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Planning & Evaluation Directorate

L&DD Department, Punjab, Lahore



Economic Feasibility Analysis (2021-22) RESEARCH PROJECT UNDER PARB CGS SYSTEM PROJECT ID NO. 18-349

**“PREPARATION OF OIL BASED MULTIVALENT CLOSTRIDIAL
VACCINE INCLUDING ENTEROTOXAEMIA AND LAMB
DYSENTERY AND ITS EVALUATION FOR RUMINANTS”**



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ECONOMIC FEASIBILITY ANALYSIS

Determination of Feasibility Indicators (NPV, BCR, EIRR)

Research Project Under PARB CGS System (Project ID NO.18-349)

PARB Project Title:

“Preparation of Oil Based multivalent clostridial vaccine including Enterotoxaemia and Lamb Dysentery and its Evaluation for ruminants”.

PARB Theme Under Which This Project Falls:

Theme-1: Enhancing Productivity on Sustainable Basis of Major Farming Systems.

Sr.	Project Inputs	Parameters
1.	Project Duration (In Months):	36 months
2.	Date of Commencement :	1-12-2021
3.	Total Project Cost (Rs. Million):	11.300 Million
4.	Location Of The Project:	1: Veterinary Research Institute Lahore Cantt. 2: LPRI, Bahadurnagar, Okara

Budget Summary Combined (Rs. 11.300 Million)

Item of Expenditure	Year 1	Year 2	Year 3	Total (Rs. Million)
Salaries	0.000	0.250	0.000	0.250
Operating	2.775	1.033	0.495	4.303
Equipment	3.2	0.000	0.000	3.2
Overseas Travel	0.000	0.000	0.000	0.000
Management Cost (25% of the project cost)	1.823	0.674	0.246	2.743
other	-	0.125		0.125
Sub-Total	7.798	2.082	0.741	10.621
Incentives for Scientists (5% of the activity cost)	0.364	0.156	0.050	0.570
Incentive for PM (1% of the project cost)	0.073	0.026	0.005	0.104
Sub-Total	0.437	0.182	0.06	0.684
Grand Total of the project	8.235	2.264	0.801	11.300

Economic Feasibility Indicators of the Project:

The Economic Analysis of the subject research project is based on the PARB Cost Estimate as well as the basic parametric assumptions considered to determine the Economic Saving Benefits and it is reported below:

Economic Parameters=

Conclusion:

B/C Ratio =	1.288	The Project / Scheme is Economically Feasible, Since B/C Ratio = 1.288 (> 1.0)
NPV(@12%) =	3253.859	NPV(@12%) = 3253.859 M (> 0.0)
EIRR (X%) =	296.014%	And the E.I.R.R. (X%) = 296.014% (> 12.0%)

According to the above reported Economic Indicators, the proposed scheme is Economically Feasible (copy of Economic Analysis is hereby enclosed).

Benefits of the Project:

Keeping in view the disease pattern, it is estimated that vaccine will provide the following benefits as per concept of the project description.

- i. Enterotoxaemia, lamb dysentery and Black Quarter will be controlled for whole year after vaccination with a single shot oil based vaccine and number of doses will be reduced to 33 million instead of 50 million which are now being produced.
- ii. 34 % cost reduction. Approximately Rs. 28 Million will be saved annually.
- iii. Social benefits include:
 - a. Improved economic growth due to control of clostridial diseases.
 - b. Farmer welfare through increase in milk and meat production hence improving the financial and social status.

Main Product Achievement:

Multivalent clostridial vaccine a single shot multivalent vaccine will protect the animals against four major clostridial diseases. i.e. Enterotoxemia, Pulpy kidney disease, Lamb dysentery and Black quarter.

Benefits Quantification:

Possible economic & some financial benefits have been rationalized and quantified under the given assumption as per concept of the project description. Detail calculation procedure is

given in the MS Excel worksheets to estimate and predict the economic & financial benefits (attached). However, necessarily basic parametric assumptions have been considered about livestock population, which are described below.

Estimation of Operation & Maintenance Parameters for Cost & Saving Benefits

Sr.	Parametric Measures & Assumptions	Unit Desc.	Sheep	Goat	Cattle	Buffalo	Total
1	Population (Year 2020-21)	(000 No.)	7131.53 1	24580.33 4	23661.48 5	21674.11 6	77047.46 6
2	Population Growth (G):	L&DD Punjab	2.727%	2.852%	3.924%	3.167%	--
3	HR Field Staff (assumed for Vaccination): (Average 140 CVD / CVH for 36 districts in Punjab)	Vet. Staff	5040	5040	5040	5040	5040
4	Animals Demand (Veterinary Services) per vet. Person	Animals / Person	1415	4878	4695	4301	15288

Estimation of Economic Saving Benefits (B) by Parametric Measures

Sr.	Parametric Measures & Assumptions	Unit Desc.	Sheep	Goat	Cattle	Buffalo	Total
1	Animals Total Expected Additionally Saved (Veterinary Services proposed)	# Additional Animals Saved (No.)	18,849	64,682	106,547	97,619	287,697
2	Animals Expected Additionally Saved (Veterinary Services proposed) per vet. Person	Animals / Person	4.0	13.0	22.0	20.0	59.0
3	Annual Total Extra Transportation Trips Saved (No.): [Trips: 25/ month, yearly: 300]:	## Trip-Repetitions Saved (No.)	296,000	1,023,000	225,000	206,000	1,750,000
4	Annual Extra Transportation Trips Saved per Vet. Person: [Trips: 25/ month, yearly: 300]:	Trips / Person	59.0	203.0	45.0	41.0	348.0
5	Annual Extra Transportation Trips Saved per Animal: [Trips: 25/ month, yearly: 300]:	Trips / Animal	1.29	1.29	0.42	0.42	3.42

Estimation of Annual Economic Saving Benefits (B)

Sr.	Parametric Measures & Assumptions	Unit Desc.	Sheep	Goat	Cattle	Buffalo	Total
1	Annual Saving Benefits of Cost of Animals Additionally Vaccinated (@ Rs. 2.5/ Animal)	(Rs.)	47,122.50	161,705.00	266,367.50	244,047.50	719,243

Sr.	Parametric Measures & Assumptions	Unit Desc.	Sheep	Goat	Cattle	Buffalo	Total
2	Annual Saving Benefits of Transportation Trip Cost: [Trips: 25/ month, yearly: 300]	Rs. 12000	28,320.00	97,440.00	21,600.00	19,680.00	167,040
3	Annual Saving Benefits of Reproductive Efficiency [assumed (0.05) Enhanced Ratio Index] of All Vaccinated Female Adult Animals (0.20 of overall): $[0.05 * 0.20 = 0.01]$	Rs. 2000	6,480,000	22,340,000	21,500,000	19,680,000	70,000,000
4	Annual Saving Benefits of Milk Efficiency [assumed (0.10) Enhanced Ratio Index] of All Vaccinated Female Adults (0.20 of overall): $[0.1 * 0.2 = 0.02]$	Rs. 100	648,000	2,234,000	2,150,000	1,968,000	7,000,000
5	Annual Saving Benefits of Meat Efficiency [assumed (0.10) Enhanced Ratio Index] of All Vaccinated Male Animals (0.05 of overall): $[0.1 * 0.05 = 0.005]$	Rs. 800	1,296,000	4,468,000	4,300,000	3,936,000	14,000,000
6	>> Reduced Mortality Rate (M%): [assumed (0.20*M%) Reduced Ratio Index] of All Vaccinated Animals	20%	0.40%	0.46%	1.13%	1.25%	>> (Reference)
<i>Note: >> Evaluation & Verification Of Livestock Census (2018)</i>							
7	Annual Saving Benefits of Reduced Mortality Rate (by 0.20*M%) of All Vaccinated Animals; [@ Rs. 3000/ animal]:	Rs. 3000	193,620,456	667,098,985	637,717,950	583,020,000	2,081,457,390.6
8	Grand Total Annual Saving Benefits of All Vaccinated Animals:	(Million Rs.)	202.120	696.400	665.956	608.868	2,173.34

Note: These Economic Saving Benefits have been predicted to determine further Economic Feasibility Indicators (BCR, NPV, EIRR).

RESEARCH PROJECT UNDER PARB CGS SYSTEM: (PROJECT ID NO.18-349);
 "Preparation of Oil Based multivalent clostridial vaccine including Enterotoxaemia and Lamb
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	Economic Feasibility Analysis					(Rs. Millions)
Year	Total Cost	Total Benefits	Discount Factor	Discounted Costs	Discounted Benefits	Net Present Value
0	3.424	0.000	1.000	3.424	0.000	-3.424
1	3.595	0.000	0.893	3.210	0.000	-3.210
2	3.775	0.000	0.797	3.009	0.000	-3.009
3	2085.621	2356.338	0.712	1484.504	1677.195	192.691
4	2189.902	2554.793	0.636	1391.722	1623.617	231.895
5	2299.397	2770.019	0.567	1304.740	1571.783	267.043
6	2414.367	3003.437	0.507	1223.194	1521.635	298.441
7	2535.086	3256.592	0.452	1146.744	1473.117	326.373
8	2661.840	3531.157	0.404	1075.072	1426.175	351.103
9	2794.932	3828.950	0.361	1007.880	1380.758	372.877
10	2934.678	4151.943	0.322	944.888	1336.814	391.926
11	3081.412	4502.275	0.287	885.832	1294.296	408.464
12	3235.483	4882.268	0.257	830.468	1253.157	422.689
	26243.513	34837.772	7.194	11304.688	14558.547	3253.859

BCR	1.288	Discount Factor
NPW	1354.575	
EIRR	296.014%	

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Discounted Cash Flow of Net Present Value (Rs. Millions)							
Year	5.0%	12.0%	50.0%	100.0%	296.0%	400.0%	500.0%
0	-3.424	-3.424	-3.424	-3.424	-3.424	-3.424	-3.424
1	-3.057	-2.866	-2.140	-1.605	-0.811	-0.642	-0.535
2	-2.730	-2.399	-1.337	-0.752	-0.192	-0.120	-0.084
3	166.454	137.154	57.094	24.086	3.103	1.542	0.892
4	190.780	147.373	45.806	14.493	0.943	0.371	0.179
5	209.235	151.528	35.166	8.345	0.274	0.085	0.034
6	222.701	151.200	26.201	4.663	0.077	0.019	0.006
7	231.947	147.634	19.102	2.550	0.021	0.004	0.001
8	237.640	141.804	13.699	1.371	0.006	0.001	0.000
9	240.360	134.463	9.699	0.728	0.002	0.000	0.000
10	240.609	126.190	6.797	0.383	0.000	0.000	0.000
11	238.820	117.424	4.722	0.199	0.000	0.000	0.000
12	235.369	108.494	3.258	0.103	0.000	0.000	0.000
	2204.706	1354.575	214.643	51.142	0.000	-2.164	-2.929

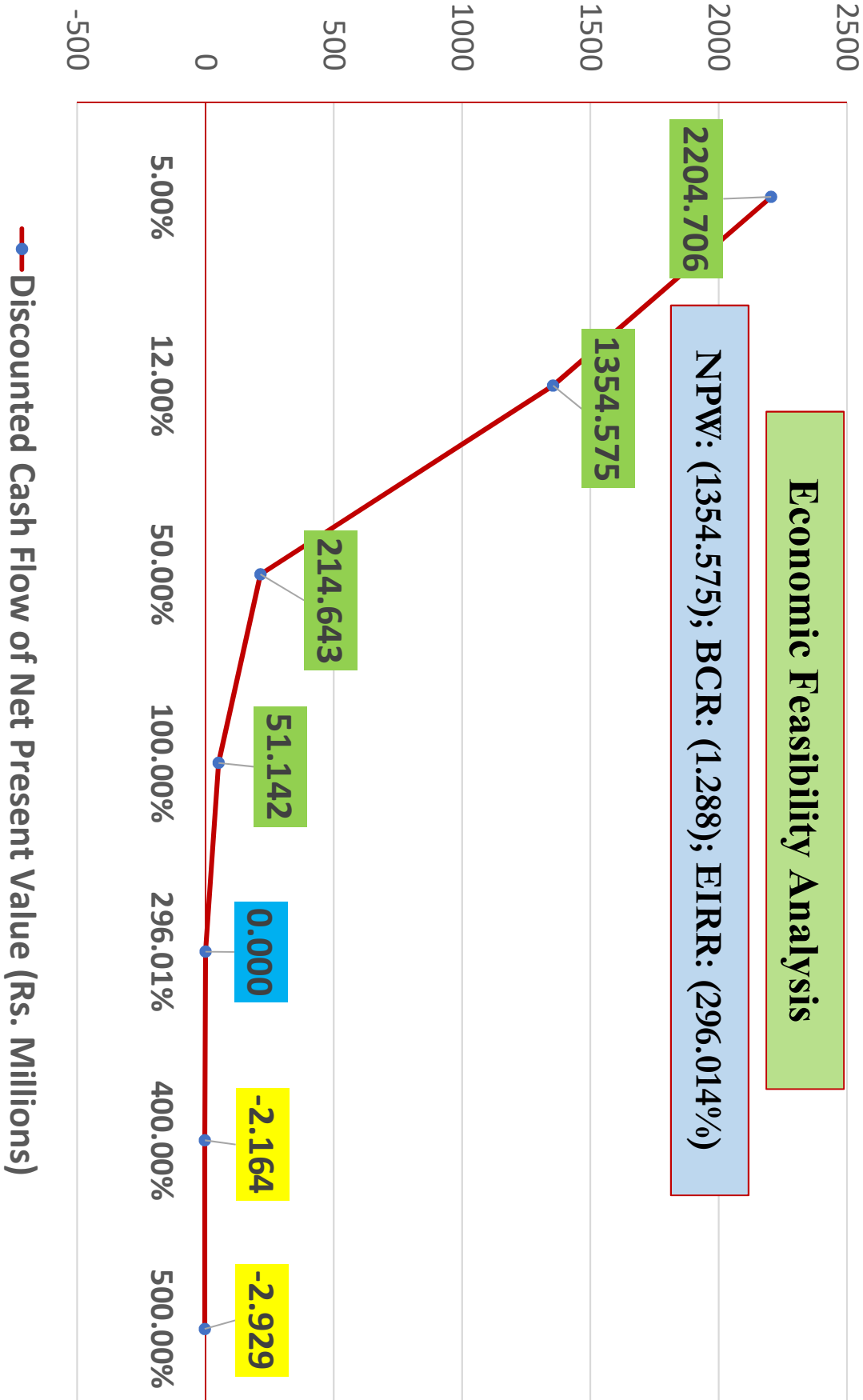
BCR: (1.288)
NPW: (1354.575)
EIRR: (296.014%)

RESEARCH PROJECT UNDER PARB CGS SYSTEM: (PROJECT ID NO.18-349);

"Preparation of Oil Based multivalent clostridial vaccine including Enterotoxaemia and Lamb Dysentery and its Evaluation for ruminants".

Economic Feasibility Analysis

NPW: (1354.575); BCR: (1.288); EIRR: (296.014%)



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	Economic Saving Benefits (B) of Project				
Year	Sheep	Goat	Cattle	Buffalo	Total Benefits (B)
LS Pop. Growth (G):	2.73%	2.85%	3.92%	3.17%	Rs. Million
2021	202.120	696.400	665.956	608.868	0.000
2022	0.000	0.000	0.000	0.000	0.000
2023	0.000	0.000	0.000	0.000	0.000
2024	218.013	752.075	726.692	659.558	2356.338
2025	235.156	812.200	792.968	714.469	2554.793
2026	253.648	877.132	865.289	773.951	2770.019
2027	273.593	947.255	944.205	838.385	3003.437
2028	295.106	1022.984	1030.318	908.183	3256.592
2029	318.312	1104.768	1124.285	983.793	3531.157
2030	343.342	1193.090	1226.822	1065.697	3828.950
2031	370.340	1288.473	1338.711	1154.420	4151.943
2032	399.461	1391.481	1460.804	1250.529	4502.275
2033	430.872	1502.724	1594.032	1354.640	4882.268
Total	3339.962	11588.581	11770.081	10312.492	37011.116

<i>Base year =</i>	2021
<i>Annual Price Escalation:</i>	5.0%

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Annual Operation & Maintenance (O&M) Cost			
Economic Factor:		<i>0.909</i>	Rs. In Million
Year	Project cost	O&M Cost	Total Costs
2021	3.767	0.000	3.424
2022	3.955	0.000	3.595
2023	4.153	0.000	3.775
2024	0.000	2294.413	2085.621
2025	0.000	2409.133	2189.902
2026	0.000	2529.590	2299.397
2027	0.000	2656.070	2414.367
2028	0.000	2788.873	2535.086
2029	0.000	2928.317	2661.840
2030	0.000	3074.733	2794.932
2031	0.000	3228.469	2934.678
2032	0.000	3389.893	3081.412
2033	0.000	3559.387	3235.483
Total	11.874	28858.877	26243.513

<i>Base year =</i>	<i>2021</i>
<i>Annual Price Escalation:</i>	<i>5.0%</i>
<i>Annual O&M Cost:</i>	<i>2185.155</i>

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ESTIMATION OF OPERATION & MAINTENANCE COST & SAVING BENEFITS						Million Factor:	1000000
Sr.	Parametric Measures & Assumptions	Unit Desc. (Assumptions)	Sheep	Goat	Cattle	Buffalo	Total
1	Population (Year 2020-21)	(000 No.)	7131.531	24580.334	23661.485	21674.116	77047.466
2	Population Growth (G):	L&DD Punjab	2.727%	2.852%	3.924%	3.167%	
3	HR Field Staff (assumed for Vaccination): (Average 140 CVD / CVH for 36 districts in Punjab)	Vet. Staff	5040	5040	5040	5040	5040
4	Animals Demand (Veterinary Services) per vet. Person	Animals / Person	1415	4878	4695	4301	15288
5	Disease	Name	1). Enterotoxaemia (ET, overeating or pulpy kidney disease), lamb dysentery	1). Enterotoxaemia (ET or pulpy kidney disease)	1). Enterotoxaemia (ET or pulpy kidney disease)	1). Enterotoxaemia (ET or pulpy kidney disease)	1). Enterotoxaemia (ET or pulpy kidney disease)
6	Caused by	type	Cl. perfringens (type B, type D)	Cl. perfringens (type B, type D)	Cl. perfringens (type A)		
7	Disease	Name	2). Black Quarter (BQ)	2). Black Quarter (BQ)	2). Black Quarter (BQ)	2). Black Quarter (BQ)	2). Black Quarter (BQ)
8	Caused by	type	Cl. Chauvoei	Cl. Chauvoei	Cl. Chauvoei	Cl. Chauvoei	Cl. Chauvoei
9	Affected species / breed	misc.	(+) Most common (age 3 - 4 weeks)	(+) Most common (age 3 - 4 weeks)	(+) Most common (age 3 - 4 weeks)	(+) Most common (age 3 - 4 weeks)	
10	Symptoms & Fatality	misc.	Cessation of nursing, lethargy, recumbency, Diarrhea	Cessation of nursing, lethargy, recumbency, Diarrhea	Cessation of nursing, lethargy, recumbency, Diarrhea	Cessation of nursing, lethargy, recumbency, Diarrhea	Cessation of nursing, lethargy, recumbency, Diarrhea
11	Constraints	misc.	Treatment in most cases is not possible.	Treatment in most cases is not possible.	Treatment in most cases is not possible.	Treatment in most cases is not possible.	Treatment in most cases is not possible.
12	Methodology to Control.	misc.	Control and prevention is by timely Vaccination	Control and prevention is by timely Vaccination	Control and prevention is by timely Vaccination	Control and prevention is by timely Vaccination	Control and prevention is by timely Vaccination

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ESTIMATION OF OPERATION & MAINTENANCE COST & SAVING BENEFITS							Million Factor:	1000000
Sl.	Parametric Measures & Assumptions	Unit Desc. (Assumptions)	Sheep	Goat	Cattle	Buffalo	Total	
	Vaccine 1							
13	Currently Practised (ETV):	Type 1	(Alum adjuvanted clostridial vaccines; [Alum (adjuvant) precipitated vaccine is used as mass scale vaccine in Pakistan]).					
14	Survival Life Cycle (months): [Immunity induced by this vaccine lasts]	months	for 3-4 months only	for 3-4 months only				
15	Production Cost / Price value per Dose (Rs.):	(2ml dose/ animal)	2.5	2.5	2.5	2.5		
16	Repetition Frequency (per year):	Twice a year	2	2	2	2		
17	Vaccinated Utilization Animals Predicted (No.)	6,444%	229,000	791,000	381,000	349,000	1,750,000	
18	Vaccine Utilized Distribution (Huge quantity of ETV)	(No.)	458,000	1,582,000	762,000	698,000	3,500,000	
19	Animals Estimated (Veterinary Services Given) per vet. Person	Animals / Person	45,437	156,945	75,596	69,246	347,224	
20	Operational Production Revenue (per year):	(Million Rs.)	1.15	3.96	1.91	1.75	8.750	
21	Annual Labour Cost [(@ Rs. 30000/ month)]:	360000	1,814.40	1,814.40	1,814.40	1,814.40	1,814.40	
22	Animals per Transportation Trip (No. of Vet Services): [Trips: 25/ month, yearly: 300]:	300	152	524	252	231	1,159	
23	Annual Transportation Cost [(@ Rs 10000 / month, 12m)]:	120000	604.80	604.80	604.80	604.80	604.80	
24	Total Cost (per year):	(Million Rs.)	2572.345	2947.155	2673.105	2651.945	2,427,950	

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ESTIMATION OF OPERATION & MAINTENANCE COST & SAVING BENEFITS							Million Factor:	1000000
Sr.	Parametric Measures & Assumptions	Unit Desc. (Assumptions)	Sheep	Goat	Cattle	Buffalo	Total	
	Vaccine 2							
25	Currently Practised (BOV):	Type 2	Black quarter vaccine (BOV) containing Clostridium chauvoei	Black quarter vaccine (BOV) containing Clostridium chauvoei	Black quarter vaccine (BOV) containing Clostridium chauvoei	Black quarter vaccine (BOV) containing Clostridium chauvoei		
26	Survival Life Cycle (months): [Immunity induced by this vaccine lasts]	for 10-12 months only	for 10-12 months only	for 10-12 months only	for 10-12 months only	for 10-12 months only		
27	Production Cost / Price value per Dose (Rs.):	(2ml dose/ animal)	2.5	2.5	2.5	2.5		
28	Repetition Frequency (per year):	Once a year	1	1	1	1		
29	Vaccinated Utilization Animals Predicted (No.)	2.274%	162,000	558,000	538,000	492,000	1,750,000	
30	Vaccine Utilized Distribution (Huge quantity of BOV)	(No.)	162,000	558,000	538,000	492,000	1,750,000	
31	Animals Estimated (Veterinary Services Given) per vet. Person	Animals / Person	32,143	110,715	106,747	97,619	347,224	
32	Operational Production Revenue (per year):	(Million Rs.)	0.41	1.40	1.35	1.23	4.375	
33	Annual Labour Cost [(@ Rs. 30000/ month):	360000	1,814.40	1,814.40	1,814.40	1,814.40	1,814.40	
34	Animals per Transportation Trip (No. of Vet Services): [Trips: 25/ month, yearly: 300]:	300	108	370	356	326	1,160	
35	Annual Transportation Cost [(@ Rs 10000 /month, 12m):	120000	604.80	604.80	604.80	604.80	604.80	

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ESTIMATION OF OPERATION & MAINTENANCE COST & SAVING BENEFITS							
Sl.	Parametric Measures & Assumptions	Unit Desc. (Assumptions)	Sheep	Goat	Cattle	Buffalo	1000000
	Total Annual Cost (Estimated): [Vaccine 1, Vaccine 2]:						Total
36	Vaccinated Utilization Animals Predicted (No.)	(No.)	229,000	791,000	538,000	492,000	2,050,000
37	Vaccine Utilized Distribution (Huge quantity of BOV)	(No.)	620,000	2,140,000	1,300,000	1,190,000	5,250,000
38	Animals Estimated (Veterinary Services Given) per vet. Person	Animals / Person	45,437	156,945	106,747	97,620	406,749
39	Operational Production Revenue (per year):	(Million Rs.)	1.550	5.350	3.250	2.975	13.125
40	Annual Labour Cost [(@ Rs. 30000/ month)]:	360000	1,814,400	1,814,400	1,814,400	1,814,400	1,814,400
41	Animals per Transportation Trip (No. of Vet Services): [Trips: 25/ month, yearly: 300]:	300	260	894	608	557	2,319
42	Annual Transportation Cost [(@ Rs 10000 /month, 12m):	120000	604.80	604.80	604.80	604.80	604.80
43	Total Annual Cost:	(Million Rs.)	2,420.750	2,424.550	2,422.450	2,422.175	2,432.325

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ESTIMATION OF OPERATION & MAINTENANCE COST & SAVING BENEFITS							
Sl.	Parametric Measures & Assumptions	Unit Desc. (Assumptions)	Sheep	Goat	Cattle	Buffalo	1000000
	Vaccine 3 (Proposed)						
44	Proposed Practised: [Multivalent oil adjuvant vaccine]	Type 3	Multivalent oil adjuvant vaccine: [use oil adjuvant Montanide ISA-50 based on combination of different mineral oils and emulsifiers and surfactants which produce water in oil (W/O) emulsion]				
45	Survival Life Cycle (months): [Immunity induced by this vaccine lasts]	for 10-12 months only	Protection against multiple diseases and Long-term Immunity in a single shot yearly.				
46	Production Cost / Price value per Dose (Rs.):	(2ml dose/ animal)	2.5	2.5	2.5	2.5	
47	Repetition Frequency (per year):	*Once a year	1	1	1	1	
48	Vaccinated Utilization Animals Predicted (No.)	4.545%	324,000	1,117,000	1,075,000	984,000	3,500,000
49	Vaccine Utilized Distribution (Huge quantity of BQV)	(No.)	324,000	1,117,000	1,075,000	984,000	3,500,000
50	Animals Expected & Predicted (Veterinary Services proposed) per vet. Person	Animals / Person	64,286	221,627	213,294	195,239	694,446
51	Operational Production Revenue (per year):	(Million Rs.)	0.810	2.793	2.688	2.460	8.750
52	Annual Labour Cost [(@ Rs. 30000/ month):	360000	1,814.40	1,814.40	1,814.40	1,814.40	1,814.40
53	Animals per Transportation Trip (No. of Vet Services): [Trips: 25/ month, yearly: 300]:	300	215	739	711	651	2,316
54	Annual Transportation Cost [(@ Rs 10000 /month, 12m]:	120000	604.80	604.80	604.80	604.80	604.80
55	Total Annual Cost:	(Million Rs.)	2,420.010	2,421.993	2,421.888	2,421.660	2,427.950
56	Annual Operation & Maintenance (O&M) Cost: (assumed 90%)	(Million Rs.)	2,178.009	2,179.793	2,179.699	2,179.494	2,185.155
Note:	Annual Price Escalation:		5.0%				

RESEARCH PROJECT UNDER PARB CGS SYSTEM: (PROJECT ID NO.18-349);
"Preparation of Oil Based multivalent clostridial vaccine including Enterotoxaemia and Lamb Dysentery and its Evaluation for ruminants";

ESTIMATION OF OPERATION & MAINTENANCE COST & SAVING BENEFITS							
Sr.	Parametric Measures & Assumptions	Unit Desc. (Assumptions)	Sheep	Goat	Cattle	Buffalo	Total
	Estimation of Economic Saving Benefits (B) by Parametric Measures						
56	Animals Total Expected Additionally Saved (Veterinary Services proposed)	# Additional Animals Saved (No.)	18,849	64,682	106,547	97,619	287,697
57	Animals Expected Additionally Saved (Veterinary Services proposed) per vet. Person	Animals / Person	4.0	13.0	22.0	20.0	59.0
58	Annual Total Extra Transportation Trips Saved (No.): [Trips: 25/ month, yearly: 300]:	# Trip-Repetitions Saved (No.)	296,000	1,023,000	225,000	206,000	1,750,000
59	Annual Extra Transportation Trips Saved per Vet. Person: [Trips: 25/ month, yearly: 300]:	Trips / Person	59.0	203.0	45.0	41.0	348.0
60	Annual Extra Transportation Trips Saved per Animal: [Trips: 25/ month, yearly: 300]:	Trips / Animal	1.29	1.29	0.42	0.42	3.42
61	Annual Saving Benefits of Cost of Animals Additionally Vaccinated (@ Rs. 2.5 per Animal) Cost: [Trips: 25/ month, yearly: 300]	(Rs.)	47,122.50	161,705.00	266,367.50	244,047.50	719,243
62	Annual Saving Benefits of Transportation Trip Cost: [Trips: 25/ month, yearly: 300]	Rs. 12000	28,320.00	97,440.00	21,600.00	19,680.00	167,040
63	Annual Saving Benefits of Reproductive Efficiency [assumed (0.05) Enhanced Ratio Index] of All Vaccinated Female Adult Animals (0.20 of overall): [0.05*20 = 0.01]	Rs. 2000	6,480,000	22,340,000	21,500,000	19,680,000	70,000,000
64	Annual Saving Benefits of Milk Efficiency [assumed (0.10) Enhanced Ratio Index] of All Vaccinated Female Adults (0.20 of overall): [0.1*2 = 0.02]	Rs. 100	648,000	2,234,000	2,150,000	1,968,000	7,000,000
65	Annual Saving Benefits of Meat Efficiency [assumed (0.10) Enhanced Ratio Index] of All Vaccinated Male Animals (0.05 of overall): [0.1*0.05 = 0.005]	Rs. 800	1,296,000	4,468,000	4,300,000	3,936,000	14,000,000
66	>> Reduced Mortality Rate (M%): [assumed (0.20*M%) Reduced Ratio Index] of All Vaccinated Animals	20%	0.40%	0.46%	1.13%	1.25%	>> (Reference)
67	Annual Saving Benefits of Reduced Mortality Rate (by 0.20*M%) of All Vaccinated Animals; [(@ Rs. 3000/ animal):	Rs. 3000	193,620,456	667,098,985	637,717,950	583,020,000	2,081,457,390.60
67	Grand Total Annual Saving Benefits of All Vaccinated Animals:	(Million Rs.)	202.120	696.400	665.956	608.868	2,173.34
*It will decrease the number of doses to be produced by 17 Million per year; hence Reduces the need of manpower, machinery and infrastructure							
# Reducing transportation cost							
## Confer solid immunity for whole one year against 4 major diseases with only a single shot of vaccine enough to protect the animal for whole year							
>> EVALUATION & VERIFICATION OF LIVESTOCK CENSUS (2018):							
Sample Survey Statistics and Trend Analysis (2018-21): by [Planning & Evaluation Directorate, L&DD Dept. Punjab, Lahore]							