COUNTRY PROGRESS REPORT-FIJI

UNITED NATIONS ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND THE PACIFIC (UNESCAP)
CENTRE FOR SUSTAINABLE AGRICULTURAL MECHANIZATION (CSAM)

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AGRICULTURAL MACHINERY

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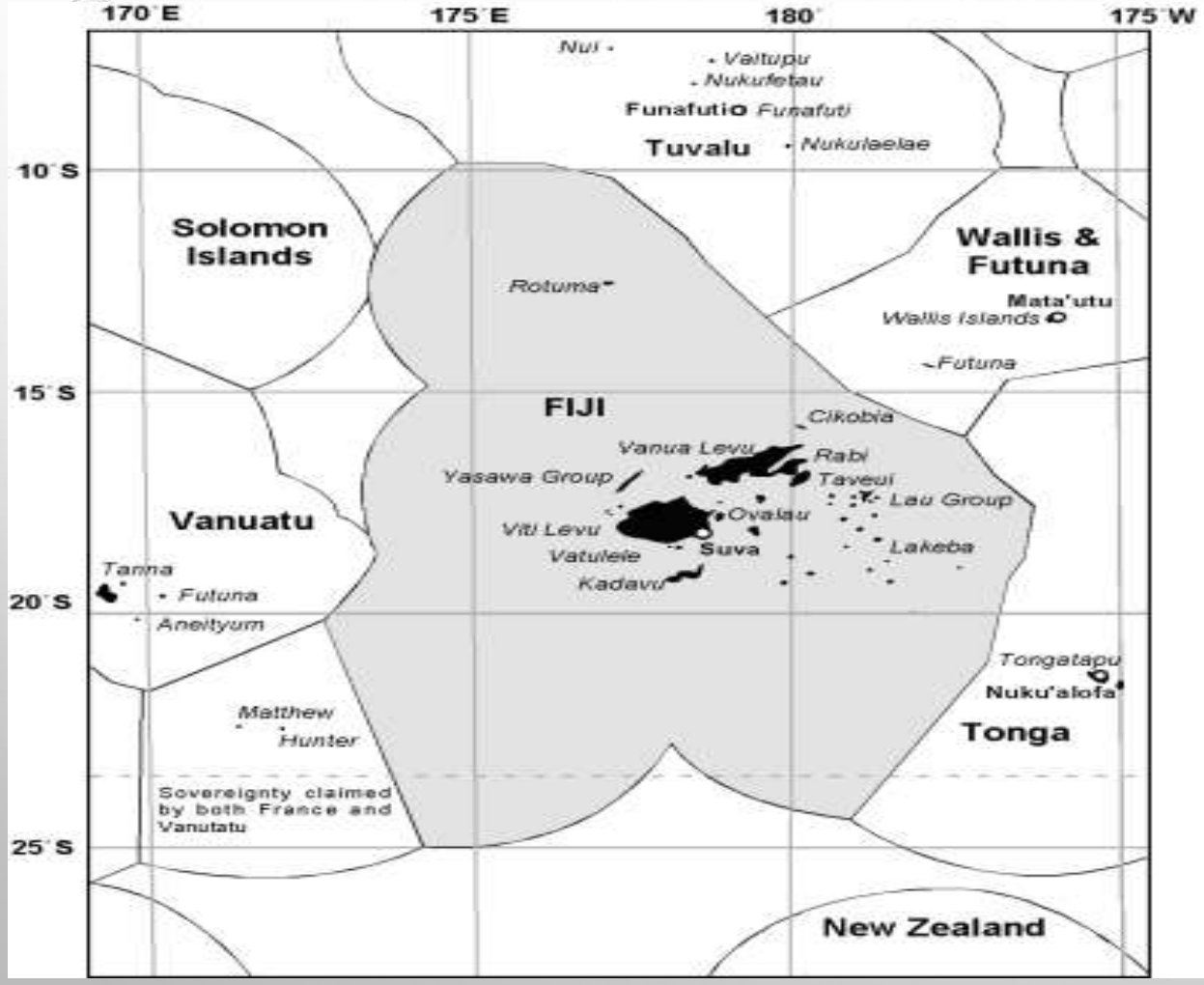
BACKGROUND OF FIJI.



- The total land area of the country is 18,272km2 dispersed in the territorial waters of around 141,800km2, the proportion of land to water is only 13%, and even smaller when compared to the larger Exclusive Economic Zone.
- Fiji enjoys two seasonal climate conditions (hot wet and cool dry) with rainfall averaging 1,500mm to 4,000mm annually. The topographic effect means that much of the rainfall is within the windward side of the islands. Up to 80% of the rainfall is recorded in the wet season and 20% in the dry season.

- Fiji is an island nation comprising of over 300 of which 109 islands still remain to be habited. The two main islands (Vanua Levu and Viti Levu) support majority of the total population of 880,000 with sizeable percentage being in the urban centres of Suva (168,000), Lautoka (43,300), Labasa (24,100) and Nadi (30,884).
- The islands are predominantly volcanic and rise to an elevation of around 1,000m above the mean sea level with rivers and streams supporting the tropical rainforest on the windward side and extensively cultivated sugarcane farms on the leeward side.
- All major economic activities including tourism are based on these islands. In contrast, outer islands vary considerably geologically and topographically from slighter coralline islands to larger volcanic edifices, which support smaller but significant population.

- Agriculture has been the backbone for Fiji's economy over the past decade. However, its contribution to the national GDP has declined from 20% to around 16% recently. This has been mainly due to shift of labour force from farming to other sectors such as tourism, manufacturing and the garment industries.

- Due to the tedious nature of work involved in the agricultural sector, agricultural mechanization plays a pivotal role in sustaining this industry.

MECHANIZATION IN AGRICULTURAL SECTOR

- During the colonial era, mechanized farming was centred in sugarcane belts of Western and Northern Divisions of the country where animal and machine powers were extensively used.
- In other areas, farmers were reliant on hand tools and animal power.

- In the beginning of post independent Fiji, large farm-machines and associated equipment were introduced to meet the new challenges in sustainable development of the sector. Introduction of large four-wheel drive tractors and associated machineries and equipments in the sugar industry has been seen as major challengers for the benefit of the industry.
- Large scale mechanization activities were also undertaken by the Native Land Development Corporation (NLDC) and Ministry of Agriculture, Sugar and Land Resettlement.

NEED FOR MECHANIZATION

- Farm mechanization continues to play pivotal role as part of the agronomical practices to ensure economic viability of the agriculture sector.
- Fiji farmers had been struggling for ages to transform agricultural farming practices from traditional method of production to modern farming technologies. The mechanization technologies are very efficient and thus yields higher farm returns in terms of export earnings and as food security.

- The various advantages of mechanization are as follows:

  - Reduction in dependency on labourers
  - Reduced physical power
  - Increased output
  - Maximising profitability
  - Draught animals eliminated from larger-farms

  - Indirect employment opportunities increased vide additional spare part dealers, machinery dealers, repair workshops etc.

- However, the adoption rate of mechanization is slow and at a very low-rate. Most of the farms use draught animals for farming activities. In most cases farmers lack basic skill and knowledge or are not aware of new machines, equipment and tools, that could improve the efficiency, thus increase productivity.

- To prosper in the development of the country's agricultural sector, farm mechanization is seen as the way forward to make remarkable significant in the agricultural engineering needs.

CURRENT PRACTICES OF AGRICULTURAL MECHANISATION

- An agricultural mechanization practice in Fiji has been in many different folds from use of small hand tools to machine power. Various practices include the following:-

1. Land Preparation
2. Crop Cultivation
3. Irrigation
4. Harvesting
5. Threshing
6. Winnowing
7. Process
8. Storage
9. Preservation

MECHANISATION THE WAY FORWARD

- To motivate the current generation of young farmers into agricultural industry, mechanization is the way forward. Mechanization plays a dynamic and catalytic role in today's modern farming technology benefiting in the following activities:-
    - Land preparation can be done more thoroughly and in less time
    - Heavy and difficult soils can be prepared quite satisfactorily and quite independent of weather and season
    - Operations can be timelier in order to meet optimum planting dates.
    - Better weed and pest control measures.
    - Engine power may be used efficiently for stationary operations of threshing and processing.

- Multiple cropping becomes more feasible through crop diversification / inter-cropping to optimise production, and sustainably utilizing the scare land and water resources.

- Avoid harvesting and post harvesting losses such as threshing, handling, drying, storage and processing.

- Increased economic returns to the farmers

- Reduces drudgery and hard work

- Substitute for farm labour and the low margin of profit by the traditional method of crop production.

UACIES/CONSTRAINTS/LIMITATIONS IN THE PRESENT SYSTEM

- Mechanisation is not the only solution for all the problems of agricultural production and economic development.
- Some of the major constraints are:

1. Lack of appropriate machine and equipment
2. Lack of funding
3. Rough terrain
4. Lack of knowledge and skills in agricultural mechanization
5. The disparity of profit returns from mechanisation can be a limiting factor for development

6. Land tenure

7. Small-scale holding

8. Deposit for obtaining credit

9. Recovery of hire charges

10. Spare parts/after sales service

11. Research and Development

12. Human Resource Development

13. Field Parameters

IMPLEMENTATION AND STRATEGY

The effective mechanisation of agriculture is closely related to the economic growth of a developing country such as Fiji. Many factors must be accounted for during the planning and implementation phase of agricultural mechanisation programme. These include such things as:

- Land productivity
- **Labour** utilisation
- Machines design and selection
- Costs and returns
- Income distribution
- Machine operations
- Maintenance and repair

RESEARCH AND DEVELOPMENT

Fiji needs to undertake proper Research and Development programs in developing agricultural mechanization to suit its l conditions. Unfortunately, we lack the expertise in this field.

We therefore, would like to request external assistance from the member countries such as **UNESCAP/ANTAM** (a also including other donor agencies) to assist Fiji in the following area:

- Technical Assistant
- Short term & Long term mechanization development programs
- Eradicating poverty among the rural farming communities through improved farming systems and use of appropriate farm machineries and equipment for sustainable livelihood,
- Training in Agricultural Mechanization
- Priority needs in Agricultural Engineering and Mechanization