



PN ARY-905

## HELPING SRI LANKA TO GROW!

AgEnt is a dynamic USAID funded private sector agro-enterprise development initiative successfully assisting companies and entrepreneurs with viable business/marketing plans to expand existing operations or start-up new ventures targeted at both domestic and export markets.

AgEnt 88-75

## ECONOMIC IMPACT

OF

## ONION STORAGE

**THIS REPORT HAS BEEN PREPARED BY  
THE USAID FUNDED  
AGRO-ENTERPRISE PROJECT**

**5 APRIL 1995**

## EXECUTIVE SUMMARY

- **Onion production:**  
Sri Lanka produces less than 50% of her needs. Most of the production comes to the market during a brief three month span.
- **Onion prices:**  
Prices are generally very low during the harvest period, rising dramatically during the off season.
- **Trials:**  
Proved that onions could be stored and that storage was a profitable venture.
- **Storage facilities:**  
Simple technology, relatively low in cost. Easily built by small farmers.
- **Benefits of storage:**  
Levels the supply curve of onions in the market place. As a result, tends to level pricing and increase profit.
- **Financing of storage facilities:**  
Lenders should consider onion stores in their financing programs. Onion stores are durable, and loans to build them can be amortized over a three to five year period.

# ONION STORAGE ANALYSIS

## Background

Production of onions is a major enterprise in Sri Lanka, providing employment and income to many small farmers. It has long been apparent that onion prices have been directly related to the amount of onions available in the market place at any given time. A classic example of price elasticity exists with prices lowest at harvest time when the largest amounts of onions are brought to market. Prices received at this time are often below cost of production. Conversely, prices are quite high during the growing season attracting significant amounts of imported onions into the market place. Currently Sri Lanka produces approximately 37750mt of big onions annually from a single production season. Total demand is estimated to be 80000mt. The short fall is met through imports, primarily from India. Local onions come to the market during a very short time frame, resulting in high rates of spoilage and greatly reduced prices.

## Trials

Agro-Enterprise (AgEnt) officers with many years experience in the agricultural arena believed that the storage of onions by farmers was not only possible, but probably necessary for farmers to remain competitive. A highly qualified consultant was brought in to address the problem. His conclusion was that storage trials covering a wide spectrum of farmers should be conducted. Farmer Associations were contacted and asked to select one farmer from each Association to construct storage facilities, store onions, and record the results. AgEnt provided grant funds for the materials required to construct the stores and the farmers provided labor and land.

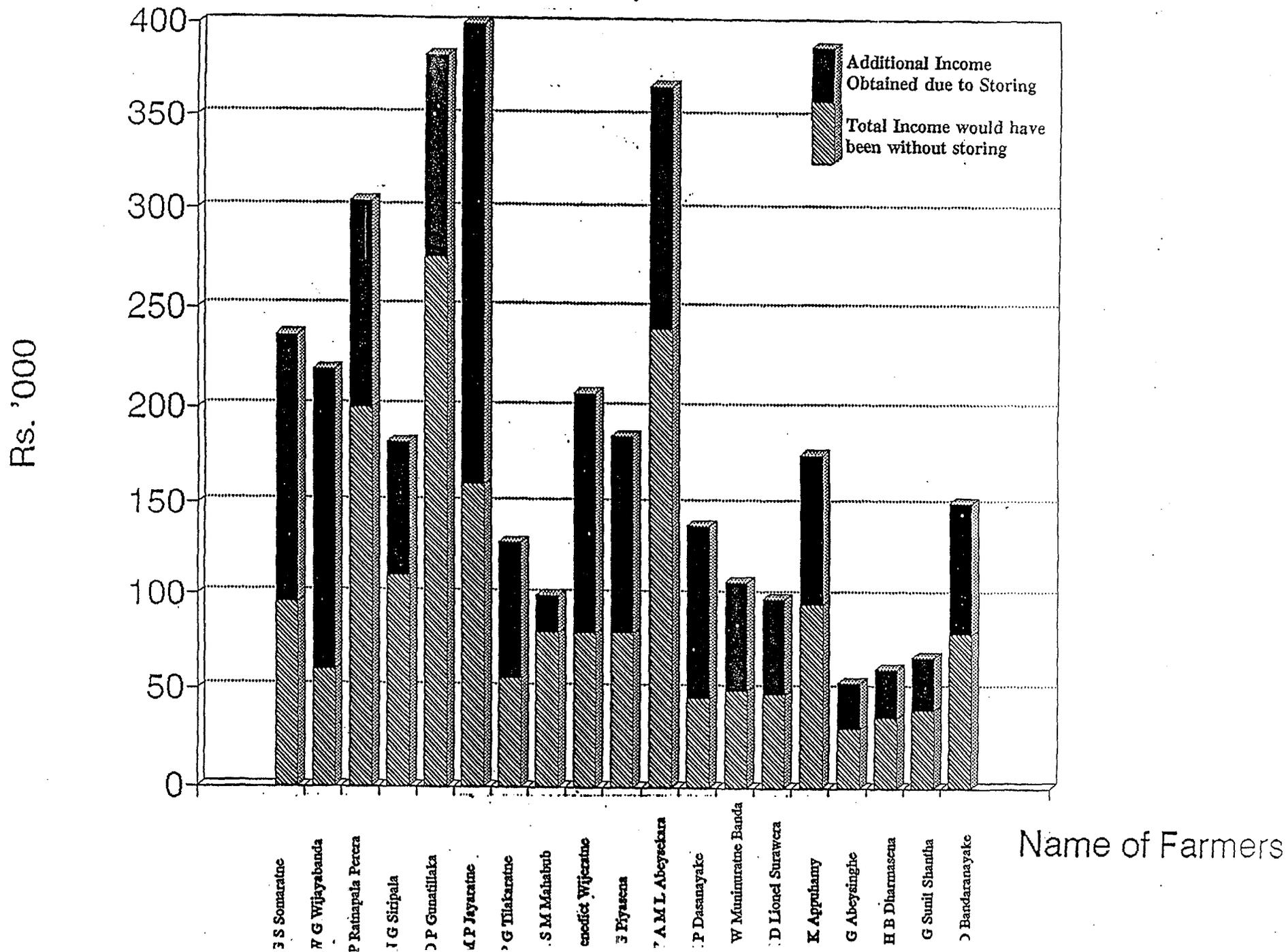
## Results

The information included in this document demonstrates the very significant increases in income resulting from storage. Farmers stored varying amounts of their production, with one, AG0240, purchasing onions from neighbors at harvest and including them in the storage. All of the farmers increased income in amounts exceeding the cost of the storage facilities.

## Conclusions

The trials clearly demonstrate how storage can bring product to the market during periods when demand exceeds supply. Wide use of onion stores should tend to even out supply in the market place thereby lessening the wide fluctuations in price that now prevail. Farmers will benefit through increased income and consumers benefit because of stable prices. Onion stores are affordable and the technology is quite simple. The storage facilities have long lives, making them attractive to lenders for term loans. By providing funds for construction of onion stores, lenders will enhance the ability of their farmer customers to profit, grow, and become better customers of their lending institution.

Graphical Analysis of Income



**Inspection Report of Onion Stores  
Matale District**

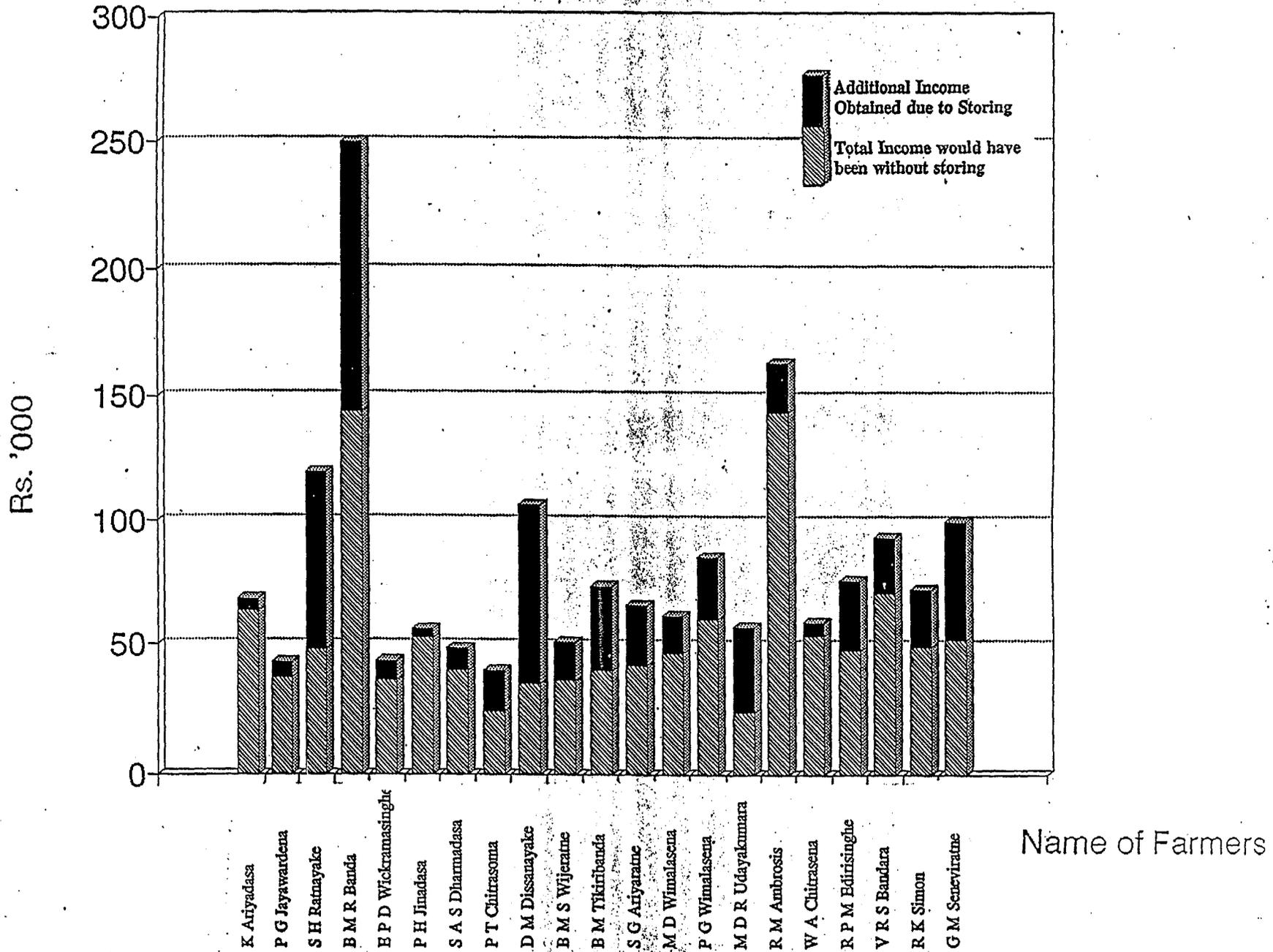
| Name of Farmer        | File No | Materials Cost Rs. | Qty. Produced | Prevailed Price | Qty. Stored | Qty. Spoilt | Selling Price after Storage | Additional Income Made |
|-----------------------|---------|--------------------|---------------|-----------------|-------------|-------------|-----------------------------|------------------------|
| G S Somaratne         | AG0234  | 10,000.00          | 8000          | 12/-            | 6400        | 800         | 39/-                        | 141,600.00             |
| W G Wijayabanda       | AG0235  | 10,000.00          | 6000          | 10/-            | 12000       | 2700        | 30/-                        | 159,000.00             |
| P Ratnapala Perera    | AG0236  | 10,000.00          | 20000         | 10/-            | 6000        | 500         | 30/-                        | 105,000.00             |
| N G Siripala          | AG0237  | 10,000.00          | 11000         | 10/-            | 6000        | 240         | 23/-                        | 72,480.00              |
| D P Gunatillaka       | AG0238  | 10,000.00          | 23000         | 12/-            | 7500        | 450         | 28/-                        | 107,400.00             |
| M P Jayaratne         | AG0239  | 10,000.00          | 20000         | 8/-             | 15000       | 600         | 25/-                        | 240,000.00             |
| P G Tilakaratne       | AG0240  | 10,000.00          | 7000          | 8/-             | 4000        | 100         | 27/-                        | 73,300.00              |
| A S M Mahabub         | AG0241  | 10,000.00          | 10000         | 8/-             | 3000        | 1000        | 22/-                        | 20,000.00              |
| Benedict Wijeratne    | AG0242  | 10,000.00          | 10000         | 8/-             | 6000        | 500         | 32/-                        | 128,000.00             |
| I G Piyasena          | AG0243  | 10,000.00          | 10000         | 8/-             | 7000        | 1000        | 37/-                        | 166,000.00             |
| W A M L Abeysekara    | AG0244  | 10,000.00          | 30000         | 8/-             | 5000        | 250         | 35/-                        | 126,250.00             |
| K P Dasanayake        | AG0246  | 10,000.00          | 5700          | 8/-             | 5000        | 1200        | 35/-                        | 93,000.00              |
| R W Muninuratne Banda | AG0250  | 10,000.00          | 6300          | 8/-             | 4000        | 400         | 25/-                        | 58,000.00              |
| M D Lionel Surawera   | AG0251  | 10,000.00          | 6000          | 8/-             | 4000        | 50          | 21/-                        | 50,950.00              |
| A K Appuhamy          | AG0224  | 11,127.00          | 8000          | 12/-            | 5000        | 300         | 30/-                        | 81,000.00              |

**Inspection Report of Onion Stores  
Matale District**

| Name of Farmer    | File No | Materials Cost Rs. | Qty. Produced | Prevailed Price | Qty. Stored   | Qty. Spoilt  | Selling Price after Storage | Additional Income Made |
|-------------------|---------|--------------------|---------------|-----------------|---------------|--------------|-----------------------------|------------------------|
| D G Abeysinghe    | AG0225  | 12,002.00          | 3000          | 10/-            | 2000          | 350          | 27/-                        | 24,550.00              |
| P H B Dharmasena  | AG0223  | 11,127.00          | 3000          | 12/-            | 2000          | 150          | 27/-                        | 25,950.00              |
| M G Sunil Shantha | AG0226  | 12,002.00          | 4000          | 10/-            | 2500          | 100          | 22/-                        | 27,800.00              |
| S D Bandaranayake | AG0227  | 12,002.00          | 10000         | 8/-             | 5000          | 550          | 25/-                        | 71,250.00              |
| <b>TOTAL</b>      |         | <b>198,260.00</b>  | <b>201000</b> |                 | <b>107400</b> | <b>11240</b> |                             | <b>1,771,530.00</b>    |

Attached graph further illustrates the benefit derived by farmers.

Graphical Analysis of Income



**Inspection Report of Onion Stores  
Kurunegala District**

| Name of Farmer       | File No | Materials Cost Rs. | Qty. Produced | Prevailed Price | Qty. Stored | Qty. Spoilt | Selling Price after Storage | Additional Income Made |
|----------------------|---------|--------------------|---------------|-----------------|-------------|-------------|-----------------------------|------------------------|
| K Ariyadasa          | AG0212  | 4,200.00           | 4200          | 15/-            | 1200        | 150         | 20/-                        | 5,250.00               |
| P G Jayawardena      | AG0191  | 10,000.00          | 3060          | 12/-            | 1000        | 350         | 22/-                        | 6,500.00               |
| S H Ratnayake        | AG0192  | 10,000.00          | 4800          | 10/-            | 4800        | 800         | 28/-                        | 72,000.00              |
| B M Ratnayake Banda  | AG0194  | 10,000.00          | 16000         | 9/-             | 15000       | 2500        | 17/50                       | 106,250.00             |
| E P D Wickremasinghe | AG0195  | 10,000.00          | 3000          | 12/-            | 1000        | 200         | 22/-                        | 8,000.00               |
| P H Jinadasa         | AG0196  | 10,000.00          | 3000          | 17/50           | 1000        | 200         | 22/-                        | 3,600.00               |
| S A S Dharmadasa     | AG0197  | 10,000.00          | 2500          | 16/-            | 1400        | 150         | 23/-                        | 8,750.00               |
| P T Chitrasoma       | AG0198  | 10,000.00          | 2000          | 12/-            | 1920        | 300         | 22/-                        | 16,200.00              |
| D M Dissanayake      | AG0199  | 10,000.00          | 5000          | 7/-             | 4500        | 500         | 25/-                        | 72,000.00              |
| B M S Wijeratne      | AG0200  | 10,000.00          | 3000          | 12/-            | 2000        | 800         | 25/-                        | 15,600.00              |
| B M Tikiribanda      | AG0201  | 10,000.00          | 4000          | 10/-            | 3000        | 1000        | 27/-                        | 34,000.00              |
| S G Ariyaratne       | AG0193  | 10,000.00          | 3500          | 12/-            | 2500        | 900         | 27/-                        | 24,000.00              |
| M D Wimalasena       | AG0203  | 4,200.00           | 3850          | 12/-            | 2000        | 450         | 22/-                        | 15,500.00              |

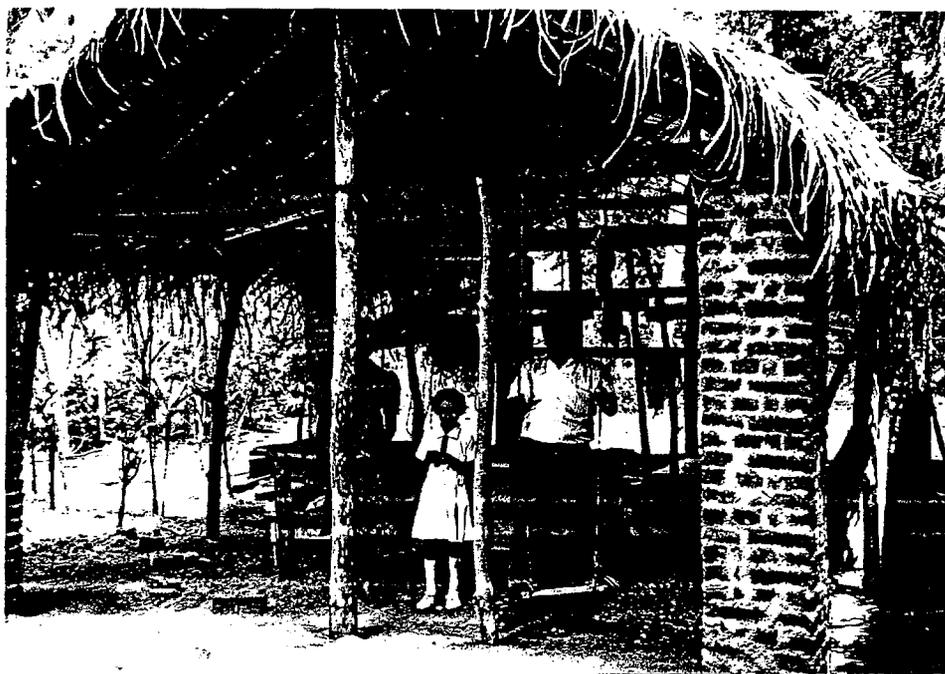
**Inspection Report of Onion Stores  
Kurunegala District**

| Name of Farmer          | File No | Materials Cost Rs. | Qty. Produced | Prevailed Price | Qty. Stored | Qty. Spoilt | Selling Price after Storage | Additional Income Made |
|-------------------------|---------|--------------------|---------------|-----------------|-------------|-------------|-----------------------------|------------------------|
| P G Wimalasena          | AG0204  | 4,200.00           | 5000          | 12/-            | 3000        | 500         | 22/-                        | 25,000.00              |
| M D Ranjith Udayakumara | AG0205  | 4,200.00           | 3000          | 8/-             | 2000        | 50          | 25/-                        | 33,150.00              |
| R M Ambrosis            | AG0206  | 4,200.00           | 9000          | 16/-            | 5500        | 500         | 20/-                        | 20,000.00              |
| W A Chitrasena          | AG0207  | 4,200.00           | 4100          | 13/-            | 1500        | 640         | 20/-                        | 6,020.00               |
| R P M Edirisinghe       | AG0208  | 4,200.00           | 4000          | 12/-            | 3940        | 400         | 20/-                        | 28,320.00              |
| V R Shantha Bandara     | AG0209  | 4,200.00           | 7100          | 10/-            | 3500        | 700         | 18/-                        | 22,400.00              |
| R K Simon               | AG0210  | 4,200.00           | 4900          | 10/-            | 4180        | 1200        | 18/-                        | 23,840.00              |
| G M Seneviratne         | AG0211  | 4,200.00           | 6500          | 8/-             | 4500        | 500         | 20/-                        | 48,000.00              |
| <b>TOTAL</b>            |         | <b>152,000.00</b>  |               |                 |             |             |                             | <b>594,380.00</b>      |

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# *Lionel Suraweera*

*Central Province  
Galewala  
Estimated cost: Rs 17,000*



|   |   |                 |
|---|---|-----------------|
| Total quantity of Big Onions produced in 1994 | - | 6,000 Kg        |
| Prevailing price at time of harvest           | - | Rs. 8/- per Kg  |
| Quantity Stored                               | - | 4000 Kg         |
| Quantity Spoilt                               | - | 50 Kg (1.25%)   |
| Quantity Sold                                 | - | 3950 Kg         |
| Sale Price                                    | - | Rs. 21/- per Kg |
| Total income from Stored Onions               | - | Rs. 82,950/-    |
| Additional revenue generated through storage  | - | Rs. 50,950/-    |

# *Ratnapala Perera*

*Central Province*

*Galewala*

*Estimated cost: Rs 20,000*



|   |   |                 |
|---|---|-----------------|
| Total quantity of Big Onions produced in 1994 | - | 20,000 Kg       |
| Prevailing price at time of harvest           | - | Rs. 10/- per Kg |
| Quantity Stored                               | - | 6000 Kg         |
| Quantity Spoilt                               | - | 500 Kg (8%)     |
| Quantity Sold                                 | - | 5500 Kg         |
| Sale Price                                    | - | Rs. 30/- per Kg |
| Total income from Stored Onions               | - | Rs. 16,500/-    |
| Additional revenue generated through storage  | - | Rs. 105,000/-   |

# *Siripala Gamage*

*Central Province*

*Galewala*

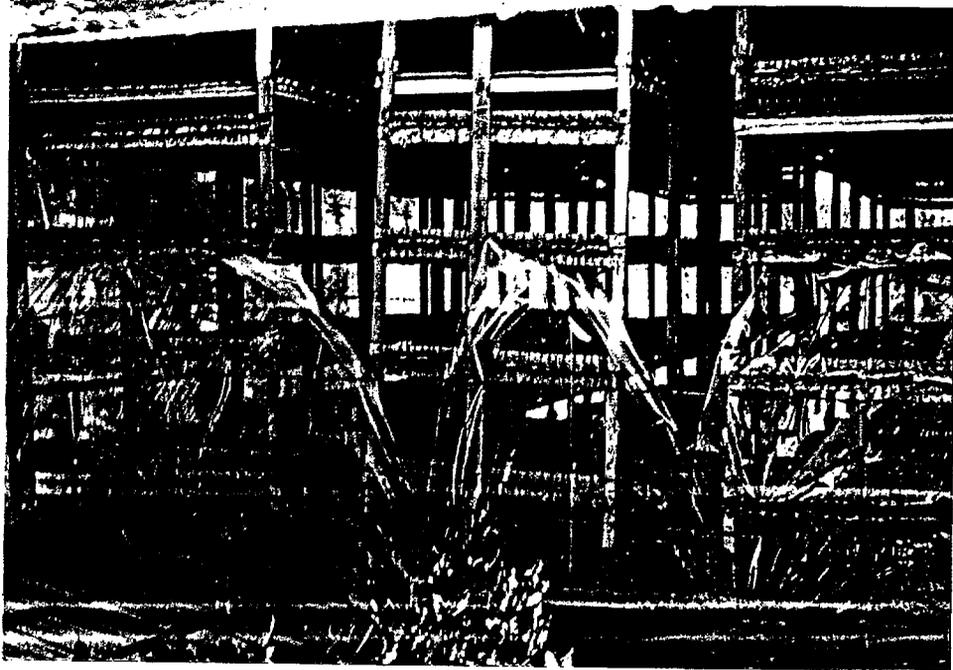
*Estimated cost: Rs 20,000*



|   |   |                 |
|---|---|-----------------|
| Total quantity of Big Onions produced in 1994 | - | 11,000 Kg       |
| Prevailing price at time of harvest           | - | Rs. 10/- per Kg |
| Quantity Stored                               | - | 6000 Kg         |
| Quantity Spoilt                               | - | 240 Kg (4%)     |
| Quantity Sold                                 | - | 5760 Kg         |
| Sale Price                                    | - | Rs. 23/- per Kg |
| Total income from Stored Onions               | - | Rs. 132,480/-   |
| Additional revenue generated through storage  | - | Rs. 72,480/-    |

# *Mr. Wijayabanda*

*Central Province  
Galewala  
Estimated cost: Rs 75,000*



|   |   |                  |
|---|---|------------------|
| Total quantity of Big Onions produced in 1994 | - | 60,000 Kg        |
| Prevailing price at time of harvest           | - | Rs. 10/- per Kg  |
| Quantity Stored                               | - | 12,000 Kg        |
| Quantity Spoilt                               | - | 2,700 Kg (22.5%) |
| Quantity Sold                                 | - | 9300 Kg          |
| Sale Price                                    | - | Rs. 30/- per Kg  |
| Total income from Stored Onions               | - | Rs. 297,000/-    |
| Additional revenue generated through storage  | - | Rs. 159,000/-    |

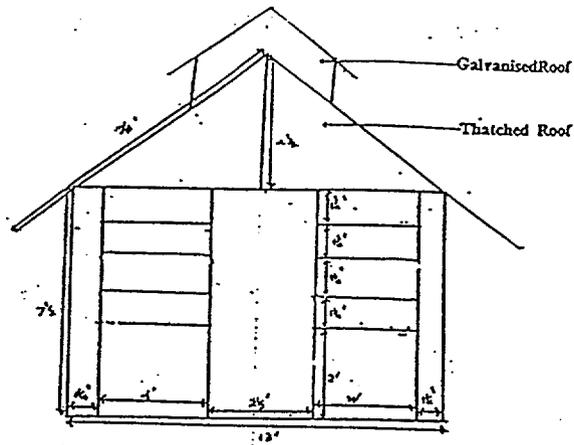
# D.G. GUNATILAKE

*Central Province  
Galewala  
Estimated cost: Rs 35,000*



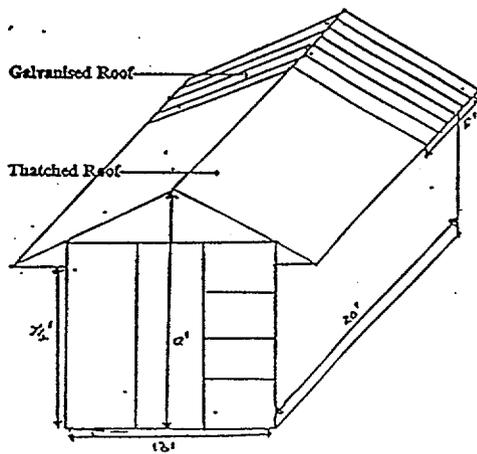
|   |   |                 |
|---|---|-----------------|
| Total quantity of Big Onions produced in 1994 | - | 23,000 Kg       |
| Prevailing price at time of harvest           | - | Rs. 12/- per Kg |
| Quantity Stored                               | - | 7500 Kg         |
| Quantity Spoilt                               | - | 450 Kg (6%)     |
| Quantity Sold                                 | - | 7050 Kg         |
| Sale Price                                    | - | Rs. 28/- per Kg |
| Total income from Stored Onions               | - | Rs. 197,400/-   |
| Additional revenue generated through storage  | - | Rs. 107,400/-   |

# TYPES OF ONION STORAGE BUILDINGS



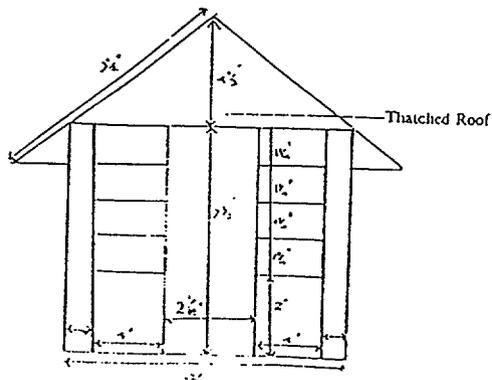
## TYPE 'B'

Proposed Big Onion Stores for storing of approximately 5 M. Tons.



## TYPE 'C'

Proposed Big Onion Stores for storing of approximately 5 M. Tons.



## Annex No. 1

## ESTIMATE FOR CONSTRUCTION OF BIG ONION STORES

Length 20'  
 Width 13'  
 Height 12'  
 Capacity - 5m. tons

## A. Material cost:

|     |  | <u>RS.</u> |
|-----|--|------------|
| 1.  | 7 Nos. brick columns (9" x 9") x 7.5' (600 bricks)       | 720.00     |
| 2.  | Foundation for columns 13" x 13" x 2' (400 bricks)       | 480.00     |
| 3.  | 5 Bags cement  | 1,250.00   |
| 4.  | 1 cube Sand  | 300.00     |
| 5.  | 72' Coconut rafters (2 lengths of 24)                    | 720.00     |
| 6.  | 39' of Timber for supports (3 lengths of 13')            | 390.00     |
| 7.  | 13.5' of timber for side supports (3 lengths of 4.5")    | 135.00     |
| 8.  | 22' rafters of 9' in length                              | 1,000.00   |
| 9.  | 264' of 2 x1" timber                                     | 800.00     |
| 10. | Nails  | 50.00      |
| 11. | Cadjans for roof (150)                                   | 450.00     |
| 12. | Tats for horizontal storing 10 Nos. 20' x 4              | 6,000.00   |
| 13. | Polythene curtain for prevention of rain water /humidity | 400.00     |
| 14. | Transport & other incidental expenses                    | 1,305.00   |

## B. Labor cost for construction

|     |                              |                  |
|-----|------------------------------|------------------|
| 15. | Labour cost for construction | 3,000.00         |
|     | Sub Total                    | <u>17,000.00</u> |

## C. Management fee

|     |  |               |
|-----|--|---------------|
| 16. | Supervision fee for four months (100%) | 1,000.00      |
|     | Total Project Cost (100%)              | Rs. 18,000.00 |

\* US\$ 1.00 = Rs. 49.00