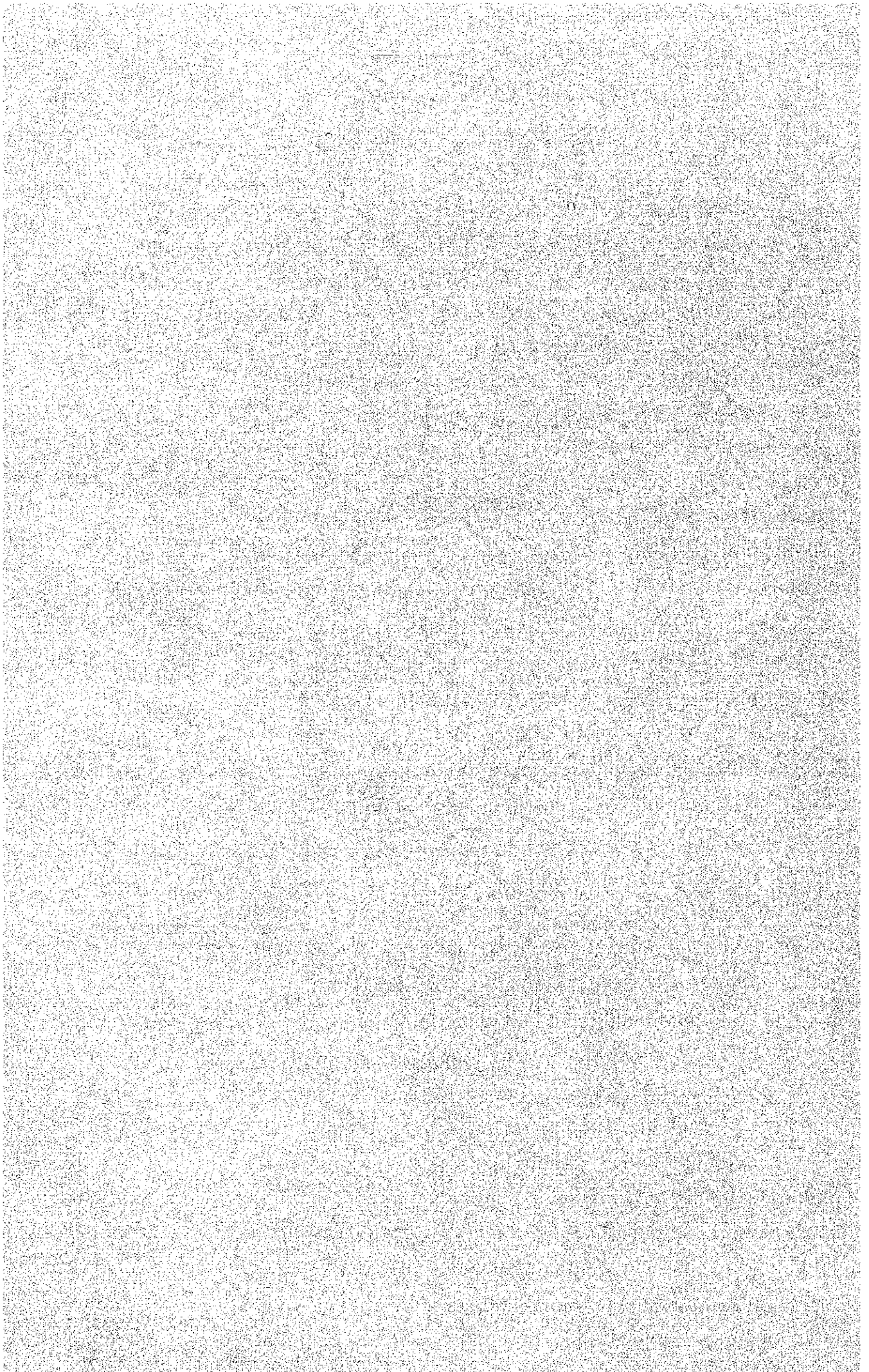


## 7. 参 考 資 料

(ビルマ側より調査団訪ビ時に提示あった資料)

- 1) ビルマ畜産概要
- 2) プロジェクトの各種実績
- 3) JICAへの特別要請電気施設用品リスト



## 1) ビルマ畜産概要

### LIVESTOCK INDUSTRY IN BURMA.

Livestock Industry in Burma is not an important in last few years, but interest is developing and some commercial production is starting.

At present we have a shortage of animal products and dairy products in this country.

The importance of Live stock Industry in our agricultural economy is quite well known. Livestock Industry, however, plays a very important role in the economy of Burmese Farms.

Unfortunately, comparatively little attention to it has been given previously in the work related to animal breeding and their production.

#### BREEDS.

There was practically no specialize development to wards either Egg, Meat Or Milk production. There were mainly, widely used in crossing on local strains.

Only limited importations are being made of improved strains at present for State Farms only.

Burma has comparatively very small numbers of Poultry, Pig, Dairy and Beef, against Europe, U. K. and U.S.A.

Relating to poultry Industry, Burma and its neighbouring countries are the ancestral home of the present day domestic fowls. Poultry keeping, in Burma, has so far remained largely a rural cottage enterprise. The average annual laying capacity of a Burma hen is about 60 eggs. Chicken continue to be found in small units of 3 to 10 birds in the village and on farms.

But many flock owners with 100 to 500 layers now consider this an economic unit which provides a source of family income and a mean of livelihood. There are also large flocks of 1000 to 10000 or more birds now to be found in few private and Defence Services and State Farms in Burma. Imported egg laying strains which are reported to produce from 240 to 275 eggs a year per bird in other country, produce only 150 to 170 eggs in Burma.

Broiler production in Burma started only one year ago and is still under testing stage in State Farm.

Relating to Pig Industry, in Burma, Pig raising and Pork production are in a primitive stage. Pig rearing is almost entirely in the hands of poor people with little resources, who continue to follow old and primitive methods. The common village pig in Burma, is a scrub animal and has no definite characteristics. It is a slow grower, and the pork of very low quality.

Under the prevailing conditions of management, country pigs are mostly neglected. They do not get a fair chance to grow into economical animals for the industry.

Relating to Cattle Industry, Burma Cattle belong to two distinct species, class as " Bos Indicus ", i.e. the Ox, and " Bos Bubalis", i.e. the Buffalo. Both the class have distinct characteristics and do not interbreed. The economic importance of cattle, in Burma, is based upon their production of both milk and work.

The bullock ( Draft Cattle ), though rapidly being replaced by mechanical power, still forms the main source of draft power for various agricultural operations, including water supply and rural transport.

Burmese Farming, especially in the case of ordinary farmer, is largely dependent on bullock power.

Relating to Beef Industry, there is no " Beef " industry business in Burma. Only the cattle of age over ( 13 ) years are to be sent to slaughter house, with the permission of the local authorities for meat. The meat present day in Burma is only from over age Draft and Dairy Cattles.

Burma consumption of meat is very low, but it is increasing, As for us high price is the principal reason for low consumption.

The cost of the Poultry, Pig, and Beef are beyond the reach of most families.

#### HOUSING.

The majority of Livestock houses use wood and bamboo for frame work. Some palm leaf, is used for shingles for roofing. Although the housing is primitive, the only disadvantage is that the materials are not durable, except hardwoods.

Some private and most of the Defence Services and State Farms, however, have made of more expensive materials such as Hardwoods, Teakwoods, Bricks, Cement, wire netting, and Corrugated Galvanized Iron, Asbestos Sheet and Tiles for roofing.

Feeding and watering systems on farms are still manual, but a very few Defence Services and State Farms are starting to use semiautomatic equipments.

#### FEEDS.

Most of our animals are unprofitably low or inefficient producers, because they are poorly fed and are not properly cared for.

There is no Import for livestock feeds, except feed supplements and vitamin premixes.

There are no locally produced " Protein Supplements and Meat Meal " in Burma.

There are no Commercial Livestock Feed Mill Or Mixing Plant in Burma, except State Farm, which owned a Feed Mixing Plant about 5 to 10 Tons a day production. But due to lack of knowledge and shortage of spare parts, not serviceable for 8 years and over.

A good Poultry mash, for example, at the outside was estimated to cost about Kyat 1.00 per pound with Imported vitamins and Feed supplements.

In Burma, there are two kinds of Vegetable Proteins such as " Pea Nut Or Ground Nut Cake & Sesamum Cake " and also two kinds of Animal Proteins such as " Prawn Dust & Dried Fish Meal ", mainly use in Livestock Feeding. For bye-products of Grain, " Rice Bran, Rice Shorts Or Broken Rice, Corn Or Maize Meals " and few amount of Wheat Bran are used in Livestock Rations. We used " Lime Stone & Shells " for Minerals.

We Imported, " Feed-Additives, Vitamin-Premixes, Some Antibiotics and Veterinary Products and Vaccins from abroad, specially from U.K. and mostly from U.S.A.

An increasing of population in Burma, peoples are being trying to raise Livestock especially " Poultry and Pig " in self sufficient plan. The Government is entering its credit facilities to Co-operatives.

To improve the Livestock Industry in Burma now is considered to be a colossal task. But we have already gained some experience by which we hope to tackle the problems of Livestock development effectively. The result of these experiences let the Government of Burma to formulate several schemes.

Some progress has been made in Up-grading the local breeds as a result of schemes sponsored by the Government State Farms, which are initiated during the early 1st Four Year Plan Periods to up grade livestock by the use of the most of the Males of the various Breeds from abroad.

To expedite the purebred Livestock Business, large Government State Farms were developed at Rangoon and other Districts.

These Farms along with the State Veterinary Department have been responsible for the distribution of " Poultry, Pig, Cattle and Semen for A.I. ". This is necessary because the present system of livestock management did not help in prolonging the productive line of Breeds. There is, however a great scope for development and if scientific knowledge can be utilised properly, the Industry would make considerable progress.

If the average Cattle, Buffalo, Sow, Goat and Poultry etc. were performing at somewhere near the maximum set by their inheritance, livestock farming would be much more profitable than what it is now for Burma.

The Export of Livestock Industry, such as " Broiler, Duck, Beef, Dairy, Ham, Bacon, and Eggs " are very rear, to be said Nil.

Forms and Tables of present Livestock Industry in Burma, are herewith appended and forwarded for your kind perusal, information for study and guidance.

2) プロジェクトの各種実績

List of the Experts of J.I.C.A. Project.

Annexure-I.

Sr: No:	Name	Designation	Period	Remarks
I.	<u>Long Term Experts</u>			
1.	Dr: Seiki	Team Leader	30-9-78	
2.	Mr: Egawa	Laision Officer	30-9-78	
3.	Dr: Nagata	Pig Expert	22-12-78	
4.	Dr: Kano	Animal Nutrition & Feed Mill	22-12-78	
II	<u>Short Term Experts</u>			
1.	Dr: Sugaruma	Cage Assembly	27-11-78 to 18-12-78 (22)days	
2.	Dr: Yusa	Chick Sexing	17-1-79 to 15-2-79 (30)days	
3.	Dr: Kayama	Incubator Installation	25-1-79 to 8-2-79 (15)days	
4.	Dr: Ito	Pig Expert	10-8-79 to 29-11-79 (3)months	
5.	Dr: Kawai	Chick	10-8-79 to 29-11-79 (3)months.	

K\*

Summary of the value of materials received from JICA for the project.

Annex II  
(000).

1 US \$=6.6K 100y-3.3 K

Sr. No.	Description	Estimated Value	Received			Balance
			1978-79	1979-80	Total	
I	Consultancy Service	1000.00	23902.73	15106.93	39011.26	
		K 7000.00	778.73	498.59	1277.37	6642.63
II	Equipment + Materials	10000.00	81023.00			
		I 11860.00	2673.78	1356.30	4030.08	7849.92
1.	<u>Project Management Unit</u>	600.00	13085.25			
		F 396.00	431.83	87.05	518.88	122.88
2.	<u>Poultry Farm</u>	530.00	19979.90			
		I 3400.00	659.27	492.31	1151.58	2346.42
	(a) Equipment	370.00	19007.90			
		F 2046.00	627.26	449.73	1077.24	968.76
	(b) Breeding Stock	160.00	970.00			
		F 1452.00	32.04	42.33	74.34	1377.66
3.	<u>Pig Farm</u>	100.00	13650.35			
		K 1000.00	450.46	116.97	566.53	687.47
	(a) Equipment	60.00	660.35			
		F 58.00	217.81	116.07	333.88	194.12
	(b) Breeding Stock	40.00	700.00			
		F 726.00	232.65		232.65	493.35
4.	<u>Technical Training Centre</u>	100.00	5029.25			
		K 1518.00	201.28	133.91	335.19	982.81
5.	<u>Feed Mill</u>	200.00	3128.60			
		K 1320.00	103.24		103.24	1216.76
6.	<u>Drugs &amp; Feed Additives</u>	326.00	3536.60			
		F 2112.00	129.91	184.10	314.01	1797.99
7.	<u>Freight &amp; Insurance</u>	270.00	2145.08			
		K 1782.00	697.79	142.86	840.65	941.35
	Grand Total :-	30000.00	104925.90			
		K 19860.00	2657.56	1354.89	5307.45	14492.55

Note:-

- (1) Machinery and Equipment despatched during the financial year 1979-80 was proportioned to project management unit, Poultry Farm, Pig Farm and Technical Training Centre at the rate of 8.0%, 45.59%, 11.76% and 35.83% respectively, basing on the original allocation as per the record of discussion.
- (2) Expenditure, regarding consultancy services included only up to the month of September 1979.

Annex III

Statement Showing Production, Mortality, Culling and Distribution of Poultry  
for the period from 1.4.79 to 30.12.79.

Months	Opening Number						Inpo- rt No.	Prod- uct No.	Death						Cull						Distribute						Closing						Chick M+F	Total:-
	Adult		Grower		F				A	G	C	A	G	C	A	G	C	M	F	N	F	M	F	M	F	M	F	M	F					
	M	F	M	F	M	F																								M	F	M		
1979	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
April	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
May	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
June	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
July	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
August	329	1690	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Sept:	323	1658	52	595	1373	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
October	369	1731	98	682	1295	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Nov:	309	1607	69	631	1228	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Dec:	280	1574	70	577	1213	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			





Building Shedule of JICA Project.

Annex- V.

Sr No	Particulars	Auto-Completed		Under-construction	Estimated cost per 1 unit	Actual Cost
		ed	ed			
I	Domestic Housing	Qty	Qty	Qty	Kyats.Pyas	Kyats.P
1.	JICA Office	1	1	-		216010.01
2.	Main Office	1	1	-	640430.19	749329.37
3.	Project Manager	1				
4.	Farm Manager	2				
5.	Dy: Farm Manager	14				
6.	Staff Officer Manager+Specialist.	7				
7.	Manager Feed Mill	1				
8.	Accountant	1				
9.	Assistant Manager	8				
10.	Supervisor	4				
11	4 Unit Labour Quarter	8	3			
	No(1)				46600.00	
	No(2)				46600.00	70892.56
	No(3)				46600.00	70892.56
	Sub: Total	48	5		780230.19	1108024.50
II	Pig Farm.					
1.	Boar House Type (A)	1		1	191908.87	
2.	Boar House Type (B)	1			165758.10	
3.	Weaner House	3	1		174591.05	
4.	Dry Sow House	5	2			
	No(1)				189400.10	178637.98
	No;(2)				189400.10	179040.59
5.	Grower House	3	1		189400.10	148708.00
6.	Finisher House	10	1		168353.85	
7	Slaughter House	1				
8	Disinfection Room	1				
9	Cold Storage	1	1			43253.80
10	Farm Gate Entry	1			33548.11	
11	Incinerater	1				
	Sub: Total:-	28	6	1	1322360.28	549640.37
III	Poultry Farm.					
1.	Incubator House	1	1		260882.19	388376.40
2.	Brooder House	20	1		184562.55	
3.	Breeder House	20	1	2	190137.35	194573.93
4.	Grower House	17		1	184562.55	
5	Model Grower House	5	5			
	No(1)				94010.78	

Building Shedule of JICA Project.

Annex V.

- 2 -

Sr No	Particulars	Auto- oris- ed	Compl- eted	Under- constr- uction	Estimated cost per 1 unit	Actual Cost
	No;(2)				94010.78	61454.95
	No.(3)				94010.78	61583.57
	No.(4)				94010.78	61454.95
	No.(5)				94010.78	55777.23
6.	Model Layer House	6	5			
	No.(1)				70312.75	
	No.(2)				70312.75	46789.14
	No.(3)				70312.75	
	No.(4)				70312.75	48101.44
	No.(5)				70312.75	
7.	Dispensary	1				
8.	Poultry Processing Plant	1				
9.	Stand by Power Plant	1	1		39362.09	
10.	Disinfection Room	1				
11.	Farm Gate Entry	1			33548.11	
12.	Incinerater	1				
	Sub-Total	75	14	3	1714672.54	868111.61
IV	Technical Training Centre.					
1.	Laboratory	1			192500.00	
2.	Machinery Equipment Store	1			149639.55	
3.	Student Quarter	2				
4.	Fuel Store	1			59143.73	
5.	Laboratory Nutrition	1				
	Sub-Total	6			401283.28	
V	Feed Mill.					
1.	Feed Store	3			432000.00	
2.	Product Store	3				
3.	Building For Milling & Mixing	1				
4.	Garage.	1			31872.75	
5.	Mill Gate Entry	1			33548.11	
6.	Feed Mill					
	Sub-Total:-	9			497420.86	
	Grand Total:-	166	25	4	4715967.15	2525776.48

## RIG AND POULTRY DEVELOPMENT PROJECT

## CAPITAL INVESTMENT

(Kwats in Thousand)

Sr No.	Description	1978 - 79			1979-80 up to December			Total	
		FE	Local	Total	FE	Local	Total	FE	Total
1.	Building Construction		3748.88	3748.88		817.47	817.47	4566.35	4566.35
2.	Site Preparation		91.25	91.25		90.94	90.94	182.19	182.91
3.	Electrical Installation		4.57	4.57				4.57	4.57
4.	Sanitary Installation								
5.	Fencing & Gate		8.69	8.69				8.69	8.69
6.	Roads & Bridges								
7.	Generator Vehicles		4.16	4.16		9.39	9.39	13.55	13.55
8.	Machinery Installation	778.78	40.17	818.95	498.59	36.65	535.24	1277.37	1354.19
9.	Purchase of Machines	2279.21	10.44	2289.65	1129.87	13.70	1143.57	3409.08	3433.22
10.	Purchase of Medicine	129.91		129.91	184.10		184.10	314.01	314.01
11.	Purchase of Livestock	264.66		264.66	42.33		42.33	306.99	306.99
12.	Unallocated								
	Total :-	3452.56	3908.16	7360.72	1854.89	968.15	2823.04	5307.45	10183.76

## Annex - VI A.

PIG AND POULTRY DEVELOPMENT PROJECT.Expenditure Under Construction Works.

(Kyats in thousand)

Sr. No:	Description	1978-79	1979-80 up to Dec:	Total:-
1.	<u>Building Construction</u>	<u>3748.88</u>	<u>817.47</u>	<u>4566.35</u>
	(1) Residential		173.18	173.18
	(2) Poultry	1613.02	185.41	1798.43
	(3) Pig	1083.41	144.11	1227.52
	(4) Training Centre	525.30	-	525.30
	(5) Feed Mill	527.15	-	527.15
	(6) Other	-	314.77	314.77
2.	Site Preparation	91.25	90.94	182.19
3.	Electrical Installation	4.57	-	4.57
4.	Sanitary Installation	-	-	-
5.	Fencing and Gate	8.69	-	8.69
6.	Roads and Bridges	-	-	-
7.	Transportation Vehicles	4.16	9.39	13.55
8.	Machinery Installation (Local)	40.17	36.65	76.82
9.	Purchase of Machinery (Local)	10.44	13.70	24.14
	Total:-	3908.16	968.15	4876.31

Fig. and Poultry Development Project

Annexure VII A.

Income for the year 1977.

Sr. No.	Month	Egg Sale			Chicken Sale		Other Income	Total:-
		Sale of Table eggs	Sale of Crock eggs	Sale of Death germ eggs	Sale of Fertile eggs	Sale of Chicken		
1.	January							
2.	February							
3.	March							
4.	April							
5.	May	7270.15	474.35	735.10	8744.00	2001.70	2001.70	1955.30
6.	June	4247.50	286.75	464.60	1297.50	1509.00	1509.00	7805.35
7.	July							
8.	August	229.00			3201.25	375.00	639.35	1014.35
9.	September	8584.50			7951.25	27175.50	3339.00	30514.50
10.	October	10355.00			6335.75	28339.00	15504.00	50480.55
11.	November	8021.50			9769.25	13387.00	20358.15	51571.50
12.	December	6550.50			3028.75	16056.80	22081.05	47720.10
	Total:-	45230.15	701.10	1189.70	40347.75	87468.70	35394.10	50859.35

K\*

Annexure- VII B.

**Livestock Development and Marketing Corporation**  
**Japan International Co-operation Agency**  
**Income for the year 1978.**

Sr. No.	Month	Eggs Sale			Chicken Sale			Other Income K.P	Total:- K.P		
		Table egg	Creck egg	Death Germ eggs K.P	Fertile egg K.P	Total K.P	Chicks K.P			Fouls K.P	Total K.P
1.	January	5126.25			1910.00	7036.25	15887.10	21849.25	27736.25	44772.60	
2.	February	9257.25			121.25	9378.50	7441.90	8070.50	15512.40	24890.90	
3.	March	8527.50			3944.00	12471.50	16466.70	17473.70	35940.40	46411.90	
4.	April	4455.75		907.05	1628.00	6990.80	9387.50	4581.15	13968.65	21431.60	
5.	May	4016.90		494.30	2543.75	7054.95	3007.00	2517.75	5524.75	12579.70	
6.	June	2517.80		664.70	12.50	3195.00	1097.50	4232.35	3529.85	38926.85	
7.	July	2057.60		216.80	3486.50	5760.90	1972.70	12041.10	14013.80	20528.85	
8.	August	2666.10		86.50	12.50	2765.10	2467.50	3408.15	5875.65	8778.75	
9.	September	3611.10		194.45	3356.00	7161.55	10135.00	2947.60	13082.60	20963.25	
10.	October	4848.10		897.95	-	5746.05	8952.50	2984.55	11937.05	17663.10	
11.	November	2122.00		451.05	892.50	3465.55	6292.50	24193.30	30485.80	34966.35	
12.	December	787.50		378.25	-	1165.75	1450.00	5194.95	6644.95	8122.70	
	<b>Total:-</b>	<b>49993.65</b>		<b>4291.05</b>	<b>17907.00</b>	<b>72191.90</b>	<b>84557.90</b>	<b>139494.35</b>	<b>224052.25</b>	<b>3812.40</b>	<b>300056.55</b>

K\*

Fig and Poultry Development Project

Income for the 1979.

Sr. No.	Month	Eggs Sale		Eggs Sale		Total K.P.	Chicken Sale		Total K.P.	Other Income K.P.	Total K.P.
		Sale of Table eggs K.P.	Sale of Creek eggs K.P.	Sale of death eggs K.P.	Sale of fertile eggs K.P.		Sale of Chicken K.P.	Sale of foul K.P.			
1.	January	78.00		84.00		162.90	875.00	106.00	981.00		1145.90
2.	February	41.75				41.75	4980.00		4980.00		5021.75
3.	March	252.00		48.00		300.00	2984.00		2984.00		3184.00
4.	April	2104.00	18.00	308.70		2430.70	2767.00	370.35	3137.35	36.00	5604.05
5.	May	6541.30	114.25	276.20		6931.75	1587.50	298.80	1886.30		8818.05
6.	June	7746.45	136.00	101.30		7983.75		294.10	294.10		8277.85
7.	July	8418.65	325.00	478.70		9222.35		535.35	535.35		9757.70
8.	August	8921.50	217.25	528.45		9667.00		274.00	274.00	2269.60	12210.60
9.	September	8926.40	316.50	299.70		9542.60	5374.50	328.30	5802.80		15345.40
10.	October	8710.40	314.75	344.95		9370.10	14034.00	1345.20	15379.30		24759.30
11.	November	6914.30	332.00	466.60		7712.90	18706.00	624.05	19330.05		27042.95
12.	December	6526.90	407.75	518.50		7452.15	34016.50	2425.20	36441.70	26.00	43220.85
Total:-		55181.45	2101.50	3450.00		70732.95	85524.50	6501.85	92026.55	2331.60	165090.90



JAPAN INTERNATIONAL CO-OPERATION AGENCY

Annexure VIII.

PIG AND POULTRY DEVELOPMENT AGENCY

POSITION OF PERSONNEL AS OF 31st: DECEMBER 1979

Sr. No.	Ranks	Pay Scale Kyats	JICA Project	Farm	Total	Remarks
1.	Project Manager		1	-	1	*
2.	Farm Manager	450-25-700		1	1	
3.	Account Offi- cer	450	1	-	1	
4.	Dy: Manager	320	1	9	10	
5.	Office Supt:	210-15-330	2	-	2	
6.	Asst: Manager	210	3	6	9	
7.	Grade(1)Skill Personl	150-10-220	-	2	2	
8.	Project Per- sonl	165	10	18	28	
9.	Grade(2)Skill Personl	100-2-110	-	1	1	
10.	Labourers	100-2-110	-	13	13	
11.	Daily Wages	5/40	4	24	28	
	Total:-		22	74	96	

\* In Addition to his Normal Duties.

3) JICAへの特別要請電気施設用リスト

List of commodity for J.I.C.A.

No	Name of commodity	Unit	Require	Remark
1.	Transformer 6.6/.4KV (300KVA)	Nos	1	
2.	6.6KV Under Ground Copper Cable (.1 sq-in)	mile	.5	
3.	6.6KV Switch Gear MOF	Nos	2	
4.	B.C No 1 Hard Drawn Bare Conductor	Ton	1	

Technical Specification of 300 K.V.A

6.6/.4 KV. Transformer.

- Type:** Out door oil Immersed, Natural cooled.
- Voltage Ratio:** HV 6600 / LV 400
- Phase:** Three
- Vector Group:** 41 Dy 11
- Frequency:** 50 Hz
- Capacity:** 300 K.V.A
- Tapping:**  $\pm 2.5\%$ ,  $\pm 5.0\%$ ,  $- 7\%$  on primary side
- Terminals:** (a) H.T side Three sets of solid Type bushing.  
(b) L.T side Four sets, of solid bushing with universal clamp type terminals.
- Impedances:** Within 6%
- Temperature Rise:** (a) Winding 60°C ( by resistance)  
(b) Oil 50°C ( thermometer )
- Accessories:** (a) Oil Conservator vessel with fitting and drain plug.  
(b) Oil level gauge.  
(c) Oil filling hole plug.  
(d) Explosion vent.  
(e) Silica-gel dehy-drating breather.  
(f) Drain valve with plug.  
(g) Earthing Terminals 2 in different Position.  
(h) One thermometer of suitable type.  
(i) Lifting lugs.  
(j) A set of four plain roller.  
(k) Buchholz relay, double float.

6.6 KV Under Ground Cable

Copper Conductor Size

6.6 KV Under Ground Cable (Stranded Copper) 3 X <sup>150</sup>~~75~~ mm<sup>2</sup>

P.V.C Insulated and sheathed power Cable steel tape armoured

.5 ~~1.0~~ Miles.

6600 Volts A.C - 3 phase switch gear

Technical Specification.

The Switch Gear are intended for use on 6600 Volts, 3 phase 50c/s frequency under ground Distribution System with neutral grounded via a resistor at the generation and directly grounded at the sub-station transformer sides.

All switch gear must be oil immersed triple pole-automatic and rated at 6600 Volts, 600 Amps. A.C and 50 Cycle/ Sec frequency and have a rupturing capacity of 250 MVA at 6600 Volts A.C.

The Switch Gear will be directly hand operated with "ON" and "OFF" position indicator and provided with "Interlocks".

The Switch Gear must be metal clad insect proof reptile proof and rodent proof.

All Bus-Bars connection must be of copper and completely and highly insulated to prevent accidental flash over fault between phases and to ground cause by the above mentioned insects and reptiles which is frequently experienced here in the country, causing much unrepairable damage to equipments.

The Switch Gear and their constituent parts, shall in make, in performance and in satisfying test comply with any one of the following established standard with latest amendments viz, German, U.S and British standard.

(1) For main and transformer feeder with protecting automatic fitting with K.W.H Metering outfit Unit.

(2) Units Require shown in item NO.17

(3) Rated Voltage (AC) 6600 Volts

(4) Phase 3phase

(5) Rated amps 600amps

(6) Frequency in cycles/sec 50CPS

(7) Rupturing capacity 250MVA

(8) Type Outdoor

(9) Operation:- Directly hand operated Switch gear with "ON" and "OFF" position indicator and automatic tripping of circuit breaker in case of fault and over load condition. Interlocks are to be installed to prevent wrong operation of Switch Gear.

10. Tripping and trip coil for  
Main feeders protection: - "Three" 3.5 Amp: A/C Over current  
Shunt trip coils short circuit (shunted) by  
7 Amp time lag fuses are to be installed.
11. Tripping and trip coil for  
Transformer feeder protection :- "Two" 3.5 Amp: A/C Over current  
Shunt trip coils short circuit by 6 Amp Time  
lag fuses and "One" 1.5 Amp: earth leakage trip  
coil are to be installed.
12. Time lag fuses:- The circuit breaker must be fitted with 6Amp:  
Time lag fuse as stated above.
13. Ammeter:- An ammeter with selector switch must be scaled  
and calibrated according to current transformer  
Ratio installed in switch gears.
14. If the switch gear is to be fitted with K.W.H metering outfit  
the following equipments are to be installed  
in the switch gears.
- (a) One three phase, P.T 6600 / 110 Volts  
50X3 VA capacity is to be fitted on the feeder  
side.
  - (b) One K.W.H meter with M.D.I for 30 mins  
integration period.
  - (c) One set of C.T for measuring size to be  
mentioned below one to be installed.
  - (d) One 0.8000 volts range voltmeter calibrated  
against the secondary side of P.T with selector  
switch is to be installed.
15. All current transformers installed in the above circuit breaker  
are to of 6600Volts and have a burden of 15VA .
16. All P.T Voltage ratio are to be 6600/110 Volts 3 phase 50X3VA  
burden.
17. Units Required : - All together <sup>2</sup> 5 Units are required as  
follows:-
- (a) <sup>1</sup> 4 No. O.C.B for Transformer feeder with 50/5  
ratio protection C.T and to be fitted 6600 Volts

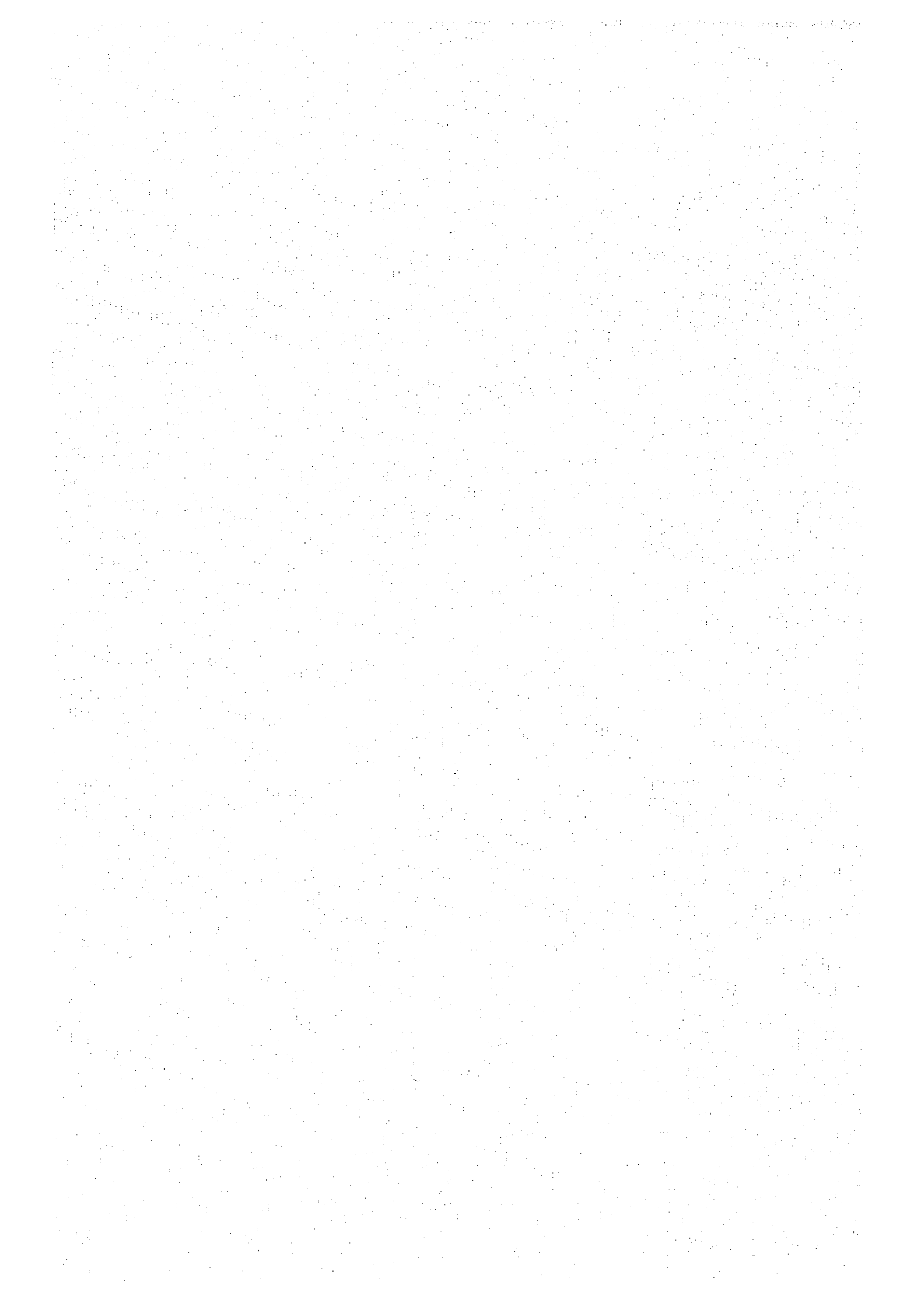
outfit unit with 50/5 ratio C.T.

(b) 1 No. O.C.B for Main feeder with 150/5 ratio protection  
C.T and to be fitted 6600 Volts metering out fit unit with  
150/5 B.T ratio.

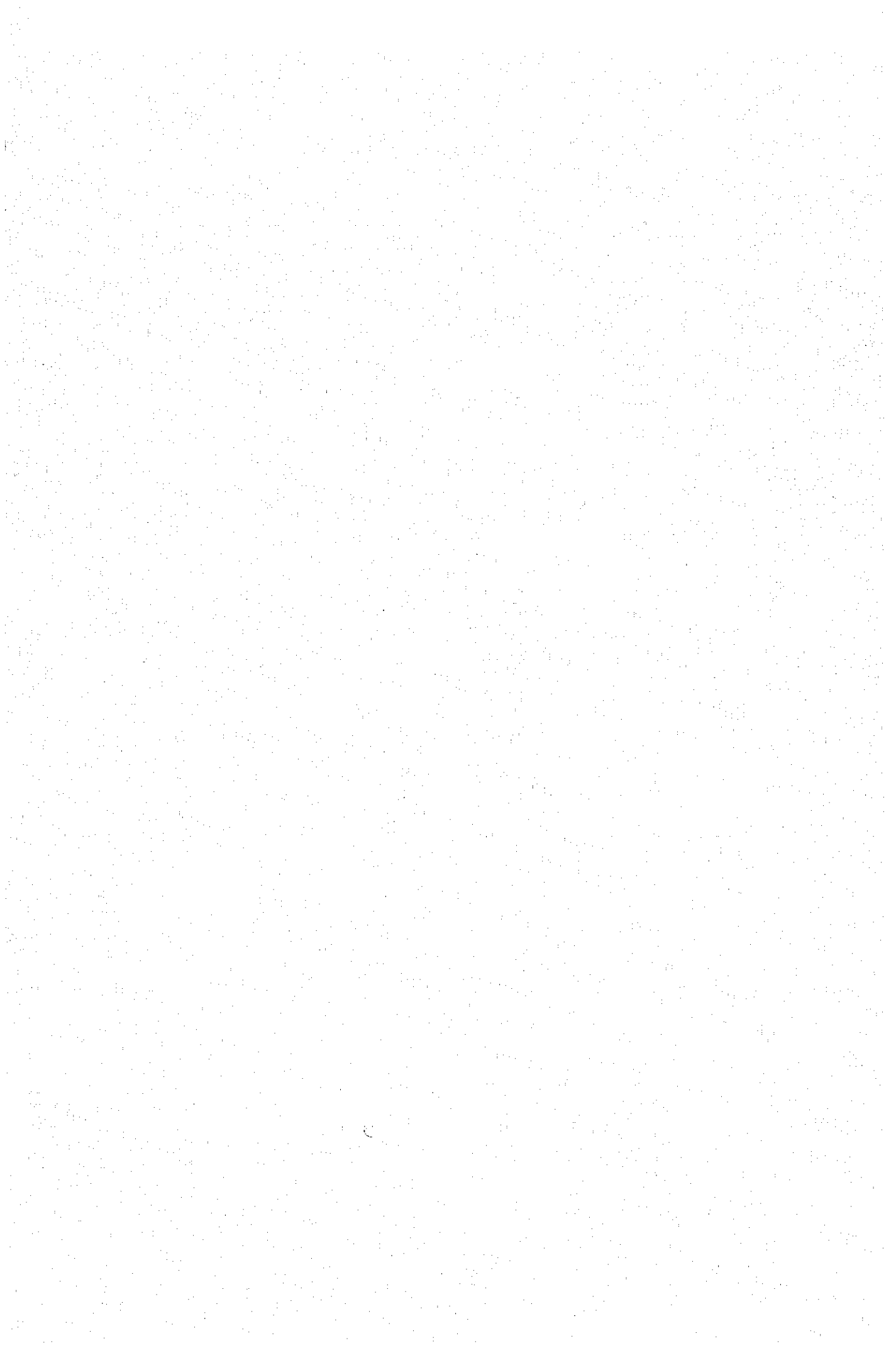
Hard Drawn Bare Conductor Wire.

Type:- Copper power conductors shall be of base , high conductivity , hard drawn and shall be of solid and standard types , as are specified , both circular in section.





THE UNIVERSITY OF CHICAGO  
DEPARTMENT OF CHEMISTRY  
530 SOUTH EAST ASIAN AVENUE  
CHICAGO, ILLINOIS 60607  
TEL: 773-936-3700  
WWW.CHEM.UCHICAGO.EDU



JICA

