

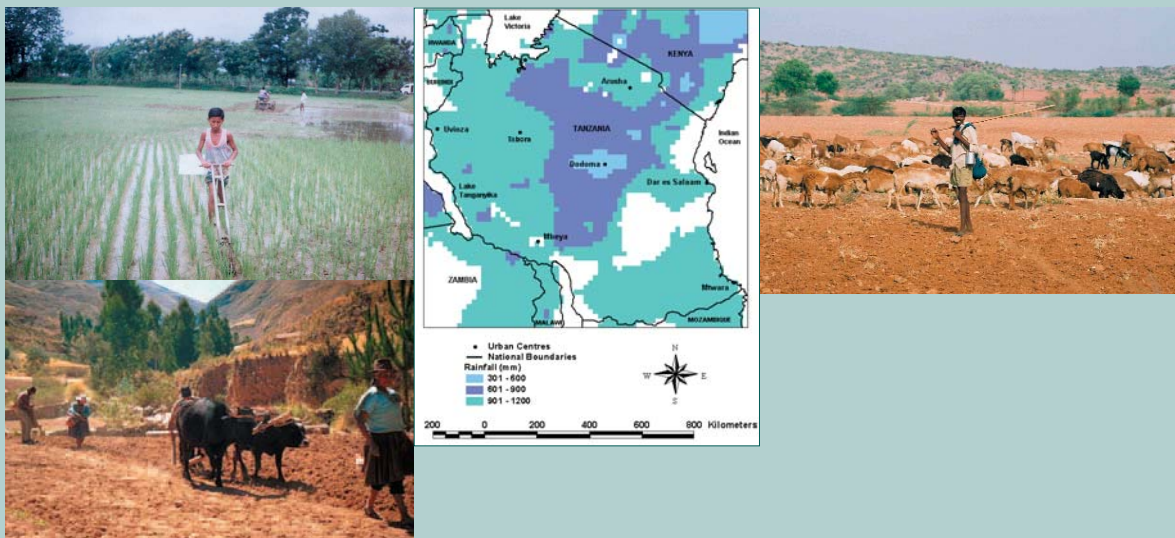


DFID Natural Resources Systems Programme



The Characterisation of Six Natural Resources Production Systems

J. Taylor, M. Tang, C. Beddows, F.M. Quin, M.A. Stocking



August 2003

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APPENDICES CONTENTS

	Page
Notes on Appendices	App-2
Appendix 1 Production System (PS) data and information	App-4 to 21
Master Summary Sheet, all Production Systems	App-4
Country Characteristics for Specific PSs ¹³ :	
Bangladesh	App-5
Bolivia	App-6
Brazil	App-7
Caribbean	App-8
Ghana	App-9
India	App-10
Kenya	App-11
Nepal	App-13
Tanzania	App-14
Uganda	App-15
Zimbabwe	App-16
Bangladesh Supplement	App-17
India Supplement	App-19
Nepal Supplement	App-21
Appendix 2 Simple Scoring	App-22 to 28
Characterisation Criterion Score Version 1	App-22
Characterisation Criterion Score Version 2	App-23
Characterisation Criterion Score Version 3	App-24
Simple Scores Weighted 1	App-25
Simple Scores Weighted 2	App-26
Simple Scores Weighted 3	App-27
Simple Scoring Summary	App-28
Appendix 3 Relative Scoring (Double Counted)	App-29 to 35
Relative Characterisation Score Version 1	App-29
Relative Characterisation Score Version 2	App-30
Relative Characterisation Score Version 3	App-31
Relative Scores Weighted 1	App-32
Relative Scores Weighted 2	App-33
Relative Scores Weighted 3	App-34
Relative Scores Summary	App-35
Appendix 4 Adjusted Relative Scoring	App-36 to 42
Adjusted Characterisation Score Version 1	App-36
Adjusted Characterisation Score Version 2	App-37
Adjusted Characterisation Score Version 3	App-38
Adjusted Relative Scores Weighted 1	App-39
Adjusted Relative Scores Weighted 2	App-40
Adjusted Relative Scores Weighted 3	App-41
Adjusted Relative Scores Summary	App-42

¹³ / The specific Production Systems for each Target Country are identified with a red-filled column header cell.

NOTES ON APPENDICES

APPENDIX 1 – TARGET COUNTRY PS CHARACTERISTICS

The basic data and information for the characterisation criteria were assembled in one Excel Workbook with sheets assigned for each Target Country and their specified Production Systems (PSs) (see Appendix 1, pages App-5 to App-16 and supplementary sheets App-17 to App-21).

As explained in the main text (Section 3), the PSs are not rigid entities and determining their extent in terms of land area is dependent on what limits (e.g., for rainfall, length of growing period, and/or soil type) are applied. In some countries more than one definition of a specific PS was considered. Data and information were assembled for these alternatives, designated in parenthesis (1), (2) etc. When data and information were combined for a specific PS across the relevant target countries, these options were taken forward, leading to three possible versions for comparisons between PSs, as summarised in the table below.

The combined data and information for each PS definition that was considered are summarised in one PS Master Summary Sheet (see Appendix 1, page App-4).

Versions	Production Systems					
Version 1	HP(1)	HS	SA(1)	FA(2)	LW(1)	PU
Version 2	HP(2)	HS	SA(2)	FA(1)	LW(2)	PU
Version 3	HP(1)	HS	SA(1)	FA(1)	LW(3)	PU

The different production system definitions that were applied in making PS combinations across countries were:

HP(1) Uses narrower definition of the High Potential PS in India (keeping to land below 150 metres elevation) plus single definitions specific to Kenya and Bangladesh respectively.

HP(2) Uses wider definition of the High Potential PS in India (including land of 1-500 metres elevation) plus single definitions specific to Kenya and Bangladesh respectively.

HS Uses only one wider definition of the Hillside PS for Bolivia (HS(3), see App-6) plus single definitions specific to Uganda and Nepal respectively. (Details of HS(1) and HS(2) are given for Bolivia on page App-6).

SA(1) Uses rainfall based definition of the Semi-Arid PS for Tanzania (300-900 mm rainfall) and takes areas defined as dry and moist semi-arid in India plus a single definition for Zimbabwe.

SA(2) Uses LGP based definition of Semi-Arid PS for Tanzania (3-6 months) and takes areas defined as dry and moist semi-arid and dry sub-humid in India plus a single definition for Zimbabwe.

FA(1) Uses land area with 9-10 months LGP plus single definitions specific to Brazil and Nepal respectively.

FA(2) Uses land area with 8 months LGP plus single definitions specific to Brazil and Nepal respectively.

LW(1) Inland definition: Uses seasonally wetland areas of Bangladesh inland floodplains and Lake Kyoga margins with its drainage line into Lake Victoria, Uganda.

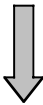
LW(2) Definition best aligned with current LW geographic scope: Uses Bangladesh (inland and coastal) and selected parts of the Caribbean region.

LW(3) Takes only the Bangladesh LWI (inland floodplains and coastal tidal floodplains).

PU Uses selected city regions of Ghana and India

APPENDIX 2 – SIMPLE SCORING

This annex utilises the summated data in the PS Master Summary Sheet of Appendix 1 (see page App-4) and generates data matrices of criteria by PSs for each version of the PS comparisons, as defined in the table above (see page App-2). Within each PS version (see pages App-22 to App-24), the values for each criterion are ranked across the PSs by scoring the values on a scale of 1 to 6 where:

6	=	Greatest need	(largest land area; most people; worst market feasibility [least roads & large towns]; worst potential [greatest distance to major outlets & least production]; most acute poverty status [lowest GDP, literacy rate & child wt for ht]; weakest NR knowledge base [least funds and human resources])
Grading to:			
1	=	Least need	(smallest land area; least people; best market feasibility; best potential; least acute poverty status; strongest NR knowledge base)

For each PS comparison version, the rank scores (called ‘simple scoring’) for each criterion are converted to weighted scores for five weighting scenarios and a total weighted simple score is generated for each PS and each weighting scenario (see App-25 to App-27) where each total weighted simple score (the Weighted Importance Score [WIS]) is calculated as:

$$\text{WIS} = ([\text{score}] \times [\text{weight}]_{\text{Criterion 1}}) + ([\text{score}] \times [\text{weight}]_{\text{Criterion 2}}) \dots + ([\text{score}] \times [\text{weight}]_{\text{Criterion 6}})$$

All weighted simple score totals (for three PS versions by five weighting scenarios) are then summarised and an overall assessment is made of the implications of these scores for proportional budget allocations to the PSs (see App-28).

APPENDIX 3 – RELATIVE SCORING

This annex uses the same data matrices as Appendix 2, App-22 to App-42, but ranks the data for each criterion using relative scoring. Because the simple scoring method assigns discrete rank scores (the ‘need scale’ of 1 to 6), it does not do justice to criterion data that have numerically close values. Therefore Appendix 3 applies a relative scoring system in which a score of ‘1’ is assigned to the ‘greatest need’ figure (i.e., the criterion value looking across PSs that had scored the highest rank score on the 1-6 scale of need assessment). The criterion values for all other PSs are then expressed as a fraction relative to the criterion value of the PS scored as the ‘greatest need’ (see App-29 to App-31).

As with the simple scoring method, the proportional scores are then converted to weighted scores for the same five weighting scenarios used in Appendix 2 (see App-32 to App-34). The total weighted scores (three PS versions by five weighting scenarios) are then summarised and an overall assessment is made of the implications of the scores for proportional budget allocations to the PSs (see App-35).

APPENDIX 4 – RELATIVE SCORING (WITH CORRECTIONS FOR DOUBLE COUNTING)

Two production systems are addressed in the target countries of Bangladesh and Nepal (see Appendix 1, pages App-5 and App-13 respectively). This gives rise to double counting of the populations when comparing in the HP and LW PSs (in the case of Bangladesh) and the HS and FA PSs (in the case of Nepal). In Appendix 4, corrections are applied for this double counting and the scoring is then reworked following the relative scoring method that was applied in Appendix 3 (see pages App-36 to App-38). As in Appendix 3, the proportional scores are then converted to weighted scores for the five weighting scenarios used in Appendix 2 (see App-39 to App-41). As in Appendices 2 and 3, the total weighted scores are then summarised and an overall assessment is made of the implications of the scores for proportional budget allocations to the PSs (see App-42).

PRODUCTION SYSTEMS CHARACTERISATION
MASTER SUMMARY SHEET

By Production System (PS) definition:	HP (1)	HP (2)	HS	SA (1)	SA (2)	FA (1)	FA (2)	LW (1)	LW (2)	LW (3)	PU
Land area (km ²)	521,307	695,117	278,927	1,505,332	2,242,353	386,480	374,472	153,362	187,483	124,149	
Human population: Total	268,165,453	348,324,325	18,234,520	337,144,820	551,169,257	22,558,595	17,661,448	88,410,065	103,181,200	98,055,200	42,846,239
Rural (metropolitan minus city pop/ln for PU)	201,480,731	260,798,296	14,913,896	249,172,032	407,632,645	15,685,378	12,590,380	70,690,251	79,770,308	77,463,608	26,133,153
Urban	66,684,722	87,526,029	3,320,623	87,972,788	143,536,612	6,873,217	5,071,067	17,719,814	23,410,892	20,591,592	16,713,086
Market infrastructure:											
Mean road density	4.17	4.17	1.67	3.17	3.50	2.33	1.67	4.00	4.33	4.00	5.00
Mean market demand assessment (large towns/1000 sqkm of PS)	0.10	0.10	0.15	0.03	0.03	0.10	0.11	0.21	0.11	0.14	n/a
Potential:											
Assessment of export potential (mean max dist.to major town [km])	133.33	133.33	96.67	183.33	200.00	166.67	183.33	80.00	83.33	100.00	n/a
Land productivity potential (mean)	4.00	4.17	2.17		2.83	1.83	1.83	4.50	5.00	5.00	n/a
Poverty status (National data):											
Average GDP (USD per annum per capita, 1997) (weighted)	1452	1502	1556	1653	1644	2157	2301	1050	1160	1050	1667
Literacy rate % (1997, weighted)	51.31	51.82	49.96	54.60	54.45	54.34	49.75	38.90	40.19	38.90	54.63
Harvard scale data:											
% children with acceptable weight/height (weighted)	56.30	55.77	63.42	55.40	55.46	60.27	55.78	57.00	58.01	57.00	53.38
NR knowledge base (National data):											
Degree level of national researchers (1991): % BSc						86.51	86.51				
Degree level of national researchers (1991): % MSC						9.06	9.06				
Degree level of national researchers (1991): % PhD						4.43	4.43				
% of GDP to Agricultural Research (1991) (weighted)	0.1539	0.1539	0.1545	0.1545	0.1545	0.0961	0.0961				0.1529
NR Research Scientists (1991) per PS population	2491	2889	1885	1885	3049	148	77				249
NR Research Scientists (1991) per 1m population of PS	10	9	6	6	6	7	4				6

Primary and secondary paved roads. Scale 5 = dense, 1 = sparse.

Uses narrower definition of India HP plus Kenya and Bangladesh.

Uses wider definition of India HP plus Kenya and Bangladesh.

Uses the wider definition of Bolivian HS plus Uganda and Nepal.

Uses narrower definition of semi-urban and India plus Zimbabwe.

Uses wider semi-urban definition for India and Tanzania plus Zimbabwe.

Uses Ghana land area with 9 mths LGP plus Brazil and Nepal.

Uses Ghana land area with 8 mths LGP plus Brazil and Nepal.

Uses inland wetlands (Bangladesh & Uganda)

Uses Bangladesh only

LW as of mid-2000. Uses Bangladesh & Caribbean

data not available

too few data for meaningful calculation

Real GDP per capita* from UNDP 1999. National data only.

Weighted averages by total human population per PS within each applicable target country.

Scale: % contribution to national production: 5 = 80 - 100, 4 = 60 - 80, 3 = 40 - 60, 2 = 20 - 40, 1 = 0 - 20. Key agricultural, forestry, tourism etc products.

Based on weighted average for Ghana and Nepal only.

No data for Nepal.

No data for Nepal.

No data for Nepal.

Based on weighted average for Ghana and Nepal only.

Various definitions of Caribbean: ie small islands of the CARIFORUM countries, CARICOM plus UK dependencies.
 Definition used is the latter but excluding the CARICOM members Bahamas, Haiti and Suriname.
 The countries/states/territories included here are therefore: Anguilla, Antigua & Barbuda, Barbados, BVI, Cayman Is., Dominica, Grenada, Guyana, Jamaica, Montserrat, St. Kitts & Nevis, St. Lucia, St. Vincent & the Grenadines, Trinidad & Tobago, Turks & Caicos Is.

CARIBBEAN National data:

Land area (km2)
 Human population: Total
 Rural
 Urban

PS data:

Land area (km2)
 Human population: Total
 Rural
 Urban

Market infrastructure:

Road density (km roads per sqkm of PS on 5 pt scale)
 Market demand assessment (towns > 100,000pop/ 1000sqkm of PS)
 Assessment of export potential (mid point of PS to major city [km])

Land productivity potential

Poverty status: Average GDP (USD per annum per capita, 1997)
 Literacy rate % (1997, national)
 Harvard scale data

% children with acceptable weight/height to age
 NR knowledge base

NR knowledge base (Degree level of national researchers) : % BSc
 % MSc
 % PHD

Agricultural Research: No of scientists (1991)

Share of GDP to Ag R (1991)
 Lit

Calculations for weights on summary page: GDP
 Lit

Weight/height

Target area: all of islands and coastal zone of mainland Guyana.

Data from NRSP R7111.

Data from NRSP R7111.

PU National Source

258270
 5701000
 Total for target countries minus 50% of Guyana population.

63334
 5126000
 2306700
 2819300
 Average 55% urban for target countries for which data is available.

Towns > 100,000 in target area: Georgetown, Kingston, Port of Spain. Size of main towns vary according to the size of the island. This value is very distorted by the land area from mainland Guyana.

0.04737
 50
 5
 4869
 83.4
 Average for coastal Guyana, 50km for Jamaica. 10-25km for small islands.

Data only available for:
 Dominica 90%
 Grenada 98%
 Jamaica 93%
 Trinidad & Tobago 90%
 Average taken for Jamaica and T&T only because of relative population size.

24958494000
 427508400
 471992000

Weighted average for GDP data available (independent states only).

Based on simple average of adult literacy data available (independent states only).

Notes

CARE
 Use DFID definition of Caribbean??
 From DFID-RNRRS-NRSP Report R7111

LWI Production Systems: Source CIA World Factbook 1996

State	Area (km2)	Pop	Roads	Paved	Not paved
Anguilla	91	10000	105	65	40
Antigua & Barbados	440	66000	250	1582	68
BVI	150	13000	113		
Cayman Is	260	35000	406	304	102
Dominica	750	83000	780	393	387
Grenada	340	95000	1040	638	402
Guyana	214970	712000	7970	590	7980
Jamaica	10990	2595000	18700	13100	5600
Montserrat	100	13000	269	203	66
St K & N	269	41000	320	136	184
St Lucia	620	158000	1210	63	1147
St V & G	340	118000	1040	320	720
T & T	5130	1272000	8320	4252	4068
Turks & C	430	14000	121	24	97
Sub total	235310	5482000	42294	50%	
Guyana ad	171976	356000			
Total	63334	5126000	20%		

Kingston 700k

Georgetown 200k

P of Spain

Weighted average for GDP data available (independent states only).

Based on simple average of adult literacy data available (independent states only).

	HP(1)	HP(2)	HS	SA (1)	SA (2)	FA	LW	PU	National	Source
INDIA										
National data:										
Land area (km ²)									3089282	ESRI 98
Human population: Total									970933000	UN mid 98
									704897358	
									266035642	
PS data:										
Land area (km ²)	309929	483739	1027260	1620487	39078238.98					Metropolitan area population for 8 selected cities. Total increased by 14% to reflect increase in general population. Note: urbanisation rate may be higher than population growth rate.
Human population: Total	169002378	249161250	322700313	528471738	24852264					
	125061760	184379325	238798232	137402652	14225975					
	43940618	64781925	83902081							
Market infrastructure:										
Road density (km roads per PS on 5 pt scale)	0.01938	0.02067	0.01655	0.01913						
Market demand assessment (towns > 100,000pop/1000sqkm of PS)	200	200	200	200						
Assessment of export potential (mid point of PS to major city [km])	3	3.5		3						
Land productivity potential	1670	1670	1670	1670					1670	
Poverty status: Average GDP (USD per annum per capita, 1997)	53.5	53.5	53.5	53.5					53.5	
Literacy rate % (1997, national)										
Harvard scale data										
% children with acceptable weight/height to age	54	54	54	54					54	
NR knowledge base										
NR knowledge base (Degree level of national researchers) : % BSC										
% MSC										
% PhD										
Agricultural Research: No of scientists (1991)										
Share of GDP to Ag R (1991)	4830	4830	4830	4830					4830	
Calculations for weights on summary page: GDP										
Lit	2.82234E+11	4.16099E+11	5.3891E+11	8.82548E+11					0.15	
Weight/height	9041627223	13330126875	172644466746	28273237983					0.15	
GDP national	9126128412	13454707500	17425816902	28537473852					65260659097	Total for 'city' populations for selected cities from 1991 census data increased by 14% to reflect general population increase.
GDP on Ag	1.62146E+12	1.62146E+12	1.62146E+12	1.62146E+12					2090685785	
Sci per 1 million national population	2432187165	2432187165	2432187165	2432187165					2110224905	
Sci per PS population	4.974596599	4.974596599	4.974596599	4.974596599					1.62146E+12	
Weighted degree BSC	840.71866549	1239.476707	1605.30388	2628.933711					2432187165	
Weighted degree MSC									4.974596599	'Per-urban' population. Difference between metropolitan and city populations.
Weighted degree PhD									194.3984747	

Suggested approach was to select 2 'mega', 2 large, 2 medium and 2 small cities. Analysis of the 1991 census data shows that there were 300 cities with population greater than 100,000 accounting for 217 million of India's people. Cities selected: Agra, Bangalore, Bombay, Calcutta, Kharagpur, Hyderabad, Hubli-Dhanwad and Shillong.

Interaction of rainfall, soils, elevation. As for Scenario 1 plus: Dry sub humid: LGP 150-180 days; 1000-1200mm. Based on ICRISAT LGP NRM Programme data.

Interaction of rainfall, soils, elevation. Dry and moist semi arid: LGPs 90-150 days; 500-1000mm. Based on ICRISAT LGP NRM Programme data.

Interaction of rainfall, soils, elevation. Indo-gangetic plain zone. Low elevation Bihar & Eastern UP, higher elevation western UP, Haryana & Punjab. Interaction of soil type and rainfall

Indo-gangetic plain zone. Low elevation Bihar & eastern UP.

Based on approximate percentage of state land falling within the target area and applying the same percentage to the 1991 state census data. The total was then increased to reflect the difference between the 1991 census data and the UN mid 1998 estimate. 54% of total population.

Based on 75% of population of Bihar and 60% of Uttar Pradesh, increased by 14% to reflect population increase in 1991 census data. 17% of total population.

74% rural from national statistics. Area includes cities of Patna, Benares, Gorakhpur, Lucknow, Allahabad and Kanpur.

Road density scale: 5=dense, 1=sparse.

Real GDP per capita from UNDP 1999.

Wider definition target area includes additional cities: Allahabad, Bareilly, Benares, Bhopal, Bombay, Chandigarh, Gorakhpur, Hyderabad, Madras, Nagpur, Patna, Pune, Surat, Varanasi.

Based on approx. % of state land area falling within the target area and applying the same percentages to the 1991 state census data. The total was then increased by 14% to reflect the difference between the 1991 census and the UN mid 1998 estimate. 33% of total population.

74% from national data. See notes for individual state rural/urban data.

Cities > 500,000 in target area: Agra, Ahmedabad, Amritsar, Bangalore, Delhi, Gwalior, Jaipur, Kanpur, Kota, Lucknow, Ludhiana, Madras, Madurai, Mysore, Solapur, Tiruchirappalli, Vadodara.

74% rural from national statistics. Area includes cities of Patna, Benares, Gorakhpur, Lucknow, Allahabad, Kanpur, Agra, Bareilly, Delhi & New Delhi.

Notes - India	State	Pop 91	rural	SA (1)	SA (2)	HP(1)	HP(2)
Calcutta	Tamil N	55859		66%	33515.4	50273.1	
Kanpur	Karnataka	44977		69%	31483.9	33732.75	
Patna	And. P.	66508		73%	39904.8	53206.4	
Delhi	Maharash.	78937		61%	39488.5	59202.75	
Benares	Madhya P.	66181		77%	16545.25	46326.7	
N Delhi	Gujarat	41310		66%	24786	28917	
Lucknow	Rajasthan	44006		77%	17602.4	17602.4	
Jaipur	Uttar P.	139112		80%	55644.8	104334	60%
Ahmedabad	Bihar	86374		87%	0	43187	75%
Nagpur	Haryana	16464		75%	6585.6	6585.6	
Bombay	Punjab	20282		70%	8112.8	10141	90%
Pune	Delhi	9421		100%	9421	9421	90%
Hyderabad	Chandigarh	642		10%	0	642	100%
Vishakhapatnam		2750000					
Amritsar		603630					
Mangalore		294844	14% increase				
Bangalore		306078					
Madras		2950000					
Cochin		4475000	91 census				
Madurai		846303		74%			
Hubli-Dhan		970933					
HDR data 1999							
Nat pop							
%urban							
ESRI 98							
Random selection for PU							
			Metro	14%inc(C)	14%inc(M)	Areasqkm	
966200000	Agra	891790		948063	1016640.6	1080791.82	
27.4	Bangalore	2660088		4130288	3032500.32	4708528.32	366
	Bombay	9925891		12596243	11315515.7	14359717	
894608700	Calcutta	4399819		11021918	5015793.66	12564986.5	852
	Kharagpur	177989		264842	202907.46	301919.88	
	Hyderabad	2964638		4344437	3379687.32	4952658.18	
	Hubli-Dhar	648298		750000	739059.72	855000	217
	Shillong	131719		223366	150159.66	254637.24	
	Total	21800232		34279157	24852264.5	39078239	
							estimate

www.un.org/Depts/unsd/demog/356.htm
1991 data

	HP	HS	SA	FA	LW	PU	National	Source	Notes
NEPAL									
National data:									
Land area (km2)							147293	ESRI 98	Kathmandu 320000
Human population: Total							21843000	UN mid 98	
							19462113	UN mid 98	HDR data 1999
Rural							2380887		Nat pop 22300000
Urban									%urban 10.9
PS data:									
Land area (km2)	81430	81430							Calculated from 1981 population data from the administrative regions most closely approximating to the target area and then increasing the total by 45.6% to reflect the increase in the total population from the 1981 data set to the Un mid 1998 estimate.
Human population: Total	11957582	11957582							
	10654206	10654206							55% of land area. Distortion due to topography.
Rural	1303376	1303376							
Urban									
Market infrastructure:									
Road density (km roads per PS on 5 pt scale)	1	1							Calculated from 1981 population data from the administrative regions most closely approximating to the target area and then increasing the total by 45.6% to reflect the increase in the total population from the 1981 data set to the UN mid 1998 estimate.
Market demand assessment (towns > 100,000pop/ 1000sqkm of PS)	0.12280	0.12280							
Assessment of export potential (mid point of PS to major city [km])	100	100							10.9% of population according to Human Development Report 1999
Land productivity potential	3.5	3.5							
Poverty status: Average GDP (USD per annum per capita, 1997)	1090	1090							1090 UNDP:1999 38.1 UNDP:1999
Literacy rate % (1997, national)	38.1	38.1							
Harvard scale data	53	53							Main towns in target area: Ilam, Dhankuta, Sindhuli, Garhi, Charikot, Patan, Kathamandu, Gorkha, Pokhara, Khorpa.
% children with acceptable weight/height to age									
NR knowledge base									Linear measurement only.
NR knowledge base (Degree level of national researchers) : % BSc									
% MSC									
% PhD									
Agricultural Research: No of scientists (1991)									
Share of GDP to Ag R (1991)	13033764380	13033764380							Linear measurement only.
GDP	455583874.2	455583874.2							
Lit	633751846	633751846							Main towns in target area: Ilam, Dhankuta, Sindhuli, Garhi, Charikot, Patan, Kathamandu, Gorkha, Pokhara, Khorpa.
Weight/height	23808870000	23808870000							
GDP national	0	0							Linear measurement only.
GDP on Ag									
Sci per 1 million national population									
Weighted degree BSc									
Weighted degree MSC									
Weighted degree PhD									
Calculations for weights on summary page: GDP									
Weight/height	13033764380	13033764380							
Lit	455583874.2	455583874.2							
Weight/height	633751846	633751846							
Weight/height	23808870000	23808870000							
Weight/height	0	0							

	HP	HS	SA	FA	LW	PU	National	Source	Notes
UGANDA									
National data:									
Land area (km2)			6% of land area.				243050	ESRI 98	Kampala 460000
Human population: Total			Calculated using guesstimate proportion of land area falling within target area and applying same proportion to district population data. Total was increased by 25% to reflect difference in 1990 Eurostat data and UN mid 1998 estimate for Uganda. 10% of total population.				21029000	UN mid 98	Rural pop 87% Bourm/Blench Pop den 100per km2 Bourm/Blench
							18253172		
							2775828		
PS data:									
Land area (km2)							49535		HDR data 1999
Human population: Total							10578760		Nat pop 20000000
							9203513		%urban 13.2
							1375238		ESRI 98 18144360
Market infrastructure:							4		Eurostat 1990 data
Road density (km roads per PS on 5 pt scale)							0.28244		Target area LW
Market demand assessment (towns> 100,000pop/ 1000sqkm of PS)							1160		Target area HS
Assessment of export potential (mid point of PS to major town [km])							64		District
Land productivity potential							4		Rakai 743
Poverty status: Average GDP (USD per annum per capita, 1997)							68		Masaka 90
Literacy rate % (1997, national)							20		Moroto 226
Harvard scale data							46		Mpigi 235
% children with acceptable weight/height to age							34		Luwero 293
% MSc									Apac 0
% PHD									Lira 161
NR knowledge base (Degree level of national researchers) : % BSc									Soroti 64.4
% MSc									Kasese 42.5
% PHD									Kumi 11.9
Agricultural Research: No of scientists (1991)									Tororo 536
Share of GDP to Ag R (1991)									Iganga 678
									Kamuli 1000
									Jinja 150
									Mukono 1650.75
Calculations for weights on summary page: GDP									2063.4375
Li									771
Weight/height									HSplus25%
GDP national									Kampala 651
GDP on Ag									Total LW 8463
Sci per 1 million national population									Total Ug 16872
Weighted degree BSc									plus 25% 21090
Weighted degree MSc									LWplus25% 10578.75
Weighted degree PHD									

Based on 50km distance from Lake Kyoga and its drainage line to Lake Victoria. LGP in this zone 9-10 mths except eastern and southern edges. Rainfall: 1200mm+ on main area and 900-1200mm in eastern part.

Land of 1500-2000m elevation. Scattered zone around borders of country. LGPs various but generally 9-10 mths. Rainfall mainly in 900-1500 range.

Target area approximated to administrative districts for which Eurostat give 1990 population data. Total increased by 25% to reflect difference between 1989 and 1998 UN data. 50% of total population.

87% of total using national data. Target area includes Kampala, Entebbe and Jinja so may need revision.

Main towns in target area: Masaka, Entebbe, Kampala, Bombo, Jinja, Iganga, Tororo, Mbale, Soroti, Lira, Busembata, Mbulamuti, Namasagali.

TARGET COUNTRY PS CHARACTERISTICS

Based on 3-5 month LGP. Using the rainfall data the DFID definition of SA as 400-1200mm occupies the whole country. Similarly, taking a narrower definition (300-600mm) failed to include the arid western zone around Bulawayo/Victoria falls. Widening the range to 300-900mm covered the entire country except the eastern highlands, which also equates to the 3-6 mth LGP. Target zone roughly half country: S & W and shores of L Kariba.

	HP	HS	SA	FA	LW	PU	National	Source	Notes
ZIMBABWE									
National data:									
Land area (km2)				59% of land area.			390803	ESRI 98	Harare census 1189103
Human population: Total							12685000	UN mid 98	Bulawayo 621742 Chitungwiza 247912 HDR data 1999
Rural									Nat pop 11200000
Urban									%urban 33.2
PS data:									ESRI 98 11106690
Land area (km2)			229790						Covered popden
Human population: Total			5744750						100% 11to20
Rural			3848983						100% 11to20
Urban			1895768						10% 20to29
Market infrastructure:									5% 29to33
Road density (km roads per PS on 5 pt scale)			2.5						60% 20to29
Market demand assessment (towns > 100,000pop/ 1000sqkm of PS)			0.06528						80% 33to45
Assessment of export potential (mid point of PS to major town [km])			200						10% 70to86
Land productivity potential			2						
Poverty status: Average GDP (USD per annum per capita, 1997)			2350				2350	UNDP1999	
Literacy rate % (1997, national)			90.9				90.9	UNDP1999	
Harvard scale data									
% children with acceptable weight/height to age			97						
NR knowledge base (Degree level of national researchers) : % BSc			60						
% MSc			30						
% PhD			10						
Agricultural Research: No of scientists (1991)			291						
Share of GDP to Ag R (1991)			0.4						
Calculations for weights on summary page: GDP			13500162500						
Lit			522197775						
Weight/height			557240750						
GDP national			29809750000						
GDP on Ag			119239000						
Sci per 1 million national population			22.94048088						
Sci per PS population			131.7873276						
Weighted degree BSc			174.6						
Weighted degree MSc			87.3						
Weighted degree PhD			29.1						

Distribution of Population by Zila, Rural & Urban Residences 1998 (human population in '000')

Source: Bangladesh Bureau of Statistics National Data Bank
http://www.bangla.net/ndb/data-sheet/DEMO_DATA.htm

Zila	Rural	Urban	Total	Check	Zila	Rural	Urban	Total	Check
Bangladesh	96354	26215	122569	122569					
BARISAL DIV	7265	1178	8443	8443	SYLHET DIV	6900	919	7819	7819
1 Barguna	730	90	880	880	Habiganj	1552	167	1759	1759
2 Barisal	2084	411	2495	2495	Maulvi.Bazar	1429	152	1581	1581
3 Bhola	1455	238	1693	1693	Sunamganj	1803	175	1978	1978
4 Jhalakhati	646	109	755	755	Sylhet	2076	425	2501	2501
5 Patuakhali	1258	170	1428	1428					
6 Pirojpur	1032	160	1192	1192					
CTG. DIV.	18629	5265	23894	23894	KHULNA DIV	11952	2959	14521	14521
7 Bandarban	191	80	271	271	Bagerhat	1391	240	1631	1631
8 B.Baria	2149	342	2491	2491	Chuadanga	670	251	921	921
9 Chandpur	2197	193	2355	2355	Jessore	2057	360	2417	2417
10 Chittagong	3229	2984	6193	6193	Jhenaidah	1334	226	1560	1560
11 Comilla	4183	508	4691	4691	43 Khulna	1095	1264	2359	590
12 Cox's Bazar	1414	253	1667	1667	44 Kushtia	1501	215	1716	1716
13 Feni	1143	135	1278	1278	45 Magura	753	75	828	828
14 Khagrachhari	274	126	400	400	46 Meherpur	502	62	564	564
15 Lakshmipur	1277	240	1517	1517	47 Narail	630	86	716	716
16 Noakhali	2272	302	2574	2574	48 Satkhira	1629	180	1809	1809
17 Rangamati	300	157	457	457					
DHAKA DIV	26321	11446	37767	37767	RAJSHAHI DIV	25677	4448	30125	30125
18 Dhaka	701	6733	7434	7434	Bogra	2709	398	3097	3097
19 Faridpur	1506	198	1704	1704	Dhrajpur	2246	369	2615	2615
20 Gazipur	1135	739	1874	1874	51 Gaibandha	2062	196	2258	745
21 Gopalganj	1088	102	1190	1190	Joypurhat	790	104	884	884
22 Jamalpur	1668	273	2141	2141	53 Kurigram	1574	266	1840	1840
23 Kishoreganj	2253	354	2607	2607	54 Lalmonirhat	913	129	1042	1042
24 Madanpur	1092	114	1206	1206	55 Naogaon	2249	237	2486	2486
25 Manikganj	1192	124	1316	1316	56 Natore	1325	197	1522	1522
26 Munsinganj	1189	142	1331	1331	57 Nawabganj	1112	245	1357	1357
27 Mymensingh	3958	534	4492	4492	58 Nilphamari	1341	203	1544	1544
28 Narayanganj	858	911	1869	1869	Pabna	1825	371	2196	2196
29 Narsingdi	1560	320	1880	1880	60 Panchagath	703	76	779	779
30 Netrokona	1789	182	1971	1971	61 Rajshahi	1476	765	2241	2241
31 Rajbari	842	112	954	954	Rangpur	2051	447	2498	2498
32 Shariatpur	977	95	1072	1072	63 Sirajganj	2276	331	2607	2607
33 Sherpur	1159	142	1301	1301	64 Thakurgaon	1035	124	1159	1159
34 Tangail	3054	371	3425	3425					

Approximate population in coastal area
18447
Approx. proportion of popln in coastal area
1689
Approx total population in coastal area
20136

APPENDIX 1

PRODUCTION SYSTEMS CHARACTERISATION
MASTER SUMMARY SHEET

1997 ('000)	%SA(1)	%SA(2)	%HP(1)	%HP(2)	Rice	Maize	Wheat	TotPulses	Banana	Sugarcane	Coffee	Tea	Potato	Milk
INDIA					79495	9441	62476	23927	10171	282685	208	780	19239	63737
Andhra Pr	60	80			9195	785	5	640	920	15216	1	1	5	4221
Arun Pr					140	48	9	509	11				40	22
Assam					3390	13	95	212	565	1490		425	505	698
Bihar		50	75		6911	1248	4181	624	115	5644			1572	3250
Goa					128			759		55				36
Gujarat	60	70			827	374	1124	863	1244	10511			461	4459
Haryana	40	50		90	1860	44	7350	547		8090			141	4062
Him Pr					111	661	544	33		67		1	121	663
J&K					509	468	349	373		7			3	641
Karnataka	70	75			3019	1201	150	742	606	24918	145	5	251	3003
Kerala					932			2714	597	464	46	62		2118
Mad Pr	25	70			5705	1151	6468	4122	458	2023			524	5048
Maharash	50	75			2563	338	898	2449	2217	46656			76	4812
Manipur					338	7		41	41	41			17	64
Meghalaya					119	21	6	2	61	2			122	54
Mizoram					102	15		12	11	9			1	9
Nagaland					185	31	2	167		120			20	43
Orissa					6226	200	5	1210	346	1574			90	584
Punjab	40	50		90	6768	307	12724	2208		8620			874	6215
Rajasthan	40	40			118	808	5493	1519		1385			19	5103
Sikkim					22	55	15	474	1				24	32
Tamil N	60	90			7563	87		360	2907	34576	16	114	127	3695
Tripura					466	2	5	5	33	75		7	77	38
Uttar Pr	40	75	60	80	10408	1470	22203	2280	38	119830			7910	11321
Wbengal					11887	107	850	1101		1312		165	6258	3250
Delhi	100	100		100	3			2						257
Chandigargh													1	39

Primary production by State by PS:

SA 1	Rice	Maize	Wheat	TotPulses	Banana	Sugarcane	Coffee	Tea	Potato	Milk
Andhra Pr	6.94	4.99	0.00	1.60	5.43	3.23	0.29	0.00	0.02	3.97
Gujarat	0.62	2.38	1.08	2.16	7.34	2.23	0.00	0.00	1.44	4.20
Haryana	0.94	0.19	4.71	0.91	0.00	1.14	0.00	0.00	0.29	2.55
Karnataka	2.66	8.90	0.17	2.17	4.17	6.17	48.80	0.45	0.91	3.30
Mad Pr	1.79	3.05	2.59	4.31	1.13	0.18	0.00	0.00	0.68	1.98
Maharash	1.61	1.79	0.72	5.12	10.90	8.25	0.00	0.00	0.20	3.77
Punjab	3.41	1.30	8.15	3.69	0.00	1.22	0.00	0.00	1.82	3.90
Rajasthan	0.06	3.42	3.52	2.54	0.00	0.20	0.00	0.00	0.04	3.20
Tamil N	5.71	0.55	0.00	0.90	17.15	7.34	4.62	8.77	0.40	3.48
Uttar Pr	5.24	6.23	14.22	3.81	0.15	16.96	0.00	0.00	16.45	7.10
Delhi	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.40
Total	28.98	32.80	35.14	27.23	46.26	46.92	53.70	9.22	22.24	37.86

TARGET COUNTRY PS CHARACTERISTICS

APPENDIX 1
India Supplement

Primary production by State by PS:										
SA 2	Rice	Maize	Wheat	TotPulses	Banana	Sugarcane	Coffee	Tea	Potato	Milk
Andhra Pr	9.25	6.65	0.01	2.14	7.24	4.31	0.38	0.00	0.02	5.30
Bihar	4.35	6.61	3.35	1.30	0.57	1.00	0.00	0.00	4.09	2.55
Gujarat	0.73	2.77	1.26	2.52	8.56	2.60	0.00	0.00	1.68	4.90
Haryana	1.17	0.23	5.88	1.14	0.00	1.43	0.00	0.00	0.37	3.19
Karnataka	2.85	9.54	0.18	2.33	4.47	6.61	52.28	0.48	0.98	3.53
Mad Pr	5.02	8.53	7.25	12.06	3.15	0.50	0.00	0.00	1.91	5.54
Maharash	2.42	2.69	1.08	7.68	16.35	12.38	0.00	0.00	0.30	5.66
Punjab	4.26	1.63	10.18	4.61	0.00	1.52	0.00	0.00	2.27	4.88
Rajasthan	0.06	3.42	3.52	2.54	0.00	0.20	0.00	0.00	0.04	3.20
Tamil N	8.56	0.83	0.00	1.35	25.72	11.01	6.92	13.15	0.59	5.22
Uttar Pr	9.82	11.68	26.65	7.15	0.28	31.79	0.00	0.00	30.84	13.32
Delhi	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.40
Total	48.49	54.58	59.35	44.84	66.34	73.35	59.59	13.63	43.07	57.69
HP 1	Rice	Maize	Wheat	TotPulses	Banana	Sugarcane	Coffee	Tea	Potato	Milk
Bihar	6.52	9.91	5.02	1.96	0.85	1.50	0.00	0.00	6.13	3.82
Uttar Pr	7.86	9.34	21.32	5.72	0.22	25.43	0.00	0.00	24.67	10.66
Total	14.38	19.26	26.34	7.67	1.07	26.93	0.00	0.00	30.80	14.48
HP 2	Rice	Maize	Wheat	TotPulses	Banana	Sugarcane	Coffee	Tea	Potato	Milk
Bihar	6.52	9.91	5.02	1.96	0.85	1.50	0.00	0.00	6.13	3.82
Haryana	2.11	0.42	10.59	2.06	0.00	2.58	0.00	0.00	0.66	5.74
Punjab	7.66	2.93	18.33	8.31	0.00	2.74	0.00	0.00	4.09	8.78
Uttar Pr	10.47	12.46	28.43	7.62	0.30	33.91	0.00	0.00	32.89	14.21
Delhi	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.40
Total	26.77	25.72	62.37	19.95	1.15	40.73	0.00	0.00	43.77	32.95
SUMMARY	Rice	Maize	Wheat	TotPulses	Banana	Sugarcane	Coffee	Tea	Potato	Milk
SA 1	30	32	35	27	46	47	54	9	22	38
SA 2	48	55	59	45	66	73	60	14	43	58
HP 1	14	19	26	8	1	27	0	0	31	14
HP 2	27	26	62	20	1	41	0	0	44	33

PRODUCTION SYSTEMS CHARACTERISATION MASTER SUMMARY SHEET

Rough correspondence of Nepal target area population to some of the 75 administrative districts - 1981 data

	EASTERN	CENTRAL	WESTERN	MID WESTERN	FAR WESTERN					
Ilam	178356	Sindhuli	183705	Arghkhach	157304	Dang	Deokhuri	266393	Dadeldhura	868853
Dhankuta	129781	Ramechhap	161445	Gulmi	238113	Pyuthang		157669	Doti	153135
Terhathum	92542	Dolakhla	150576	Palpa	214442	Rolpa		168116	Baitadi	179136
Bhojpur	192689	Makawanpur	243411	Baglung	215228	Jajarkot		99312	Achham	185212
Udayapur	159805	Kathmandu	422237	Kaski	221272	Salyan		152063	Bajura	74649
Khotang	215571	Dhading	243401	Tanahu	223438	Surkhet		166196		
Okhaldhunga	137640	Khavrepalanchok	307150	Syangja	271824	Dailekh		166527		
		Parsa	284338	Gorkha	231292					
		Lalipur	184341	Lamjung	152720					
		Bhaktapur	159767							
		Nuwakot	202976							
TOTALS		1106384	2543347	1925633	1176276			1460985		8212625

1981 Total population for Nepal
1998 UN estimate for Nepal

15000000
21843000 (Increased by 45.6%)

Regional total increased by 45.6%

	1989/90	Rice Mt	Wheat Mt	Maize Mt	Millet Mt	Potato Mt	Sugarcane Mt
Agriculture							
Total		3389670	854960	1200990	224780	671810	988300
EASTERN	Ilam	23260	5540	23100	3560	24500	320
	Dhankuta	17810	3890	29700	7910	9910	840
	Terhathum	18250	1520	17050	3170	11550	320
	Bhojpur	28470	2250	27720	5310	13200	320
	Udayapur	25850	5200	15900	1160	5440	1250
	Khotang	23580	10870	20180	6830	12690	330
	Okhaldhunga	9620	1760	13430	2930	13110	480
CENTRAL	Sindhuli	25750	6390	23140	2750	10410	2000
	Ramechhap	7290	4290	24150	3000	12420	1200
	Dolakhla	5060	4410	7010	2000	15600	120
	Makawanpur	32170	10370	33990	5500	18000	
	Kathmandu	44240	13120	11070	1470	11420	
	Dhading	29800	7200	24930	4800	10780	17600
Agriculture contd	1989/90	Rice Mt	Wheat Mt	Maize Mt	Millet Mt	Potato Mt	Sugarcane Mt

APPENDIX 1
Nepal Supplement

TARGET COUNTRY PS CHARACTERISTICS

CENTRAL contd	Khavrepalanchok	33620	19000	43470	1680	30000	3800
	Parsa	132870	27880	10280	300	7440	52500
	Lalpur	18560	8410	10710	1860	4320	
	Bhaktapur	25440	7760	4710	80	9000	
	Nuwakot	38230	8800	29670	3750	11200	4200
WESTERN	Arghkhach	8680	5300	21670	2030	1890	
	Gulumi	19730	4730	32590	4780	3360	700
	Palapa	20950	7350	25960	5480	4640	980
	Baglung	11920	7320	20070	4940	5200	
	Kaski	41100	9410	22400	11430	5100	700
	Tanahu	30840	5330	36210	9350	3200	340
	Syangja	35050	11650	49300	26430	4950	3150
	Gorkha	31980	5540	28150	11040	12950	850
	Lamjung	23650	5680	25220	10800	7820	720
MID WESTERN	Dang Deokhuri	91840	29210	37650	490	7600	
	Pyuthang	11700	9770	15650	2690	3360	
	Rolpa	8710	7720	16160	1120	7500	
	Jajarkot	5840	5400	12880	2350	3000	
	Salyan	11020	15100	32000	4110	4500	
	Surkhet	17260	22430	23280	1910	4490	600
	Dallekh	9000	6250	14310	3050	3050	300
FAR WESTERN	Dadeldhura	12070	9240	4970	3780	5180	750
	Doti	11500	11320	20550	1910	3570	150
	Baitadi	7650	6530	8450	1360	5180	300
	Achham	6960	5940	7510	1980	4620	150
	Bajura	5060	4140	1420	2190	3660	
Total, selected districts		962380	344020	826610	171280	335810	94970
%Nepal		28.39	40.24	68.83	76.20	49.99	9.61

APPENDIX 2 - SIMPLE SCORING OF PRODUCTION SYSTEM BY EACH CHARACTERISATION CRITERION
 POPULATION DOUBLE COUNTED FOR BANGLADESH (HP AND LW) AND NEPAL (HS AND FA)

Population taken as rural except for Peri-Urban where total population was used.

Characterisation Criteria	Production Systems, Version 1						
	HP (1)	HS	SA (1)	FA (2)	LW (1)	PU	Ref
Land area (km ²)	521,307	278,927	1,505,332	374,472	153,362	0	1
Population	201,480,731	14,913,896	249,172,032	12,590,380	70,690,251	42,846,239	2
Road Density	4.17	1.67	3.17	1.67	4.00	5.00	3a
Market Demand Assessment	0.10	0.15	0.03	0.11	0.21	1.00	3b
Assessment of Export Potential	133.33	96.67	183.33	183.33	80.00	0.00	4a
Land Productivity Potential	4.00	2.17	2.00	1.83	4.50	0.00	4b
Average GDP (USD per annum per capita, 1997)	1,452	1,556	1,653	2,301	1,050	1,667	5a
Literacy Rate % (1997, weighted)	51.31	49.96	54.60	49.75	38.90	54.63	5b
Harvard Scale Data (% children weight/height)	56.30	63.42	55.40	55.78	57.00	53.38	5c
% of GDP to Agricultural Research (1991) Weighted	0.1539	0.0000	0.1545	0.0961	0.0000	0.1529	6a
NR Research Scientists (1991) per population of PS	2,491	0	1,885	77	0	249	6b
NR Research Scientists (1991) per 1m population of PS	10	0	6	4	0	6	6c

PU has markets but is restricted in comparative advantage for supply (see land productivity potential).

Characterisation criterion had to be scored manually to accommodate the averaged values.

KEY: 6 = GREATEST NEED, 1 = LEAST NEED
 SHADED CELLS = AVERAGE IN LIEU OF SUITABLE DATA

APPENDIX 2 - SIMPLE SCORING OF PRODUCTION SYSTEM BY EACH CHARACTERISATION CRITERION

POPULATION DOUBLE COUNTED FOR BANGLADESH (HP AND LW) AND NEPAL (HS AND FA)

Population taken as rural except for Peri-Urban where total population was used

Characterisation Criteria		Production Systems, Version 2							
Ref	HP (2)	HS	SA (2)	FA (1)	LW (2)	PU	FA (1)	SA (2)	HP (2)
Land area (km ²)	1	5	6	4	2	1	386,480	2,242,353	695,117
Population	2	5	6	2	4	3	15,685,378	407,632,645	260,798,296
Market Feasibility	3a	3	4	5	2	1	2.33	3.50	4.17
Road Density	3b	5	6	4	2	1	0.10	0.03	0.10
Market Demand Assessment	4a	4	6	5	3	1	166.67	200.00	133.33
Assessment of Export Potential	4b	2	3	5	1	6	1.83	2.83	4.17
Land Productivity Potential	5a	5	3	5	6	2	2,157	1,644	1,502
Average GDP (USD per annum per capita, 1997)	5b	4	2	3	6	2	54.34	54.45	51.82
Literacy Rate % (1997, weighted)	5c	4	5	2	6	1	60.27	55.46	55.77
Harvard Scale Data (% children weight/height)	6a	4	3	6	3	5	0.0961	0.1545	0.1539
% of GDP to Agricultural Research (1991) Weighted	6b	3	4	6	3.5	5	148	3,049	2,889
NR Research Scientists (1991) per population of PS	6c	3	4	6	3.5	5	7	6	9
NR Research Scientists (1991) per 1m population of PS		3	4	6	3.5	5	0	0	0

PU has markets but is restricted in comparative advantage for supply (see land productivity potential).

Characterisation criterion had to be scored manually to accommodate the averaged values.

KEY: 6 = GREATEST NEED, 1 = LEAST NEED
SHADED CELLS = AVERAGE IN LIEU OF SUITABLE DATA

APPENDIX 2 - SIMPLE SCORING OF PRODUCTION SYSTEM BY EACH CHARACTERISATION CRITERION
 POPULATION DOUBLE COUNTED FOR BANGLADESH (HP AND LW) AND NEPAL (HS AND FA)

Population taken as rural except for Peri-Urban where total population was used.

Characterisation Criteria		Production Systems - Version 3						
Ref		HP (1)	HS	SA (2)	FA (1)	LW (3)	PU	
Land area (km ²)	1	695,117	278,927	2,242,353	386,480	124,149	0	
Population	2	201,480,731	14,913,896	407,632,645	15,685,378	77,463,608	42,846,239	
Road Density	3a	4.17	1.67	3.50	2.33	4.00	5.00	
Market Demand Assessment	3b	0.10	0.15	0.03	0.10	0.14	1.00	
Assessment of Export Potential	4a	133.33	96.67	200.00	166.67	100.00	0.00	
Land Productivity Potential	4b	4.17	2.17	2.83	1.83	5.00	0.00	
Average GDP (USD per annum per capita, 1997)	5a	1,502	1,556	1,644	2,157	1,050	1,667	
Literacy Rate % (1997, weighted)	5b	51.82	49.96	54.45	54.34	38.90	54.63	
Harvard Scale Data (% children weight/height)	5c	55.77	63.42	55.46	60.27	57.00	53.38	
% of GDP to Agricultural Research (1991) Weighted	6a	0.1539	0.0000	0.1545	0.0961	0.0000	0.1529	
NR Knowledge Base (National data)	6b	2,889	0	3,049	148	0	249	
NR Research Scientists (1991) per population of PS	6c	9	0	6	7	0	6	

PU has markets but is restricted in comparative advantage for supply (see land productivity potential).

Characterisation criterion had to be scored manually to accommodate the averaged values.

KEY: 6 = GREATEST NEED, 1 = LEAST NEED
 SHADED CELLS = AVERAGE IN LIEU OF SUITABLE DATA

APPENDIX 2 - SIMPLE RANK SCORING

RANK SCORES AND DERIVED WEIGHTED SCORES BY PRODUCTION SYSTEM AND CHARACTERISATION CRITERIA

CHARACTERISATION CRITERIA	Production Systems, Version 1																		
	HP (1)			HS			SA (1)			FA (2)			LW (1)			PU			
	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	
For each PS, columns to the right specify rank score, mean rank score and weighted mean rank score (using Scenario 1 weights*) for each characterisation criterion																			
CHARACTERISATION CRITERIA																			
1. Land area (km ²)	5.0	5.0	0.5	3.0	3.0	0.3	6.0	6.0	0.6	4.0	4.0	0.4	2.0	2.0	0.2	1.0	1.0	0.1	0.1
2. Population	5.0	5.0	19.5	2.0	2.0	7.8	6.0	6.0	23.4	1.0	1.0	3.9	4.0	4.0	15.6	3.0	3.0	3.9	3.9
3. Marketing feasibility:																			
3a. Road density	2.0	3.5	5.3	5.0	4.0	6.0	4.0	5.0	7.5	5.0	4.5	6.8	3.0	2.5	3.8	1.0	1.0	1.5	1.5
3b. Market demand assessment	5.0			3.0			6.0			4.0			2.0			1.0		1.0	1.0
4. Potential:																			
4a. Assessment of export potential	4.0	3.0	4.5	3.0	3.0	4.5	5.0	4.5	6.8	5.0	5.0	7.5	2.0	1.5	2.3	1.0	3.5	5.3	5.3
4b. Land productivity potential	2.0			3.0			4.0			5.0			1.0			6.0		1.0	1.0
5. Poverty status (National data):																			
5a. Average GDP (USD per annum per capita, 1997)	5.0	3.7	5.5	4.0	3.0	4.5	3.0	3.3	5.0	1.0	3.3	5.0	6.0	4.7	7.0	2.0	3.0	4.5	4.5
5b. Literacy rate % (1997, weighted)	3.0			4.0			2.0			5.0			6.0			6.0		1.0	1.0
5c. Harvard scale data (% children weight/height)	3.0			1.0			5.0			4.0			2.0			6.0		3.0	3.0
6. NR knowledge base (National data):																			
6a. % of GDP to Agricultural Research (1991) Weighted	4.0			3.5			3.0						3.5			5.0		7.5	7.5
6b. NR Research Scientists (1991) per population of PS	3.0	3.3	5.0	3.5	3.5	5.3	4.0	4.0	6.0	6.0	6.0	9.0	3.5	3.5	5.3	5.0	5.0	5.0	5.0
6c. NR Research Scientists (1991) per 1m population of PS	3.0			3.5			5.0			6.0			3.5			5.0		5.0	5.0
SCENARIOS FOR CRITERIA WEIGHTINGS																			
TOTAL WEIGHTED SCORES (ALL CRITERIA) BY PRODUCTION SYSTEMS, VERSION 1																			
Scenario 1 - Equal weighting on 3-6	HP(1)	40.25	HS	28.35	SA(1)	49.25	FA(2)	32.55	LW(1)	34.05	PU	30.55							
Scenario 2 - Increased weighting on 3	HP(1)	40.50	HS	29.60	SA(1)	50.83	FA(2)	32.13	LW(1)	32.97	PU	26.30							
Scenario 3 - Increased weighting on 4	HP(1)	39.50	HS	27.60	SA(1)	49.83	FA(2)	33.13	LW(1)	30.97	PU	31.30							
Scenario 4 - Increased weighting on 5	HP(1)	40.83	HS	27.60	SA(1)	47.50	FA(2)	29.80	LW(1)	37.30	PU	30.30							
Scenario 5 - Increased weighting on 6	HP(1)	40.17	HS	28.60	SA(1)	48.83	FA(2)	35.13	LW(1)	34.97	PU	34.30							

Scenario 1 Weights	Scenario 2 Weights	Scenario 3 Weights	Scenario 4 Weights	Scenario 5 Weights
0.1	0.1	0.1	0.1	0.1
3.9	3.9	3.9	3.9	3.9
1.5	3	1	1	1
1.5	1	3	1	1
1.5	1	1	3	1
1.5	1	1	1	3
10	10	10	10	10

KEY: 6 = GREATEST NEED, 1 = LEAST NEED
 SHADED CELLS = AVERAGE IN LIEU OF SUITABLE DATA

APPENDIX 2 - SIMPLE RANK SCORING

RANK SCORES AND DERIVED WEIGHTED SCORES BY PRODUCTION SYSTEM AND CHARACTERISATION CRITERIA

	Production Systems, Version 2												Weighting Scenarios					
	HP (2)		HS		SA (2)		FA (1)		LW (2)		PU		Scenario 1 Weights	Scenario 2 Weights	Scenario 3 Weights	Scenario 4 Weights	Scenario 5 Weights	
	Score	Mean	Score	Mean	Score	Mean	Score	Mean	Score	Mean	Score	Mean	Score	Mean	Score	Mean	Score	Mean
For each PS, columns to the right specify rank score, mean rank score and weighted mean rank score (using Scenario 1 weights*) for each characterisation criterion																		
CHARACTERISATION CRITERIA																		
1. Land area (km ²)	5.0	5.0	3.0	3.0	6.0	6.0	4.0	4.0	2.0	2.0	1.0	1.0	0.1	0.1	0.1	0.1	0.1	0.1
2. Population	5.0	5.0	1.0	1.0	6.0	6.0	2.0	2.0	4.0	4.0	3.0	3.0	3.9	3.9	3.9	3.9	3.9	3.9
3. Marketing feasibility:																		
3a. Road density	3.0	4.0	6.0	4.0	4.0	5.0	5.0	4.5	6.8	2.0	2.5	3.8	1.0	1.0	1.0	1.0	1.0	1.0
3b. Market demand assessment	5.0	2.0	6.0	6.0	6.0	6.0	4.0	4.0	3.0	3.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
4. Potential:																		
4a. Assessment of export potential	4.0	3.0	3.0	3.5	6.0	4.5	5.0	5.0	7.5	2.0	1.5	2.3	1.0	3.5	3.5	3.5	5.3	5.3
4b. Land productivity potential	2.0	4.0	4.0	4.0	3.0	3.0	5.0	5.0	1.0	1.0	6.0	6.0	1.0	6.0	6.0	6.0	6.0	6.0
5. Poverty status (National data):																		
5a. Average GDP (USD per annum per capita, 1997)	5.0	5.0	5.0	3.7	4.0	4.0	1.0	1.0	2.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.3	5.0
5b. Literacy rate % (1997, weighted)	4.0	4.3	5.0	5.5	2.0	3.7	5.5	3.0	3.0	6.0	3.7	5.5	1.0	1.0	1.0	3.0	1.0	5.0
5c. Harvard scale data (% children weight/height)	4.0	1.0	1.0	5.0	5.0	5.0	2.0	2.0	3.0	3.0	3.0	3.0	6.0	6.0	6.0	6.0	6.0	6.0
6. NR knowledge base (National data):																		
6a. % of GDP to Agricultural Research (1991) Weighted	4.0	3.5	3.5	3.5	3.0	4.0	6.0	6.0	9.0	3.5	3.5	5.3	5.0	5.0	5.0	7.0	7.0	7.0
6b. NR Research Scientists (1991) per population of PS	3.0	3.3	3.5	5.0	4.0	4.0	6.0	6.0	6.0	3.5	3.5	5.3	4.0	4.0	4.0	4.7	4.7	4.7
6c. NR Research Scientists (1991) per 1m population of PS	3.0	3.5	3.5	5.3	4.0	4.0	6.0	6.0	6.0	3.5	3.5	5.3	4.0	4.0	4.0	4.7	4.7	4.7
TOTAL WEIGHTED SCORES (ALL CRITERIA) BY PRODUCTION SYSTEMS, VERSION 2																		
Scenario 1 - Equal weighting on 3-6	HP(2)	42.00	HS	26.20	SA(2)	49.25	FA(1)	34.45	LW(2)	32.55	PU	30.55						
Scenario 2 - Increased weighting on 3	HP(2)	42.67	HS	26.87	SA(2)	50.83	FA(1)	34.70	LW(2)	31.97	PU	26.30						
Scenario 3 - Increased weighting on 4	HP(2)	40.67	HS	25.87	SA(2)	49.83	FA(1)	35.70	LW(2)	29.97	PU	31.30						
Scenario 4 - Increased weighting on 5	HP(2)	43.33	HS	26.20	SA(2)	48.17	FA(1)	29.70	LW(2)	34.30	PU	30.97						
Scenario 5 - Increased weighting on 6	HP(2)	41.33	HS	25.87	SA(2)	48.17	FA(1)	37.70	LW(2)	33.97	PU	33.63						

KEY: 6 = GREATEST NEED, 1 = LEAST NEED
 SHADED CELLS = AVERAGE IN LIEU OF SUITABLE DATA

APPENDIX 2 - SIMPLE RANK SCORING

RANK SCORES AND DERIVED WEIGHTED SCORES BY PRODUCTION SYSTEM AND CHARACTERISATION CRITERIA

CHARACTERISATION CRITERIA	Production Systems, Version 3												Weighting Scenarios												
	HP (1)			HS			SA (1)			FA (1)			LW (3)			PU			Scenario 1 Weights	Scenario 2 Weights	Scenario 3 Weights	Scenario 4 Weights	Scenario 5 Weights		
	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	
For each PS, columns to the right specify rank score, mean rank score and weighted mean rank score (using Scenario 1 weights*) for each characterisation criterion																									
CHARACTERISATION CRITERIA																									
1. Land area (km ²)	5.0	5.0	0.5	3.0	3.0	0.3	6.0	6.0	0.6	4.0	4.0	0.4	2.0	2.0	0.2	1.0	1.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
2. Population	5.0	5.0	19.5	1.0	1.0	3.9	6.0	6.0	23.4	2.0	2.0	7.8	4.0	4.0	15.6	3.0	3.0	3.9	3.9	3.9	3.9	3.9	3.9	3.9	
3. Marketing feasibility:																									
3a. Road density	2.0	3.5	5.3	6.0	4.0	6.0	4.0	5.0	7.5	5.0	4.5	6.8	3.0	3.0	4.5	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5		
3b. Market demand assessment	5.0	5.0	2.0	2.0	2.0	2.0	6.0	6.0	2.0	4.0	4.0	2.0	3.0	3.0	3.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		
4. Potential:																									
4a. Assessment of export potential	4.0	3.0	4.5	2.0	3.0	4.5	6.0	4.5	6.8	5.0	5.0	7.5	3.0	2.0	3.0	1.0	3.5	5.3	1.5	1.5	1.5	1.5	1.5		
4b. Land productivity potential	2.0	2.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	5.0	5.0	5.0	1.0	1.0	1.0	6.0	6.0	5.3	1.5	1.5	1.5	1.5	1.5		
5. Poverty status (National data):																									
5a. Average GDP (USD per annum per capita, 1997)	5.0	4.0	6.5	4.0	3.0	5.0	3.0	3.3	5.0	3.0	2.0	3.0	6.0	6.0	2.0	2.0	4.5	7.0	1.5	1.5	1.5	1.5	1.5		
5b. Literacy rate % (1997, weighted)	4.0	4.0	4.3	5.0	3.3	5.0	2.0	2.0	5.0	3.0	2.0	3.0	6.0	6.0	5.0	1.0	3.0	4.5	1.5	1.5	1.5	1.5	1.5		
5c. Harvard scale data (% children weight/height)	4.0	4.0	4.0	1.0	1.0	1.0	5.0	5.0	1.0	2.0	2.0	2.0	3.0	3.0	3.0	6.0	6.0	4.5	1.5	1.5	1.5	1.5	1.5		
6. NR knowledge base (National data):																									
6a. % of GDP to Agricultural Research (1991) Weighted	4.0	3.0	5.0	3.5	3.5	5.3	3.0	4.0	5.5	6.0	6.0	9.0	3.5	3.5	3.5	5.0	7.0	1.5	1.5	1.5	1.5	1.5	1.5		
6b. NR Research Scientists (1991) per population of PS	3.0	3.0	3.3	3.0	3.5	3.5	4.0	4.0	4.0	6.0	6.0	6.0	3.5	3.5	3.5	4.0	4.0	3.3	1.5	1.5	1.5	1.5	1.5		
6c. NR Research Scientists (1991) per 1m population of PS	3.0	3.0	3.0	3.5	3.5	3.5	4.0	4.0	4.0	6.0	6.0	6.0	3.5	3.5	3.5	4.0	4.0	3.3	1.5	1.5	1.5	1.5	1.5		
SCENARIOS FOR CRITERIA WEIGHTINGS																									
Scenario 1 - Equal weighting on 3-6	HP(1)	41.25	HS	24.95	SA(1)	48.75	FA(1)	34.45	LW(3)	36.05	PU	30.05	Scenario 1 Weights	10	10	10	10	10							
Scenario 2 - Increased weighting on 3	HP(1)	41.17	HS	26.03	SA(1)	50.50	FA(1)	34.70	LW(3)	35.30	PU	25.97	Scenario 2 Weights	10	10	10	10	10							
Scenario 3 - Increased weighting on 4	HP(1)	40.17	HS	24.03	SA(1)	49.50	FA(1)	35.70	LW(3)	33.30	PU	30.97	Scenario 3 Weights	10	10	10	10	10							
Scenario 4 - Increased weighting on 5	HP(1)	42.83	HS	24.70	SA(1)	47.17	FA(1)	29.70	LW(3)	39.30	PU	29.97	Scenario 4 Weights	10	10	10	10	10							
Scenario 5 - Increased weighting on 6	HP(1)	40.83	HS	25.03	SA(1)	47.83	FA(1)	37.70	LW(3)	36.30	PU	33.30	Scenario 5 Weights	10	10	10	10	10							

* / Scenario 1 is used as an example showing how the values for the total weighted scores of each scenario were generated.

KEY: 6 = GREATEST NEED, 1 = LEAST NEED
 SHADED CELLS = AVERAGE IN LIEU OF SUITABLE DATA

APPENDIX 2 - SIMPLE RANK SCORING

WEIGHTED IMPORTANCE SCORES SUMMARY BY PRODUCTION SYSTEM AND IMPLICATIONS FOR NRSP's BUDGET ALLOCATIONS
POPULATION DOUBLE COUNTED FOR BANGLADESH (HP AND LW) AND NEPAL (HS AND FA)

Total score, sum for all criteria & PS ranking, V1**				Total score, sum for all criteria & PS ranking, V2**				Total score, sum for all criteria & PS ranking, V3**									
HP(1)	HS	SA(1)	FA(2)	LW(1)	PU	HP(2)	HS	SA(2)	FA(1)	LW(2)	PU	HP(1)	HS	SA(1)	FA(1)	LW(3)	PU
40.25	28.35	49.25	32.55	34.05	30.55	42.00	26.20	49.25	34.45	32.55	30.55	41.25	24.95	48.75	34.45	36.05	30.05
5	1	6	3	4	2	5	1	6	4	3	2	5	1	6	3	4	2
40.50	29.60	50.83	32.13	32.97	26.30	42.67	26.87	50.83	34.70	31.97	26.30	41.17	26.03	50.50	34.70	35.30	25.97
5	2	6	3	4	1	5	2	6	4	3	1	5	2	6	3	4	1
39.50	27.60	49.83	33.13	30.97	31.30	40.67	25.87	49.83	35.70	29.97	31.30	40.17	24.03	49.50	35.70	33.30	30.97
5	1	6	4	2	3	5	1	6	4	2	3	5	1	6	4	3	2
40.83	27.60	47.50	29.80	37.30	30.30	43.33	26.20	48.17	29.70	34.30	30.97	42.83	24.70	47.17	29.70	39.30	29.97
5	1	6	2	4	3	5	1	6	2	4	3	5	1	6	2	4	3
40.17	28.60	48.83	35.13	34.97	34.30	41.33	25.87	48.17	37.70	33.97	33.63	40.83	25.03	47.83	37.70	36.30	33.30
5	1	6	4	3	2	5	1	6	4	3	2	5	1	6	4	3	2
40.25	28.35	49.25	32.55	34.05	30.55	42.00	26.20	49.25	34.45	32.55	30.55	41.25	24.95	48.75	34.45	36.05	30.05
5	1	6	3	4	2	5	1	6	4	3	2	5	1	6	3	4	2
18.72	13.19	22.91	15.14	15.84	14.21	19.53	12.19	22.91	16.02	15.14	14.21	19.14	11.58	22.62	15.99	16.73	13.94
WEIGHTED IMPORTANCE SCORES																	
Mean Score per PS across V1, V2 & V3, with Double Counting																	
Mean Score per PS for Scenario 4 across V1, 2 & 3, with Double Counting																	
Overall Importance Rank based on all Scenarios (6 = Greatest Need)																	
Implication for % Budget Allocation																	
Overall Importance Rank based on Scenario 4 (6 = Greatest Need)																	
Implication for % Budget Allocation																	

** / Rank scores are based on weighted scores values read to seven decimal places

KEY: 6 = GREATEST NEED, 1 = LEAST NEED

APPENDIX 3 - RELATIVE SCORING OF PRODUCTION SYSTEM BY EACH CHARACTERISATION CRITERION

POPULATION DOUBLE COUNTED FOR BANGLADESH (HP AND LW) AND NEPAL (HS AND FA)

Population taken as rural except for Peri-Urban where total population was used.

Characterisation Criteria		Production Systems, Version 1						
Ref		HP (1)	HS	SA (1)	FA (2)	LW (1)	PU	
1	Land area (km ²)	521,307	278,927	1,505,332	374,472	153,362	0	
2	Population (Bangladesh & Nepal double counted)	201,480,731	14,913,896	249,172,032	12,590,380	70,690,251	42,846,239	
3a	Road Density	4.17	1.67	3.17	1.67	4.00	5.00	
3b	Market Demand Assessment	0.10	1.00	0.53	1.00	0.42	0.33	
4a	Assessment of Export Potential	133.33	96.67	183.33	183.33	80.00	0.00	
4b	Land Productivity Potential	4.00	2.17	2.00	1.83	4.50	0.00	
5a	Average GDP (USD per annum per capita, 1997)	1,452	1,556	1,653	2,301	1,050	1,667	
5b	Literacy Rate % (1997, weighted)	51.31	49.96	54.60	49.75	38.90	54.63	
5c	Harvard Scale Data (% children weight/height)	56.30	63.42	55.40	55.78	57.00	53.38	
6a	% of GDP to Agricultural Research (1991) Weighted	0.1539	n/a	0.1545	0.0961	n/a	0.1529	
6b	NR Research Scientists (1991) per population of PS	2,491	n/a	1,885	77	n/a	249	
6c	NR Research Scientists (1991) per 1m population of PS	10	n/a	6	4	n/a	6	
		0.35	0.19	1.00	0.25	0.10	0.00	
		0.81	0.06	1.00	0.05	0.28	0.17	
		0.40	1.00	0.53	1.00	0.42	0.33	
		0.28	0.18	1.00	0.25	0.13	0.03	
		0.73	0.53	1.00	1.00	0.44	0.00	
		0.46	0.85	0.92	1.00	0.41	0.00	
		0.72	0.67	0.64	0.46	1.00	0.63	
		0.758	0.779	0.712	0.782	1.000	0.712	
		0.948	0.842	0.964	0.957	0.937	1.000	
		0.625	0.719	0.622	1.000	0.719	0.629	
		0.03	0.35	0.04	1.00	0.35	0.31	
		0.40	0.68	0.67	1.00	0.68	0.67	

PU has markets but is restricted in comparative advantage for supply (see land productivity potential).

Characterisation criterion had to be scored manually to accommodate the averaged values.

FRACTIONAL SCORES RELATIVE TO GREATEST NEED
SHADED CELLS = AVERAGE IN LIEU OF SUITABLE DATA

APPENDIX 3 - RELATIVE SCORING OF PRODUCTION SYSTEM BY EACH CHARACTERISATION CRITERION
 POPULATION DOUBLE COUNTED FOR BANGLADESH (HP AND LW) AND NEPAL (HS AND FA)

Population taken as rural except for Peri-Urban where total population was used

Characterisation Criteria	Production Systems, Version 2						
	Ref	HP (2)	HS	SA (2)	FA (1)	LW (2)	PU
Land area (km ²)	1	695,117 0.31	278,927 0.12	2,242,353 1.00	386,480 0.17	187,483 0.08	0
Population (Bangladesh & Nepal double counted)	2	260,798,296 0.64	14,913,896 0.037	407,632,645 1.00	15,685,378 0.038	79,770,308 0.20	42,846,239 0.11
Market Feasibility	3a	4.17 0.40	1.67 1.00	3.50 0.48	2.33 0.71	4.33 0.38	5.00 0.33
	3b	0.10 0.29	0.15 0.19	0.03 1.00	0.10 0.28	0.11 0.26	1.00 0.03
Potential	4a	133.33 0.67	96.67 0.48	200.00 1.00	166.67 0.83	83.33 0.42	0.00 0.00
	4b	4.17 0.44	2.17 0.85	2.83 0.65	1.83 1.00	5.00 0.37	0.00 0.00
Poverty status (National data)	5a	1,502 0.77	1,556 0.75	1,644 0.71	2,157 0.54	1,160 1.00	1,667 0.70
	5b	51.82 0.776	49.96 0.804	54.45 0.738	54.34 0.740	40.19 1.000	54.63 0.736
NR Knowledge Base (National data)	5c	55.77 0.957	63.42 0.842	55.46 0.963	60.27 0.886	58.01 0.920	53.38 1.000
	6a	0.1539 0.625	n/a 0.719	0.1545 0.622	0.0961 1.000	n/a 0.719	0.1529 0.629
NR Knowledge Base (National data)	6b	2,889 0.05	n/a 0.42	3,049 0.05	148 1.00	n/a 0.42	249 0.59
	6c	9 0.67	n/a 0.88	6 1.00	7 0.86	n/a 0.88	6 1.00

PU has markets but is restricted in comparative advantage for supply (see land productivity potential).

Characterisation criterion had to be scored manually to accommodate the averaged values.

FRACTIONAL SCORES RELATIVE TO GREATEST NEED
 SHADED CELLS = AVERAGE IN LIEU OF SUITABLE DATA

APPENDIX 3 - RELATIVE SCORING OF PRODUCTION SYSTEM BY EACH CHARACTERISATION CRITERION
 POPULATION DOUBLE COUNTED FOR BANGLADESH (HP AND LW) AND NEPAL (HS AND FA)

Population taken as rural except for Peri-Urban where total population was used.

Characterisation Criteria	Production Systems, Version 3												
	Ref	HP (1)	HS	SA (1)	FA (1)	LW (3)	PU	HP (1)	HS	SA (1)	FA (1)	LW (3)	PU
Land area (km ²)	1	521,307	278,927	1,505,332	374,472	124,149	0	0.35	0.19	1.00	0.25	0.08	0.00
Population (Bangladesh & Nepal double counted)	2	201,480,731	14,913,896	249,172,032	15,685,378	77,463,608	42,846,239	0.81	0.06	1.00	0.06	0.31	0.17
Market Feasibility	3a	4.17	1.67	3.17	1.67	4.00	5.00	0.40	1.00	0.53	1.00	0.42	0.33
	3b	0.10	0.15	0.03	0.11	0.14	1.00	0.28	0.18	1.00	0.25	0.20	0.03
Potential	4a	133.33	96.67	183.33	183.33	100.00	0.00	0.73	0.53	1.00	1.00	0.55	0.00
	4b	4.00	2.17	2.00	1.83	5.00	0.00	0.46	0.85	0.92	1.00	0.37	0.00
Poverty status (National data)	5a	1,452	1,556	1,653	2,301	1,050	1,667	0.72	0.67	0.64	0.46	1.00	0.63
	5b	51.31	49.96	54.60	49.75	38.90	54.63	0.758	0.779	0.712	0.782	1.000	0.712
NR Knowledge Base (National data)	5c	56.30	63.42	55.40	55.78	57.00	53.38	0.948	0.842	0.964	0.957	0.937	1.000
	6a	0.1539	n/a	0.1545	0.0961	n/a	0.1529	0.625	0.719	0.622	1.000	0.719	0.629
	6b	2,491	n/a	1,885	77	n/a	249	0.03	0.35	0.04	1.00	0.35	0.31
	6c	10	n/a	6	4	n/a	6	0.40	0.68	0.67	1.00	0.68	0.67

PU has markets but is restricted in comparative advantage for supply (see land productivity potential).

Characterisation criterion had to be scored manually to accommodate the averaged values.

FRACTIONAL SCORES RELATIVE TO GREATEST NEED
 SHADED CELLS = AVERAGE IN LIEU OF SUITABLE DATA

APPENDIX 3 - RELATIVE SCORING RELATIVE SCORES AND DERIVED WEIGHTED SCORES BY PRODUCTION SYSTEM AND CHARACTERISATION CRITERIA
POPULATION DOUBLE COUNTED FOR BANGLADESH (HP AND LW) AND NEPAL (HS AND FA)

	Production Systems, Version 1																Weighting Scenarios									
	HP (1)				HS				SA (1)				FA (2)				LW (1)		PU		Scenario 1 Weights	Scenario 2 Weights	Scenario 3 Weights	Scenario 4 Weights	Scenario 5 Weights	
	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean		
For each PS, columns to the right specify relative score, mean relative score and weighted mean relative score (using Scenario 1 weights*) for each characterisation criterion																										
CHARACTERISATION CRITERIA																										
1. Land area (km ²)	0.35	0.35	0.00	0.19	0.19	0.00	1.00	1.00	1.00	0.01	0.01	0.25	0.25	0.00	0.10	0.10	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	
2. Population	0.81	0.81	0.32	0.06	0.06	0.02	1.00	1.00	1.00	0.39	0.39	0.05	0.05	0.02	0.28	0.28	0.11	0.17	0.17	0.07	0.39	0.39	0.39	0.39	0.39	
3. Marketing feasibility:																										
3a. Road density	0.40	0.34	0.05	1.00	0.59	0.09	0.53	0.76	0.11	1.00	0.62	0.09	0.42	0.27	0.04	0.33	0.18	0.03	0.03	0.03	0.15	0.3	0.1	0.1	0.1	
3b. Market demand assessment	0.28			1.00	0.18	0.09	1.00			1.00	0.25	0.09	0.13			0.03					0.15	0.3	0.1	0.1	0.1	
4. Potential:																										
4a. Assessment of export potential	0.73	0.59	0.09	0.53	0.69	0.10	1.00	0.96	0.14	1.00	1.00	0.15	0.44	0.42	0.06	0.00	0.00	0.00	0.00	0.00	0.15	0.1	0.3	0.1	0.1	
4b. Land productivity potential	0.46			0.85			0.92			0.92			0.41			0.00					0.15	0.1	0.3	0.1	0.1	
5. Poverty status (National data):																										
5a. Average GDP (USD per annum per capita, 1997)	0.72	0.81	0.12	0.67	0.77	0.11	0.64	0.77	0.12	0.72	0.46	0.11	1.00	0.98	0.15	0.63	0.78	0.12	0.12	0.12	0.15	0.1	0.1	0.3	0.1	
5b. Literacy rate % (1997, weighted)	0.76			0.78			0.71			0.77	0.78	0.11	0.94			0.71					0.15	0.1	0.1	0.3	0.1	
5c. Harvard scale data (% children weight/height)	0.95			0.84			0.96			0.96	0.96	0.11	1.00	0.94	1.00	1.00	1.00	1.00	1.00	1.00	0.94	0.1	0.1	0.3	0.1	
6. NR knowledge base (National data):																										
6a. % of GDP to Agricultural Research (1991) Weighted	0.62	0.35	0.05	0.72	0.58	0.09	0.62	0.44	0.07	0.72	1.00	0.15	0.63	0.58	0.09	0.63	0.78	0.08	0.08	0.08	0.72	0.1	0.1	0.3	0.1	
6b. NR Research Scientists (1991) per population of PS	0.03	0.35	0.05	0.35	0.58	0.09	0.04	0.44	0.07	0.35	1.00	0.15	0.31	0.58	0.09	0.31	0.78	0.08	0.08	0.08	0.35	0.1	0.1	0.3	0.1	
6c. NR Research Scientists (1991) per 1m population of PS	0.40	0.40	0.05	0.68	0.68	0.09	0.67	0.67	0.07	0.68	1.00	0.15	0.67	0.68	0.07	0.67	0.78	0.08	0.08	0.08	0.68	0.1	0.1	0.3	0.1	
TOTAL WEIGHTED RELATIVE SCORE (ALL CRITERIA) BY PRODUCTION SYSTEMS, VERSION 1																										
Scenario 1 - Equal weighting on 3-6	HP(1)	0.63	HS	0.42	SA(1)	0.84	FA(2)	0.53	LW(1)	0.45	PU	0.29														
Scenario 2 - Increased weighting on 3	HP(1)	0.60	HS	0.41	SA(1)	0.85	FA(2)	0.48	LW(1)	0.38	PU	0.25														
Scenario 3 - Increased weighting on 4	HP(1)	0.65	HS	0.43	SA(1)	0.89	FA(2)	0.56	LW(1)	0.41	PU	0.22														
Scenario 4 - Increased weighting on 5	HP(1)	0.69	HS	0.44	SA(1)	0.85	FA(2)	0.50	LW(1)	0.52	PU	0.37														
Scenario 5 - Increased weighting on 6	HP(1)	0.60	HS	0.40	SA(1)	0.78	FA(2)	0.56	LW(1)	0.44	PU	0.32														

* / Scenario 1 is used as an example showing how the values for the total weighted scores of each scenario were generated.

FRACTIONAL SCORES RELATIVE TO GREATEST NEED
SHADED CELLS = AVERAGE IN LIEU OF SUITABLE DATA

APPENDIX 3 - RELATIVE SCORING RELATIVE SCORES AND DERIVED WEIGHTED SCORES BY PRODUCTION SYSTEM AND CHARACTERISATION CRITERIA
POPULATION DOUBLE COUNTED FOR BANGLADESH (HP AND LW) AND NEPAL (HS AND FA)

CHARACTERISATION CRITERIA	Production Systems, Version 2												Weighting Scenarios										
	HP (2)			HS			SA (2)			FA (1)			LW (2)		PU		Scenario 1 Weights	Scenario 2 Weights	Scenario 3 Weights	Scenario 4 Weights	Scenario 5 Weights		
	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean		
For each PS, columns to the right specify relative score, mean relative score and weighted mean relative score (using Scenario 1 weights*) for each characterisation criterion																							
CHARACTERISATION CRITERIA																							
1. Land area (km ²)	0.31	0.31	0.00	0.12	0.00	1.00	1.00	0.01	0.17	0.17	0.00	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	
2. Population	0.64	0.64	0.25	0.04	0.01	1.00	1.00	0.39	0.04	0.04	0.02	0.20	0.20	0.08	0.11	0.11	0.04	0.39	0.39	0.39	0.39	0.39	
3. Marketing feasibility:																							
3a. Road density	0.40	0.34	0.05	1.00	0.60	0.09	1.00	0.74	0.71	0.50	0.07	0.38	0.32	0.05	0.33	0.18	0.03	0.15	0.3	0.1	0.1	0.1	
3b. Market demand assessment	0.29			0.19			1.00		0.28			0.26			0.03								
4. Potential:																							
4a. Assessment of export potential	0.67	0.55	0.08	0.48	0.66	0.10	1.00	0.82	0.83	0.92	0.14	0.42	0.39	0.06	0.00	0.00	0.00	0.15	0.1	0.3	0.1	0.1	
4b. Land productivity potential	0.44			0.85			0.65		1.00			0.37			0.00								
5. Poverty status (National data):																							
5a. Average GDP (USD per annum per capita, 1997)	0.77	0.84	0.13	0.75	0.80	0.12	0.71	0.80	0.74	0.72	0.11	1.00	0.97	0.15	0.70	0.81	0.12	0.15	0.1	0.1	0.3	0.1	
5b. Literacy rate % (1997, weighted)	0.78			0.80			0.74		0.74			1.00			0.74								
5c. Harvard scale data (% children weight/height)	0.96			0.84			0.96		0.89			0.92			1.00								
6. NR knowledge base (National data):																							
6a. % of GDP to Agricultural Research (1991) Weighted	0.62			0.72			0.62		1.00			0.72			0.63								
6b. NR Research Scientists (1991) per population of PS	0.05	0.45	0.07	0.42	0.67	0.10	0.05	0.56	1.00	0.95	0.14	0.42	0.67	0.10	0.59	0.74	0.11	0.15	0.1	0.1	0.1	0.3	
6c. NR Research Scientists (1991) per 1m population of PS	0.67			0.88			1.00		0.86			0.88			1.00								
SCENARIOS FOR CRITERIA WEIGHTINGS	TOTAL WEIGHTED RELATIVE SCORE (ALL CRITERIA) BY PRODUCTION SYSTEMS, VERSION 2																						
Scenario 1 - Equal weighting on 3-6	HP(2)	0.58	HS	0.43	SA(2)	0.84	FA(1)	0.48	LW(2)	0.43	PU	0.30											
Scenario 2 - Increased weighting on 3	HP(2)	0.54	HS	0.41	SA(2)	0.77	FA(1)	0.43	LW(2)	0.38	PU	0.25											
Scenario 3 - Increased weighting on 4	HP(2)	0.58	HS	0.42	SA(2)	0.86	FA(1)	0.51	LW(2)	0.39	PU	0.21											
Scenario 4 - Increased weighting on 5	HP(2)	0.64	HS	0.45	SA(2)	0.85	FA(1)	0.47	LW(2)	0.51	PU	0.38											
Scenario 5 - Increased weighting on 6	HP(2)	0.56	HS	0.42	SA(2)	0.80	FA(1)	0.52	LW(2)	0.45	PU	0.36											

* / Scenario 1 is used as an example showing how the values for the total weighted scores of each scenario were generated.

FRACTIONAL SCORES RELATIVE TO GREATEST NEED
SHADED CELLS = AVERAGE IN LIEU OF SUITABLE DATA

APPENDIX 3 - RELATIVE SCORING RELATIVE SCORES AND DERIVED WEIGHTED SCORES BY PRODUCTION SYSTEM AND CHARACTERISATION CRITERIA
POPULATION DOUBLE COUNTED FOR BANGLADESH (HP AND LW) AND NEPAL (HS AND FA)

CHARACTERISATION CRITERIA	Production Systems, Version 3												Weighting Scenarios									
	HP (1)			HS			SA (1)			FA (1)			LW (3)			Scenario 1 Weights	Scenario 2 Weights	Scenario 3 Weights	Scenario 4 Weights	Scenario 5 Weights		
	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	
For each PS, columns to the right specify relative score, mean relative score and weighted mean relative score (using Scenario 1 weights*) for each characterisation criterion																						
CHARACTERISATION CRITERIA																						
1. Land area (km ²)	0.35	0.35	0.00	0.19	0.00	0.01	1.00	1.00	0.01	0.25	0.00	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01
2. Population	0.81	0.81	0.32	0.06	0.02	0.39	1.00	1.00	0.39	0.06	0.02	0.31	0.31	0.12	0.17	0.17	0.07	0.39	0.39	0.39	0.39	0.39
3. Marketing feasibility:																						
3a. Road density	0.40	0.34	0.05	1.00	0.09	0.11	0.53	0.76	0.11	1.00	0.09	0.42	0.31	0.05	0.33	0.18	0.03	0.15	0.3	0.1	0.1	0.1
3b. Market demand assessment	0.28			0.18			1.00			0.25		0.20			0.03							
4. Potential:																						
4a. Assessment of export potential	0.73	0.59	0.09	0.53	0.69	0.10	1.00	0.96	0.14	1.00	0.15	0.55	0.46	0.07	0.00	0.00	0.00	0.15	0.1	0.3	0.1	0.1
4b. Land productivity potential	0.46			0.85			0.92			1.00		0.37			0.00							
5. Poverty status (National data):																						
5a. Average GDP (USD per annum per capita, 1997)	0.72	0.81	0.12	0.67	0.77	0.11	0.64	0.77	0.12	0.46	0.11	1.00	0.98	0.15	0.63	0.78	0.12	0.15	0.1	0.1	0.3	0.1
5b. Literacy rate % (1997, weighted)	0.76			0.78			0.71			0.78		1.00			0.71							
5c. Harvard scale data (% children weight/height)	0.95			0.84			0.96			0.96		0.94			1.00							
6. NR knowledge base (National data):																						
6a. % of GDP to Agricultural Research (1991) Weighted	0.62	0.35	0.05	0.72	0.58	0.09	0.62	0.44	0.07	1.00	0.15	0.72	0.58	0.09	0.63	0.53	0.08	0.15	0.1	0.1	0.1	0.3
6b. NR Research Scientists (1991) per population of PS	0.03			0.35			0.04			1.00		0.35			0.31							
6c. NR Research Scientists (1991) per 1m population of PS	0.40			0.68			0.67			1.00		0.68			0.67							
SCENARIOS FOR CRITERIA WEIGHTINGS																						
Scenario 1 - Equal weighting on 3-6	HP(1)	0.63	HS	0.42	SA(1)	0.84	FA(1)	0.53	LW(3)	0.47	PU	0.29										
Scenario 2 - Increased weighting on 3	HP(1)	0.60	HS	0.41	SA(1)	0.85	FA(1)	0.49	LW(3)	0.42	PU	0.25										
Scenario 3 - Increased weighting on 4	HP(1)	0.65	HS	0.43	SA(1)	0.89	FA(1)	0.56	LW(3)	0.45	PU	0.22										
Scenario 4 - Increased weighting on 5	HP(1)	0.69	HS	0.44	SA(1)	0.85	FA(1)	0.51	LW(3)	0.55	PU	0.37										
Scenario 5 - Increased weighting on 6	HP(1)	0.60	HS	0.40	SA(1)	0.78	FA(1)	0.56	LW(3)	0.47	PU	0.32										

* / Scenario 1 is used as an example showing how the values for the total weighted scores of each scenario were generated.

FRACTIONAL SCORING RELATIVE TO GREATEST NEED
SHADED CELLS = AVERAGE IN LIEU OF SUITABLE DATA

APPENDIX 3 - RELATIVE SCORING SUMMARY

WEIGHTED IMPORTANCE SCORES SUMMARY BY PRODUCTION SYSTEM AND IMPLICATIONS FOR NRSP's BUDGET ALLOCATIONS

POPULATION DOUBLE COUNTED FOR BANGLADESH (HP AND LW) AND NEPAL (HS AND FA)

Total score, sum for all criteria & PS ranking, V1**				Total score, sum for all criteria & PS ranking, V2**				Total score, sum for all criteria & PS ranking, V3**											
HP(1)	SA(1)	FA(2)	LW(1)	HS	SA(2)	FA(1)	LW(2)	HP(2)	HS	SA(1)	FA(1)	LW(3)	HP(1)	HS	SA(1)	FA(1)	LW(3)	PU	
5	0.63	0.84	0.53	0.45	0.29	0.48	0.43	1	0.58	0.43	0.84	0.48	3	0.63	0.42	0.84	0.53	3	0.29
2	0.42	0.84	0.53	0.45	0.29	0.48	0.43	1	0.58	0.43	0.84	0.48	3	0.63	0.42	0.84	0.53	3	0.29
5	0.60	0.85	0.48	0.38	0.25	0.43	0.38	2	0.54	0.41	0.77	0.43	2	0.60	0.41	0.85	0.49	2	0.25
3	0.41	0.85	0.48	0.38	0.25	0.43	0.38	2	0.54	0.41	0.77	0.43	2	0.60	0.41	0.85	0.49	2	0.25
5	0.65	0.89	0.56	0.41	0.22	0.51	0.39	3	0.58	0.42	0.86	0.51	2	0.65	0.43	0.89	0.56	2	0.22
3	0.43	0.89	0.56	0.41	0.22	0.51	0.39	3	0.58	0.42	0.86	0.51	2	0.65	0.43	0.89	0.56	2	0.22
5	0.69	0.85	0.50	0.52	0.37	0.47	0.51	4	0.64	0.45	0.85	0.47	4	0.69	0.44	0.85	0.51	4	0.37
2	0.44	0.85	0.50	0.52	0.37	0.47	0.51	4	0.64	0.45	0.85	0.47	4	0.69	0.44	0.85	0.51	4	0.37
5	0.60	0.78	0.56	0.44	0.32	0.52	0.45	5	0.56	0.42	0.80	0.52	3	0.60	0.40	0.78	0.56	3	0.32
2	0.40	0.78	0.56	0.44	0.32	0.52	0.45	5	0.56	0.42	0.80	0.52	3	0.60	0.40	0.78	0.56	3	0.32
5	0.63	0.83	0.53	0.44	0.30	0.49	0.43	5	0.58	0.42	0.82	0.49	3	0.63	0.42	0.83	0.54	3	0.30
2	0.42	0.83	0.53	0.44	0.30	0.49	0.43	5	0.58	0.42	0.82	0.49	3	0.63	0.42	0.83	0.54	3	0.30
5	2	6	4	3	1	5	2	6	2	6	4	3	1	5	2	6	4	3	1
19.93	13.25	26.38	16.94	14.03	9.48	18.82	14.13	19.71	13.10	26.09	16.90	14.83	9.38	19.71	13.10	26.09	16.90	14.83	9.38
Mean Score per PS, across all scenarios				Mean Score per PS, across all scenarios				Mean Score per PS, across all scenarios				Mean Score per PS, across all scenarios							
Simple rank across Pss				Simple rank across Pss				Simple rank across Pss				Simple rank across Pss							
Relative rank across Pss				Relative rank across Pss				Relative rank across Pss				Relative rank across Pss							

WEIGHTED IMPORTANCE SCORES					
HP	HS	SA	FA	LW	PU
Mean Score per PS across V1, V2 & V3, with Double Counting					
0.61	0.42	0.83	0.52	0.45	0.30
Mean Score per PS for Scenario 4 across V1, 2 & 3, with Double Counting					
0.67	0.44	0.85	0.49	0.53	0.37
Overall Importance Rank based on all Scenarios (6 = Greatest Need)					
5	2	6	4	3	1
Implication for % Budget Allocation					
19.5	13.4	26.5	16.6	14.3	9.7
Overall Importance Rank based on Scenario 4 (6 = Greatest Need)					
5	2	6	3	4	1
Implication for % Budget Allocation					
20.0	13.2	25.3	14.7	15.7	11.1

** / Rank scores are based on weighted scores values read to seven decimal places

KEY: 6 = GREATEST NEED, 1 = LEAST NEED

APPENDIX 4 - RELATIVE SCORING OF PRODUCTION SYSTEM BY EACH CHARACTERISATION CRITERION
ADJUSTED POPULATIONS FOR BANGLADESH (HP AND LW) AND NEPAL (HS AND FA)

Characterisation Criteria	Production Systems, Version 1						
	Ref	HP (1)	HS	SA (1)	FA (2)	LW (1)	PU
Land area (km ²)	1	521,307	278,927	1,505,332	374,472	153,362	0
Population	2	170,737,361	9,586,794	249,172,032	7,263,278	39,946,882	42,846,239
		0.69	0.04	1.00	0.03	0.16	0.17
Road Density	3a	4.17	1.67	3.17	1.67	4.00	5.00
Market Demand Assessment	3b	0.40	1.00	0.53	1.00	0.42	0.33
Assessment of Export Potential	4a	0.28	0.18	1.00	0.25	0.13	0.03
Land Productivity Potential	4b	0.73	0.53	1.00	1.00	0.44	0.00
		0.46	0.85	0.92	1.00	0.41	0.00
Average GDP (USD per annum per capita, 1997)	5a	0.72	0.67	0.64	0.46	1.00	0.63
Literacy Rate % (1997, weighted)	5b	0.758	0.779	0.712	0.782	1.000	0.712
Harvard Scale Data (% children weight/height)	5c	0.948	0.842	0.964	0.957	0.937	1.000
% of GDP to Agricultural Research (1991) Weighted	6a	0.625	0.719	0.622	1.000	0.719	0.629
NR Research Scientists (1991) per population of PS	6b	0.03	0.35	0.04	1.00	0.35	0.31
NR Research Scientists (1991) per 1m population of PS	6c	0.40	0.68	0.67	1.00	0.68	0.67

Population taken as rural except for Peri-Urban where total population was used.

Half Bangladesh HP population deducted to remove double counting with LW.

Half Nepal HS population deducted to remove double counting with FA.

Half Nepal FA population deducted to remove double counting with HS.

Half Bangladesh LW population deducted to remove double counting with HP.

PU has markets but is restricted in comparative advantage for supply (see land productivity potential).

Characterisation criterion had to be scored manually to accommodate the averaged values.

FRACTIONAL SCORES RELATIVE TO GREATEST NEED
SHADED CELLS = AVERAGE IN LIEU OF SUITABLE DATA

APPENDIX 4 - RELATIVE SCORING OF PRODUCTION SYSTEM BY EACH CHARACTERISATION CRITERION
ADJUSTED POPULATIONS FOR BANGLADESH (HP AND LW) AND NEPAL (HS AND FA)

Characterisation Criteria		Production Systems - Version 2						
		HP (2)	HS	SA (2)	FA (1)	LW (2)	PU	
Land area (km ²)	1	695,117	278,927	2,242,353	386,480	187,483	0	
	2	260,798,296	9,586,794	407,632,645	10,358,275	49,026,939	42,846,239	
Population	3a	4.17	1.67	3.50	2.33	4.33	5.00	
	3b	0.10	0.15	0.03	0.10	0.11	1.00	
Road Density	4a	133.33	96.67	200.00	166.67	83.33	0.00	
	4b	4.17	2.17	2.83	1.83	5.00	0.00	
Market Demand Assessment	5a	1,502	1,556	1,644	2,157	1,160	1,667	
	5b	51.82	49.96	54.45	54.34	40.19	54.63	
Assessment of Export Potential	5c	55.77	63.42	55.46	60.27	58.01	53.38	
	6a	0.1539	n/a	0.1545	0.0961	n/a	0.1529	
Land Productivity Potential	6b	2,889	n/a	3,049	148	n/a	249	
	6c	9	n/a	6	7	n/a	6	
Average GDP (USD per annum per capita, 1997)		0.31	0.12	1.00	0.17	0.08	0.00	
		0.64	0.04	1.00	0.03	0.12	0.11	
Literacy Rate % (1997, weighted)		0.40	1.00	0.48	0.71	0.38	0.33	
		0.29	0.19	1.00	0.28	0.26	0.03	
Harvard Scale Data (% children weight/height)		0.67	0.48	1.00	0.83	0.42	0.00	
		0.44	0.85	0.65	1.00	0.37	0.00	
% of GDP to Agricultural Research (1991) Weighted		0.77	0.75	0.71	0.54	1.00	0.70	
		0.776	0.804	0.738	0.740	1.000	0.736	
NR Research Scientists (1991) per population of PS		0.957	0.842	0.963	0.886	0.920	1.000	
		0.625	0.719	0.622	1.000	0.719	0.629	
NR Research Scientists (1991) per 1m population of PS		0.05	0.42	0.05	1.00	0.42	0.59	
		0.67	0.88	1.00	0.86	0.88	1.00	

Half of Bangladesh inland floodplain population deducted to remove double counting with HP.

Half Nepal FA population deducted to remove double counting with HS.

Half Nepal HS population deducted to remove double counting with FA.

Half Bangladesh HP population deducted to remove double counting with inland floodplain LW.

Population taken as rural except for Peri-Urban where total population was used.

PU has markets but is restricted in comparative advantage for supply (see land productivity potential).

Characterisation criterion had to be scored manually to accommodate the averaged values.

FRACTIONAL SCORES RELATIVE TO GREATEST NEED
SHADED CELLS = AVERAGE IN LIEU OF SUITABLE DATA

APPENDIX 4 - RELATIVE SCORING OF PRODUCTION SYSTEM BY EACH CHARACTERISATION CRITERION
ADJUSTED POPULATIONS FOR BANGLADESH (HP AND LW) AND NEPAL (HS AND FA)

Characterisation Criteria		Production Systems Version 3						
		HP (1)	HS	SA (1)	FA (1)	LW (3)	PU	
Land area (km ²)	1	0.35	0.19	1.00	0.25	0.08	0.00	
	2	0.69	0.04	1.00	0.04	0.19	0.17	
Population	3a	0.40	1.00	0.53	1.00	0.42	0.33	
	3b	0.28	0.18	1.00	0.25	0.20	0.03	
Road Density	4a	0.73	0.53	1.00	1.00	0.55	0.00	
	4b	0.46	0.85	0.92	1.00	0.37	0.00	
Market Demand Assessment	5a	0.72	0.67	0.64	0.46	1.00	0.63	
	5b	0.758	0.779	0.712	0.782	1.000	0.712	
Assessment of Export Potential	5c	0.948	0.842	0.964	0.957	0.937	1.000	
	6a	0.625	0.719	0.622	1.000	0.719	0.629	
Land Productivity Potential	6b	0.03	0.35	0.04	1.00	0.35	0.31	
	6c	0.40	0.68	0.67	1.00	0.68	0.67	
Average GDP (USD per annum per capita, 1997)								
Literacy Rate % (1997, weighted)								
Harvard Scale Data (% children weight/height)								
% of GDP to Agricultural Research (1991) Weighted								
NR Research Scientists (1991) per population of PS								
NR Research Scientists (1991) per 1m population of PS								

Population taken as rural except for Peri-Urban where total population was used.

Half Bangladesh HP population deducted to remove double counting with LW.

Half Nepal HS population deducted to remove double counting with FA.

Half Nepal FA population deducted to remove double counting with HS.

Half Bangladesh inland LW population deducted to remove double counting with HP.

PU has markets but is restricted in comparative advantage for supply (see land productivity potential).

Characterisation criterion had to be scored manually to accommodate the averaged values.

FRACTIONAL SCORES RELATIVE TO GREATEST NEED
SHADED CELLS = AVERAGE IN LIEU OF SUITABLE DATA

APPENDIX 4 - RELATIVE SCORING

DERIVED WEIGHTED SCORES BY PRODUCTION SYSTEM AND CHARACTERISATION CRITERIA

WITH ADJUSTED POPULATIONS FOR BANGLADESH (HP AND LW) AND NEPAL (HS AND FA)

CHARACTERISATION CRITERIA	Production Systems, Version 1												Weighting Scenarios												
	HP (1)			HS			SA (1)			FA (2)			LW (1)			PU			Scenario 1 Weights	Scenario 2 Weights	Scenario 3 Weights	Scenario 4 Weights	Scenario 5 Weights		
	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	
For each PS, columns to the right specify relative score, mean relative score and weighted mean relative score (using Scenario 1 weights*) for each characterisation criterion																									
CHARACTERISATION CRITERIA																									
1. Land area (km ²)	0.35	0.35	0.00	0.19	0.19	0.00	1.00	1.00	0.01	0.25	0.25	0.00	0.10	0.10	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01
2. Population	0.69	0.69	0.27	0.04	0.04	0.02	1.00	1.00	0.39	0.03	0.03	0.01	0.16	0.16	0.06	0.17	0.17	0.07	0.39	0.39	0.39	0.39	0.39	0.39	0.39
3. Marketing feasibility:																									
3a. Road density	0.40	0.34	0.05	1.00	0.59	0.09	0.53	0.76	0.11	1.00	0.62	0.09	0.42	0.27	0.04	0.33	0.18	0.03	0.15	0.3	0.1	0.1	0.1	0.1	0.1
3b. Market demand assessment	0.28			0.18			1.00			0.25			0.13			0.03			0.15	0.3	0.1	0.1	0.1	0.1	0.1
4. Potential:																									
4a. Assessment of export potential	0.73	0.59	0.09	0.53	0.69	0.10	1.00	0.96	0.14	1.00	1.00	0.15	0.44	0.42	0.06	0.00	0.00	0.00	0.15	0.1	0.3	0.1	0.1	0.1	0.1
4b. Land productivity potential	0.46			0.85			0.92			1.00			0.41			0.00			0.15	0.1	0.3	0.1	0.1	0.1	0.1
5. Poverty status (National data):																									
5a. Average GDP (USD per annum per capita, 1997)	0.72	0.81	0.12	0.67	0.78	0.11	0.64	0.77	0.12	0.46	0.78	0.11	1.00	0.98	0.15	0.63	0.12		0.15	0.1	0.1	0.3	0.1	0.1	0.1
5b. Literacy rate % (1997, weighted)	0.76			0.84			0.71			0.96			0.94			0.71			0.15	0.1	0.1	0.3	0.1	0.1	0.1
5c. Harvard scale data (% children weight/height)	0.95			0.84			0.96			0.96			0.94			1.00			0.15	0.1	0.1	0.3	0.1	0.1	0.1
6. NR knowledge base (National data):																									
6a. % of GDP to Agricultural Research (1991) Weighted	0.62	0.35	0.05	0.72	0.58	0.09	0.62	0.44	0.07	1.00	1.00	0.15	0.72	0.58	0.09	0.63	0.08		0.15	0.1	0.1	0.1	0.1	0.1	0.1
6b. NR Research Scientists (1991) per population of PS	0.03			0.35			0.04			1.00			0.35			0.31			0.15	0.1	0.1	0.1	0.1	0.1	0.1
6c. NR Research Scientists (1991) per 1m population of PS	0.40			0.68			0.67			1.00			0.68			0.67			1.0	1.0	1.0	1.0	1.0	1.0	1.0
SCENARIOS FOR CRITERIA WEIGHTINGS	TOTAL WEIGHTED RELATIVE SCORE (ALL CRITERIA) BY PRODUCTION SYSTEMS, VERSION 1																								
Scenario 1 - Equal weighting on 3-6	HP(1)	0.58	HS	0.41	SA(1)	0.84	FA(2)	0.52	LW(1)	0.40	PU	0.29													
Scenario 2 - Increased weighting on 3	HP(1)	0.55	HS	0.40	SA(1)	0.85	FA(2)	0.47	LW(1)	0.34	PU	0.25													
Scenario 3 - Increased weighting on 4	HP(1)	0.60	HS	0.42	SA(1)	0.89	FA(2)	0.55	LW(1)	0.37	PU	0.22													
Scenario 4 - Increased weighting on 5	HP(1)	0.64	HS	0.43	SA(1)	0.85	FA(2)	0.50	LW(1)	0.48	PU	0.37													
Scenario 5 - Increased weighting on 6	HP(1)	0.55	HS	0.40	SA(1)	0.78	FA(2)	0.55	LW(1)	0.41	PU	0.32													

FRACTIONAL SCORES RELATIVE TO GREATEST NEED
SHADED CELLS = AVERAGE IN LIEU OF SUITABLE DATA

APPENDIX 4 - RELATIVE SCORING DERIVED WEIGHTED SCORES BY PRODUCTION SYSTEM AND CHARACTERISATION CRITERIA
WITH ADJUSTED POPULATIONS FOR BANGLADESH (HP AND LW) AND NEPAL (HS AND FA)

CHARACTERISATION CRITERIA	Production Systems, Version 2												Weighting Scenarios														
	HP (2)			HS			SA (2)			FA (1)			LW (2)		Scenario 1 Weights		Scenario 2 Weights		Scenario 3 Weights		Scenario 4 Weights		Scenario 5 Weights				
	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Score	Mean	Score	Mean	Score	Mean	Score	Mean		
For each PS, columns to the right specify relative score, mean relative score and weighted mean relative score (using Scenario 1 weights*) for each characterisation criterion																											
CHARACTERISATION CRITERIA																											
1. Land area (km ²)	0.31	0.31	0.00	0.12	0.12	0.00	1.00	1.00	0.01	0.17	0.17	0.00	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2. Population	0.64	0.64	0.25	0.04	0.04	0.02	1.00	1.00	0.39	0.03	0.03	0.01	0.12	0.12	0.05	0.11	0.11	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	
3. Marketing feasibility:																											
3a. Road density	0.40	0.34	0.05	1.00	0.60	0.09	0.48	0.74	0.11	0.71	0.50	0.07	0.38	0.32	0.05	0.33	0.18	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	
3b. Market demand assessment	0.29			0.19			1.00			0.28			0.26			0.03											
4. Potential:																											
4a. Assessment of export potential	0.67	0.55	0.08	0.48	0.66	0.10	1.00	0.82	0.12	0.83	0.92	0.14	0.42	0.39	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4b. Land productivity potential	0.44			0.85			0.65			1.00			0.37			0.00											
5. Poverty status (National data):																											
5a. Average GDP (USD per annum per capita, 1997)	0.77	0.84	0.13	0.75	0.80	0.12	0.71	0.80	0.12	0.74	0.72	0.11	1.00	0.97	0.15	0.70	0.81	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	
5b. Literacy rate % (1997, weighted)	0.78			0.80			0.74			0.89			0.92			1.00											
5c. Harvard scale data (% children weight/height)	0.96			0.84			0.96			0.89			0.92			1.00											
6. NR knowledge base (National data):																											
6a. % of GDP to Agricultural Research (1991) Weighted	0.62	0.45	0.07	0.72	0.67	0.10	0.62	0.56	0.08	1.00	0.95	0.14	0.72	0.67	0.10	0.63	0.74	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11		
6b. NR Research Scientists (1991) per population of PS	0.05			0.42			0.05			0.86			0.42			0.59											
6c. NR Research Scientists (1991) per 1m population of PS	0.67			0.88			1.00			0.86			0.88			1.00											
SCENARIOS FOR CRITERIA WEIGHTINGS																											
Scenario 1 - Equal weighting on 3-6	HP(2)	0.58	HS	0.43	SA(2)	0.84	FA(1)	0.48	LW(2)	0.40	PU	0.30															
Scenario 2 - Increased weighting on 3	HP(2)	0.47	HS	0.34	SA(2)	0.77	FA(1)	0.36	LW(2)	0.27	PU	0.18															
Scenario 3 - Increased weighting on 4	HP(2)	0.58	HS	0.42	SA(2)	0.86	FA(1)	0.50	LW(2)	0.36	PU	0.21															
Scenario 4 - Increased weighting on 5	HP(2)	0.64	HS	0.45	SA(2)	0.85	FA(1)	0.46	LW(2)	0.48	PU	0.38															
Scenario 5 - Increased weighting on 6	HP(2)	0.56	HS	0.42	SA(2)	0.80	FA(1)	0.51	LW(2)	0.42	PU	0.36															

FRACTIONAL SCORES RELATIVE TO GREATEST NEED
SHADED CELLS = AVERAGE IN LIEU OF SUITABLE DATA

APPENDIX 4 - RELATIVE SCORING

DERIVED WEIGHTED SCORES BY PRODUCTION SYSTEM AND CHARACTERISATION CRITERIA

WITH ADJUSTED POPULATIONS FOR BANGLADESH (HP AND LW) AND NEPAL (HS AND FA)

CHARACTERISATION CRITERIA	Production Systems, Version 3												Weighting Scenarios														
	HP (1)			HS			SA (1)			FA (1)			LW (3)		Scenario 1 Weights		Scenario 2 Weights		Scenario 3 Weights		Scenario 4 Weights		Scenario 5 Weights				
	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Weighted Mean	Score	Mean	Score	Mean	Score	Mean	Score	Mean	Score	Mean		
For each PS, columns to the right specify relative score, mean relative score and weighted mean relative score (using Scenario 1 weights*) for each characterisation criterion																											
CHARACTERISATION CRITERIA																											
1. Land area (km ²)	0.35	0.35	0.00	0.19	0.19	0.00	1.00	1.00	1.00	0.01	0.25	0.25	0.00	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	
2. Population	0.69	0.69	0.27	0.04	0.04	0.02	1.00	1.00	1.00	0.39	0.04	0.04	0.02	0.19	0.19	0.07	0.17	0.17	0.07	0.17	0.17	0.07	0.07	0.39	0.39	0.39	
3. Marketing feasibility:																											
3a. Road density	0.40	0.34	0.05	1.00	0.59	0.09	0.53	0.76	0.11	1.00	0.62	0.09	0.42	0.31	0.05	0.33	0.18	0.03	0.33	0.18	0.03	0.33	0.18	0.03	0.15	0.15	
3b. Market demand assessment	0.28			0.18			1.00			1.00			0.25	0.20	0.20	0.03			0.03			0.03			0.1	0.1	
4. Potential:																											
4a. Assessment of export potential	0.73	0.59	0.09	0.53	0.69	0.10	1.00	0.96	0.14	1.00	1.00	0.15	0.55	0.46	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.15		
4b. Land productivity potential	0.46			0.85			0.92			0.92			1.00	0.37	0.37	0.00			0.00			0.00			0.1	0.1	
5. Poverty status (National data):																											
5a. Average GDP (USD per annum per capita, 1997)	0.72	0.81	0.12	0.67	0.77	0.11	0.64	0.77	0.12	0.78	0.73	0.11	1.00	0.98	0.15	0.63	0.78	0.12	0.63	0.78	0.12	0.63	0.78	0.12	0.15	0.15	
5b. Literacy rate % (1997, weighted)	0.76			0.78			0.71			0.78			0.96	0.94	0.94	1.00			1.00			1.00			0.3	0.3	
5c. Harvard scale data (% children weight/height)	0.95			0.84			0.96			0.96			1.00	1.00	1.00	1.00			1.00			1.00			0.1	0.1	
6. NR knowledge base (National data):																											
6a. % of GDP to Agricultural Research (1991) Weighted	0.62	0.35	0.05	0.72	0.58	0.09	0.62	0.44	0.07	1.00	1.00	0.15	0.72	0.58	0.09	0.63	0.53	0.08	0.63	0.53	0.08	0.63	0.53	0.08	0.15	0.15	
6b. NR Research Scientists (1991) per population of PS	0.03			0.35			0.04			0.04			1.00	0.35	0.35	0.31			0.31			0.31			0.1	0.1	
6c. NR Research Scientists (1991) per 1m population of PS	0.40			0.68			0.67			0.67			1.00	0.68	0.68	0.67			0.67			0.67			1.0	1.0	

SCENARIOS FOR CRITERIA WEIGHTINGS												TOTAL WEIGHTED RELATIVE SCORE (ALL CRITERIA) BY PRODUCTION SYSTEMS, VERSION 3				
Scenario 1 - Equal weighting on 3-6	HP (1)	0.58	HS	0.41	SA (1)	0.84	FA (1)	0.52	LW (3)	0.42	PU	0.29				
Scenario 2 - Increased weighting on 3	HP (1)	0.55	HS	0.40	SA (1)	0.85	FA (1)	0.48	LW (3)	0.37	PU	0.25				
Scenario 3 - Increased weighting on 4	HP (1)	0.60	HS	0.42	SA (1)	0.89	FA (1)	0.55	LW (3)	0.40	PU	0.22				
Scenario 4 - Increased weighting on 5	HP (1)	0.64	HS	0.43	SA (1)	0.85	FA (1)	0.50	LW (3)	0.50	PU	0.37				
Scenario 5 - Increased weighting on 6	HP (1)	0.55	HS	0.40	SA (1)	0.78	FA (1)	0.55	LW (3)	0.42	PU	0.32				

* / Scenario 1 is used as an example showing how the values for the total weighted scores of each scenario were generated.

FRACTIONAL SCORES RELATIVE TO GREATEST NEED
SHADED CELLS = AVERAGE IN LIEU OF SUITABLE DATA

The Natural Resources Systems Programme (NRSP), of the UK Department for International Development, undertakes research on the integrated management of natural resources. This encompasses the social, economic, institutional and biophysical factors that influence people's ability to both use and maintain the productive potential of the natural resource (NR) base over a relatively long timeframe. The intended outcome of the research is that NR-related strategies for improving people's livelihoods, that are of proven relevance to poor people, will be delivered in forms that could be taken up by the poor themselves and/or by development practitioners operating at a range of level's, from grassroots to senior policy level.



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