



Agriculture Field Reports

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Ministry of Agriculture, Arorangi - FEBRUARY 2016 Edition, by Dr M Porea, William Wigmore, Dr Maja, Ngatoko Ta, Pat Arioka, Noo Tokari, Junior Torotoro, Patu Katu, Brian Tairea, Tiria Rere, Pavai Taramai and Edwin Apera



An update on the Chinese Agricultural Small Machinery and Materials that were distributed to the Farming Community (via the Members of Parliament) in October

CHINESE AGRICULTURAL SMALL MACHINERY

Introduction

As mentioned in the above title the machines were distributed in October to December of 2015 to the Communities via the 24 members of Parliament for the purpose of revitalizing Agriculture production in Food Crops (*Root Crops, Vegetables, Fruit Tree orchards, etc.*) in ensuring our peoples Food and Nutrition Security on Rarotonga and all Pa Enuu.

Up-date for Rarotonga.

Members of Parliament for Takuvaine / Tutakimoo, Avatiu / Pamati and Nikao / Panama, have evidently made a positive impact on Taro Patch preparation for Taro growing in these 3 Constituencies on Rarotonga. Using these Chinese Machineries for Agriculture production created much interests for all passionate Taro growers from these 3 villages on Rarotonga. During field visits and interviews on the spot for these Taro farmers, (especially those from Avatiu and Nikao), their expressions indicated an understanding of the equivalence of a 6 Horse Power Rotary Hoe (Chinese Machine) equaling to 3 manual labour persons. Hence the ease of their work on the Taro Patches creating more competitiveness, among Taro growers of Nikao and Avatiu. For example several of the Taro Growers from Avatiu and Nikao completed **17 Taro Patches** varying in lengths and widths i.e. approx. 9 patches at (7 m by 20 m) = $140 \text{ m}^2 \times 9 = 1,260 \text{ m}^2$ and 5 patches at (7 m by 30 m) = $210 \text{ m}^2 \times 5 = 1050 \text{ m}^2$. For the longer Taro Patches i.e. 3 patches at 7 m by 50 m) = $350 \text{ m}^2 \times 3 = 1050 \text{ m}^2$.

This adds to total area of (approx.) = $1,260 + 1050 + 1050 = 3,360 \text{ m}^2$. Take away the space of the water channels i.e. 10 channels $\times 0.6 \text{ m} = 6 \text{ m}^2 \times 20 = 120 \text{ m}^2$ and for the 5 long patches space of water channels i.e. $6 \times 0.6 \times 30\text{m} = 108 \text{ m}^2$ and $4 \times .60 \times 50 = 120 \text{ m}^2$. Giving a total of $120 + 108 + 120 \text{ m}^2 = 348$ from the Total i.e. $3,360 - 348 = \mathbf{2,812 \text{ m}^2}$ which is approximately **3 quarter Acres** of new Taro planted between November 2015 and February 2016 IN NIKAO & AVATIU.



A Takuva Taro Grower (CEO for Minister of Finance) preparing his Taro bed at the Airport, Nikao site.

CHINESE MACHINERIES MAKING AN IMPACT ON TARO PRODUCTION IN AVATIU, NIKAO, & TAKUVAINA

Our field visits and assessments showed 28 + new Taro Patches (*others completed rotary-hoed but not yet planted due to shortage of moko*) were revived after several years of fallowing, in which, when combined together, is equivalent to 1.5 + Acres of Taro replanted in November, December 2015 and January / February 2016 period. The approximate mean plant density – (plant spacing of 40 cm between plant and 50 cm between rows at the width of 15 m Patch). The length of the Taro Patch is 45 m. Example – below patch showed 30 rows 112 plants per row = 3,360 plants per Patch i.e. $15 \times 45 = 675 \text{ m}^2$.

In terms of economic returns for these New Plantings initiated by the Chinese Machines = 1.5 Acres = $6,060 \text{ m}^2 \div 675 = 9 \times 3360 \text{ plants} = 30,240$ Taro plants. We assumed for this Taro to be ready in 8 to 9 months duration (i.e. around August, September October 2016 period. Estimated to yield, (mean weight per Taro) at 8 to 9 months = 1.5 kg. If sold at the local price of \$3.50 per Kg would earn Avatiu, Nikao, Takuvaine, Taro Growers approximately $30,240 \times 1.5 = 45,360 \text{ Kgs}$, minus 5% loss due to rots = 43,092 Kgs $\times \$3.50 = \text{\$150,822.00}$. (*It would have been 2 Acres Taro planted, if only there were sufficient supplies of Moko Taro in January and February 2016.*)

Some of the Growers from Avatiu, Nikao and Takuvaine are expecting some Taro shoots from the Outer Islands especially from Mangaia to complete planting more Taro Patches.

(A field data assessments and analysis by M. Pura and Noo Tokari (Senior Policy and Project Officer)

Other Information from Nikao:

Costs for Hiring of Machines from the Nikao Growers Association:

- Membership fee = \$50
- Re-Newal of annual Members entrée fee = \$30
- Hire of 6HP Rotary Hoe = \$15 a day.





More Taro shoots needed to complete these Taro Patches.



The picture below showing more Taro Patches not yet completed planting. Taro Patches Rotary-Hoed but after the heavy rain, some of the topsoil been moved to the side.

Experiencing the Power of the 6 HP Rotary Hoe on Taro Patches on sites, which had been under Fallowed for many-many years.



Pictures below showing extensive plantings of new Taro Patches at Avatiu Ruatonga Taro swamps. Many of the Taro Growers were having difficulty accessing planting materials. - (e.g.) Makiuti and his group.



Taro Patches at the Ruatonga / Avatiu site

Again the Growers from this site didn't have sufficient Taro Planting material.



BIOSECURITY IMPORT SPECIFICATIONS

Training Workshop by Ngatoko Ngatoko – (Director.)

Main Objectives:

Objectives of the workshop are to introduce the status of Biosecurity Import Specifications and Customs Online Pre Clearances Automation System.

Introduction

Biosecurity Import Specifications refers to the clearance of general quarantine risk cargoes or commodities known under the Biosecurity Act 2008 as **regulated articles**.

These items arrived regularly into our country either by means of Sea Containers or break bulk cargoes such as the potatoes & onions, meat products, used vehicles & machineries, live pet dogs and cats, vegetables seeds, etc. plus the weekly regular airfreight cargoes that arrived through the air cargo at the airport such as imported fresh produce, in which importers demand its cargoes to be released immediately on arrival.

In recent months we had experienced some problems on cargoes arriving without proper biosecurity clearances from country of origin, which created delays in releasing of these cargoes, which is basically created by the lack of the necessary documentation (certificate). In some instances, there was no Sanitary or Phytosanitary Certificate accompanying the consignment or even the assurance of pre- treatment, such as Fumigation treatment of some commodities, hence the main aim of this Training Workshop for Stakeholders and at the same time to build awareness to our business sector or customers highlighting the importance of the **Import Specifications** and as well as guiding them on what is required for their agency to provide to Biosecurity before the cargo arrive in our country or at our borders for ease of clearance on arrival.

Customs Online Pre Clearance Automation System

Initiation of the Customs Pre-clearance Cargo Online programme back in 2011 in which the programme were designed to accommodate Customs Coding Systems on Tariff Concessions and not much on Biosecurity requirements for cargoes. Recently working in partnership with Customs officials, have now included coding system on the Pre-Clearance System on Biosecurity Import Specifications and we acknowledge the use of the system as well and it is also helps customers in the process of fast tracking the release of cargoes providing the biosecurity orderly clearance documentations. Customs will not release any quarantine risk cargoes or regulated articles without a Biosecurity Direction or Permit to land. We have invited Senior Customs Officer Walter Tangata to talk on the pre-clearance systems and how it works.

Participants; CITC, Prime Foods, Vonnias, Air New Zealand, Air Rarotonga, Ports Authority, General Transport –Stevedores, TransAm, Matson Line, Hawaii Maritime, LSG, 'Kauvai Customs Agency, Rarofreight Services, DHL, Wigmore Superstore, Jim Co, Escapa-John Scott.

THE OFFICIAL PICTURE OF THE WORKSHOP (below)



Workshop participants with Agriculture minister Kirilau Turepu, Customs Services and Biosecurity staff.

Workshop ends on a high note

COOK Islands Customs Services in collaboration closed its two-day workshop yesterday with words of encouragement to the business industry.

Senior Customs Officer Walter Tangata said it was important to note that the workshop was a joint effort with Biosecurity Services.

"This is basically so we can work closely together rather than sending people to different locations when they need to import and export goods.

"We have seen people become frustrated when they are running around for their goods to

be released or exported and we don't want to send them all over the place."

Because the two organisations worked closely together, it was a simple matter for importers to see Biosecurity Services or Customs representatives to arrange clearance of cargo.

This efficiency was the same reason use of the automated clearance system was being encouraged.

"We encourage this system because it helps importers to see which goods come under Biosecurity and they receive feedback on the update for their clearance

instantly, which wasn't the case with the old manual registration," Tangata said.

He said there were 4600 registered suppliers of products to the Cook Islands from all over the world.

"I did not expect it to reach that number, we are amazed at how many suppliers we have supplying to the Cook Islands," he said.

Moreover, Tangata informed the participants that a proposal has been given to parliament to remove the seasonal tariff on tomatoes and cabbages.

He said at the moment from

September 1 to November end duty applicable on these products and there's a proposal to have this removed.

The tariff at the moment is 25 per cent for those imported from New Zealand and Australia but if imported from Fiji and PNG it's 5 per cent.

Tangata added that there are a lot of issues that they need to deal with on a daily basis.

However, he said that the reason is maybe that importers and the general public are not aware of the customs regulations and requirements.

■ Lesirene Chand

THE TRAINING WORKSHOP AS REPORTED IN THE COOK ISLANDS NEWS

Planning for future Agriculture and Livestock, Sustainable water Supplies, post Te Mato Vai Domestic Water Supplies Systems for Sustainable Agriculture and Livestock Production.

Farmers on Rarotonga are keen to know more about the future water supplies for Agriculture use, after the completion of the Mato Vai Domestic water systems.

There is talk that the current water intake systems (e.g. pictured on the right is the Avatiu water Intake) will be left as is for the water to flow as normal in the stream towards the sea but, with its water-mains distribution pipes turned off.

Suggestions by the Ministry of Agriculture, during Stakeholders meetings in 2014 and 2015 for this current system to be left for Agriculture and Livestock use in support of Agriculture production and Food Security. The response from the Government (i.e. *Mato Vai Officials*), informed various challenges in the loss of water flow in these old water mains due to leakages and non-detected underground broken pipes. The meeting officials also made comments on the huge expense required by Government to maintain this current system for use by Agriculture.

Despite these discouraging comments from the meeting officials, the Ministry of Agriculture strongly believes that the idea and suggestions to retain the current water system for Agriculture and Livestock use is a very worthwhile venture especially for our Food Security and wellbeing in combating Climate Change, Prolong Drought due to shifting of global rain patterns, etc.



AVATIU WATER INTAKE



Plans to set up an Agriculture Farmer's Water Committee (FWC) to oversee the maintenance of the Water system for Agriculture and Livestock Production and Food Security.

CHALLENGES

What steps to take?

Four Agriculture Graduates met (to discuss at separate times and visited 4 Water intakes around Rarotonga as shown in the Pictures) to seriously look into "[Water Harvesting and Supplies for Agriculture Production and Combating the Negative effects of Climate Change](#)"

Graduates:

Sam Napa - Massey University, New Zealand.
William Wigmore - USP Alafua, and University of Hawaii.
Patrick Arioka - USP Alafua, Uni of ..., OLD, USP Cook Islands.
Matairangi Purea - QLD Agric College, Gatton, Uni of Hawaii, and Uni of Sydney, Australia.

The Plan is to look into preparing a project proposal aimed for the GREEN CLIMATE FUND - \$5 Million.





SAM NAPA and WILLIAM WIGMORE at the Wigmore Water Intake



Field visit continue:

The visits by Agriculture Water investigators: Sam Napa, (Agriculture Engineer / Irrigation), William Wigmore (Director of Research) and Matairangi Porea (Secretary of Agriculture) took place in February 2016 to look into the above objectives and to make assessments on the merit, possibilities of this idea for Agriculture water and align the need of the farmers to real challenges of climate change / pro-long droughts and at the same time formulate basic data for a draft-calculations of an approximate budget required for project proposals for application for Technical assistance to our Development Partners such as the UN funding from the “Green Climate Funds” implemented by FAO Rome.

Pictures Attached:

The mid picture above showed the Turangi Water Intake

The right picture showing the inner part and slopes around the Turangi Stream.

“Future Water for Agriculture”

Continuing on with the Field Visits to 4 Water Intakes around Rarotonga.

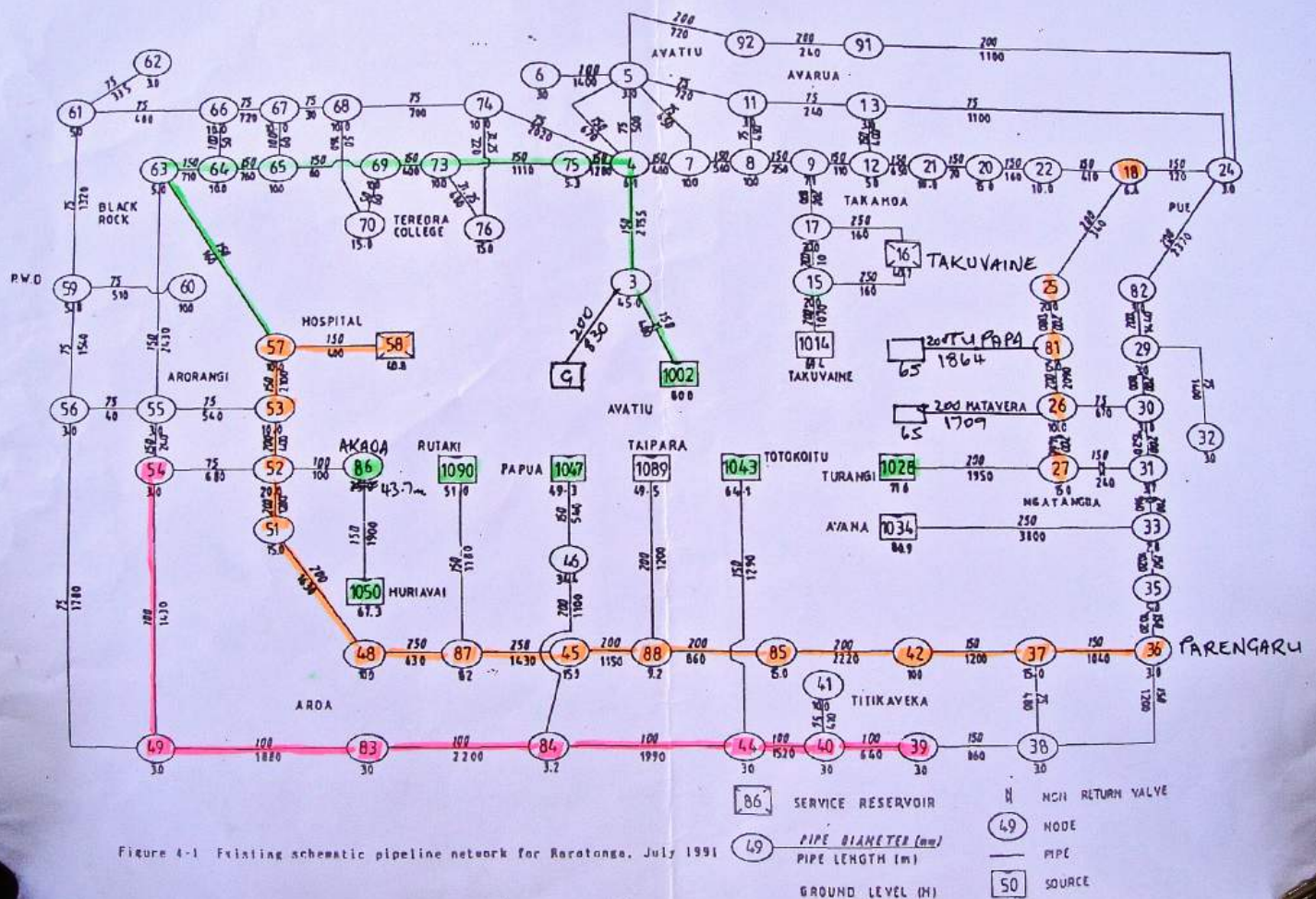
The primary objectives of the field visits to these water intakes were:

- Observe the status of the water intake settings. – this is important for for management plans (i.e.) structural and sustainability of these structures.
- To check on the near-by valleys and watersheds surrounding lands slopes including plants / vegetation density. Important for site location of ground cover for erosion protection and control.
- To view the settings further below the water intake for sites of large water holding tanks.
- To check on the Japanese Water Map distribution water pipes (coastal ring mains) and inner ring-main on the Arametua – especially those that will be decommissioned by the Mato Vai Project. These are pipes that we want to use for Agriculture.



ORIGINAL JAPANESE DESIGNED WATER MAP OF THE WATER SYSTEMS IN RAROTONGA 1991

(BY SAM NAPA)



Keys to the Map:

Green colour showing Intakes - indicates the possible source for Agriculture Water

Orange colour piping's are inner Ring Mains

Purple or light reddish colour showing Outer or Coastal Ring Mains.