	-	-	0.03	0.03	0.03	
21	① ②	0407	108	64	0.03	0.017	0.01	0.48	0.14	0.31	0.02	-	0.41	0.23	0.16	5.0	-	0	0	0	0.007	-	0.03	0.03	0	
22.	①	0407	54	0	0	0	0	0.48	0.14	0.31	0.02	-	0.41	0.23	0.16	5.0	-	0	0	0	0.007	-	0	0	0	

## Appendix 6-7-1 (1) INPUT DATA FOR ESTIMATION OF DEVELOPMENT BENEFIT (Continued)

Route No.	Zone Group	Amp. Code	Planted Area (1,000 rai)	Multiva-ble Area (1,000 rai)	Growth rate of Planted Area (W)			Share of Crops					Yield (kg/rai)					Annual Growth Rate of Yield (Without Project)					Annual Growth rate of Planted Area (W)			
					1979	1987	1993	Rice	Maize	Beans	Sugar-cane	Other Major	Rice	Maize	Beans	Sugar-cane	Other Major	Rice	Maize	Beans	Sugar-cane	Other Major	1985	1987	1993	
					{ 1986	{ 1992	{ 2000																{ 1980	{ 1992	{ 2000	
23.	① ①	1401	100	0	0	0	0.94	-	-	0.01	Tab. 0.01	0.28	-	-	6.0	1.25	0.001	0	0	0.004	0	0	0	0	0	0
	②	1405	88	24	0.01	0.008	0.006	0.36	0.06	0.51	-	0.25	0.17	0.12	3.5	-	0.001	0	0	0.008	-	0.01	0.03	0		
	③	1403 1404	117	0	0	0	0.28	0.07	0.57	0.03	-	0.49	0.17	0.12	3.5	-	0	0	0	0.008	-	0	0	0		
	④ ⑤ ⑦	1402	120	30	0.01	0.008	0.006	0.26	0.07	0.66	0.03	0.55	0.19	0.135	3.9	-	0	0	0	0.008	-	0.01	0.03	0		
24.	① ⑤	1403	105	15	0.01	0.008	0	0.21	0.07	0.63	0.03	0.58	0.19	0.135	3.9	-	0	0	0	0.008	-	0.01	0.01	0		
	② ③ ④	0609	67	142	0.03	0.017	0.01	0.69	0.12	0.12	0.02	0.45	0.27	0.23	4.0	-	0	0	0	0.006	-	0.03	0.03	0.03		
25.	① ②	0507	97	49	0.03	0.017	0.01	0.60	0.22	0.11	-	0.45	0.27	0.23	-	-	0	0	0	-	-	0.03	0.03	0		
	③ ④	0609	77	59	0.03	0.017	0.01	0.69	0.12	0.12	0.02	0.50	0.30	0.25	4.4	1.275	0	0	0	0.006	0	0.03	0.06	0		
26.	①	1205	35	35	0.03	0.017	0.01	0.46	0.07	0.24	-	0.36	0.27	0.25	-	-	0.001	0	0	-	-	0.03	0.08	0		
	②	1206	3	30	0.03	0.017	0.01	0.74	-	0.08	-	0.40	-	0.25	-	1.25	0	-	0	-	0	0.03	0.08	0.08		
27.	③	1206	4	30	0.03	0.017	0.01	0.74	-	0.08	-	0.45	-	0.25	-	1.25	0	-	0	-	0	0.03	0.08	0.08		
	④	1205	30	25	0.03	0.017	0.01	0.46	0.07	0.24	-	0.40	0.30	0.25	-	-	0	0	0	-	-	0.03	0.07	0		
28.	② ③	0708	11	4	0.01	0.008	0.006	0.67	0.10	0.12	-	0.57	0.34	0.16	-	1.275	0	0	0	-	0	0.01	0.03	0		
	①	0710	8	0	0	0	0.51	0.13	0.18	-	0.06	0.49	0.25	0.16	-	1.275	0	0	0	-	0	0	0	0		
29.	① ②	0901	17	64	0.03	0.017	0.01	0.64	0.16	0.04	-	0.09	0.48	0.30	0.15	-	1.25	0	0	-	0	0.03	0.03	0.03		
30.	① ② ④ ⑤ ⑥	0904	107	103	0.03	0.017	0.01	0.82	0.09	-	-	0.02	0.48	0.40	-	-	1.25	0	0	-	0	0.03	0.03	0.03		
31.	① ② ③	0905	78	65	0.03	0.017	0.01	0.72	0.11	0.06	-	0.02	0.48	0.25	0.18	-	1.25	0	0	0	-	0.03	0.03	0		
	④	0904	38	94	0.03	0.017	0.01	0.82	0.09	-	-	0.02	0.48	0.36	-	-	1.25	0	0	-	0	0.03	0.03	0.03		

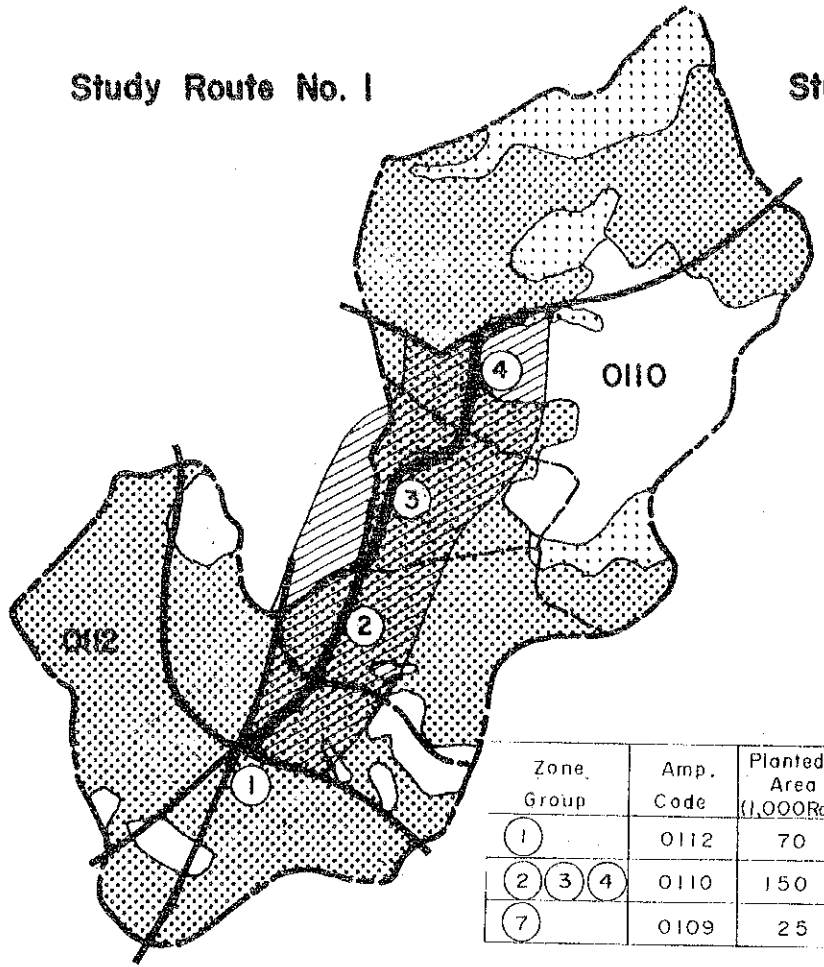
## Appendix 6-7-1(2) INPUT DATA FOR ESTIMATION OF DEVELOPMENT BENEFIT

Route No.	Growth of Yield With Project					Farm gate Price Without Project (₱/kg)					Production Cost Without Project (₱/rai)					Farm gate Price With Project (₱/rai)					Production Cost With Project (₱/rai)				
	Rice	Maize	Beans	Sugar- cane	Other Major	Rice	Maize	Beans	Sugar- cane	Other Major	Rice	Maize	Beans	Sugar- cane	Other Major	Rice	Maize	Beans	Sugar- cane	Other Major	Rice	Maize	Beans	Sugar- cane	Other Major
1.	0.004	0.001	0.005	-	0.01	3.48	2.81	7.35	-	0.75	562	425	350	-	477	3.53	2.86	7.40	-	0.76	570	433	360	-	483
	0.004	0.002	0.005	-	0.002	3.48	2.81	7.35	-	2.59	562	425	350	-	199	3.53	2.86	7.40	-	2.64	570	433	360	-	204
	0.004	0.002	0.01	-	0.002	3.48	2.81	7.35	-	2.59	562	425	280	-	199	3.53	2.86	7.40	-	2.64	570	433	360	-	204
2.	0.004	0.001	0.005	-	0.01	3.48	2.81	7.35	-	0.75	562	425	350	-	477	3.53	2.86	7.40	-	0.76	570	433	360	-	483
	0.004	0.002	0.01	-	0.002	3.48	2.81	7.35	-	2.59	562	425	280	-	199	3.53	2.86	7.40	-	2.64	570	433	360	-	204
3.	0.004	0.002	0.005	-	0.002	3.48	2.81	7.35	-	2.59	562	425	350	-	199	3.53	2.86	7.40	-	2.64	570	433	360	-	204
	0.004	0.001	0.005	-	-	3.48	2.81	7.35	-	-	562	425	350	-	-	3.53	2.86	7.40	-	-	570	433	360	-	-
	0.004	0.002	0.01	-	-	3.48	2.81	7.35	-	-	562	425	280	-	-	3.53	2.86	7.40	-	-	570	433	360	-	-
4.	0.004	0.002	0.01	-	0.002	3.48	2.81	7.35	-	2.59	562	425	280	-	199	3.53	2.86	7.40	-	2.64	570	433	360	-	204
	0.004	0.002	0.006	-	-	3.48	2.81	7.35	-	-	562	425	280	-	-	3.53	2.86	7.40	-	-	570	433	360	-	-
5.	0.004	-	0.005	0	-	3.48	-	7.35	0.37	-	562	-	350	1,272	-	3.53	-	7.40	0.38	-	570	-	360	1,272	-
	0.01	-	0.01	-	-	3.48	-	7.35	-	-	562	-	350	-	-	3.53	-	7.40	-	-	570	-	360	-	-
6.	0.004	0.002	0.006	0.004	-	3.48	2.81	7.35	0.37	-	562	425	350	1,272	-	3.53	2.86	7.40	0.38	-	570	433	360	1,472	-
	0.002	0.002	0.006	0.019	0.002	3.35	2.73	6.24	0.40	2.24	622	379	350	1,272	-	3.40	2.78	6.29	0.41	2.29	632	387	350	1,372	204
	0.004	-	0.006	0.004	-	3.48	-	7.35	0.37	-	562	-	350	1,272	-	3.53	-	7.40	0.38	-	570	-	360	-	-
7.	0.003	0.003	0.005	-	-	3.32	2.63	5.25	-	-	562	425	350	-	-	3.37	2.68	5.30	-	-	570	433	360	-	-
	0.01	0.009	0.11	-	0.009	3.32	2.63	5.25	-	2.05	562	425	350	-	199	3.37	2.68	5.30	-	2.10	570	433	360	-	204
8.	0.009	0.01	0.013	0.027	-	3.35	2.73	6.24	0.40	-	622	379	350	1,272	-	3.40	2.78	6.29	0.41	-	(632)	387	356	(1,372)	-
	0.002	0.002	0.004	0.019	0.002	3.35	2.73	6.24	0.40	2.24	622	379	350	1,272	199	3.40	2.78	6.29	0.41	2.29	(632)	387	356	(1,372)	204
	0.002	0.002	0.004	0.019	-	3.35	2.73	6.24	0.40	-	622	379	350	1,272	-	3.40	2.78	6.29	0.41	-	(632)	387	356	1,472	-
9.	0.009	0.01	0.013	0.027	-	3.35	2.73	6.24	0.40	-	622	379	350	1,272	-	3.40	2.78	6.29	0.41	-	(632)	387	356	(1,372)	-
	0.002	0.002	0.004	0.019	-	3.35	2.73	6.24	0.40	-	622	379	350	1,272	-	3.40	2.78	6.29	0.41	-	(632)	387	356	(1,372)	-
10/11	0.003	0.002	-	-	-	3.22	2.73	-	-	-	622	379	-	-	-	3.40	2.78	-	-	-	632	387	-	(1,272)	-
	0.002	0.002	0.006	-	-	3.22	2.73	6.55	-	-	622	379	350	-	-	3.40	2.78	6.60	-	-	632	387	360	-	-
	0.002	0.002	0.005	-	-	3.22	2.73	6.55	-	-	622	379	350	-	-	3.40	2.78	6.60	-	-	632	387	360	-	-
12.	0.01	0.009	0.013	-	-	3.22	2.73	6.55	-	-	622	379	350	-	-	3.27	2.78	6.60	-	-	632	387	360	-	-
	0.01	0.009	0.013	-	-	3.22	2.73	6.55	-	-	622	379	350	-	-	3.27	2.78	6.60	-	-	632	387	360	-	-
	0.01	0.009	0.01	-	-	3.22	2.73	6.55	-	-	622	379	350	-	-	3.27	2.78	6.60	-	-	632	387	360	-	-
13.	0.003	0.002	-	-	-	3.22	2.73	-	-	-	622	379	-	-	-	3.27	2.78	-	-	-	632	387	-	-	-
	0.002	0.002	0.005	-	-	3.22	2.73	6.55	-	-	622	379	350	-	-	3.27	2.78	6.60	-	-	632	387	360	-	-
	0.003	0.002	0.006	-	-	3.22	2.73	6.55	-	-	622	379	350	-	-	3.27	2.78	6.60	-	-	632	387	360	-	-

## Appendix 6-7-1(2) INPUT DATA FOR ESTIMATION OF DEVELOPMENT BENEFIT (Continued)

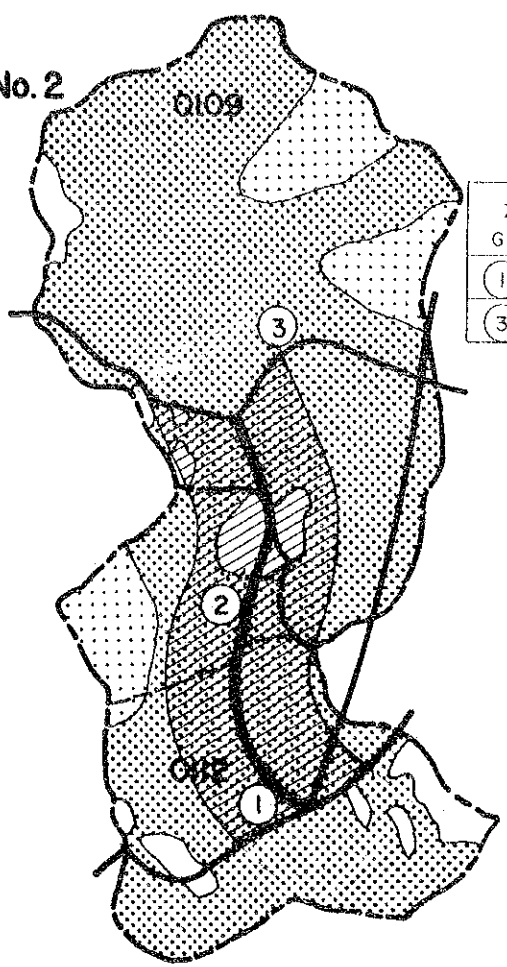
Route No.	Growth of Yield With Project					Farm gate Price Without Project (₱/kg)					Production Cost Without Project (₱/rai)					Farm gate Price With Project (₱/rai)					Production Cost With Project (₱/rai)				
	Rice	Maize	Beans	Sugar-cane	Other Major	Rice	Maize	Beans	Sugar-cane	Other Major	Rice	Maize	Beans	Sugar-cane	Other Major	Rice	Maize	Beans	Sugar-cane	Other Major	Rice	Maize	Beans	Sugar-cane	Other Major
14.	0.003	0.003	0.005	-	-	3.32	2.63	5.25	-	-	562	425	350	-	-	3.37	2.68	5.30	-	-	570	433	360	-	-
	0.009	0.009	0.01	-	-	3.22	2.73	6.55	-	-	622	379	350	-	-	3.27	2.78	6.60	-	-	632	387	356	-	-
	0.009	0.01	-	-	-	3.22	2.73	-	-	-	622	379	-	-	-	3.27	2.78	-	-	-	632	387	-	-	-
15.	0.01	0.009	0.01	-	-	3.30	2.53	7.46	-	-	622	379	350	-	-	3.35	2.58	7.51	-	-	632	387	360	-	-
	0.01	0.009	0.01	-	-	3.22	2.73	6.55	-	-	622	379	350	-	-	3.27	2.78	6.60	-	-	632	387	360	-	-
16.	0.002	0.002	0.004	0.019	-	3.35	2.73	6.24	0.4	-	622	379	394	1,272	-	3.40	2.78	6.29	0.41	-	632	387	406	1,372	-
	0.002	0.002	0.004	0.019	-	3.35	2.73	6.24	0.4	-	622	379	350	1,272	-	3.40	2.78	6.29	0.41	-	632	387	360	1,372	-
17.	0.003	0.003	0.004	-	-	3.30	2.53	7.46	-	-	622	379	350	-	-	3.35	2.58	7.51	-	-	632	387	360	-	-
18.	0.005	0.003	0.003	0.034	-	3.20	2.55	7.01	0.54	-	503	375	430	1,272	-	3.25	2.60	7.06	0.55	-	503	385	439	1,472	-
	0.004	0.003	0.003	-	-	3.20	2.55	7.01	-	-	562	375	426	-	-	3.25	2.60	7.06	-	-	(503)	385	436	-	-
19.	0.003	0.002	0.005	-	-	3.30	2.53	7.46	-	-	622	379	350	-	-	3.35	2.58	7.51	-	-	632	387	356	-	-
	0.003	0.004	0.006	-	-	3.30	2.53	7.46	-	-	622	379	350	-	-	3.35	2.58	7.51	-	-	632	387	356	-	-
20.	0.003	0.004	0.006	-	-	3.30	2.53	7.46	-	-	622	379	350	-	-	3.35	2.58	7.51	-	-	632	387	356	-	-
21.	0.003	0.003	0.004	0.027	-	3.30	2.59	7.29	0.37	-	607	345	350	1,627	-	3.35	2.64	7.34	0.38	-	(627)	355	356	(1,727)	-
	0.003	0.003	0.004	0.027	-	3.30	2.59	7.29	0.37	-	607	375	350	1,627	-	3.35	2.64	7.34	0.38	-	(627)	385	356	(1,727)	-
22.	0.003	0.003	0.004	0.027	-	3.30	2.59	7.29	0.37	-	607	375	350	1,627	-	3.35	2.64	7.34	0.38	-	(627)	385	356	(1,727)	-
23.	0.005	-	-	0.019	0.004	3.30	-	-	0.54	2.37	503	-	-	1,627	1,671	3.35	-	-	0.55	2.42	503	-	-	1,737	1,691
	0.011	0.011	0.009	-	-	3.30	2.55	7.01	-	-	607	375	385	-	-	3.35	2.60	7.06	-	-	(627)	385	(393)	-	-
	0.009	0.011	0.009	0.041	-	3.30	2.55	7.01	0.54	-	607	375	385	1,627	-	3.35	2.60	7.06	0.55	-	(627)	385	(385)	1,727	-
	0.009	0.011	0.009	0.041	-	3.30	2.55	7.01	0.54	-	607	375	385	1,627	-	3.35	2.60	7.06	0.55	-	(627)	385	(385)	1,727	-
24.	0.002	0.003	0.003	0.034	-	3.30	2.55	7.01	0.54	-	607	375	350	1,627	-	3.35	2.60	7.06	0.55	-	(627)	385	356	1,739	-
	0.009	0.011	0.009	0.041	-	3.47	2.32	6.59	0.33	-	607	375	385	1,627	-	3.52	2.37	6.64	0.34	-	(627)	385	(393)	1,739	-
25.	0.009	0.011	0.009	-	-	3.68	2.73	5.41	-	-	562	375	385	-	-	3.73	2.78	5.46	-	-	(570)	385	(393)	-	-
	0.003	0.002	0.002	0.031	-	3.47	2.32	6.59	0.33	2.37	562	375	385	1,627	1,666	3.52	2.37	6.64	0.34	2.42	(570)	385	(393)	1,739	1,686
26.	0.01	0.009	0.002	-	-	3.45	2.37	6.27	-	-	503	397	350	-	-	3.50	2.42	6.32	-	-	(523)	403	(356)	-	-
	0.01	-	0.002	-	0.004	3.45	-	6.27	-	2.06	503	-	403	-	1,671	3.50	-	6.32	-	2.11	523	-	409	-	1,691
27.	0.003	-	0.002	-	0.004	3.45	-	6.27	-	2.06	503	-	403	-	1,671	3.50	-	6.32	-	2.11	523	-	409	-	1,691
	0.003	0.002	0.002	-	-	3.45	2.37	6.27	-	-	503	397	350	-	-	3.50	2.42	6.32	-	-	(523)	403	(356)	-	-
28.	0.002	0.002	0.004	-	0.004	3.60	2.64	4.12	-	2.52	607	375	385	-	1,666	3.65	2.69	4.17	-	2.57	627	385	393	-	1,686
	0.003	0.003	0.004	-	0.004	3.60	2.64	4.12	-	2.52	607	375	385	-	1,666	3.65	2.69	4.17	-	2.57	627	385	393	-	1,686
29.	0.002	0.002	0.004	-	0.004	3.30	2.49	6.05	-	3.49	503	397	403	-	1,671	3.35	2.54	6.10	-	3.54	523	403	409	-	1,691
30.	0.002	0.002	-	-	0.004	3.30	2.49	-	-	3.49	503	397	-	-	1,671	3.35	2.54	-	-	3.54	523	403	-	-	1,691
31.	0.009	0.01	0.01	-	0.004	3.30	2.49	7.44	-	3.49	503	397	403	-	1,671	3.35	2.54	7.49	-	3.54	523	403	409	-	1,691
	0.009	0.008	-	-	0.004	3.30	2.49	-	-	3.49	503	397	-	-	1,671	3.35	2.54	-	-	3.54	523	403	-	-	1,691

Study Route No. 1



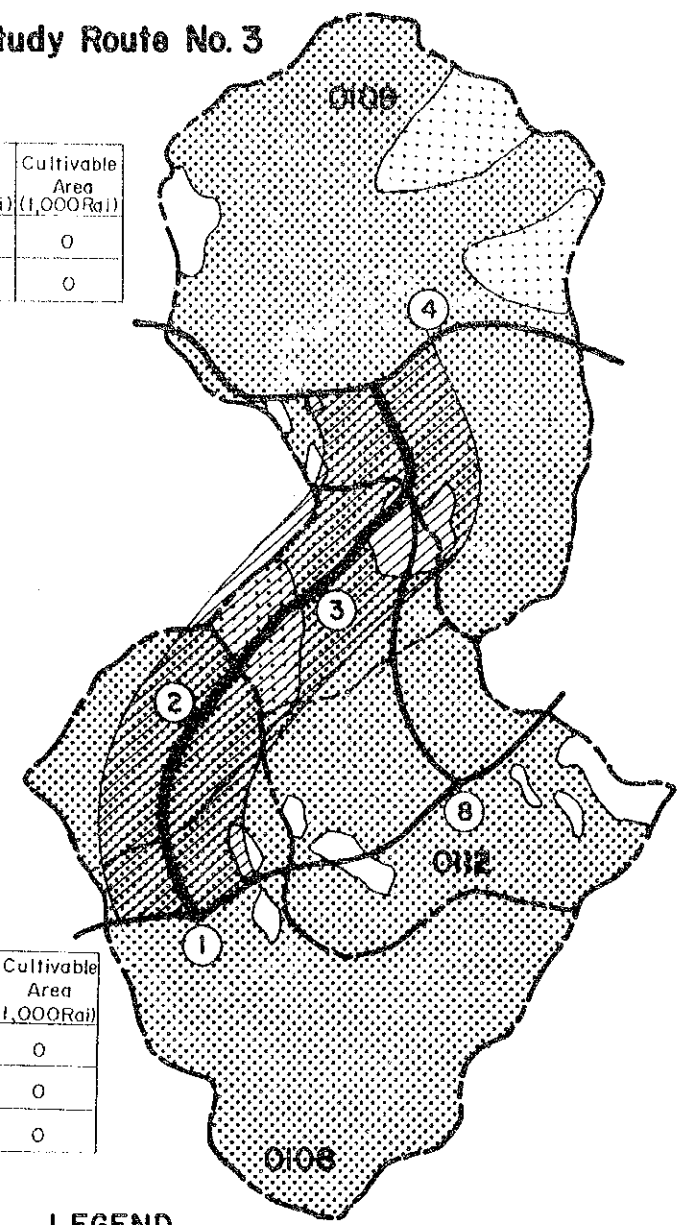
Zone Group	Amp. Code	Planted Area (1,000 Rai)	Cultivable Area (1,000 Rai)
①	0112	70	0
② ③ ④	0110	150	11
⑦	0109	25	0

Study Route No. 2



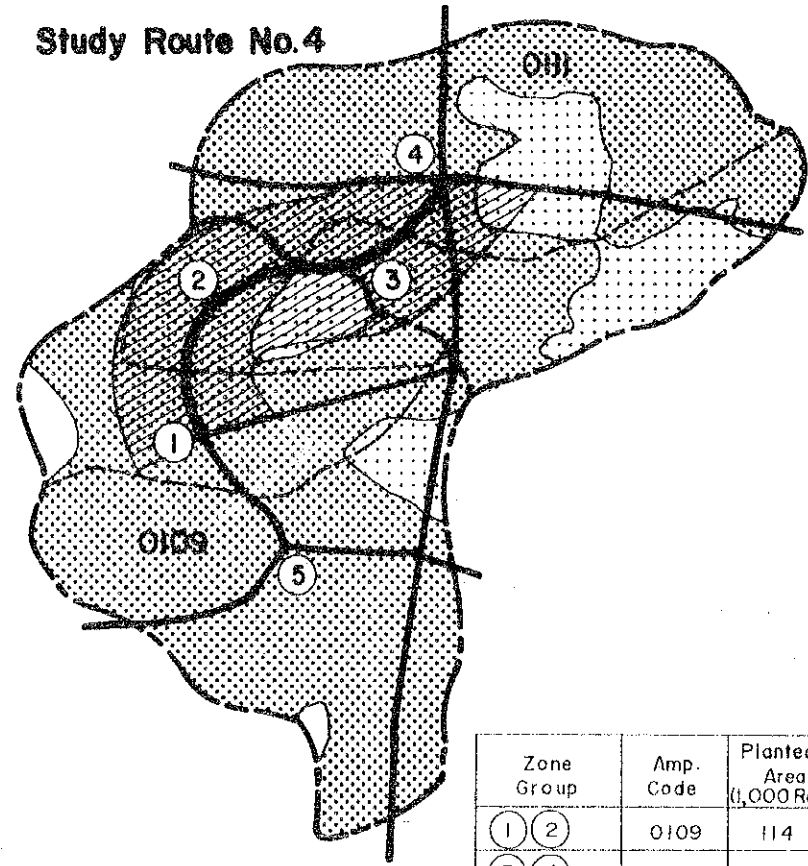
Zone Group	Amp. Code	Planted Area (1,000 Rai)	Cultivable Area (1,000 Rai)
① ②	0112	120	0
③	0109	80	0

Study Route No. 3



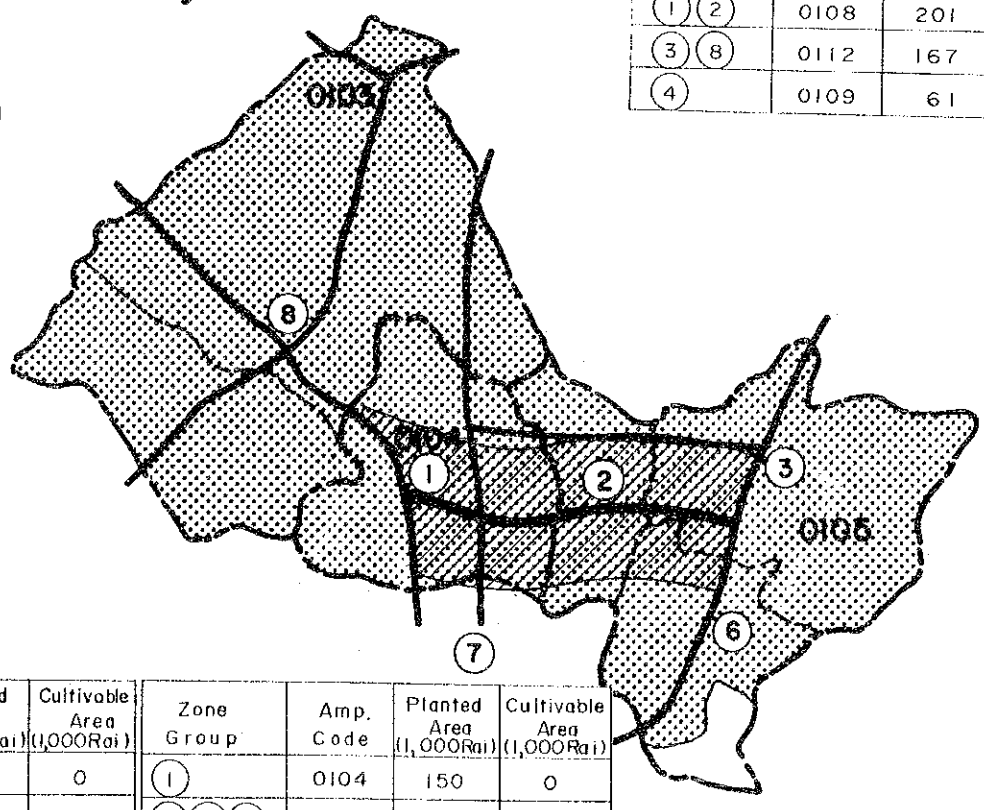
Zone Group	Amp. Code	Planted Area (1,000 Rai)	Cultivable Area (1,000 Rai)
① ②	0108	201	0
③ ⑧	0112	167	0
④	0109	61	0

Study Route No. 4



Zone Group	Amp. Code	Planted Area (1,000 Rai)	Cultivable Area (1,000 Rai)
① ②	0109	114	0
③ ④	0111	135	12

Study Route No. 5

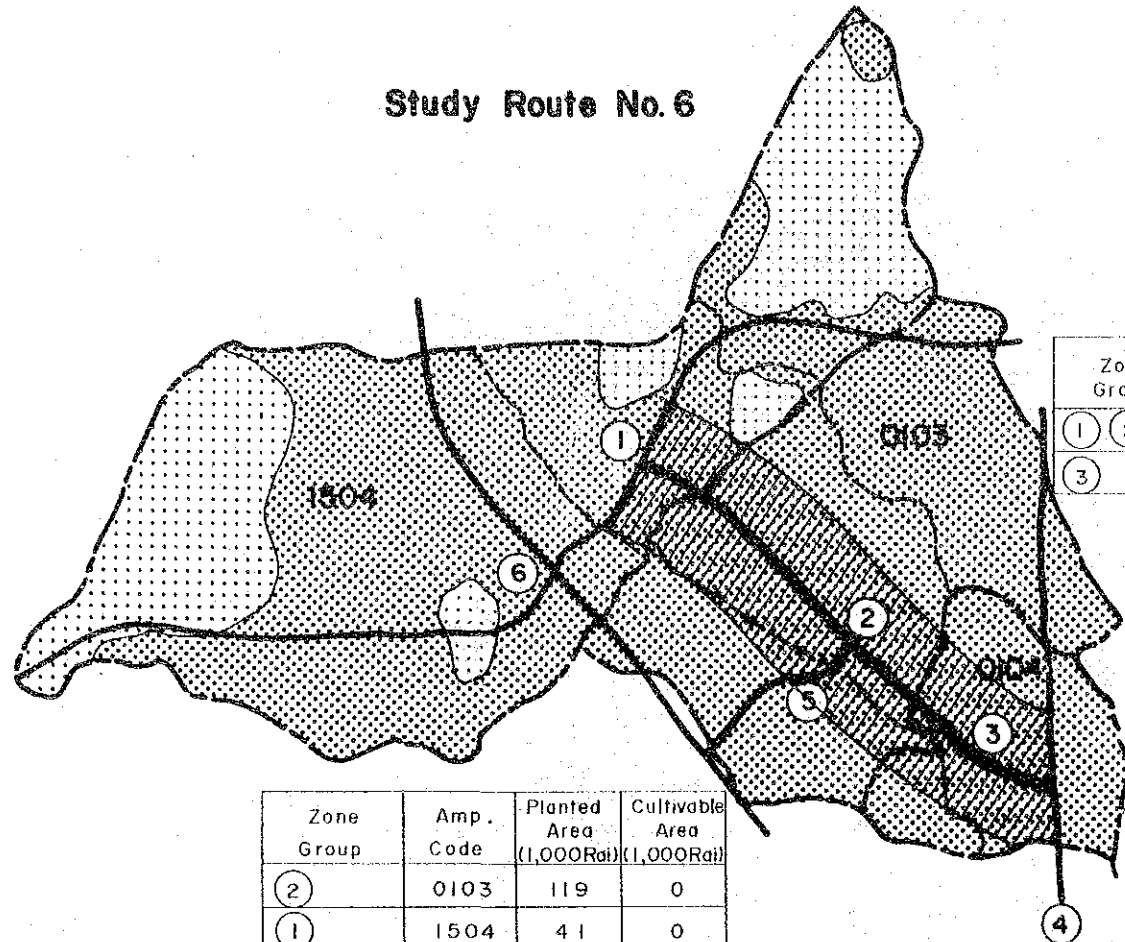


Zone Group	Amp. Code	Planted Area (1,000 Rai)	Cultivable Area (1,000 Rai)
①	0104	150	0
② ③ ⑥	0105	136	0

LEGEND

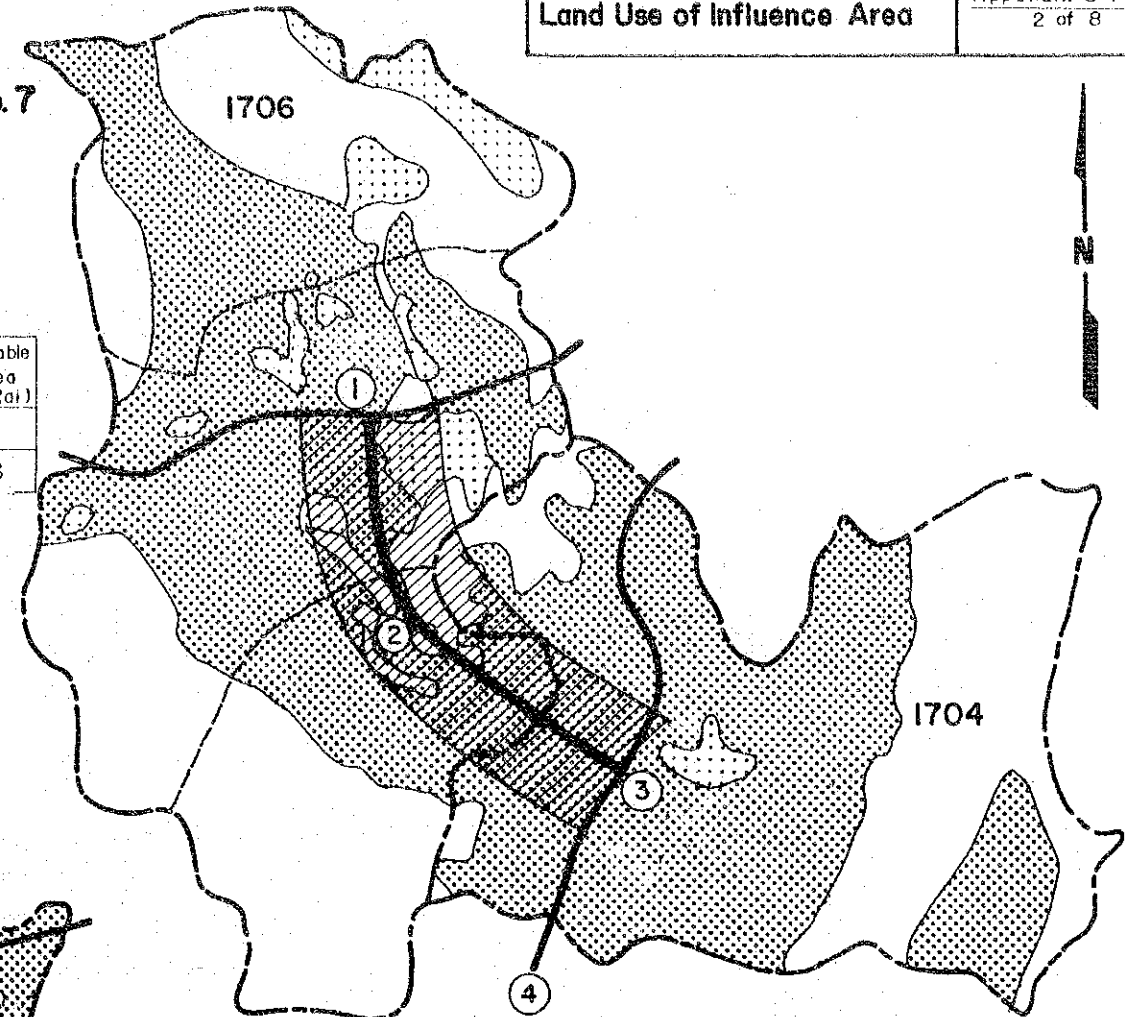
- CULTIVABLE LAND
- CULTIVATED LAND
- UNCULTIVABLE LAND
- PROPOSED ROAD
- EXISTING ROAD
- INFLUENCE AREA OF PROPOSED ROAD
- AMPHOE BOUNDARY
- ZONE BOUNDARY
- 0110 AMPHOE CODE NO.
- ① ZONE CODE NO.

**Study Route No. 6**



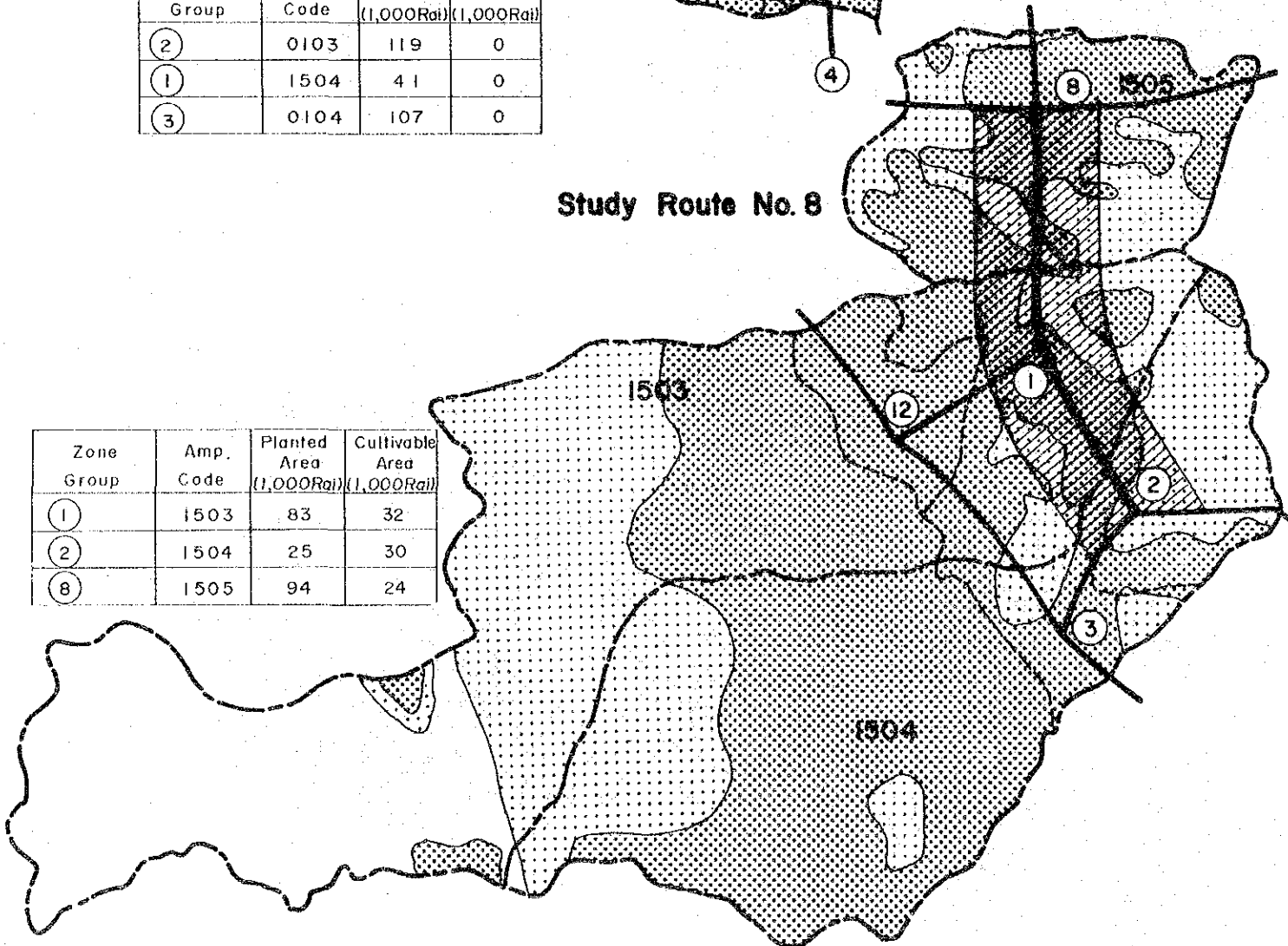
Zone Group	Amp. Code	Planted Area (1,000 Rai)	Cultivable Area (1,000 Rai)
②	0103	119	0
①	1504	41	0
③	0104	107	0

**Study Route No. 7**



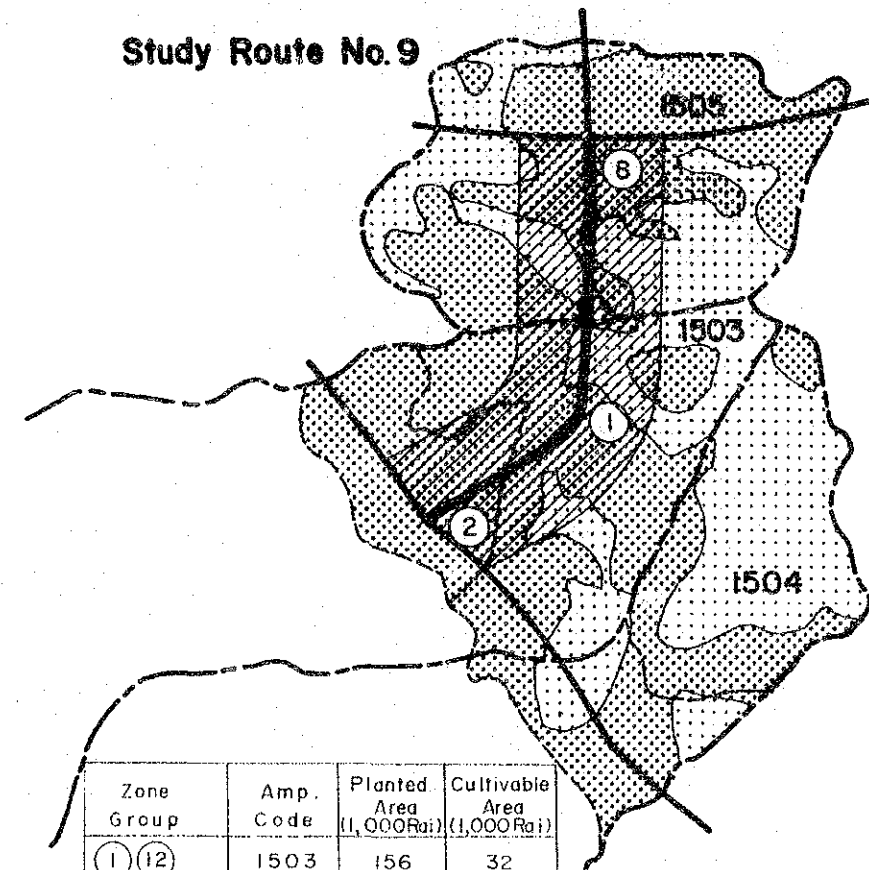
Zone Group	Amp. Code	Planted Area (1,000 Rai)	Cultivable Area (1,000 Rai)
① ②	1706	34	21
③	1704	90	3

**Study Route No. 8**



Zone Group	Amp. Code	Planted Area (1,000 Rai)	Cultivable Area (1,000 Rai)
①	1503	83	32
②	1504	25	30
⑧	1505	94	24

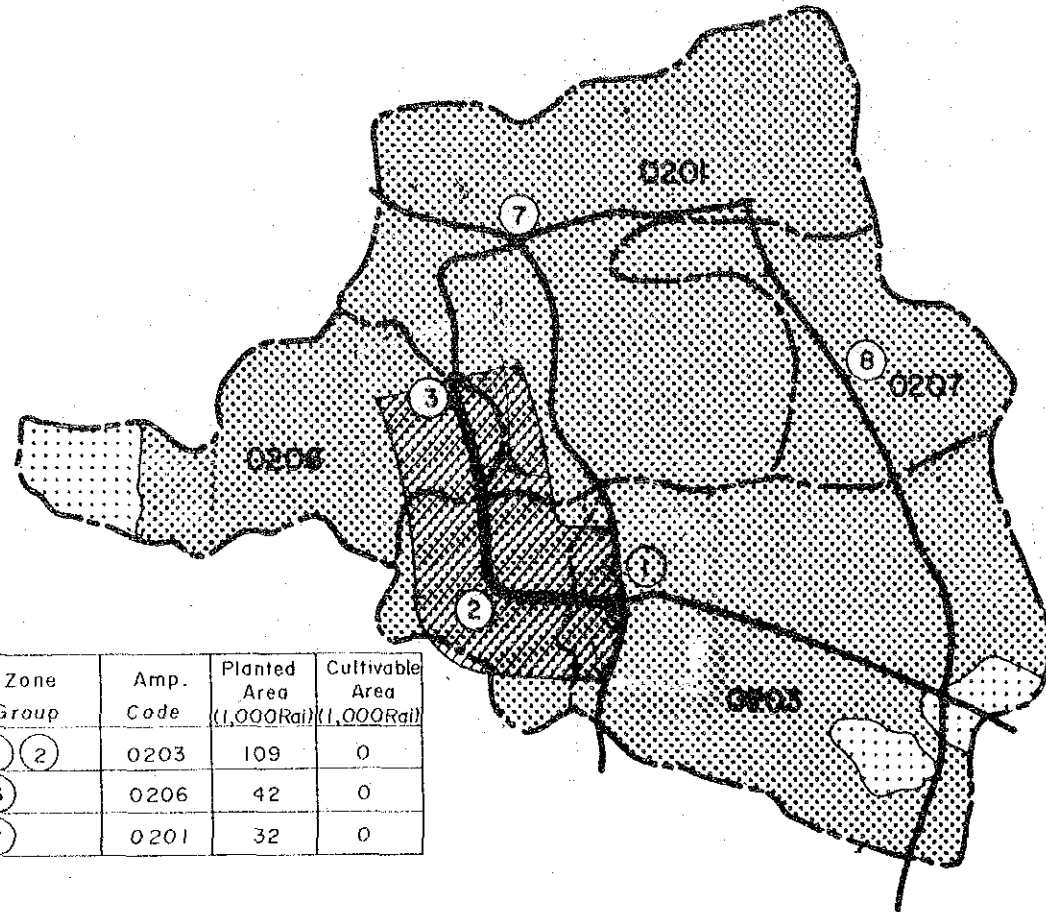
**Study Route No. 9**



Zone Group	Amp. Code	Planted Area (1,000 Rai)	Cultivable Area (1,000 Rai)
① ⑫	1503	156	32
⑧	1505	94	24

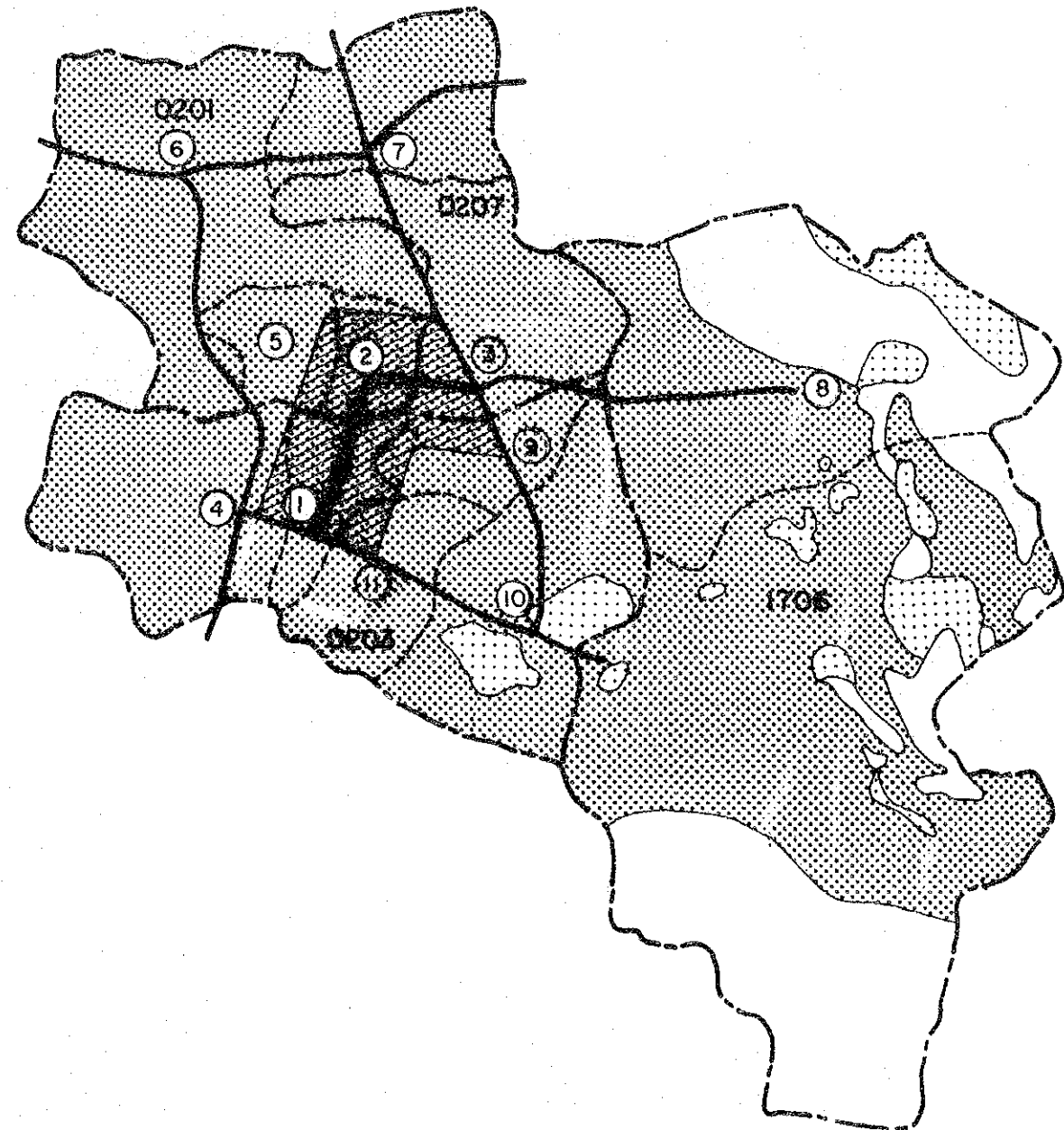


Study Route No. 10/11



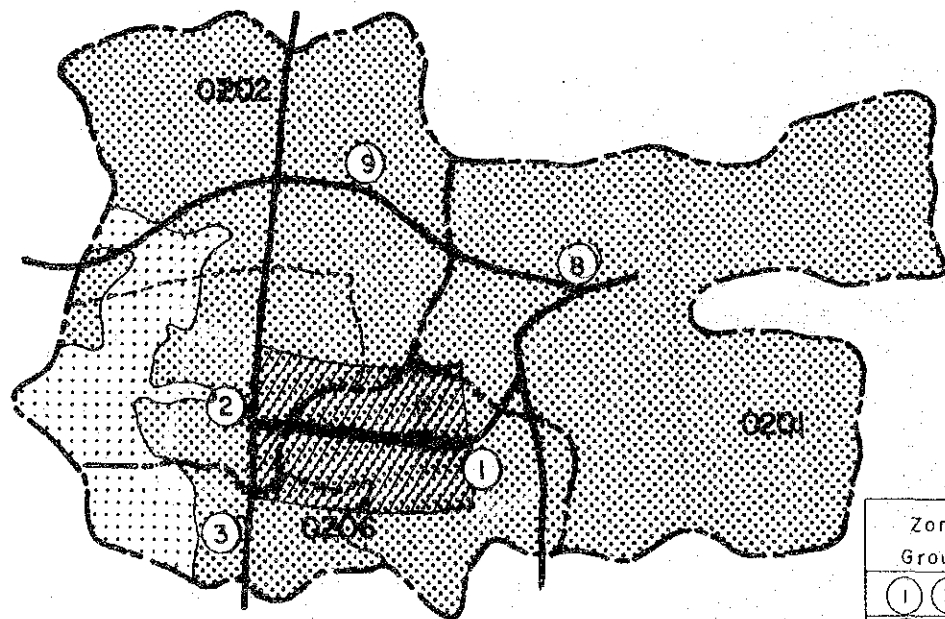
Zone Group	Amp. Code	Planted Area (1,000 Rai)	Cultivable Area (1,000 Rai)
(1) (2)	0203	109	0
(3)	0206	42	0
(7)	0201	32	0

Study Route No. 13



Zone Group	Amp. Code	Planted Area (1,000 Rai)	Cultivable Area (1,000 Rai)
(1) (4) (7) (10) (11)	0203	78	0
(2) (5)	0201	41	0
(3)	0207	33	0

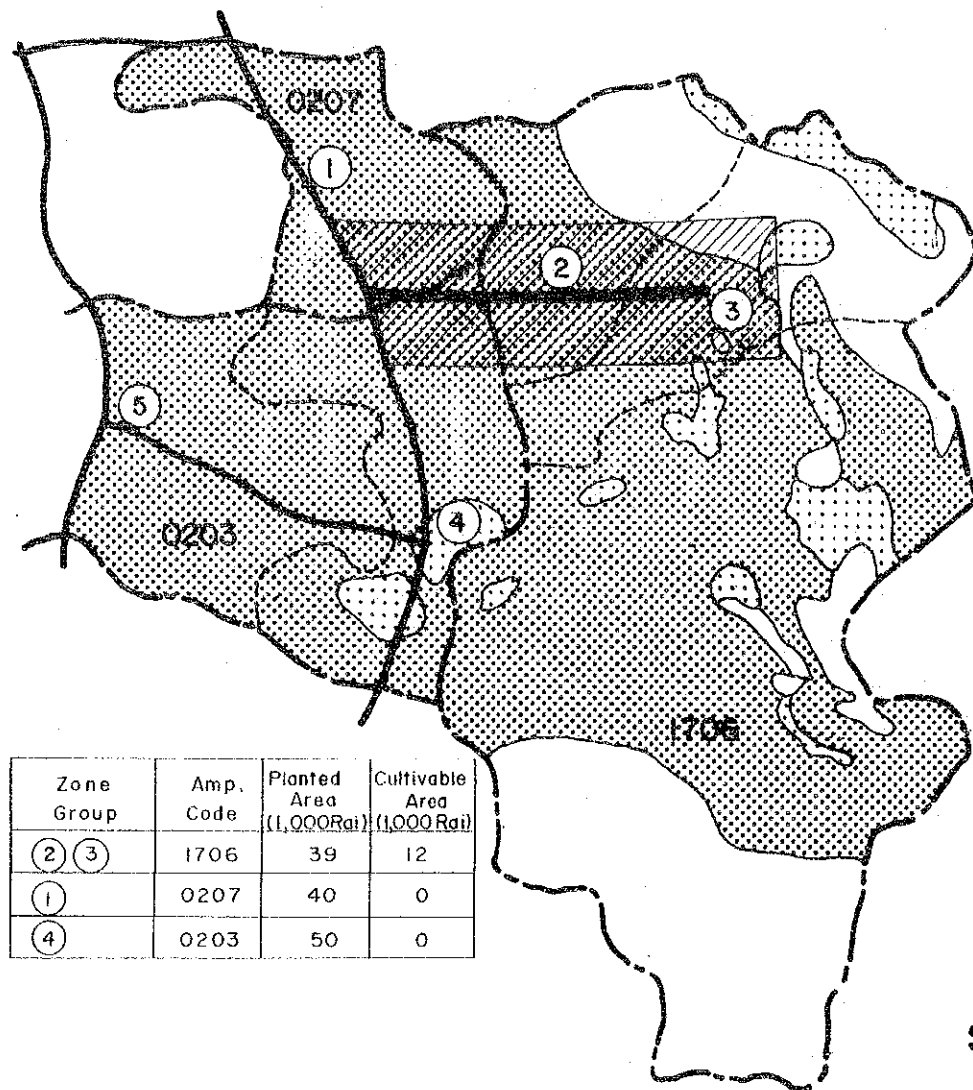
Study Route No. 12



Zone Group	Amp. Code	Planted Area (1,000 Rai)	Cultivable Area (1,000 Rai)
(1) (3)	0206	110	0
(2)	0202	82	7
(8)	0201	46	0

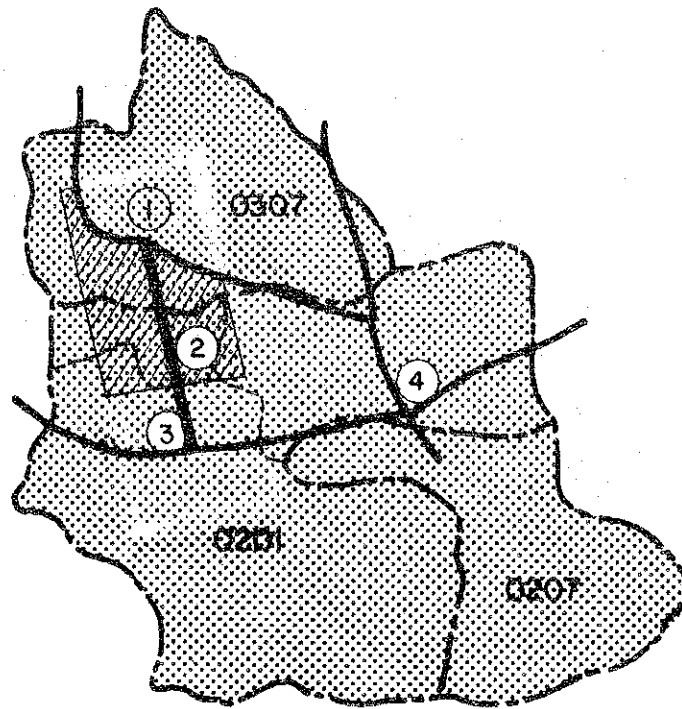


Study Route No.14



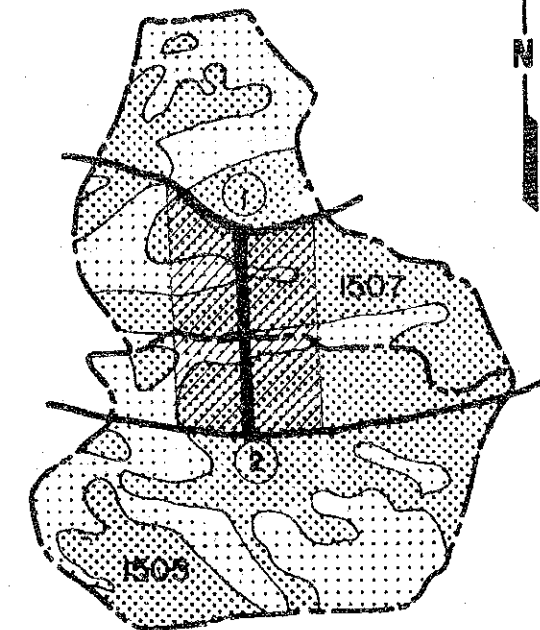
Zone Group	Amp. Code	Planted Area (1,000 Rai)	Cultivable Area (1,000 Rai)
(2) (3)	1706	39	12
(1)	0207	40	0
(4)	0203	50	0

Study Route No.15



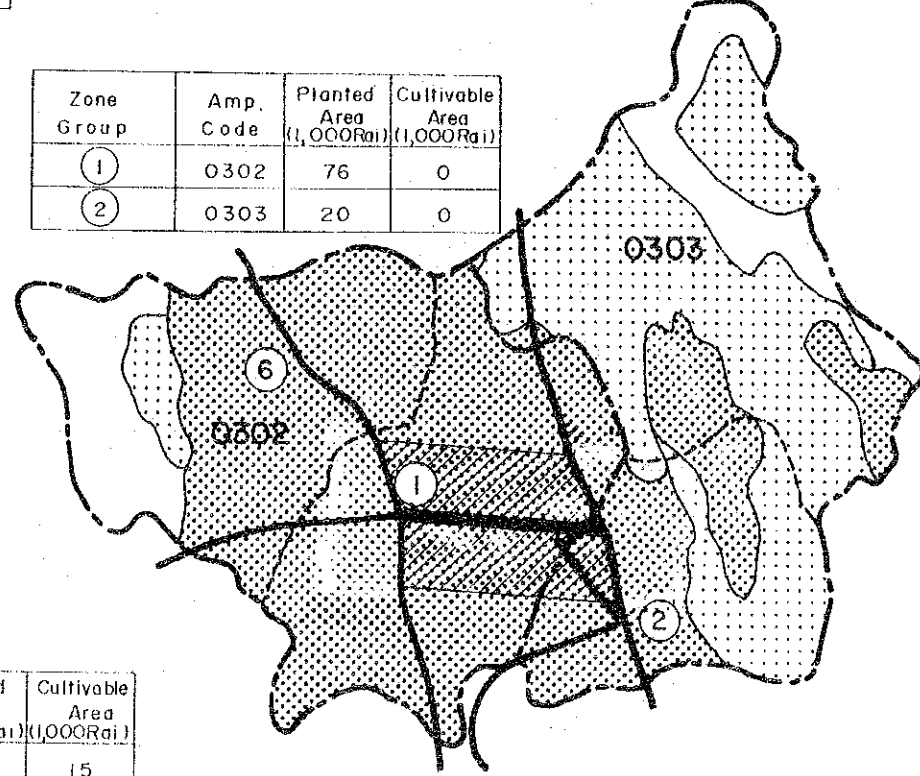
Zone Group	Amp. Code	Planted Area (1,000 Rai)	Cultivable Area (1,000 Rai)
(1)	0307	74	0
(2) (3) (4)	0201	131	0

Study Route No.16



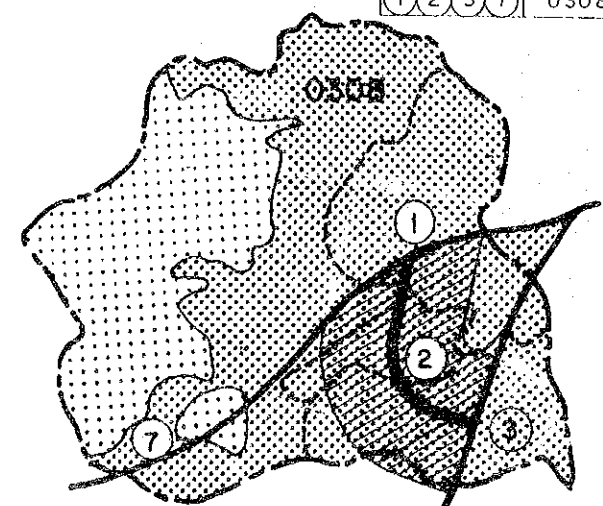
Zone Group	Amp. Code	Planted Area (1,000 Rai)	Cultivable Area (1,000 Rai)
(1)	1507	52	18
(2)	1505	57	19

Study Route No.19



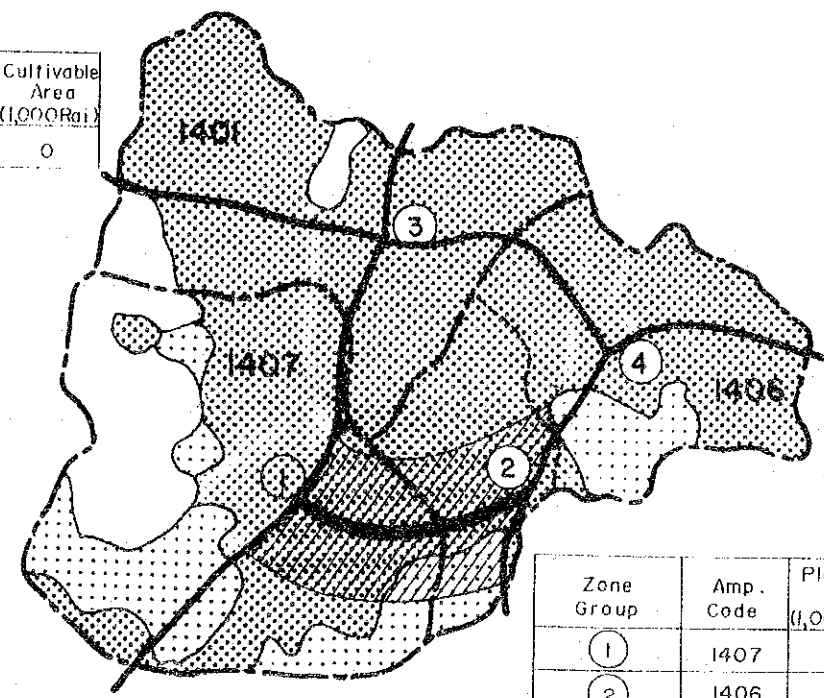
Zone Group	Amp. Code	Planted Area (1,000 Rai)	Cultivable Area (1,000 Rai)
(1)	0302	76	0
(2)	0303	20	0

Study Route No.17



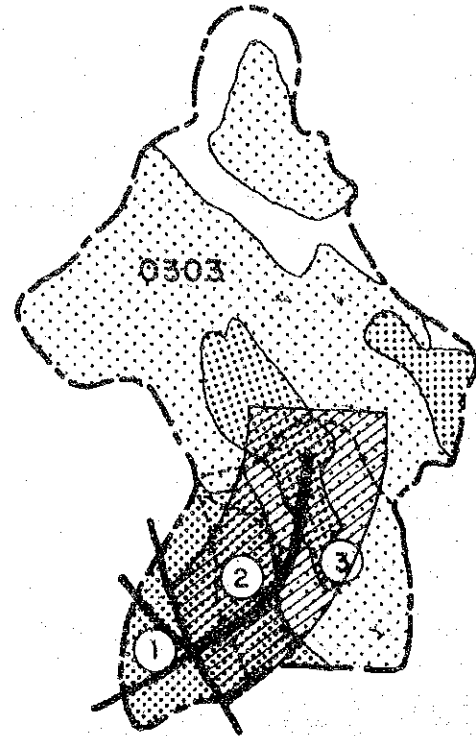
Zone Group	Amp. Code	Planted Area (1,000 Rai)	Cultivable Area (1,000 Rai)
(1) (2) (3) (7)	0308	221	0

Study Route No.18



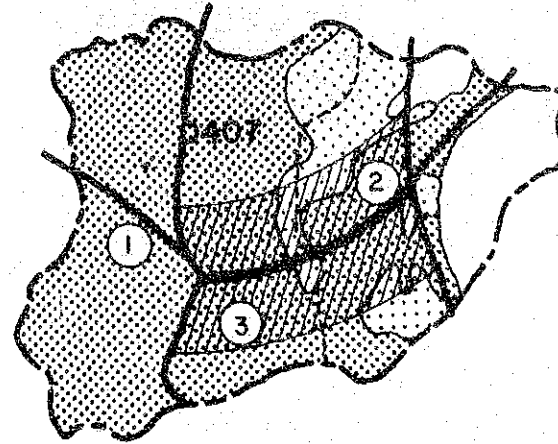
Zone Group	Amp. Code	Planted Area (1,000 Rai)	Cultivable Area (1,000 Rai)
(1)	1407	38	15
(2)	1406	22	23

Study Route No. 20



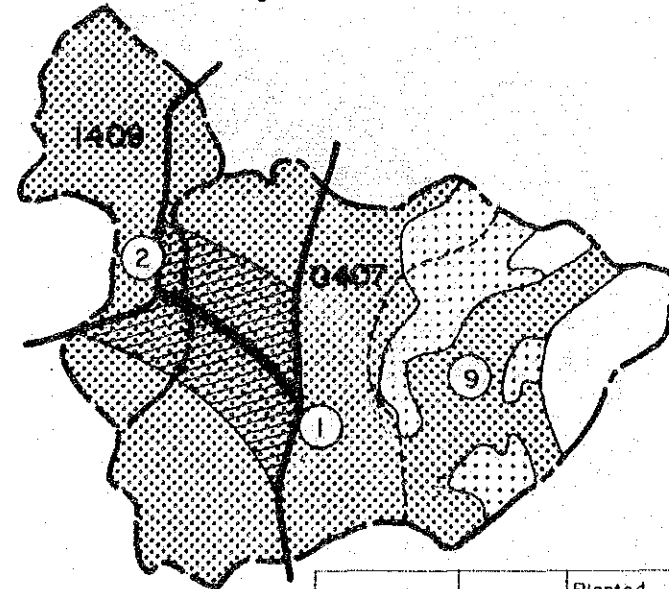
Zone Group	Amp. Code	Planted Area (1,000 Rai)	Cultivable Area (1,000 Rai)
① ② ③	0303	71	106

Study Route No. 21



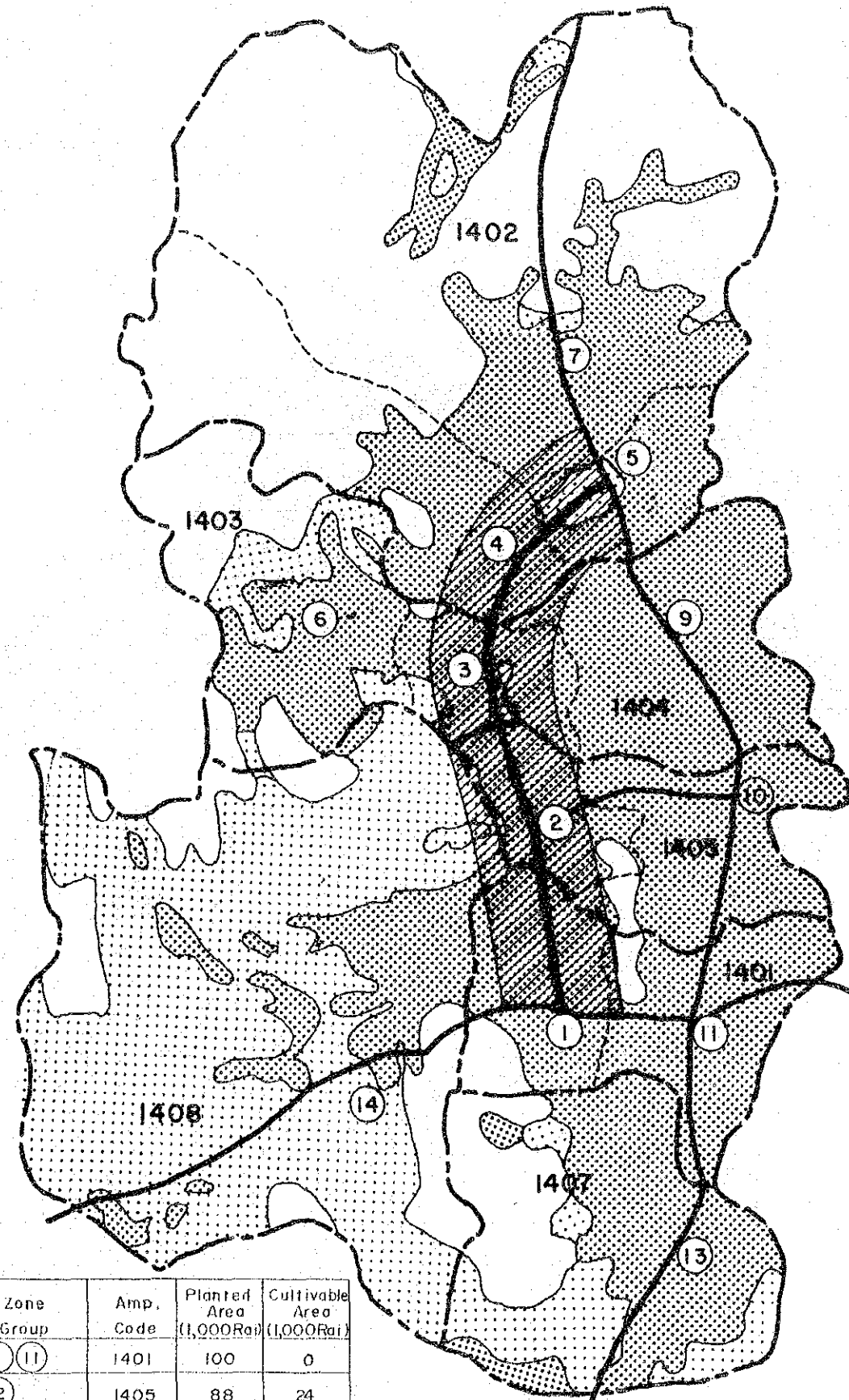
Zone Group	Amp. Code	Planted Area (1,000 Rai)	Cultivable Area (1,000 Rai)
① ②	0407	108	64

Study Route No. 22



Zone Group	Amp. Code	Planted Area (1,000 Rai)	Cultivable Area (1,000 Rai)
①	0407	54	0

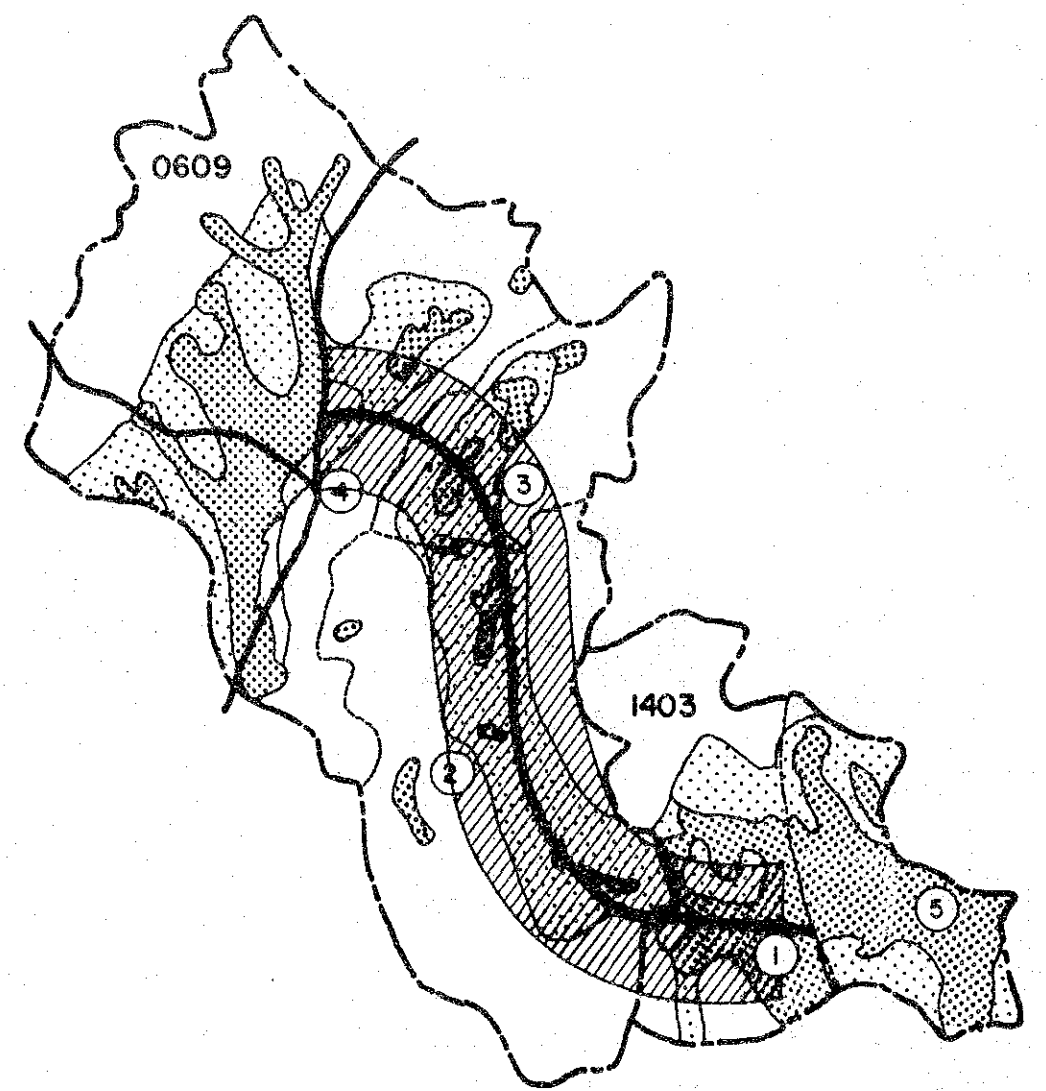
Study Route No. 23



Zone Group	Amp. Code	Planted Area (1,000 Rai)	Cultivable Area (1,000 Rai)
① ⑪	1401	100	0
②	1405	88	24
③	1403 1404	117	0
④ ⑤ ⑦	1402	120	30

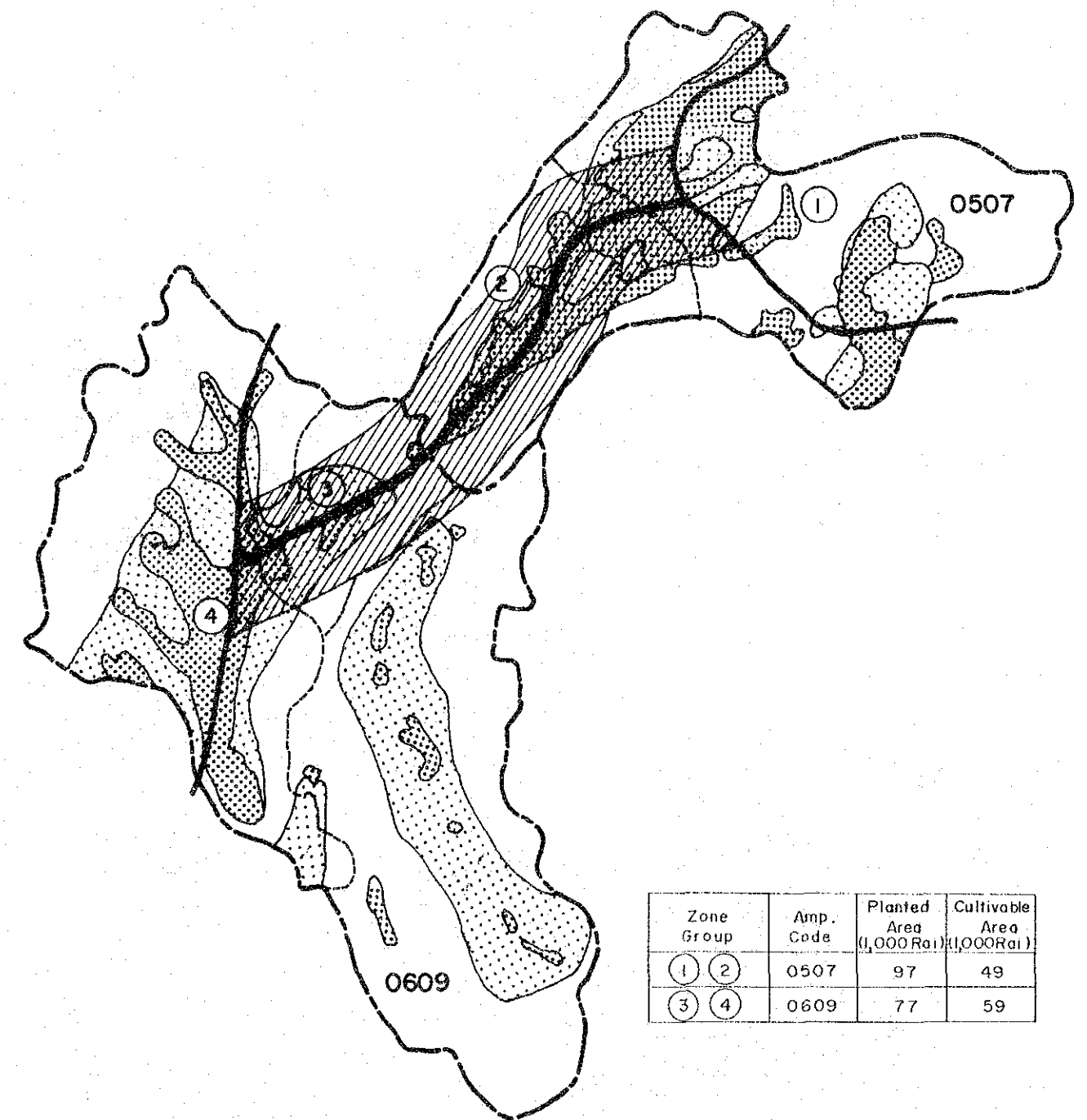


Study Route No. 24



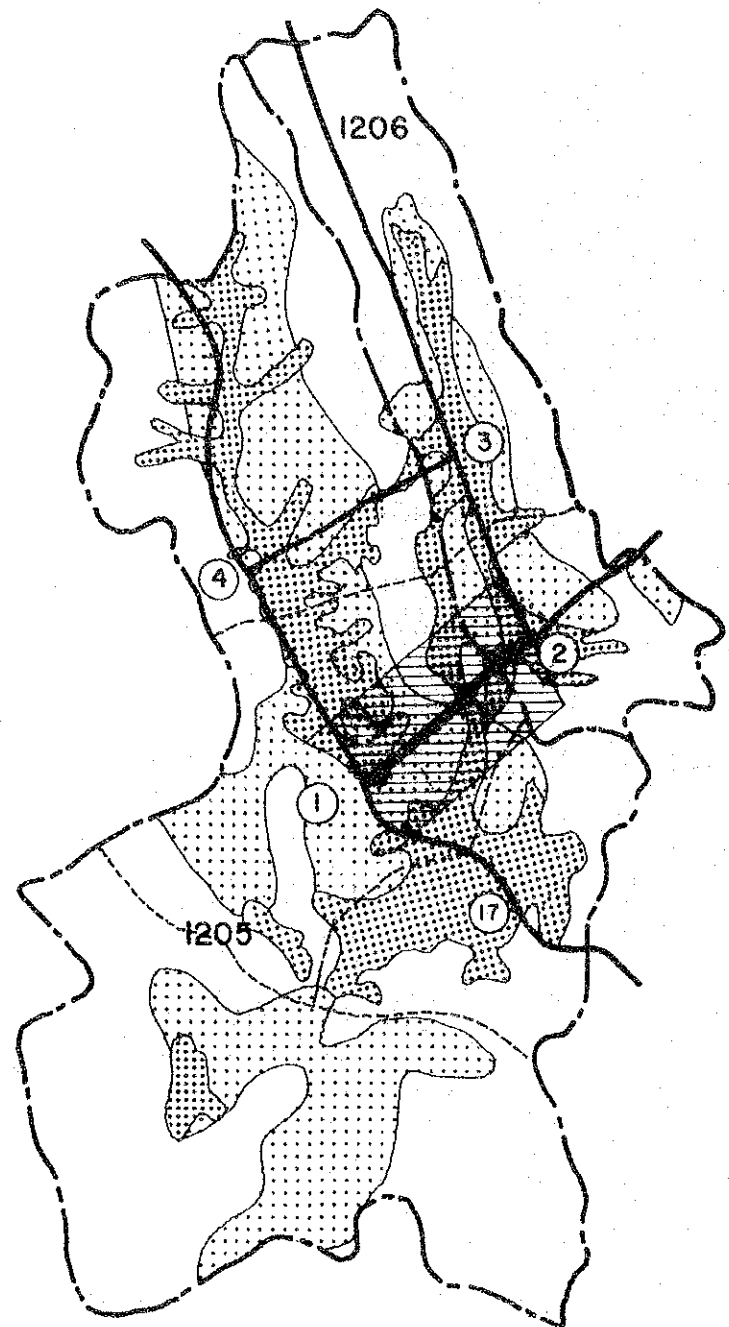
Zone Group	Amp. Code	Planted Area (1,000 Rai)	Cultivable Area (1,000 Rai)
① ⑤	1403	105	15
② ③ ④	0609	67	142

Study Route No. 25



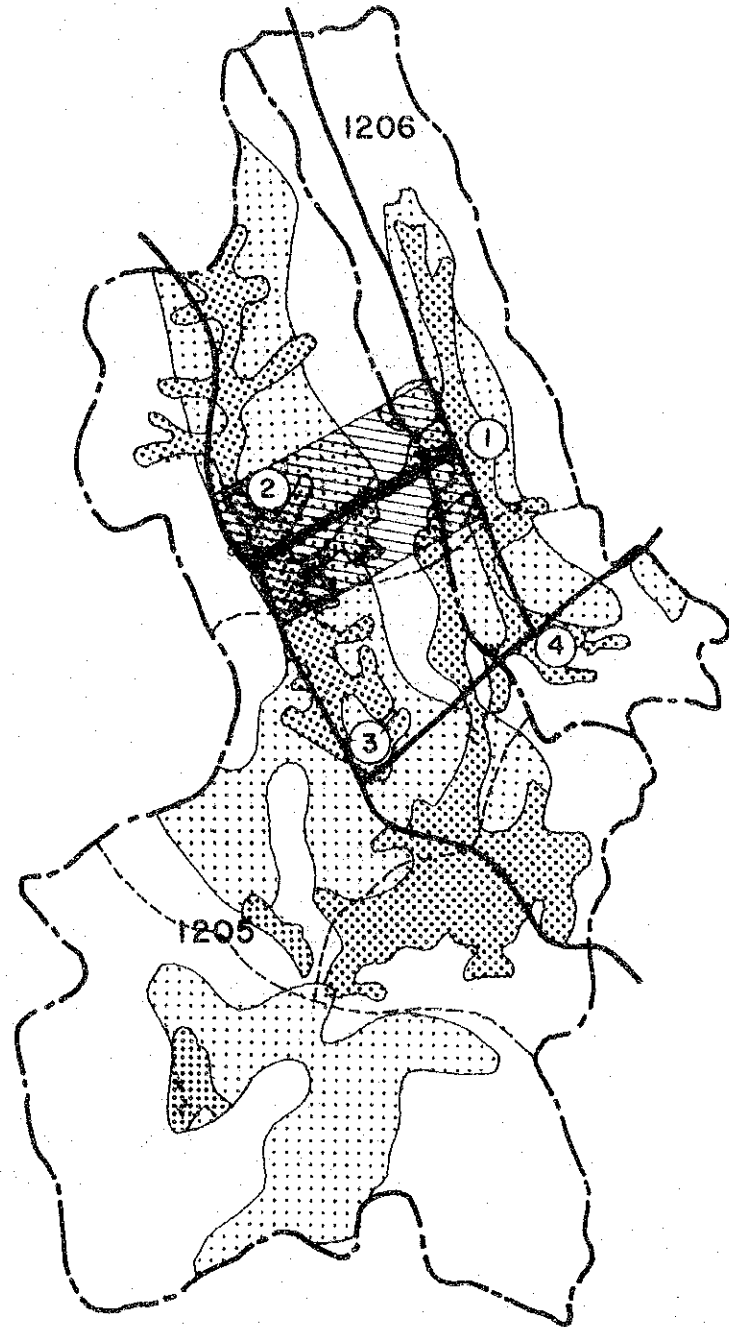
Zone Group	Amp. Code	Planted Area (1,000 Rai)	Cultivable Area (1,000 Rai)
① ②	0507	97	49
③ ④	0609	77	59

Study Route No. 26



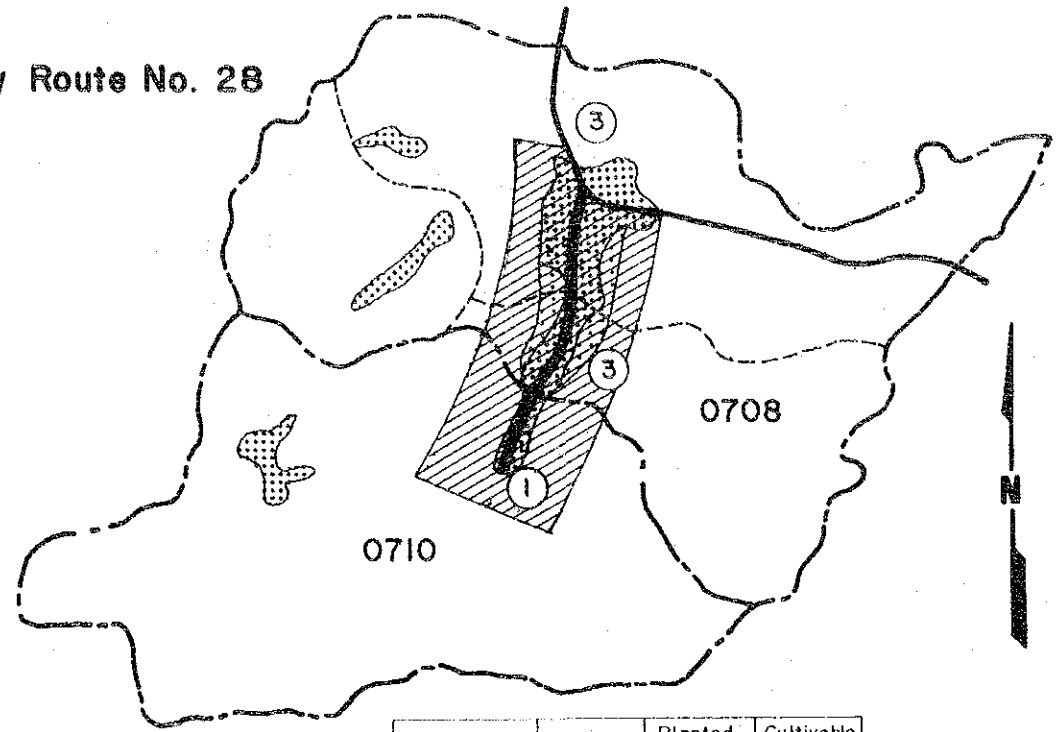
Zone Group	Amp. Code	Planted Area (1,000 Rai)	Cultivable Area (1,000 Rai)
①	1205	35	35
②	1206	3	30

Study Route No. 27



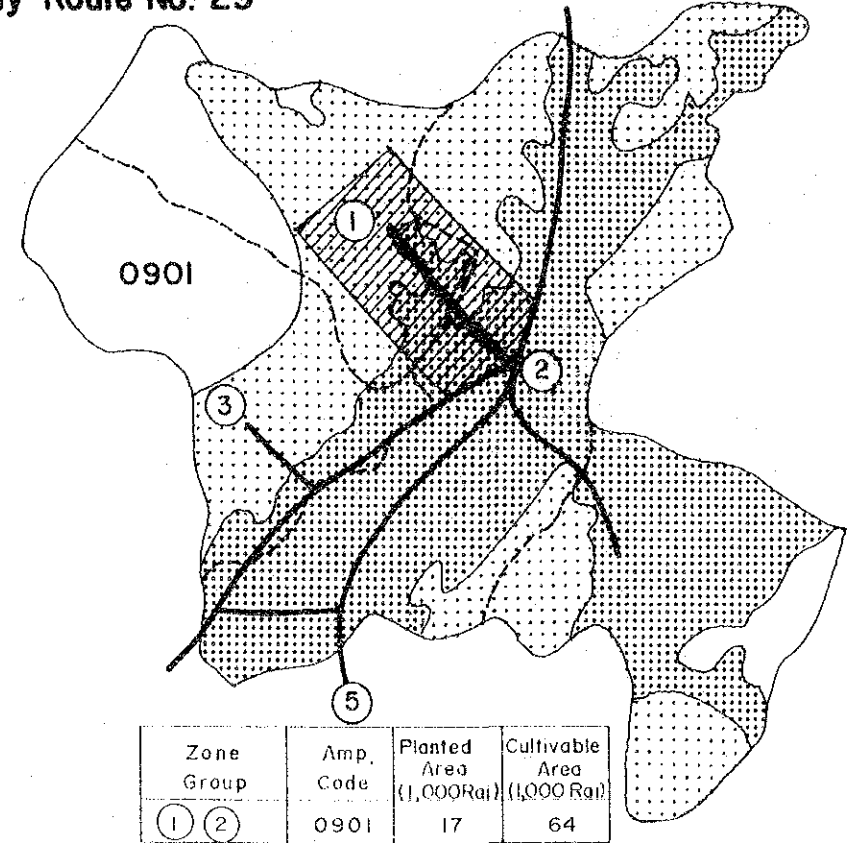
Zone Group	Amp. Code	Planted Area (1,000 Rai)	Cultivable Area (1,000 Rai)
③	1206	4	30
④	1205	30	25

Study Route No. 28



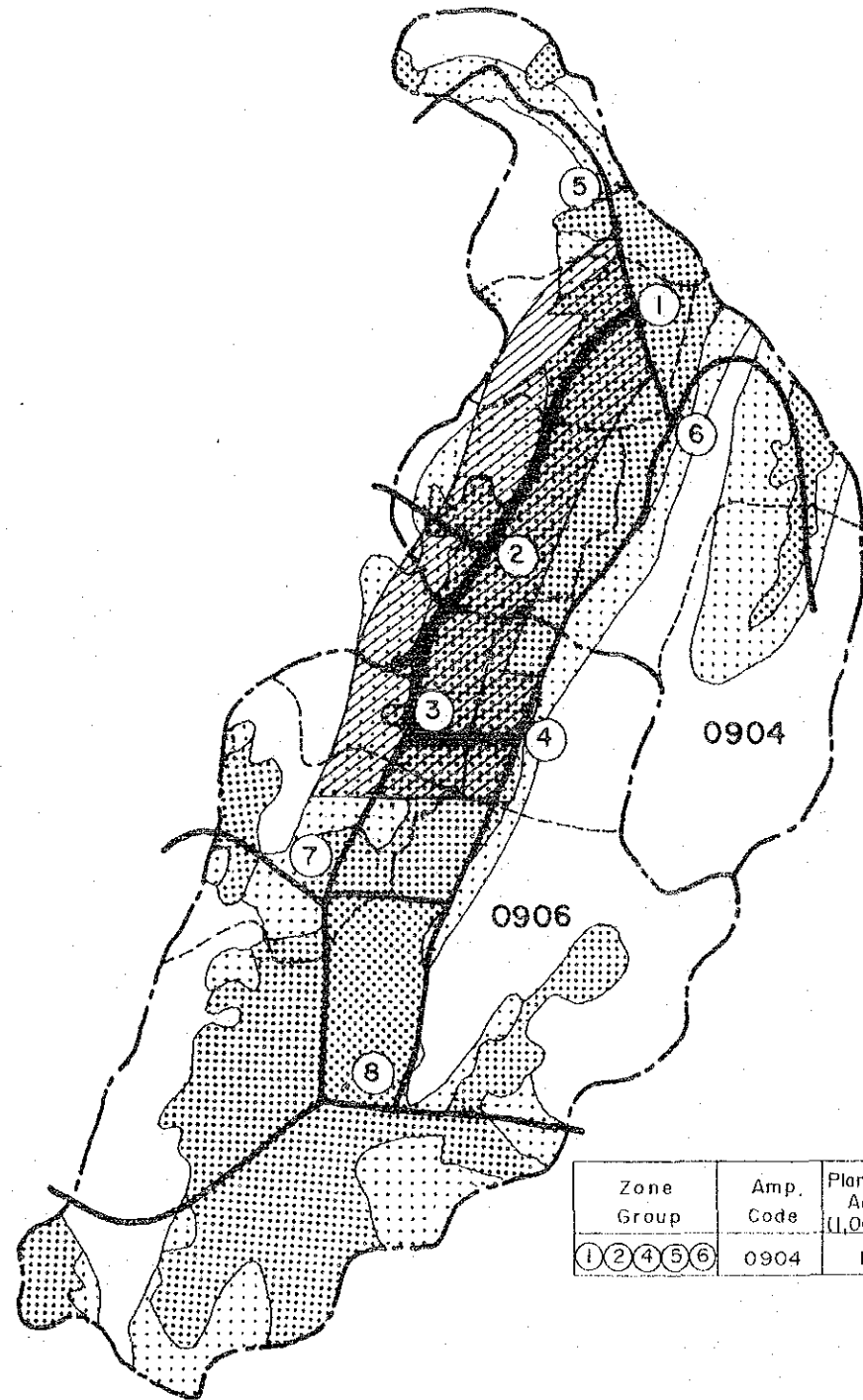
Zone Group	Amp. Code	Planted Area (1,000 Rai)	Cultivable Area (1,000 Rai)
② ③	0708	11	4
①	0710	18	0

Study Route No. 29



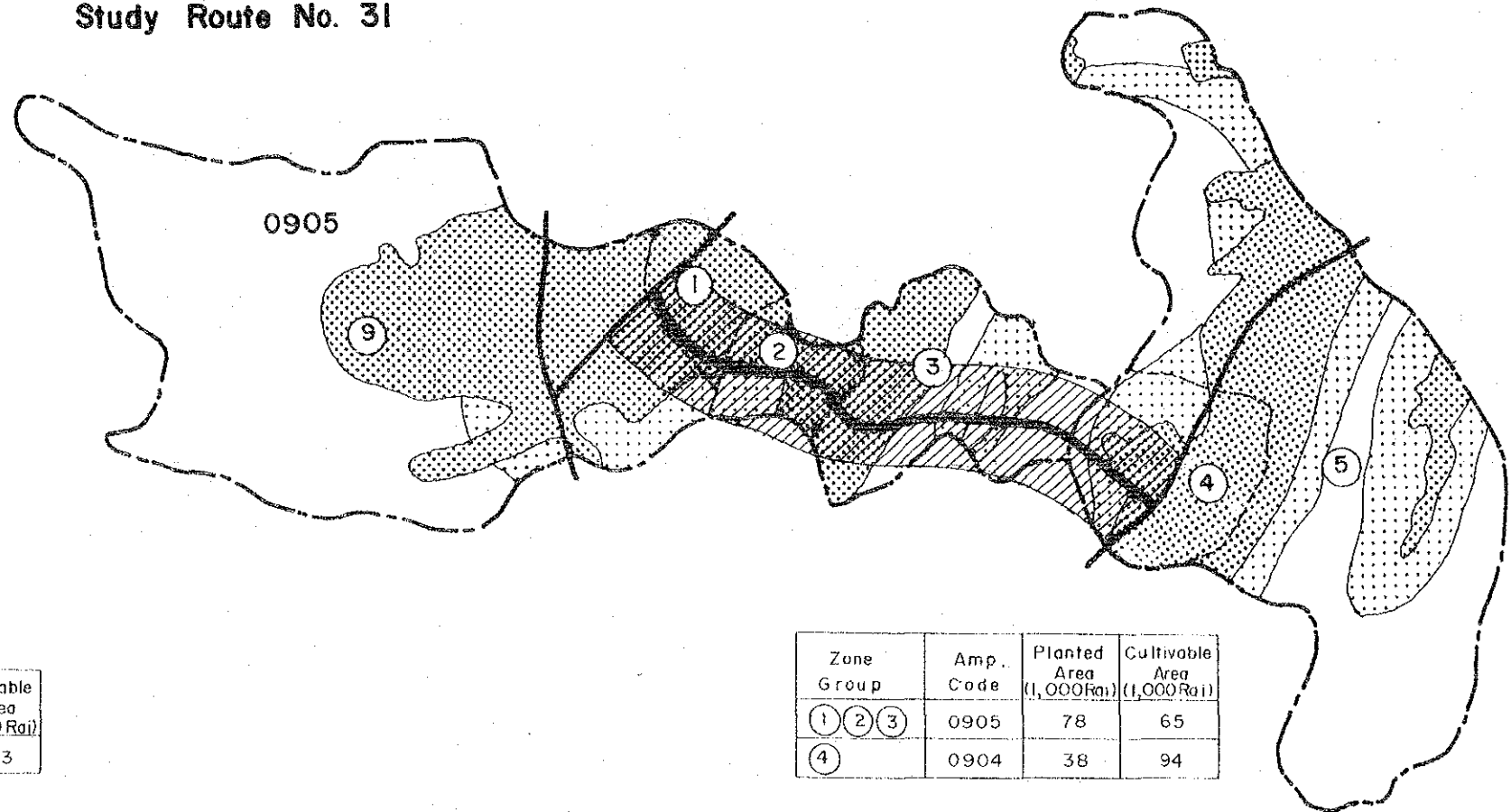
Zone Group	Amp. Code	Planted Area (1,000 Rai)	Cultivable Area (1,000 Rai)
① ②	0901	17	64

Study Route No. 30



Zone Group	Amp. Code	Planted Area (1,000 Rai)	Cultivable Area (1,000 Rai)
①②④⑤⑥	0904	107	103

Study Route No. 31



Zone Group	Amp. Code	Planted Area (1,000 Rai)	Cultivable Area (1,000 Rai)
①②③	0905	78	65
④	0904	38	94

Appendix 6-8-1 COST AND BENEFIT STATEMENTStudy Route No. 1Study Route No. 2

(1000 BAHT)

YEAR	COST		BENEFITS			DISCOUNTED (12%)			
	CONST. COST	AGRI. BENEFIT	VOC RUN'G	SAVING FIXED	RMC SAVING	TOTAL	COST	BENEFIT	
1982	0	0	0	0	0	0	0	0	
1983	12,632	0	0	0	0	0	17,747	0	
1984	13,772	0	0	0	0	0	17,276	0	
1985	20,162	0	0	0	0	0	22,581	0	
1986	0	3,600	14,379	2,696	14	20,689	0	18,472	
1987	0	3,677	15,363	2,881	15	21,935	0	17,486	
1988	0	3,753	16,347	3,065	16	23,181	0	16,500	
1989	0	3,830	17,331	3,250	17	24,427	0	15,523	
1990	0	3,906	18,314	3,434	18	25,672	0	14,567	
1991	0	3,983	19,298	3,619	19	26,918	0	13,638	
1992	15,576	4,059	20,282	3,803	20	28,164	7,046	12,740	
1993	0	4,173	21,550	4,041	21	29,785	0	12,029	
1994	0	4,286	22,818	4,279	23	31,405	0	11,325	
1995	0	4,400	24,086	4,516	24	33,026	0	10,633	
1996	0	4,513	25,354	4,754	25	34,646	0	9,960	
1997	0	4,627	26,622	4,992	26	36,267	0	9,309	
1998	0	4,740	27,890	5,230	28	37,987	0	8,683	
1999	0	4,854	29,158	5,467	29	39,508	0	8,084	
2000	0	4,967	30,426	5,705	30	41,128	0	7,514	
<b>TOTAL</b>	<b>62,142</b>	<b>63,365</b>	<b>329,218</b>	<b>61,730</b>	<b>324</b>	<b>454,636</b>	<b>64,650</b>	<b>186,464</b>	

DISCOUNTED ECONOMIC COSTS :	64,650
DISCOUNTED ECONOMIC BENEFITS :	186,464
AGRICULTURAL DEVELOPMENT BENEFIT	27,439
VOC SAVING (RUNNING COST)	133,804
VOC SAVING (FIXED COST)	25,089
RMC SAVING	131
NET PRESENT VALUE :	121,814
BENEFIT COST RATIO :	2.88
INTERNAL RATE OF RETURN :	30.2 %

(1000 BAHT)

YEAR	COST		BENEFITS			DISCOUNTED (12%)			
	CONST. COST	AGRI. BENEFIT	VOC RUN'G	SAVING FIXED	RMC SAVING	TOTAL	COST	BENEFIT	
1982	0	0	0	0	0	0	0	0	
1983	0	0	0	0	0	0	0	0	
1984	9,991	0	0	0	0	0	0	12,533	0
1985	25,728	0	0	0	0	0	0	28,815	0
1986	0	1,310	7,859	1,762	-91	10,840	0	9,679	
1987	0	1,384	8,335	1,869	-97	11,490	0	9,160	
1988	0	1,457	8,810	1,975	-102	12,141	0	8,641	
1989	0	1,531	9,286	2,082	-108	12,791	0	8,129	
1990	0	1,605	9,762	2,188	-113	13,441	0	7,627	
1991	0	1,678	10,237	2,295	-119	14,092	0	7,139	
1992	13,050	1,752	10,713	2,401	-124	14,742	5,903	6,669	
1993	0	1,849	11,337	2,541	-131	15,596	0	6,299	
1994	0	1,945	11,962	2,681	-139	16,449	0	5,932	
1995	0	2,042	12,586	2,821	-146	17,303	0	5,571	
1996	0	2,138	13,211	2,961	-153	18,157	0	5,220	
1997	0	2,235	13,835	3,101	-160	19,010	0	4,879	
1998	0	2,331	14,459	3,241	-168	19,864	0	4,552	
1999	0	2,428	15,084	3,381	-175	20,717	0	4,239	
2000	0	2,524	15,708	3,521	-182	21,571	0	3,941	
<b>TOTAL</b>	<b>48,769</b>	<b>28,207</b>	<b>173,184</b>	<b>38,819</b>	<b>-2,006</b>	<b>238,204</b>	<b>47,251</b>	<b>97,677</b>	

DISCOUNTED ECONOMIC COSTS :	47,251
DISCOUNTED ECONOMIC BENEFITS :	97,677
AGRICULTURAL DEVELOPMENT BENEFIT	11,622
VOC SAVING (RUNNING COST)	70,969
VOC SAVING (FIXED COST)	15,908
RMC SAVING	-822
NET PRESENT VALUE :	50,426
BENEFIT COST RATIO :	2.07
INTERNAL RATE OF RETURN :	25.2 %



Appendix 6-8-1 COST AND BENEFIT STATEMENTStudy Route No. 3

(1000 BAHT)

YEAR	COST		BENEFITS			DISCOUNTED (12%)		
	CONST. COST	AGRI. BENEFIT	VOC SAVING RUN'G	SAVING FIXED	RMC SAVING	TOTAL	COST	BENEFIT
1982	2,815	0	0	0	0	0	4,429	0
1983	21,985	0	0	0	0	0	30,987	0
1984	25,238	0	0	0	0	0	31,659	0
1985	16,154	0	0	0	0	0	18,092	0
1986	0	3,096	7,248	2,412	-205	12,551	0	11,206
1987	0	3,211	7,687	2,558	-218	13,238	0	10,553
1988	0	3,326	8,125	2,704	-230	13,925	0	9,912
1989	0	3,442	8,554	2,849	-243	14,613	0	9,287
1990	0	3,557	9,003	2,995	-255	15,300	0	8,681
1991	0	3,672	9,441	3,141	-268	15,987	0	8,099
1992	21,751	3,787	9,880	3,287	-280	16,674	9,839	7,542
1993	0	3,935	10,456	3,479	-296	17,573	0	7,097
1994	0	4,083	11,032	3,670	-313	18,472	0	6,661
1995	0	4,231	11,607	3,862	-329	19,371	0	6,237
1996	0	4,379	12,183	4,054	-346	20,270	0	5,827
1997	0	4,527	12,759	4,245	-362	21,169	0	5,434
1998	0	4,675	13,335	4,437	-378	22,068	0	5,057
1999	0	4,823	13,910	4,628	-395	22,967	0	4,700
2000	0	4,971	14,486	4,820	-411	23,866	0	4,360
TOTAL	87,943	59,715	159,715	53,141	-4,527	268,044	94,907	110,655

DISCOUNTED ECONOMIC COSTS :	94,907
DISCOUNTED ECONOMIC BENEFITS :	110,655
AGRICULTURAL DEVELOPMENT BENEFIT	25,282
VOC SAVING (RUNNING COST)	65,450
VOC SAVING (FIXED COST)	21,777
RMC SAVING	-1,854
NET PRESENT VALUE :	15,748
BENEFIT COST RATIO :	1.17
INTERNAL RATE OF RETURN :	14.2 %

Study Route No. 4

(1000 BAHT)

YEAR	COST		BENEFITS			DISCOUNTED (12%)		
	CONST. COST	AGRI. BENEFIT	VOC SAVING RUN'G	SAVING FIXED	RMC SAVING	TOTAL	COST	BENEFIT
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	11,171	0	0	0	0	0	14,013	0
1985	28,763	0	0	0	0	0	32,215	0
1986	0	1,168	4,345	924	-125	6,312	0	5,636
1987	0	1,335	4,608	980	-133	6,791	0	5,413
1988	0	1,502	4,871	1,036	-140	7,269	0	5,174
1989	0	1,669	5,134	1,092	-148	7,748	0	4,924
1990	0	1,836	5,397	1,148	-155	8,226	0	4,668
1991	0	2,003	5,660	1,204	-163	8,705	0	4,410
1992	14,969	2,170	5,923	1,260	-170	9,183	6,771	4,154
1993	0	2,272	6,268	1,334	-180	9,694	0	3,915
1994	0	2,374	6,613	1,407	-190	10,205	0	3,680
1995	0	2,476	6,958	1,481	-200	10,715	0	3,450
1996	0	2,578	7,304	1,554	-210	11,226	0	3,227
1997	0	2,680	7,649	1,628	-219	11,737	0	3,013
1998	0	2,782	7,994	1,701	-229	12,248	0	2,807
1999	0	2,884	8,339	1,775	-239	12,758	0	2,611
2000	0	2,986	8,684	1,848	-249	13,269	0	2,424
TOTAL	54,903	32,715	95,747	20,370	-2,748	146,084	52,999	59,505

DISCOUNTED ECONOMIC COSTS :	52,999
DISCOUNTED ECONOMIC BENEFITS :	59,505
AGRICULTURAL DEVELOPMENT BENEFIT	13,048
VOC SAVING (RUNNING COST)	39,236
VOC SAVING (FIXED COST)	8,347
RMC SAVING	-1,127
NET PRESENT VALUE :	6,506
BENEFIT COST RATIO :	1.12
INTERNAL RATE OF RETURN :	13.8 %

Appendix 6-8-1 COST AND BENEFIT STATEMENTStudy Route No. 5

(1000 BAHT)

YEAR	COST		BENEFITS			DISCOUNTED (12%)		
	CONST. COST	AGRI. BENEFIT	VOC RUN'G	SAVING FIXED	RMC SAVING	TOTAL	COST	BENEFIT
1982	2,592	0	0	0	0	0	4,079	0
1983	20,009	0	0	0	0	0	28,111	0
1984	22,972	0	0	0	0	0	28,816	0
1985	14,708	0	0	0	0	0	16,473	0
1986	0	3,486	15,937	7,822	160	27,405	0	24,469
1987	0	3,616	17,070	8,378	171	29,236	0	23,307
1988	0	3,747	18,203	8,934	183	31,067	0	22,113
1989	0	3,877	19,336	9,491	194	32,898	0	20,907
1990	0	4,007	20,469	10,047	205	34,728	0	19,706
1991	0	4,138	21,602	10,603	217	36,559	0	18,522
1992	10,525	4,268	22,735	11,159	228	38,390	4,761	17,366
1993	0	4,445	24,355	11,954	244	40,998	0	16,558
1994	0	4,621	25,974	12,749	261	43,605	0	15,724
1995	0	4,798	27,594	13,544	277	46,213	0	14,879
1996	0	4,975	29,214	14,339	293	48,820	0	14,035
1997	0	5,151	30,833	15,134	309	51,428	0	13,200
1998	0	5,328	32,453	15,929	326	54,035	0	12,383
1999	0	5,504	34,072	16,724	342	56,643	0	11,590
2000	0	5,681	35,692	17,519	358	59,250	0	10,825
TOTAL	70,806	67,642	375,539	184,326	3,767	631,273	82,240	255,584

DISCOUNTED ECONOMIC COSTS : 82,240

DISCOUNTED ECONOMIC BENEFITS : 255,584

AGRICULTURAL DEVELOPMENT BENEFIT 28,571  
 VOC SAVING (RUNNING COST) 151,255  
 VOC SAVING (FIXED COST) 74,240  
 RMC SAVING 1,517

NET PRESENT VALUE : 173,344

BENEFIT COST RATIO : 3.11

INTERNAL RATE OF RETURN : 29.6 %

Study Route No. 6

(1000 BAHT)

YEAR	COST		BENEFITS			DISCOUNTED (12%)		
	CONST. COST	AGRI. BENEFIT	VOC RUN'G	SAVING FIXED	RMC SAVING	TOTAL	COST	BENEFIT
1982	0	0	0	0	0	0	0	0
1983	24,426	0	0	0	0	0	34,317	0
1984	20,192	0	0	0	0	0	25,329	0
1985	29,562	0	0	0	0	0	33,109	0
1986	0	2,107	56,859	10,351	642	69,959	0	62,463
1987	0	2,284	60,825	11,073	687	74,869	0	59,685
1988	0	2,461	64,791	11,795	732	79,779	0	56,785
1989	0	2,638	68,758	12,517	776	84,689	0	53,821
1990	0	2,815	72,724	13,239	821	89,599	0	50,841
1991	0	2,992	76,690	13,961	866	94,509	0	47,881
1992	19,927	3,169	80,656	14,683	911	99,419	9,014	44,972
1993	0	3,424	85,698	15,601	968	105,691	0	42,687
1994	0	3,679	90,741	16,519	1,025	111,963	0	40,375
1995	0	3,934	95,783	17,437	1,082	118,235	0	38,069
1996	0	4,189	100,825	18,355	1,139	124,508	0	35,793
1997	0	4,444	105,867	19,272	1,196	130,780	0	33,568
1998	0	4,699	110,910	20,190	1,253	137,052	0	31,409
1999	0	4,954	115,952	21,108	1,310	143,324	0	29,327
2000	0	5,209	120,994	22,026	1,367	149,596	0	27,331
TOTAL	94,107	52,998	1,308,070	238,127	14,776	1,613,970	101,769	655,008

DISCOUNTED ECONOMIC COSTS : 101,769

DISCOUNTED ECONOMIC BENEFITS : 655,008

AGRICULTURAL DEVELOPMENT BENEFIT 21,040  
 VOC SAVING (RUNNING COST) 531,255  
 VOC SAVING (FIXED COST) 96,712  
 RMC SAVING 6,000

NET PRESENT VALUE : 553,239

BENEFIT COST RATIO : 6.44

INTERNAL RATE OF RETURN : 47.7 %



Appendix 6-8-1 COST AND BENEFIT STATEMENTStudy Route No. 7

(1000 BAHT)

YEAR	COST		BENEFITS			DISCOUNTED (12%)		COST	BENEFIT
	CONST. COST	AGRI. BENEFIT	VOC RUN'G	SAVING FIXED	RMC SAVING	TOTAL	COST		
1982	4,709	0	0	0	0	0	7,410	0	
1983	31,250	0	0	0	0	0	43,904	0	
1984	34,981	0	0	0	0	0	43,880	0	
1985	22,394	0	0	0	0	0	25,081	0	
1986	0	1,396	15,127	4,061	-94	20,490	0	18,295	
1987	0	2,457	16,122	4,328	-100	22,807	0	18,182	
1988	0	3,519	17,117	4,595	-106	25,124	0	17,883	
1989	0	4,580	18,112	4,862	-112	27,442	0	17,440	
1990	0	5,641	19,106	5,130	-119	29,759	0	16,886	
1991	0	6,703	20,101	5,397	-125	32,076	0	16,251	
1992	19,506	7,764	21,098	5,664	-131	34,393	8,824	15,558	
1993	0	8,020	22,385	6,010	-139	36,276	0	14,651	
1994	0	8,277	23,674	6,356	-147	38,160	0	13,761	
1995	0	8,533	24,962	6,702	-155	40,043	0	12,893	
1996	0	8,790	26,251	7,048	-163	41,926	0	12,053	
1997	0	9,046	27,540	7,394	-170	43,809	0	11,245	
1998	0	9,302	28,829	7,740	-178	45,693	0	10,472	
1999	0	9,559	30,117	8,086	-186	47,576	0	9,735	
2000	0	9,815	31,406	8,432	-194	49,459	0	9,036	
TOTAL	112,840	103,402	341,944	91,806	-2,119	535,032	129,099	214,338	

DISCOUNTED ECONOMIC COSTS :	129,099
DISCOUNTED ECONOMIC BENEFITS :	214,338
AGRICULTURAL DEVELOPMENT BENEFIT	38,430
VOC SAVING (RUNNING COST)	139,357
VOC SAVING (FIXED COST)	37,415
RMC SAVING	-864
NET PRESENT VALUE :	85,239
BENEFIT COST RATIO :	1.66
INTERNAL RATE OF RETURN :	19.0 %

Study Route No. 8

(1000 BAHT)

YEAR	COST		BENEFITS			DISCOUNTED (12%)		COST	BENEFIT
	CONST. COST	AGRI. BENEFIT	VOC RUN'G	SAVING FIXED	RMC SAVING	TOTAL	COST		
1982	8,270	0	0	0	0	0	13,013	0	
1983	33,116	0	0	0	0	0	46,526	0	
1984	32,727	0	0	0	0	0	41,053	0	
1985	20,948	0	0	0	0	0	23,462	0	
1986	0	6,216	21,922	3,491	-98	31,531	0	28,153	
1987	0	9,730	23,510	3,744	-105	36,878	0	29,399	
1988	0	13,243	25,098	3,997	-112	42,226	0	30,055	
1989	0	16,757	26,686	4,250	-119	47,573	0	30,234	
1990	0	20,270	28,274	4,502	-126	52,920	0	30,028	
1991	0	23,784	29,862	4,755	-133	58,268	0	29,520	
1992	23,155	27,297	31,450	5,008	-140	63,615	10,474	28,776	
1993	0	27,843	33,461	5,328	-149	66,483	0	26,851	
1994	0	28,388	35,472	5,648	-158	69,351	0	25,009	
1995	0	28,934	37,483	5,968	-167	72,219	0	23,252	
1996	0	29,480	39,495	6,289	-176	75,087	0	21,586	
1997	0	30,025	41,506	6,609	-185	77,954	0	20,009	
1998	0	30,571	43,517	6,929	-194	80,822	0	18,522	
1999	0	31,116	45,528	7,249	-203	83,690	0	17,125	
2000	0	31,662	47,539	7,569	-212	86,558	0	15,814	
TOTAL	118,216	355,314	510,803	81,335	-2,277	945,175	134,527	374,334	

DISCOUNTED ECONOMIC COSTS :	134,527
DISCOUNTED ECONOMIC BENEFITS :	374,334
AGRICULTURAL DEVELOPMENT BENEFIT	135,418
VOC SAVING (RUNNING COST)	206,894
VOC SAVING (FIXED COST)	32,945
RMC SAVING	-922
NET PRESENT VALUE :	239,806
BENEFIT COST RATIO :	2.78
INTERNAL RATE OF RETURN :	26.9 %

Appendix 6-8-1 COST AND BENEFIT STATEMENTStudy Route No. 9

(1000 BAHT)

YEAR	COST		BENEFITS			DISCOUNTED (12%)		
	CONST. COST	AGRI. BENEFIT	VOC RUN'G	SAVING FIXED	RMC SAVING	TOTAL	COST	BENEFIT
1982	0	0	0	0	0	0	0	0
1983	20,942	0	0	0	0	0	29,422	0
1984	14,927	0	0	0	0	0	18,724	0
1985	21,853	0	0	0	0	0	24,475	0
1986	0	4,650	7,453	1,931	-103	13,931	0	12,438
1987	0	7,273	7,993	2,071	-110	17,227	0	13,733
1988	0	9,897	8,533	2,211	-118	20,522	0	14,607
1989	0	12,520	9,073	2,350	-125	23,818	0	15,137
1990	0	15,143	9,612	2,490	-132	27,114	0	15,385
1991	0	17,767	10,152	2,630	-140	30,409	0	15,406
1992	13,331	20,390	10,692	2,770	-147	33,705	6,030	15,246
1993	0	20,493	11,376	2,947	-157	34,659	0	13,998
1994	0	20,595	12,060	3,124	-166	35,613	0	12,842
1995	0	20,698	12,743	3,301	-176	36,566	0	11,773
1996	0	20,800	13,427	3,478	-185	37,520	0	10,786
1997	0	20,903	14,111	3,655	-195	38,474	0	9,875
1998	0	21,005	14,795	3,832	-204	39,428	0	9,036
1999	0	21,108	15,478	4,009	-214	40,381	0	8,263
2000	0	21,210	16,162	4,186	-223	41,335	0	7,552
TOTAL	71,053	254,450	173,659	44,986	-2,393	470,701	78,652	186,079

DISCOUNTED ECONOMIC COSTS : 78,652

DISCOUNTED ECONOMIC BENEFITS : 186,079

AGRICULTURAL DEVELOPMENT BENEFIT 98,488  
 VOC SAVING (RUNNING COST) 70,338  
 VOC SAVING (FIXED COST) 18,222  
 RMC SAVING -969

NET PRESENT VALUE : 107,427

BENEFIT COST RATIO : 2.37

INTERNAL RATE OF RETURN : 24.6 %

Study Route No. 10 & 11

(1000 BAHT)

YEAR	COST		BENEFITS			DISCOUNTED (12%)		
	CONST. COST	AGRI. BENEFIT	VOC RUN'G	SAVING FIXED	RMC SAVING	TOTAL	COST	BENEFIT
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	12,590	0	0	0	0	0	15,793	0
1985	30,985	0	0	0	0	0	34,703	0
1986	0	1,785	2,443	1,002	-120	5,110	0	4,563
1987	0	1,904	2,627	1,077	-129	5,479	0	4,368
1988	0	2,023	2,810	1,153	-138	5,848	0	4,162
1989	0	2,143	2,994	1,228	-147	6,217	0	3,951
1990	0	2,262	3,177	1,303	-156	6,586	0	3,737
1991	0	2,381	3,361	1,379	-165	6,955	0	3,524
1992	13,425	2,500	3,544	1,454	-174	7,324	6,073	3,313
1993	0	2,620	3,813	1,564	-187	7,809	0	3,154
1994	0	2,740	4,081	1,674	-200	8,295	0	2,991
1995	0	2,859	4,350	1,784	-213	8,780	0	2,827
1996	0	2,979	4,618	1,895	-227	9,265	0	2,663
1997	0	3,099	4,887	2,005	-240	9,750	0	2,503
1998	0	3,219	5,155	2,115	-253	10,236	0	2,346
1999	0	3,338	5,424	2,225	-266	10,721	0	2,194
2000	0	3,458	5,692	2,335	-279	11,206	0	2,047
TOTAL	57,000	39,309	58,973	24,193	-2,894	119,580	56,569	48,342

DISCOUNTED ECONOMIC COSTS : 56,569

DISCOUNTED ECONOMIC BENEFITS : 48,342

AGRICULTURAL DEVELOPMENT BENEFIT 16,205  
 VOC SAVING (RUNNING COST) 23,611  
 VOC SAVING (FIXED COST) 9,686  
 RMC SAVING -1,159

NET PRESENT VALUE : -8,227

BENEFIT COST RATIO : 0.85

INTERNAL RATE OF RETURN : 9.7 %

Appendix 6-8-1 COST AND BENEFIT STATEMENTStudy Route No. 12

(1000 BAHT)

YEAR	COST		BENEFITS			DISCOUNTED (12%)		COST	BENEFIT
	CONST. COST	AGRI. BENEFIT	VOC RUN'G	SAVING FIXED	RMC SAVING	TOTAL	COST		
1982	3,660	0	0	0	0	0	5,759	0	
1983	16,462	0	0	0	0	0	23,128	0	
1984	16,890	0	0	0	0	0	21,187	0	
1985	10,815	0	0	0	0	0	12,113	0	
1986	0	2,456	19,386	2,396	246	24,484	0	21,861	
1987	0	3,021	20,635	2,550	262	26,468	0	21,100	
1988	0	3,585	21,885	2,705	278	28,452	0	20,252	
1989	0	4,150	23,134	2,859	294	30,436	0	19,343	
1990	0	4,714	24,383	3,013	309	32,420	0	18,396	
1991	0	5,279	25,633	3,168	325	34,404	0	17,430	
1992	7,203	5,843	26,882	3,322	341	36,388	3,258	16,460	
1993	0	6,416	28,524	3,525	362	38,827	0	15,681	
1994	0	6,988	30,167	3,728	383	41,265	0	14,981	
1995	0	7,561	31,809	3,931	403	43,704	0	14,071	
1996	0	8,133	33,452	4,134	424	46,143	0	13,265	
1997	0	8,706	35,094	4,337	445	48,581	0	12,470	
1998	0	9,278	36,736	4,540	466	51,020	0	11,692	
1999	0	9,851	38,379	4,743	486	53,458	0	10,939	
2000	0	10,423	40,021	4,946	507	55,897	0	10,212	
TOTAL	55,030	96,401	436,120	53,897	5,530	591,947	65,445	238,053	

DISCOUNTED ECONOMIC COSTS :	65,445
DISCOUNTED ECONOMIC BENEFITS :	238,053
AGRICULTURAL DEVELOPMENT BENEFIT	35,946
VOC SAVING (RUNNING COST)	177,869
VOC SAVING (FIXED COST)	21,982
RMC SAVING	2,256
NET PRESENT VALUE :	172,608
BENEFIT COST RATIO :	3.64
INTERNAL RATE OF RETURN :	32.0 %

Study Route No. 13

(1000 BAHT)

YEAR	COST		BENEFITS			DISCOUNTED (12%)		COST	BENEFIT
	CONST. COST	AGRI. BENEFIT	VOC RUN'G	SAVING FIXED	RMC SAVING	TOTAL	COST		
1982	0	0	0	0	0	0	0	0	
1983	0	0	0	0	0	0	0	0	
1984	15,428	0	0	0	0	0	19,353	0	
1985	30,301	0	0	0	0	0	33,937	0	
1986	0	1,501	19,465	3,571	189	24,726	0	22,077	
1987	0	1,606	20,797	3,815	202	26,419	0	21,061	
1988	0	1,710	22,128	4,060	215	28,113	0	20,010	
1989	0	1,815	23,460	4,304	227	29,806	0	18,942	
1990	0	1,919	24,792	4,548	240	31,499	0	17,874	
1991	0	2,024	26,123	4,793	253	33,193	0	16,816	
1992	11,227	2,128	27,455	5,037	266	34,886	5,079	15,781	
1993	0	2,233	29,290	5,374	284	37,180	0	15,016	
1994	0	2,338	31,125	5,710	302	39,474	0	14,235	
1995	0	2,442	32,960	6,047	319	41,768	0	13,448	
1996	0	2,547	34,795	6,384	337	44,063	0	12,667	
1997	0	2,652	36,630	6,720	355	46,357	0	11,899	
1998	0	2,757	38,465	7,057	373	48,651	0	11,150	
1999	0	2,861	40,300	7,393	390	50,945	0	10,424	
2000	0	2,966	42,135	7,730	408	53,239	0	9,727	
TOTAL	56,956	33,497	449,920	82,543	4,360	570,319	58,369	231,127	

DISCOUNTED ECONOMIC COSTS :	58,369
DISCOUNTED ECONOMIC BENEFITS :	231,127
AGRICULTURAL DEVELOPMENT BENEFIT	13,770
VOC SAVING (RUNNING COST)	182,170
VOC SAVING (FIXED COST)	33,421
RMC SAVING	1,766
NET PRESENT VALUE :	172,758
BENEFIT COST RATIO :	3.96
INTERNAL RATE OF RETURN :	39.3 %

Appendix 6-8-1 COST AND BENEFIT STATEMENTStudy Route No. 14

(1000 BAHT)

YEAR	COST		BENEFITS			DISCOUNTED (12%)		
	CONST. COST	AGRI. BENEFIT	VOC RUN'G	SAVING FIXED	RMC SAVING	TOTAL	COST	BENEFIT
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	13,525	0	0	0	0	0	16,966	0
1985	26,961	0	0	0	0	0	30,196	0
1986	0	1,223	2,006	715	-117	3,827	0	3,417
1987	0	1,921	2,141	763	-125	4,700	0	3,746
1988	0	2,619	2,275	811	-133	5,572	0	3,966
1989	0	3,317	2,410	859	-141	6,445	0	4,096
1990	0	4,014	2,544	907	-148	7,317	0	4,152
1991	0	4,712	2,679	955	-156	8,190	0	4,149
1992	11,413	5,410	2,813	1,003	-164	9,062	5,163	4,099
1993	0	5,731	2,985	1,064	-174	9,607	0	3,880
1994	0	6,053	3,157	1,126	-184	10,151	0	3,661
1995	0	6,374	3,329	1,187	-194	10,696	0	3,444
1996	0	6,696	3,501	1,248	-204	11,240	0	3,231
1997	0	7,017	3,672	1,309	-214	11,785	0	3,025
1998	0	7,338	3,844	1,371	-224	12,329	0	2,825
1999	0	7,660	4,016	1,432	-234	12,874	0	2,634
2000	0	7,981	4,188	1,493	-244	13,418	0	2,451
TOTAL	51,899	78,065	45,558	16,242	-2,656	137,210	52,325	52,776

DISCOUNTED ECONOMIC COSTS : 52,325

DISCOUNTED ECONOMIC BENEFITS : 52,776

AGRICULTURAL DEVELOPMENT BENEFIT 28,690  
 VOC SAVING (RUNNING COST) 18,554  
 VOC SAVING (FIXED COST) 6,614  
 RMC SAVING -1,082

NET PRESENT VALUE : 452

BENEFIT COST RATIO : 1.01

INTERNAL RATE OF RETURN : 12.1 %

Study Route No. 15

(1000 BAHT)

YEAR	COST		BENEFITS			DISCOUNTED (12%)		
	CONST. COST	AGRI. BENEFIT	VOC RUN'G	SAVING FIXED	RMC SAVING	TOTAL	COST	BENEFIT
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	4,130	0	0	0	0	0	5,181	0
1985	9,470	0	0	0	0	0	10,606	0
1986	0	2,242	3,388	1,304	-3	6,931	0	6,188
1987	0	2,989	3,606	1,388	-3	7,979	0	6,361
1988	0	3,734	3,825	1,472	-3	9,027	0	6,425
1989	0	4,480	4,043	1,556	-4	10,076	0	6,403
1990	0	5,226	4,261	1,640	-4	11,124	0	6,312
1991	0	5,972	4,480	1,724	-4	12,172	0	6,167
1992	3,976	6,718	4,698	1,808	-4	13,220	1,799	5,980
1993	0	7,510	4,992	1,921	-4	14,419	0	5,824
1994	0	8,303	5,285	2,034	-4	15,618	0	5,632
1995	0	9,095	5,579	2,147	-4	16,817	0	5,415
1996	0	9,888	5,873	2,260	-5	18,016	0	5,179
1997	0	10,680	6,166	2,373	-5	19,214	0	4,932
1998	0	11,472	6,460	2,486	-5	20,413	0	4,678
1999	0	12,265	6,753	2,599	-5	21,612	0	4,422
2000	0	13,057	7,047	2,712	-5	22,811	0	4,167
TOTAL	17,576	113,630	76,456	29,424	-61	219,448	17,586	84,085

DISCOUNTED ECONOMIC COSTS : 17,586

DISCOUNTED ECONOMIC BENEFITS : 84,085

AGRICULTURAL DEVELOPMENT BENEFIT 40,982  
 VOC SAVING (RUNNING COST) 31,143  
 VOC SAVING (FIXED COST) 11,986  
 RMC SAVING -26

NET PRESENT VALUE : 66,500

BENEFIT COST RATIO : 4.78

INTERNAL RATE OF RETURN : 42.2 %

Appendix 6-8-1 COST AND BENEFIT STATEMENTStudy Route No. 16

(1000 BAHT)

YEAR	COST		BENEFITS			DISCOUNTED (12%)		
	CONST. COST	AGRI. BENEFIT	VOC SAVING RUN'G	FIXED	RMC SAVING	TOTAL	COST	BENEFIT
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	5,150	0	0	0	0	0	6,460	0
1985	13,277	0	0	0	0	0	14,870	0
1986	0	335	6,426	1,875	55	8,691	0	7,760
1987	0	664	6,857	2,001	59	9,581	0	7,638
1988	0	994	7,288	2,126	62	10,471	0	7,453
1989	0	1,323	7,719	2,252	66	11,361	0	7,220
1990	0	1,652	8,151	2,378	70	12,250	0	6,951
1991	0	1,982	8,582	2,503	73	13,140	0	6,657
1992	6,128	2,311	9,013	2,629	77	14,030	2,772	6,346
1993	0	2,907	9,564	2,790	82	15,342	0	6,196
1994	0	3,504	10,114	2,950	86	16,654	0	6,006
1995	0	4,100	10,665	3,111	91	17,966	0	5,785
1996	0	4,697	11,215	3,272	96	19,279	0	5,542
1997	0	5,293	11,766	3,432	100	20,591	0	5,285
1998	0	5,889	12,316	3,593	105	21,903	0	5,020
1999	0	6,486	12,867	3,753	109	23,215	0	4,750
2000	0	7,082	13,417	3,914	114	24,527	0	4,481
TOTAL	24,555	49,219	145,959	42,579	1,245	239,000	24,102	93,090

DISCOUNTED ECONOMIC COSTS : 24,102

DISCOUNTED ECONOMIC BENEFITS : 93,090

AGRICULTURAL DEVELOPMENT BENEFIT 15,801  
 VOC SAVING (RUNNING COST) 59,441  
 VOC SAVING (FIXED COST) 17,340  
 RMC SAVING 507

NET PRESENT VALUE : 68,988

BENEFIT COST RATIO : 3.86

INTERNAL RATE OF RETURN : 38.1 %

Study Route No. 17

(1000 BAHT)

YEAR	COST		BENEFITS			DISCOUNTED (12%)		
	CONST. COST	AGRI. BENEFIT	VOC SAVING RUN'G	FIXED	RMC SAVING	TOTAL	COST	BENEFIT
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	5,698	0	0	0	0	0	7,148	0
1985	14,671	0	0	0	0	0	16,432	0
1986	0	1,179	618	781	-95	2,483	0	2,217
1987	0	1,321	663	938	-102	2,720	0	2,168
1988	0	1,463	707	894	-109	2,956	0	2,104
1989	0	1,605	752	951	-116	3,193	0	2,029
1990	0	1,748	797	1,008	-122	3,430	0	1,946
1991	0	1,890	841	1,064	-129	3,666	0	1,857
1992	6,970	2,032	886	1,121	-136	3,903	3,153	1,766
1993	0	2,175	943	1,193	-145	4,165	0	1,682
1994	0	2,317	999	1,264	-154	4,427	0	1,597
1995	0	2,460	1,056	1,336	-162	4,689	0	1,510
1996	0	2,603	1,113	1,408	-171	4,952	0	1,423
1997	0	2,745	1,169	1,479	-180	5,214	0	1,338
1998	0	2,888	1,226	1,551	-189	5,476	0	1,255
1999	0	3,030	1,282	1,622	-197	5,738	0	1,174
2000	0	3,173	1,339	1,694	-206	6,000	0	1,096
TOTAL	27,339	32,629	14,391	18,204	-2,212	63,012	26,732	25,163

DISCOUNTED ECONOMIC COSTS : 26,732

DISCOUNTED ECONOMIC BENEFITS : 25,163

AGRICULTURAL DEVELOPMENT BENEFIT 12,856  
 VOC SAVING (RUNNING COST) 5,829  
 VOC SAVING (FIXED COST) 7,373  
 RMC SAVING -896

NET PRESENT VALUE : -1,569

BENEFIT COST RATIO : 0.94

INTERNAL RATE OF RETURN : 11.1 %

Appendix 6-8-1 COST AND BENEFIT STATEMENTStudy Route No. 18

(1000 BAHT)

YEAR	COST		BENEFITS			DISCOUNTED (12%)			
	CONST. COST	AGRI. BENEFIT	VOC SAVING RUN'G	FIXED	RMC SAVING	TOTAL	COST	BENEFIT	
1982	0	0	0	0	0	0	0	0	
1983	0	0	0	0	0	0	0	0	
1984	8,637	0	0	0	0	0	10,834	0	
1985	20,550	0	0	0	0	0	23,016	0	
1986	0	581	10,005	1,700	81	12,367	0	11,042	
1987	0	726	10,611	1,803	86	13,225	0	10,543	
1988	0	871	11,216	1,906	91	14,084	0	10,024	
1989	0	1,015	11,822	2,009	96	14,942	0	9,496	
1990	0	1,160	12,428	2,112	100	15,800	0	8,966	
1991	0	1,305	13,033	2,215	105	16,659	0	8,440	
1992	7,484	1,450	13,639	2,318	110	17,517	3,385	7,924	
1993	0	1,951	14,434	2,453	116	18,954	0	7,655	
1994	0	2,451	15,229	2,588	123	20,391	0	7,353	
1995	0	2,952	16,024	2,723	129	21,828	0	7,028	
1996	0	3,452	16,819	2,859	136	23,265	0	6,688	
1997	0	3,953	17,613	2,994	142	24,701	0	6,340	
1998	0	4,453	18,408	3,129	148	26,138	0	5,990	
1999	0	4,954	19,203	3,264	155	27,575	0	5,642	
2000	0	5,454	19,998	3,399	161	29,012	0	5,300	
TOTAL	36,671	36,727	220,482	37,472	1,778	296,458	37,236	118,432	

DISCOUNTED ECONOMIC COSTS : 37,236

DISCOUNTED ECONOMIC BENEFITS : 118,432

AGRICULTURAL DEVELOPMENT BENEFIT 11,997  
 VOC SAVING (RUNNING COST) 90,351  
 VOC SAVING (FIXED COST) 15,355  
 RMC SAVING 729

NET PRESENT VALUE : 81,197

BENEFIT COST RATIO : 3.18

INTERNAL RATE OF RETURN : 33.7 %

Study Route No. 19

(1000 BAHT)

YEAR	COST		BENEFITS			DISCOUNTED (12%)			
	CONST. COST	AGRI. BENEFIT	VOC SAVING RUN'G	FIXED	RMC SAVING	TOTAL	COST	BENEFIT	
1982	0	0	0	0	0	0	0	0	
1983	0	0	0	0	0	0	0	0	
1984	7,274	0	0	0	0	0	0	9,125	
1985	17,431	0	0	0	0	0	0	19,523	
1986	0	533	3,106	745	-23	4,361	0	3,894	
1987	0	594	3,306	800	-25	4,675	0	3,727	
1988	0	654	3,506	855	-26	4,989	0	3,551	
1989	0	715	3,707	909	-28	5,304	0	3,370	
1990	0	776	3,907	964	-29	5,618	0	3,188	
1991	0	836	4,107	1,019	-31	5,932	0	3,005	
1992	7,220	897	4,307	1,074	-32	6,246	3,266	2,825	
1993	0	958	4,570	1,140	-34	6,634	0	2,679	
1994	0	1,019	4,833	1,206	-36	7,022	0	2,532	
1995	0	1,080	5,096	1,271	-38	7,410	0	2,386	
1996	0	1,142	5,360	1,337	-40	7,798	0	2,242	
1997	0	1,203	5,623	1,403	-42	8,186	0	2,101	
1998	0	1,264	5,886	1,469	-44	8,574	0	1,965	
1999	0	1,325	6,149	1,534	-46	8,962	0	1,834	
2000	0	1,386	6,412	1,600	-48	9,350	0	1,708	
TOTAL	31,925	14,382	69,874	17,326	-521	101,061	31,913	41,008	

DISCOUNTED ECONOMIC COSTS : 31,913

DISCOUNTED ECONOMIC BENEFITS : 41,008

AGRICULTURAL DEVELOPMENT BENEFIT 5,692  
 VOC SAVING (RUNNING COST) 28,498  
 VOC SAVING (FIXED COST) 7,030  
 RMC SAVING -212

NET PRESENT VALUE : 9,095

BENEFIT COST RATIO : 1.28

INTERNAL RATE OF RETURN : 15.9 %

Appendix 6-8-1 COST AND BENEFIT STATEMENTStudy Route No. 20

(1000 BAHT)

YEAR	COST		BENEFITS			DISCOUNTED (12%)		
	CONST. COST	AGRI. BENEFIT	VOC SAVING RUN'G	SAVING FIXED	RMC SAVING	TOTAL	COST	BENEFIT
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	8,773	0	0	0	0	0	11,005	0
1985	22,571	0	0	0	0	0	25,280	0
1986	0	1,008	520	417	-86	1,859	0	1,660
1987	0	1,247	558	447	-92	2,160	0	1,722
1988	0	1,487	595	478	-98	2,461	0	1,752
1989	0	1,726	633	508	-104	2,763	0	1,756
1990	0	1,965	671	538	-111	3,064	0	1,738
1991	0	2,205	708	569	-117	3,365	0	1,705
1992	7,416	2,444	746	599	-123	3,666	3,355	1,658
1993	0	3,309	794	637	-131	4,609	0	1,862
1994	0	4,175	842	676	-139	5,553	0	2,002
1995	0	5,040	889	714	-147	6,496	0	2,092
1996	0	5,905	937	752	-155	7,440	0	2,139
1997	0	6,770	985	790	-162	8,383	0	2,152
1998	0	7,636	1,033	829	-170	9,326	0	2,137
1999	0	8,501	1,080	867	-178	10,270	0	2,101
2000	0	9,366	1,128	905	-186	11,213	0	2,049
TOTAL	38,760	62,783	12,118	9,725	-1,999	82,627	39,639	28,524

DISCOUNTED ECONOMIC COSTS : 39,639

DISCOUNTED ECONOMIC BENEFITS : 28,524

AGRICULTURAL DEVELOPMENT BENEFIT 20,487  
 VOC SAVING (RUNNING COST) 4,908  
 VOC SAVING (FIXED COST) 3,939  
 RMC SAVING -810

NET PRESENT VALUE : -11,115

BENEFIT COST RATIO : 0.72

INTERNAL RATE OF RETURN : 8.1 %

Study Route No. 21

(1000 BAHT)

YEAR	COST		BENEFITS			DISCOUNTED (12%)		
	CONST. COST	AGRI. BENEFIT	VOC SAVING RUN'G	SAVING FIXED	RMC SAVING	TOTAL	COST	BENEFIT
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	9,545	0	0	0	0	0	11,973	0
1985	21,476	0	0	0	0	0	24,053	0
1986	0	2,029	7,861	1,784	183	11,857	0	10,587
1987	0	3,425	8,337	1,892	194	13,848	0	11,040
1988	0	4,821	8,813	2,000	205	15,839	0	11,274
1989	0	6,218	9,289	2,108	217	17,831	0	11,332
1990	0	7,614	9,765	2,215	228	19,822	0	11,247
1991	0	9,010	10,241	2,323	239	21,813	0	11,051
1992	9,099	10,406	10,717	2,431	250	23,804	4,116	10,768
1993	0	9,923	11,342	2,573	265	24,102	0	9,734
1994	0	9,440	11,966	2,715	279	24,400	0	8,799
1995	0	8,957	12,591	2,856	294	24,698	0	7,952
1996	0	8,475	13,215	2,998	308	24,996	0	7,186
1997	0	7,992	13,840	3,140	323	25,293	0	6,492
1998	0	7,509	14,464	3,282	337	25,591	0	5,865
1999	0	7,026	15,089	3,423	352	25,889	0	5,297
2000	0	6,543	15,713	3,565	366	26,187	0	4,784
TOTAL	40,120	109,387	173,241	39,304	4,038	325,969	40,142	133,408

DISCOUNTED ECONOMIC COSTS : 40,142

DISCOUNTED ECONOMIC BENEFITS : 133,408

AGRICULTURAL DEVELOPMENT BENEFIT 44,655  
 VOC SAVING (RUNNING COST) 70,992  
 VOC SAVING (FIXED COST) 16,107  
 RMC SAVING 1,654

NET PRESENT VALUE : 93,265

BENEFIT COST RATIO : 3.32

INTERNAL RATE OF RETURN : 34.7 %

Appendix 6-8-1 COST AND BENEFIT STATEMENTStudy Route No. 22

(1000 BAHT)

YEAR	COST		BENEFITS			DISCOUNTED (12%)		
	CONST. COST	AGRI. BENEFIT	VOC RUN'G	SAVING FIXED	RMC SAVING	TOTAL	COST	BENEFIT
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	4,897	0	0	0	0	0	6,143	0
1985	11,455	0	0	0	0	0	12,830	0
1986	0	825	7,719	2,690	91	11,325	0	10,112
1987	0	934	8,186	2,853	97	12,069	0	9,622
1988	0	1,042	8,654	3,016	102	12,814	0	9,121
1989	0	1,151	9,121	3,178	108	13,558	0	8,616
1990	0	1,260	9,588	3,341	113	14,302	0	8,116
1991	0	1,368	10,056	3,504	119	15,047	0	7,623
1992	6,527	1,477	10,523	3,667	124	15,791	2,952	7,143
1993	0	1,535	11,136	3,881	131	16,684	0	6,738
1994	0	1,594	11,750	4,094	139	17,576	0	6,338
1995	0	1,652	12,363	4,308	146	18,469	0	5,946
1996	0	1,710	12,977	4,522	153	19,361	0	5,566
1997	0	1,768	13,590	4,735	160	20,254	0	5,199
1998	0	1,827	14,203	4,949	168	21,146	0	4,846
1999	0	1,885	14,817	5,162	175	22,039	0	4,510
2000	0	1,943	15,430	5,376	182	22,931	0	4,189
TOTAL	22,879	21,970	170,113	59,276	2,006	253,364	21,925	103,684

DISCOUNTED ECONOMIC COSTS : 21,925

DISCOUNTED ECONOMIC BENEFITS : 103,684

AGRICULTURAL DEVELOPMENT BENEFIT 8,862  
 VOC SAVING (RUNNING COST) 69,709  
 VOC SAVING (FIXED COST) 24,291  
 RMC SAVING 822

NET PRESENT VALUE : 81,759

BENEFIT COST RATIO : 4.73

INTERNAL RATE OF RETURN : 46.4 %

Study Route No. 23

(1000 BAHT)

YEAR	COST		BENEFITS			DISCOUNTED (12%)		
	CONST. COST	AGRI. BENEFIT	VOC RUN'G	SAVING FIXED	RMC SAVING	TOTAL	COST	BENEFIT
1982	0	0	0	0	0	0	0	0
1983	31,685	0	0	0	0	0	44,515	0
1984	29,965	0	0	0	0	0	37,588	0
1985	43,938	0	0	0	0	0	49,211	0
1986	0	6,081	36,750	9,165	334	52,330	0	46,723
1987	0	8,131	39,264	9,792	357	57,544	0	45,874
1988	0	10,181	41,779	10,419	380	62,758	0	44,670
1989	0	12,231	44,293	11,046	403	67,973	0	43,198
1990	0	14,281	46,807	11,673	425	73,187	0	41,528
1991	0	16,331	49,322	12,300	448	78,401	0	39,720
1992	25,368	18,381	51,836	12,927	471	83,615	11,475	37,823
1993	0	19,216	55,376	13,810	503	88,905	0	35,907
1994	0	20,051	58,916	14,693	536	94,196	0	33,968
1995	0	20,886	62,456	15,576	568	99,486	0	32,032
1996	0	21,721	65,997	16,459	600	104,776	0	30,121
1997	0	22,556	69,537	17,341	632	110,066	0	28,251
1998	0	23,391	73,077	18,224	665	115,357	0	26,437
1999	0	24,226	76,617	19,107	697	120,647	0	24,687
2000	0	25,061	80,157	19,990	729	125,937	0	23,008
TOTAL	130,956	262,725	852,184	212,522	7,747	1,335,180	142,789	533,948

DISCOUNTED ECONOMIC COSTS : 142,789

DISCOUNTED ECONOMIC BENEFITS : 533,948

AGRICULTURAL DEVELOPMENT BENEFIT 100,270  
 VOC SAVING (RUNNING COST) 344,606  
 VOC SAVING (FIXED COST) 85,940  
 RMC SAVING 3,132

NET PRESENT VALUE : 391,159

BENEFIT COST RATIO : 3.74

INTERNAL RATE OF RETURN : 34.2 %



Appendix 6-8-1 COST AND BENEFIT STATEMENTStudy Route No. 24

(1000 BAHT)

YEAR	COST		BENEFITS			DISCOUNTED (12%)		
	CONST. COST	AGRI. BENEFIT	VOC RUN'G	SAVING FIXED	RMC SAVING	TOTAL	COST	BENEFIT
1982	6,840	0	0	0	0	0	10,763	0
1983	53,021	0	0	0	0	0	74,491	0
1984	60,869	0	0	0	0	0	76,354	0
1985	38,967	0	0	0	0	0	43,643	0
1986	0	3,305	1,439	2,804	-573	6,975	0	6,228
1987	0	4,148	1,526	2,974	-608	8,040	0	6,409
1988	0	4,991	1,613	3,144	-643	9,105	0	6,481
1989	0	5,834	1,700	3,313	-677	10,170	0	6,463
1990	0	6,676	1,788	3,483	-712	11,235	0	6,375
1991	0	7,519	1,875	3,653	-747	12,300	0	6,232
1992	28,039	8,362	1,962	3,823	-782	13,365	12,683	6,046
1993	0	9,852	2,076	4,046	-828	15,146	0	6,117
1994	0	11,341	2,191	4,269	-873	16,927	0	6,104
1995	0	12,831	2,305	4,491	-919	18,708	0	6,024
1996	0	14,320	2,420	4,714	-954	20,490	0	5,890
1997	0	15,810	2,534	4,937	-1,010	22,271	0	5,716
1998	0	17,299	2,648	5,160	-1,055	24,052	0	5,512
1999	0	18,789	2,763	5,382	-1,101	25,833	0	5,286
2000	0	20,278	2,877	5,605	-1,146	27,614	0	5,045
TOTAL	187,736	161,353	31,717	61,798	-12,637	242,231	217,934	89,928

DISCOUNTED ECONOMIC COSTS : 217,934

DISCOUNTED ECONOMIC BENEFITS : 89,928

AGRICULTURAL DEVELOPMENT BENEFIT 56,785

VOC SAVING (RUNNING COST) 12,997

VOC SAVING (FIXED COST) 25,324

RMC SAVING -5,178

NET PRESENT VALUE : -128,006

BENEFIT COST RATIO : 0.41

INTERNAL RATE OF RETURN : 2.5 %

Study Route No. 25

(1000 BAHT)

YEAR	COST		BENEFITS			DISCOUNTED (12%)		
	CONST. COST	AGRI. BENEFIT	VOC RUN'G	SAVING FIXED	RMC SAVING	TOTAL	COST	BENEFIT
1982	0	0	0	0	0	0	0	0
1983	29,389	0	0	0	0	0	41,289	0
1984	31,882	0	0	0	0	0	39,993	0
1985	46,669	0	0	0	0	0	52,269	0
1986	0	4,662	824	736	-261	5,961	0	5,322
1987	0	10,137	874	781	-277	11,515	0	9,180
1988	0	15,613	924	825	-293	17,069	0	12,149
1989	0	21,088	974	870	-309	22,623	0	14,377
1990	0	26,563	1,024	914	-324	28,177	0	15,988
1991	0	32,039	1,074	959	-340	33,731	0	17,089
1992	25,713	37,514	1,124	1,003	-356	39,285	11,631	17,771
1993	0	36,798	1,189	1,062	-377	38,672	0	15,619
1994	0	36,082	1,255	1,120	-398	38,060	0	13,725
1995	0	35,366	1,320	1,179	-418	37,447	0	12,057
1996	0	34,651	1,386	1,237	-439	36,834	0	10,589
1997	0	33,935	1,451	1,296	-460	36,221	0	9,297
1998	0	33,219	1,516	1,354	-481	35,609	0	8,161
1999	0	32,503	1,582	1,413	-501	34,996	0	7,161
2000	0	31,787	1,647	1,471	-522	34,383	0	6,282
TOTAL	133,653	421,957	18,164	16,217	-5,755	450,582	145,183	174,767

DISCOUNTED ECONOMIC COSTS : 145,183

DISCOUNTED ECONOMIC BENEFITS : 174,767

AGRICULTURAL DEVELOPMENT BENEFIT 163,036

VOC SAVING (RUNNING COST) 7,443

VOC SAVING (FIXED COST) 6,645

RMC SAVING -2,358

NET PRESENT VALUE : 29,584

BENEFIT COST RATIO : 1.20

INTERNAL RATE OF RETURN : 14.4 %

Appendix 6-8-1 COST AND BENEFIT STATEMENTStudy Route No. 26

(1000 BAHT)

YEAR	COST		BENEFITS			DISCOUNTED (12%)		
	CONST. COST	AGRI. BENEFIT	VOC RUN'G	SAVING FIXED	RMC SAVING	TOTAL COST	TOTAL BENEFIT	
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	10,770	0	0	0	0	0	13,510	0
1985	27,700	0	0	0	0	0	31,024	0
1986	0	646	2,812	629	-57	4,030	0	3,598
1987	0	2,734	3,012	674	-61	6,358	0	5,069
1988	0	4,821	3,212	719	-65	8,686	0	6,183
1989	0	6,909	3,411	763	-70	11,014	0	7,000
1990	0	8,996	3,611	808	-74	13,342	0	7,571
1991	0	11,084	3,811	853	-78	15,670	0	7,939
1992	9,149	13,171	4,011	898	-82	17,998	4,139	8,141
1993	0	14,001	4,262	954	-87	19,130	0	7,726
1994	0	14,831	4,513	1,010	-92	20,262	0	7,307
1995	0	15,661	4,764	1,066	-97	21,394	0	6,988
1996	0	16,492	5,015	1,123	-102	22,527	0	6,476
1997	0	17,322	5,265	1,179	-107	23,659	0	6,073
1998	0	18,152	5,516	1,235	-112	24,791	0	5,681
1999	0	18,982	5,767	1,291	-117	25,923	0	5,304
2000	0	19,812	6,018	1,347	-122	27,055	0	4,943
TOTAL	47,619	183,612	65,000	14,549	-1,323	261,839	48,672	95,898

DISCOUNTED ECONOMIC COSTS :	48,672
DISCOUNTED ECONOMIC BENEFITS :	95,898
AGRICULTURAL DEVELOPMENT BENEFIT	64,152
VOC SAVING (RUNNING COST)	26,379
VOC SAVING (FIXED COST)	5,904
RMC SAVING	-537
NET PRESENT VALUE :	47,226
BENEFIT COST RATIO :	1.97
INTERNAL RATE OF RETURN :	21.7 %

Study Route No. 27

(1000 BAHT)

YEAR	COST		BENEFITS			DISCOUNTED (12%)		
	CONST. COST	AGRI. BENEFIT	VOC RUN'G	SAVING FIXED	RMC SAVING	TOTAL COST	TOTAL BENEFIT	
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	9,180	0	0	0	0	0	11,515	0
1985	23,574	0	0	0	0	0	26,403	0
1986	0	599	558	182	-95	1,244	0	1,111
1987	0	2,417	595	194	-101	3,105	0	2,475
1988	0	4,235	633	206	-108	4,966	0	3,535
1989	0	6,053	670	219	-114	6,828	0	4,339
1990	0	7,871	707	231	-120	8,689	0	4,930
1991	0	9,689	745	243	-127	10,550	0	5,345
1992	8,159	11,507	782	255	-133	12,411	3,691	5,614
1993	0	12,533	831	271	-141	13,493	0	5,450
1994	0	13,558	880	287	-150	14,575	0	5,256
1995	0	14,584	929	303	-158	15,657	0	5,041
1996	0	15,609	978	319	-167	16,739	0	4,812
1997	0	16,635	1,026	335	-175	17,821	0	4,574
1998	0	17,660	1,075	351	-183	18,903	0	4,332
1999	0	18,686	1,124	367	-192	19,985	0	4,089
2000	0	19,711	1,173	383	-200	21,067	0	3,849
TOTAL	40,913	171,345	12,706	4,146	-2,164	186,033	41,609	64,752

DISCOUNTED ECONOMIC COSTS :	41,609
DISCOUNTED ECONOMIC BENEFITS :	64,752
AGRICULTURAL DEVELOPMENT BENEFIT	58,778
VOC SAVING (RUNNING COST)	5,168
VOC SAVING (FIXED COST)	1,686
RMC SAVING	-880
NET PRESENT VALUE :	23,143
BENEFIT COST RATIO :	1.56
INTERNAL RATE OF RETURN :	17.8 %

Appendix 6-8-1 COST AND BENEFIT STATEMENTStudy Route No. 28

(1000 BAHT)

YEAR	COST		BENEFITS			DISCOUNTED (12%)		
	CONST. COST	AGRI. BENEFIT	VOC RUN'G	SAVING FIXED	RMC SAVING	TOTAL	COST	BENEFIT
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	10,655	0	0	0	0	0	13,366	0
1985	27,407	0	0	0	0	0	30,696	0
1986	0	692	681	287	-112	1,548	0	1,382
1987	0	1,091	726	306	-119	2,003	0	1,597
1988	0	1,490	771	325	-127	2,459	0	1,750
1989	0	1,889	815	344	-134	2,914	0	1,852
1990	0	2,287	860	363	-141	3,369	0	1,912
1991	0	2,686	905	382	-149	3,825	0	1,938
1992	10,425	3,085	950	401	-156	4,280	4,716	1,936
1993	0	3,069	1,012	427	-166	4,343	0	1,754
1994	0	3,054	1,074	453	-176	4,405	0	1,588
1995	0	3,038	1,136	479	-186	4,468	0	1,438
1996	0	3,023	1,199	506	-197	4,530	0	1,302
1997	0	3,007	1,261	532	-207	4,593	0	1,179
1998	0	2,991	1,323	558	-217	4,655	0	1,067
1999	0	2,976	1,385	584	-227	4,718	0	965
2000	0	2,960	1,447	610	-237	4,780	0	873
TOTAL	48,487	37,337	15,545	6,557	-2,551	56,888	48,777	22,534

DISCOUNTED ECONOMIC COSTS : 48,777

DISCOUNTED ECONOMIC BENEFITS : 22,534

AGRICULTURAL DEVELOPMENT BENEFIT 14,597  
 VOC SAVING (RUNNING COST) 6,311  
 VOC SAVING (FIXED COST) 2,662  
 RMC SAVING -1,036

NET PRESENT VALUE : -26,243

BENEFIT COST RATIO : 0.46

INTERNAL RATE OF RETURN : 1.9 %

Study Route No. 29

(1000 BAHT)

YEAR	COST		BENEFITS			DISCOUNTED (12%)		
	CONST. COST	AGRI. BENEFIT	VOC RUN'G	SAVING FIXED	RMC SAVING	TOTAL	COST	BENEFIT
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	6,281	0	0	0	0	0	7,879	0
1985	16,154	0	0	0	0	0	18,104	0
1986	0	505	763	112	-85	1,295	0	1,156
1987	0	734	820	120	-91	1,584	0	1,262
1988	0	963	878	129	-98	1,872	0	1,332
1989	0	1,193	935	137	-104	2,161	0	1,373
1990	0	1,422	992	145	-110	2,449	0	1,390
1991	0	1,651	1,050	154	-117	2,738	0	1,387
1992	6,984	1,880	1,107	162	-123	3,026	3,159	1,369
1993	0	2,473	1,191	174	-132	3,706	0	1,497
1994	0	3,066	1,275	187	-142	4,386	0	1,582
1995	0	3,659	1,359	199	-151	5,066	0	1,631
1996	0	4,252	1,443	212	-160	5,746	0	1,652
1997	0	4,845	1,526	224	-169	6,426	0	1,649
1998	0	5,438	1,610	236	-179	7,106	0	1,629
1999	0	6,031	1,694	249	-188	7,786	0	1,593
2000	0	6,624	1,778	261	-197	8,466	0	1,547
TOTAL	29,429	44,736	18,421	2,701	-2,045	63,812	29,142	22,049

DISCOUNTED ECONOMIC COSTS : 29,142

DISCOUNTED ECONOMIC BENEFITS : 22,049

AGRICULTURAL DEVELOPMENT BENEFIT 14,412  
 VOC SAVING (RUNNING COST) 7,375  
 VOC SAVING (FIXED COST) 1,081  
 RMC SAVING -819

NET PRESENT VALUE : -7,093

BENEFIT COST RATIO : 0.76

INTERNAL RATE OF RETURN : 8.6 %

Appendix 6-8-1 COST AND BENEFIT STATEMENTStudy Route No. 30Study Route No. 31

(1000 BAHT)

YEAR	COST		BENEFITS			DISCOUNTED (12%)		
	CONST. COST	AGRI. BENEFIT	VOC RUN'G	SAVING FIXED	RMC SAVING	TOTAL	COST	BENEFIT
1982	3,617	0	0	0	0	0	5,691	0
1983	26,783	0	0	0	0	0	37,628	0
1984	30,516	0	0	0	0	0	38,279	0
1985	19,534	0	0	0	0	0	21,878	0
1986	0	3,065	5,091	1,108	-142	9,122	0	8,145
1987	0	4,444	5,399	1,175	-151	10,867	0	8,663
1988	0	5,822	5,707	1,242	-159	12,612	0	8,977
1989	0	7,201	6,015	1,309	-168	14,358	0	9,124
1990	0	8,579	6,324	1,376	-176	16,103	0	9,137
1991	0	9,958	6,632	1,443	-185	17,848	0	9,042
1992	22,673	11,336	6,940	1,510	-193	19,593	10,256	8,863
1993	0	15,013	7,345	1,598	-204	23,751	0	9,593
1994	0	18,690	7,749	1,686	-216	27,909	0	10,064
1995	0	22,387	8,154	1,774	-227	32,067	0	10,325
1996	0	26,044	8,558	1,862	-238	36,226	0	10,414
1997	0	29,720	8,963	1,950	-249	40,384	0	10,365
1998	0	33,397	9,367	2,038	-261	44,542	0	10,208
1999	0	37,074	9,772	2,126	-272	48,700	0	9,965
2000	0	40,751	10,176	2,214	-283	52,858	0	9,657
<b>TOTAL</b>	<b>103,123</b>	<b>273,459</b>	<b>112,191</b>	<b>24,411</b>	<b>-3,122</b>	<b>406,939</b>	<b>113,733</b>	<b>142,543</b>

DISCOUNTED ECONOMIC COSTS : 113,733

DISCOUNTED ECONOMIC BENEFITS : 142,543

AGRICULTURAL DEVELOPMENT BENEFIT 87,845  
 VOC SAVING (RUNNING COST) 45,974  
 VOC SAVING (FIXED COST) 10,004  
 RMC SAVING -1,280

NET PRESENT VALUE : 28,810

BENEFIT COST RATIO : 1.25

INTERNAL RATE OF RETURN : 14.7 %

(1000 BAHT)

YEAR	COST		BENEFITS			DISCOUNTED (12%)		
	CONST. COST	AGRI. BENEFIT	VOC RUN'G	SAVING FIXED	RMC SAVING	TOTAL	COST	BENEFIT
1982	0	0	0	0	0	0	0	0
1983	26,033	0	0	0	0	0	36,574	0
1984	28,102	0	0	0	0	0	35,251	0
1985	41,141	0	0	0	0	0	46,078	0
1986	0	3,361	7,847	1,518	-140	12,586	0	11,238
1987	0	5,090	8,322	1,610	-149	14,873	0	11,857
1988	0	6,818	8,797	1,702	-157	17,160	0	12,214
1989	0	8,547	9,272	1,794	-166	19,448	0	12,359
1990	0	10,276	9,747	1,886	-174	21,735	0	12,333
1991	0	12,004	10,222	1,978	-183	24,022	0	12,170
1992	28,928	13,733	10,697	2,070	-191	26,309	13,086	11,901
1993	0	14,713	11,320	2,191	-202	28,022	0	11,317
1994	0	15,693	11,944	2,311	-214	29,734	0	10,722
1995	0	16,673	12,567	2,432	-225	31,447	0	10,125
1996	0	17,653	13,191	2,553	-236	33,160	0	9,533
1997	0	18,632	13,814	2,673	-247	34,872	0	8,951
1998	0	19,612	14,437	2,794	-259	36,585	0	8,384
1999	0	20,592	15,061	2,914	-270	38,297	0	7,836
2000	0	21,572	15,684	3,035	-281	40,010	0	7,310
<b>TOTAL</b>	<b>124,204</b>	<b>204,969</b>	<b>172,922</b>	<b>33,461</b>	<b>-3,092</b>	<b>408,259</b>	<b>130,989</b>	<b>158,251</b>

DISCOUNTED ECONOMIC COSTS : 130,989

DISCOUNTED ECONOMIC BENEFITS : 158,251

AGRICULTURAL DEVELOPMENT BENEFIT 74,944  
 VOC SAVING (RUNNING COST) 70,862  
 VOC SAVING (FIXED COST) 13,711  
 RMC SAVING -1,266

NET PRESENT VALUE : 27,262

BENEFIT COST RATIO : 1.21

INTERNAL RATE OF RETURN : 14.6 %

Appendix 6-8-1 COST AND BENEFIT STATEMENTStudy Route No. 20 (F-5 Standard)Study Route No. 29 (F-5 Standard)

(1000 BAHT)

(1000 BAHT)

YEAR	COST		BENEFITS			DISCOUNTED (12%)		
	CONST. COST	AGRI. BENEFIT	VOC RUN'G	SAVING FIXED	RMC SAVING	TOTAL	COST	BENEFIT
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	6,001	0	0	0	0	0	7,528	0
1985	15,419	0	0	0	0	0	17,269	0
1986	0	1,008	229	218	-21	1,434	0	1,280
1987	0	1,247	246	234	-23	1,704	0	1,359
1988	0	1,487	262	250	-24	1,975	0	1,406
1989	0	1,726	279	266	-26	2,245	0	1,427
1990	0	1,965	296	281	-27	2,515	0	1,427
1991	0	2,205	312	297	-29	2,786	0	1,411
1992	0	2,444	329	313	-30	3,056	0	1,382
1993	0	3,309	350	333	-32	3,960	0	1,599
1994	0	4,175	371	353	-34	4,865	0	1,754
1995	0	5,040	392	373	-36	5,769	0	1,857
1996	0	5,905	413	393	-38	6,673	0	1,918
1997	0	6,770	434	413	-40	7,577	0	1,945
1998	0	7,636	455	433	-42	8,482	0	1,944
1999	0	8,501	476	453	-44	9,386	0	1,921
2000	0	9,366	497	473	-46	10,290	0	1,880
TOTAL	21,420	62,783	5,341	5,083	-491	72,716	24,797	24,511

DISCOUNTED ECONOMIC COSTS : 24,797

DISCOUNTED ECONOMIC BENEFITS : 24,511

AGRICULTURAL DEVELOPMENT BENEFIT 20,487

VOC SAVING (RUNNING COST) 2,163

VOC SAVING (FIXED COST) 2,058

RMC SAVING -198

NET PRESENT VALUE : -286

BENEFIT COST RATIO : 0.99

INTERNAL RATE OF RETURN : 11.8 %

YEAR	COST		BENEFITS			DISCOUNTED (12%)		
	CONST. COST	AGRI. BENEFIT	VOC RUN'G	SAVING FIXED	RMC SAVING	TOTAL	COST	BENEFIT
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	4,805	0	0	0	0	0	6,027	0
1985	11,835	0	0	0	0	0	13,255	0
1986	0	505	305	56	-16	850	0	759
1987	0	734	328	60	-17	1,106	0	881
1988	0	963	351	64	-17	1,361	0	969
1989	0	1,193	374	69	-18	1,617	0	1,028
1990	0	1,422	397	73	-19	1,873	0	1,063
1991	0	1,651	420	77	-19	2,128	0	1,078
1992	608	1,880	443	81	-20	2,384	275	1,078
1993	0	2,473	477	87	-22	3,015	0	1,218
1994	0	3,066	510	93	-24	3,645	0	1,314
1995	0	3,659	544	99	-26	4,276	0	1,377
1996	0	4,252	577	106	-29	4,906	0	1,410
1997	0	4,845	611	112	-31	5,537	0	1,421
1998	0	5,438	644	118	-33	6,167	0	1,413
1999	0	6,031	678	124	-35	6,798	0	1,391
2000	0	6,624	711	130	-37	7,428	0	1,357
TOTAL	17,248	44,736	7,368	1,348	-363	53,089	19,558	17,758

DISCOUNTED ECONOMIC COSTS : 19,558

DISCOUNTED ECONOMIC BENEFITS : 17,758

AGRICULTURAL DEVELOPMENT BENEFIT 14,412

VOC SAVING (RUNNING COST) 2,950

VOC SAVING (FIXED COST) 540

RMC SAVING -144

NET PRESENT VALUE : -1,800

BENEFIT COST RATIO : 0.91

INTERNAL RATE OF RETURN : 10.9 %



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