



FINAL DRAFT

NATIONAL BIOSAFETY FRAMEWORK
OF COOK ISLANDS

AUGUST 2008

National Environment Service and
The Ministry of Agriculture
Cook Islands

Minister's message

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Abbreviations

CBD	Convention on Biological Diversity
NES	National Environment Service
UNEP	United Nation Environment Program
GEF	Global Environment Facility
NCC	National Coordinating Committee
NPC	National Project Coordinator
NBF	National Biosafety Framework
CITES	Convention on International Trade in endangered species
WTO	World Trade Organization
GATT	General Agreements on Tariffs and Trade
PICTA	Pacific Island Countries Trade Agreements
PACER	Pacific Agreement on Closer Relations
ICCP	International Committee for the Cartagena Protocol
FIC	Forum Island Country
LMO	Living Modified Organism
GMO	Genetically Modified Organism
CIG	Cook Islands Government
QD	Quarantine Division
CITC	Cook Islands Trading Corporation
MFEM	Ministry of Finance and Economic Management
MMR	Ministry of Marine Resources
EU	European Union
EIA	Environmental Impact Assessment

Definitions

Administering authority or NES means the National Environment Service.

Advanced informed agreements or AIA means an agreement between parties to the Protocol for activities involving LMOs.

Application means a signed written document lodged by any applicant along with necessary forms.

Biosafety means the measures to reduce the potential adverse effects arising from products of modern biotechnology.

Biosafety Protocol or the Protocol means the Cartagena Protocol on biosafety to the Convention on Biological Diversity

Competent National Authority means the proposed independent biosecurity agency.

Convention on Biological Diversity or CBD means the main international instrument for addressing biodiversity issues.

Contained Use means the use of LMOs in a contained environment or physical structures in which their contact and effects on the external environment can be effectively controlled, and “use in containment” has a corresponding meaning.

Develop means genetic modification of any organism but does not mean contained use, and “development” and “developed” has a corresponding meaning.

Effect means:

- (a) Any potential or probable effect;
- (b) Any positive or adverse effect;
- (c) Any temporary or permanent effect;
- (d) Any past, present, or future effects;
- (e) Any acute or chronic effect;
- (f) Any cumulative effect which arises over time or in combination with other effects, and “risk”, “harm”, “danger” or “hazard” has a corresponding meaning.

Emergency means:

- (a) Actual or imminent danger to human health or safety; or
- (b) A danger to the environment or chattels so significant that immediate action is required to remove the danger arising in relation to an LMO.

Enforcement Officer(s) means officials duly appointed to carry out monitoring or enforcement activities according to the conditions or controls imposed.

Environment means:

(a) Means the ecosystems and the equality of those ecosystems as well as the physical, biological, cultural, spiritual, social and historic processes and resources in those ecosystems; and

(b) Includes -

(i) Land, water, air, animals, plants and other features of human habitat; and

(ii) Those natural, physical, cultural, demographic, and social qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes

Export means sending goods out of the country to another jurisdiction, and “exportation” and “exported” has a corresponding meaning.

Genetically Modified Organism or GMO see living modified organism or LMO.

Import means bringing in or introducing goods into the country from outside of its jurisdiction, and “importation” and “imported” has a corresponding meaning.

Living Modified Organism or LMO means any living organism that possesses a novel combination of genetic material obtained through the use of modern biotechnology, and “genetically modified organism or GMO has a corresponding meaning.

Living Organism means any biological entity capable of reproducing or replicating or able to transfer genetic material and includes bacteria, fungi, algae, viruses, and viroids.

Microorganism means any microbiological entity, cellular or non-cellular, capable of replicating or transferring genetic material, including viruses, viroids, and animal or plant cell in culture.

Modern Biotechnology means the application of:

(a) In vitro nucleic acid techniques, including recombinant nucleic acid and direct injection of nucleic acid into cells or organelles, or

(b) Fusion of cells beyond the taxonomic family

That overcome natural physiological reproductive or recombination barriers and that are not techniques used in traditional breeding or selection

National Biosafety Framework or NBF means the national framework developed according to UNEP and GEF capacity building project and based on the country's needs and requirements for biosafety.

Precautionary Approach means the need for caution in managing adverse effects where there is scientific and technical uncertainty about those effects.

Public Notification means a notice published in one or more daily or regularly published national and local newspapers and includes any other notice printed or electronic as the Gene Technology Authority thinks fit.

Release means any non-contained application of LMO.

Risk Assessment means the use of scientific and other appropriate methods to identify the nature, likelihood of occurrence, and potential magnitude of any effect.

Risk Management means the management of any effects identified in the risk assessment.

Transboundary Movement means the movement of an LMO from one country to another.

Transit means a product solely passing through a country while remaining in containment for no more than ten days, after which a further approval to remain in the country shall be required.

Use means and includes possession of an LMO, research on or using an LMO and genetic modification of an organism.

Working Day means a day other than a Saturday, Sunday, or a public holiday.

1 National Biosafety Framework

1.1 Introduction

Cook Islands are a small island nation in the South Pacific Ocean with rich species diversity. The diverse biological wealth is distributed within diverse ecosystems. In order to enjoy benefits arising from the biological wealth it is important to safeguard the biological diversity from technological advances such as the introduction of living modified organisms (LMOs).

The Cartagena Protocol on Biosafety (the Protocol) as adopted in Montreal on 29 January 2000 as an annex to the Convention on Biological Diversity (CBD) to address the safe transfer, handling and use of LMOs. The Protocol entered into force on 11 September 2003. In accordance with the precautionary approach of Principle 15 of the Rio Declaration on Environment and Development, the objective of the Protocol is to ensure an adequate level of protection in the field of safe transfer, handling and use of LMOs resulting from modern biotechnology that may have adverse effect on the conservation and sustainable use of biological diversity, taking into account risk to human health and specifically focusing on transboundary movements.

To prepare the Cook Islands for the entry into force of the Protocol. The Cook Islands Government signed the protocol in May 2001. The National Biosafety Framework (NBF) project funded by the United Nations Environment Programme (UNEP) and the Global Environment Facility (GEF) started in May 2003 after the project document was signed and a project coordinator appointed. The project was completed in August 2008. The NBF is a list of key issues regarding the management of LMOs and includes actions or proposals that are used as the basis for making decisions relating to their management in the Cook Islands.

Under the guidance of a National Coordinating Committee (NCC) and through the joint management of the National Environment Service (NES) and the Ministry of Agriculture (MoA) the following activities were carried out:

1. A review of existing Government Policy and laws regarding or relating to biosafety; identification of stakeholders; and a forum for discussion to identify actions required to bring the Protocol into force.
2. During the review two major activities were initiated and completed; stock-take or surveys of the status of biosafety (policy and laws) and modern biotechnology, specifically LMOs, in the Cook Islands, and the conducting of a national workshop to involve stakeholders to participate in identifying national priority actions.

The NBF covers the areas of, and provides proposals on policy, a regulatory regime including monitoring and enforcement, and system to handle applications, systems for

risk assessment, and mechanisms for public awareness and participation. The key elements of the NBF are:

- National biosafety policy;
- Regulatory regime;
- System for handling applications;
- Monitoring and enforcement; and
- Public awareness and participation.

1.2 Objective

The objectives of the NBF are to:

- Provide an overview of the current situation.
- Identify what needs to be done to provide for the safe management of LMOs in the country.
- Ensure a high level of environmental and public health safety management in all aspects of LMOs including importation, development, contained use, export, or release into the environment.
- Develop a workable and transparent national legislative framework for the future management of LMOs.

It is recognized that the NBF is an initial step towards putting in place a more permanent legislative framework for biosafety in the Cook Islands.

1.3 Background and the current situation

The present capacity and capability of the Cook Islands regarding the safe management of LMOs is very limited. This is attributed to a number of factors:

- Lack of knowledge/information on biosafety issues.
- Limited scientific expertise on board in the country although it is to be noted that there are specialists in areas such as plant science, agriculture, aquaculture, forestry, and soil science.
- Non existence of purpose built facilities e.g. specialized laboratories.
- Limited research capacity availability.
- Lack of direction at the strategic policy level.
- No central database is available on key personnel in specialized fields in the Cook Islands.
- Little has been done by way of risk assessment or risk management because of limited scope in developing biosafety issues.
- Weak coordination between agencies.

The issue of transboundary movements, transit, handling, and use of LMOs are important issues for the Cook Islands because modern biotechnology is a new technology and therefore there is a need to be careful in dealing with its applications.

Before addressing the key issues of biosafety in the Cook Islands it is important to understand the relationship between modern biotechnology and biosafety. This will also provide a link, since these are products and process that come from overseas, and not natural to us, to the more identifiable products that we see on the shelves of our local stores, or the different and newer plants and animals and associated processes that accompany them that we may see in our surrounding environment. Appendix 1 describes in detail the linkages between biotechnology, modern biotechnology, biosafety, and international agreements.

2 The present situation of biosafety in the Cook Islands

2.1 Government

National Environment Services

In the Cook Islands, the Environmental Impact Assessment (EIA) process or project application under the Environment Act 2003 is the closest system to the AIA process under the Protocol. The EIA deals with development that will significantly affect the environment may engage a technical committee to look at the technical aspect of a development, provide an opportunity for public participation and input, a statute established decision making body and a process of appeal. Such a system ensures that every possible input of information into the decision making process is explored, including, if expertise is not available in the agency, the setting up of a technical committee of local technical experts to evaluate and analyze available information.

The decision making body in the EIA process have a wide representative of the community and includes MPs and representatives of Traditional Leaders. The technical committee on the other hand is comprised of technical people who have knowledge and expertise in a certain field. During the public participation process others whether groups or individuals, local knowledge holders or overseas trained experts, and etc may all make an input into the decision making process.

Ministry of Agriculture

Other systems are used by the Ministry of Agriculture to allow the importation of any plant or animal and currently generic biosecurity legislation is being developed with the help of SPC, which like other countries of the Pacific islands, the Cook Islands will be adapting it to suit its own situation. Such legislation updates existing, and repeal all, relevant regulations currently in force.

With the seriousness and the highly technical nature of the issues of modern biotechnology it is vital that the systems are not only appropriate but the implementing agencies must have the personnel capability to cope with the demands of any processes put in place. It is expected that the new biosecurity legislation will require a restructuring of Quarantine services to reflect the enhanced and broader roles of biosecurity in general.

Concerns were raised that while current quarantine procedures may have been appropriate in 1973, in view of the number of pests that are now landing in the country, not to mention moving into LMO issues, the review of biosecurity-related legislations, would make the biosecurity more efficient.

Further, it is also proposed that the Schedules of animals or plants to existing regulations needs to be updated to take into account other known pests and diseases that poses risks to the environment and human health.

There was a strong message from Government officials interviewed, including a grower and private importer that in the case of LMOs, clear strict regulations must be put in place, when LMOs are to be introduced even for research purposes. There should be in place a detailed plan for the research and that this kind of approval must go through some kind of public consultation in a system similar to the EIA process under the Environment Act 2003. In this way, the Secretary will provide all the appropriate and relevant information required by the public and can therefore make an informed decision. Consideration was also recommended to be given to amending the enforcement function and approvals so that the Secretary for Agriculture is not involved in the clearing of the animal or plant in the point of entry situation.

Advisory Technical Committee (ATC) - As there was no mention of the “advisory technical committee” provided for in the Animal Act 1975, the creating of such a committee could be an avenue to providing the Secretary with the expertise needed to assist in the prior to importation stage of LMOs and also in regards to research. Given the diversity of Agriculture (e.g. horticulture, pastoral farming, crop farming etc) the ATC should remain and become an active provision under the revised Act with membership of local experienced technical people (even retired, but still active).

Prior Information – According to the Chief Quarantine Officer, it has been his experience that for the Cook Islands, no crop exported leaves the port without going through strictly followed treatment and having the paper work properly completed as strictly required from the exporter. However, he emphasized that, in the case of products in similar categories coming into the Cook Islands, Quarantine have not been able to demand for similar strict treatments and paper work.

Ministry of Marine Resources

The Marine Resources Act 2005 provides for the sustainable use of living and non-living marine resources. The Act takes into account the precautionary approach.

Ministry of Health

In the area of boundary control which involves the Health Quarantine, the area of most concern is the labeling of goods for human consumption, whether they are GM products or other types of products. With the new Public Health Act, the point where Health Quarantine Officials will come in is when goods are landed at the port of entry.

In the area of human pharmaceuticals, the Chief Pharmacist, who oversees the importing of any medicine; whether insulin, vaccines, etc follows strict guidelines provided by recommended suppliers by WHO and other reliable and verified sources.

Ministry of Transport

The Shipping (maritime security) Regulation 2004 can also provide for the inclusion of LMOs control as part of the components of the Port security plans to be updated in the near future. According to the Ministry of Transport, the issue of biosafety is timely as the

review of the Port security plan is now due with the new Maritime Security Regulation now in force.

No specific details have been proposed for this review, but the Ministry of Transport will consider facility requirements for the effective implementation of procedures for the transboundary movement of LMOs and the like.

2.2 Laws

A regulatory regime for biosafety could be a combination of enabling legislations, implementing regulations and complementing guidelines that would establish a regime to control the movement of LMOs into and out of the Cook Islands.

There are no legislation for the control and management of LMOs and GM products imported into the Cook Islands, however there are legislation that controls the importation of plants and animals and the protection of biodiversity.

It is recognized that biosecurity issues such as invasive species (especially plants and plant materials that are being smuggled in and accidentally introduced) are more of a priority issue than the control of LMOs alone and that the issue of biosecurity in this country, especially the introduction of animals and plants, has been extremely lax. The national workshop of stakeholders in August 2004 recommends that the Framework consider or be used as a pathway towards addressing the more priority issue of implementing biosecurity laws before the situation here reaches an emergency level with the continued unchecked importation of new organisms.

Existing “Biosecurity-related” Laws

Appendix 2 provides summaries of those relevant legislations provides the current state of the regulatory regimes that can be developed and improved to cater for the issues that may be raised by modern biotechnology and its derivatives. Appendix 4 tabulates relevant local legislations, and administrative systems.

There are 21 pieces of legislation, 8 are principal Acts, 9 are regulations, 2 are Orders, and 2 are amendments to the principal Act.

Of the 21 pieces of legislation reviewed, 15 are administered by the Ministry of Agriculture, 2 are administered by the Ministry of Health, and the remaining 4 are administered by Customs, Ministry of Transport, Ministry of Marine Resources, Airport Authority and the Environment Service. For laws administered by the Ministry of Agriculture’s Quarantine Division (or QD) it has been stated that a review is urgently required to remove two major weaknesses; that requiring another inspector to authorize the disposal of a plant material that is not listed on Schedules provided, and the second, to give the decision making power to the Chief Quarantine Officer, in the case that the appropriate papers are not with the importer at the time of arrival. For the time being, the decision making power remains with the Secretary for Agriculture.

The Ministry of Agriculture is the Ministry that deals with the movement of plant and animals into the country and between the islands of the Cook Islands. The Ministry of Marine Resources is the permitting agency for the introduction of species for aquaculture purposes and the Environment Service is the permitting agency for EIA.

Existing Administrative systems

Four of the 21 legislations involve administration systems such as boards, Councils, Law Court, and Growers to make decisions. The Ministry of Agriculture under its current Act may set up an advisory technical committee or ATC to assist in matters that the Minister may consider to be needed. Under the Ministry of Agriculture Act 1978, the Minister has all the powers and through delegation the Ministers' powers are given out, and all the legislation implementation duties are managed by the administration section of parent Ministries or departments. The stock-take exercise on legislative review did not cite any document of delegation of powers.

The Environment Act 2003 EIA approval process is the only permitting process that involves public participation. Eleven of the current legislation deal with frontline or boundary control as well as the issuing of permits, Four deal with boundary control, or facilitate and support boundary control and issue permits, two deal with boundary control only, two to facilitate and support boundary control only, and two to issue permits only. These are provided in Appendix 3.

2.3 National Institutional Capacity

Existing research and scientific developments in Agriculture, Quarantine, Fisheries and other technical related fields that biosafety comes into at a national level is non-existent. There is currently no scientific or development program being undertaken in the Cook Islands related directly to biosafety.

Some Ministries such as Agriculture and Marine are involved in scientific surveys and monitoring relating to aquaculture (pearl industry monitoring and lagoon management plans for Manihiki and Penrhyn) and plant species (mainly for crop species for monitoring rather than breeding purposes) but nothing specifically related to LMO's. Natural heritage have ongoing research interests with birds, plants, fish and animals but again, nothing in relation to LMO's or biosafety.

Most or all agencies with the exception of Environment (see Appendix 2 under column headed active participation), confirm that they are not involved in any other research surrounding biosafety issues. In fact, from the Ministries point of view, there are no policies or procedures in place although if pressed to develop one based on national priorities and providing budgets were in place to accommodate this new initiative, they would respond accordingly.

2.4 Research facilities

There are currently no suitable research facilities in the Cook Islands to accommodate scientific research programs on biosafety.

The ministry of Agriculture has a research laboratory which looks at tissue crops which are brought in for evaluation purposes but there is no actual breeding work done. There is no conventional research program although the laboratory has a generic usage mainly for agricultural purposes. It does not have the technical capability nor is the specialized equipment to undertake any such program as far as biosafety is concerned.

Agriculture Research were of the view that any scientific research being conducted in the Cook Islands is some years away and that any scientific approach should be done on a regional basis where scientific expertise is more readily available. To establish an approved research laboratory would be expensive and would require specialized scientists to operate it. They were also of the view that countries vary from one approach to another regarding LMO's therefore it may be premature to assume that the Cook Islands is in a position to take on board specialized scientific research when in fact, we are still working though the myriad of issues in order to comply with international conventions and protocols.

The Ministry of Health has a laboratory but this is used primarily for pharmaceutical purposes and the administration of medicines rather than for research purposes.

2.5 General Biodiversity program participation

General biodiversity programs produced by the Ministry of Agriculture, Natural Heritage, Quarantine and Environment Services has enabled some participation on the issues of biosafety, but are mainly centered around general biodiversity issues related to sustainable environmental development issues in the Cook Islands.

Environment Services is at the forefront of the information gathering and familiarity because of their involvement and participation at the international level through attending conferences, workshops and information exchange on a regional basis.

Agriculture, Quarantine and Marine Resources have had limited involvement but realize the importance of developing policies and strategies and therefore agree that a more coordinated approach is required to ensure that Ministries and Agencies have access to information and resources that will allow them to develop their own procedures as required.

2.6 Border controls and procedures

The Cook Islands 6 Ports of Entry have neither the personnel nor the facility to effectively control the movement (international and inter-island) of LMO let alone the control of the movement of plants and animals. In terms of existing laws and procedures, it was advised what applies to Rarotonga will be applicable to the others.

In addition, there are also airports on 9 island, these are Rarotonga, Aitutaki, Atiu, Mangaia, Mitiaro, Mauke, Manihiki, Pukapuka, and Penrhyn.

Both Ports Authority and Airport Authority confirm that there are no policies or procedures in place to accommodate the safe handling of LMOs (see Appendix 3). In fact, systems were so antiquated or relaxed and there did not appear to be any major concerns other than to ensure that the handling of dangerous goods and materials were within the required minimum standards.

There were internal handling procedures however, it was clear from the Government sectors involved that the whole system will need to be upgraded or improvised.

Storage systems of hazardous goods will also require some urgent consideration as both Authorities were of the view, that current facilities were totally inadequate posing both security as well human risks.

The Ports Authority has in some way acknowledged the importance of biosafety issues and recently sent several of its employees to New Zealand to attend a training program facilitated by New Zealand Customs on the safe handling and management of waste and hazardous goods.

2.7 Information and Knowledge

Information and knowledge on modern biotechnology is either not available, and if it is available, it is limited and not easily understood to the ordinary lay person (see Appendix 3). However, for some, it is understood that the linkage with New Zealand Media, has at least brought the message home to some extent to them. Surveys have shown that a small few, know about their existence and in the Government system, despite the fact the Government have signed the Convention on Biological Diversity, the parental agreement to the protocol on biosafety, and signed the Protocol itself, such sectors as Agriculture, Environment, Marine Resources, Health, Quarantine and Port Authorities and their staff that deal with the control and management of the ports know very little about it and the effect that it may have on the environment should it become introduced whether intentionally or accidentally.

Survey information (Appendix 3) shows of the 31 organizations with relative interests to biosafety issues and their current capacity to deal with it none had websites that identified biosafety issues, two had limited procedures that may be used for biosafety issues, five had limited active research capability, 10 had limited to moderate knowledge on biosafety and seven actively participate in biosafety issues due to sector interests. Thirteen of those organizations surveyed have direct linkage relationship to biosafety issues and with current and on-going involvement, seven with direct involvement and eleven with little or no involvement at all.

The recent but slow coordination of efforts by those Government sectors that knew something about biosafety and has something to do with it including the involvement of those in the private sector such as pharmacist, veterinary services and retailers, it is not

surprising that Government has not at this stage any clearly defined policies or strategic definitions that involves or relates to organisms or products derived from modern biotechnology.

In an effort to address the current capacity to deal with biosafety issues, the Appendix 1 provides a list of relevant organizations to be stakeholders and also, it lists in Appendix 5 a capacity building needs database of specialized personnel that could be involved in any capacity building activity.

2.8 Biosafety clearing house mechanism

The Biosafety Clearing House mechanism or BCH is an information dissemination method that is currently being looked into to initiate some public awareness programs. The BCH serves as a means through which information is made available for the purpose of facilitating the exchange of scientific, technical, environmental and legal information on, and including experiences of other countries and institutions with living modified organisms. As stated earlier, there is a lack of information and knowledge within organizations on this subject area and therefore the establishment of the BCH will greatly enhance efforts to raise public awareness and other capacity building activities.

The NES, the focal point for the Convention on Biological Diversity is in the process of putting together information for the BCH to be initiated together with the CBD clearing house. A project on its own, the BCH is planned for later on in 2005. For the purpose of the Protocol the NES will serve as the focal point and proposed independent biosecurity agency will serve as the national competent authority.

2.9 Other Government organizations

A survey which looked at the outputs and budgetary processes of identified Government organizations shows, initially the absence of policy, also and clearly indicate the lack of awareness raising activities by those Government organizations. The lack of and limited knowledge and information on this subject, as mentioned above, can be attributed to the fact that this is a new activity for the Cook Islands and there is still a degree of uncertainty as to its importance based on limited knowledge and access to information. The findings of this search are provided in Appendix 3.

The Environment Services, Agriculture, Quarantine and Customs are the only sectors that had some participation in biosafety issues with Environment and Quarantine playing a major role.

In terms of sharing of information, aside from the carrying out of the national consultative workshop which included communicating with identified stakeholders, a recent activity, very little coordination in the sharing of information especially relating to biosafety issues have taken place. Other Ministries become informed through attending meetings/workshops or conferences or once comments are required from their respective

Ministries on specific biosafety related issues. Often, they are not involved in any early discussions nor invited to attend workshops/seminars until after the event.

As a result of the lack of participation or representation by the appropriate Government agencies on non-statutory bodies that were set up to guide the efforts of the Environment sector since 1972 (more specifically since 1992) and due to reasons of output priority and the lack of staff, or change of departmental heads, the NES has been identified as working in isolation of others and has been responsible for committing the Cook Islands to international environmental related conventions and protocols without due process of prior public consultation and dialogue. The general feeling was also that commitment was based on the premise that the Cook Islands would be able to access resources if it became a signatory to these conventions (Turia, 2004).

It is to be noted that the position of the Cook Islands with regards to the international agreements or leading up to those agreements were prepared under the guidance of a national taskforce which was comprised of most of the Organizations listed in Appendix 3.

In essence some public awareness was provided but the efforts were more general and did not cover specific issues such as LMOs and GM products.

2.10 Non Government organizations

The Cook Islands Association of Non Government Organization's 2002 - 03 Strategic Plan, a public document, had as one of its goals and it states; *“To enhance and promote the preservation and conservation of our environment – our natural heritage”*.

However, much of its involvement and participation in areas close to biosafety issues has centered around discussions on biodiversity related issues and sustainable environmental development issues in the Cook Islands. There has been no other formal involvement on biosafety related issues although they have expressed an interest to participate at workshops or discussions if invited.

2.11 Public participation programs

There appears to have been limited public forums on biosafety issues. The Environment Services has been instrumental in informing the general public on a number of related issues such as the formulation and implementation of the National Biodiversity Strategy Action Plan or NBSAP, environmental educational awareness programs and health related issues where there are potential environmental impacts.

The National Workshop on Biosafety held in August 2004 was the only public awareness and forum activity held specifically for this issue. This was coordinated under the guidance of the National Coordinating Committee of the NBF project.

There is also a process coordinated through Environment Services where Environmental Impact Assessments (EIA) are required regarding the building or construction of facilities close to the foreshore or on areas located on upland and wetland areas. The process requires the developer to address certain issues which include a number of questions on the importation of animals or plants into an area.

During the EIA process, the general public has the opportunity to provide comment on the proposed development which is then submitted to the Environment Authority for consideration before a decision is made.

At this stage, there is no other public participatory process other than that of the EIA process under the Environment Act 2003 that enables the public to participate in the decision making process regarding the importation of any plants or animals.

2.12 Social impact assessment programs

Primarily, social impact assessment programs have been undertaken by external donor agencies such as the Asian Development Bank (ADB), United Nations Development Program (UNDP) and NZAID although the latter has been mainly towards bi-lateral projects where it involves donor funds.

These assessments cover multitude of issues that relate to the socio economic and social strata of the status of the Cook Islands and its vulnerability to external situations such as global financial impacts, trade, migration, good governance and internal economic sustainability.

It was interesting to note that when asked whether or not Ministries had developed their own assessments including risk assessments, the response was, “we provide the Information and the consultants write the reports and make the recommendations.”

According to some of the relevant Ministries interviewed in this area, there has been neither mention at all of biosafety issues nor mention of issues specific to LMOs. “These are new issues to which we ourselves are not familiar with” one source was quoted as saying.

The 2001 Cook Islands Economic Report (Environment Convention p220 refers) the Asian development Bank states that “under the Rio Convention on Biological Diversity, the Cook Islands Government is currently considering a new protocol on Biosafety, which focuses on establishing rules for transboundary movements of living modified organisms i.e. plants and animals which have been genetically modified.”

Apart from that statement and the work being undertaken by Environment Services regarding the development of the Framework, there does not appear to be any other references as to how key Ministries and Agencies are going to advance that protocol. The commitment to the Cartagena Protocol has been central to advancing this process however, as appears to be the case in the Cook Islands and apart from the development of

the Framework, a number of Ministries are still in the dark as to what is involved and what impacts if any, their participation in biosafety issues will have on their outputs.

On a positive note however, 2 Ministries (Environment Service and Agriculture) are taking the lead in facilitating advances to create awareness of the biosafety related issues and the need to improve access and the coordination to information and resources.

2.13 Experts and related experts

There is currently no centralized database of key people or experts in related biosafety fields. A list of experienced and qualified personnel in the Cook Islands in specific interest areas has been compiled. This is provided in Appendix 5. The list of experts will assist the Government or persons involved in this area to identify key resource people whose contributions towards biosafety related issues will be of great assistance in future when further development of the issues identified in this Framework is required, as well as, facilitating in country discussions on this issue.

Generally speaking, very little work has been undertaken regarding capacity building in terms of the management of LMOs in the Cook Islands. A stock take survey, the result listed in Appendix 3, shows that the status of biosafety issues is virtually non existent. There, however, a positive side to this, as the list of experts listed (Appendix 5) will assist immensely the further implementation of the activities in this Framework.

2.14 Importing of animals and plants

Due process was followed to an extent under the Animals Act when known pests were imported, however, research through the materials of Parliament were unsuccessful in obtaining background papers on the process by which the amendments to the Animal Act 1981 and 1984-85 were made to allow the importation of a known pest, the rabbit, and animals for a zoo. Subsequently amendments and regulations became law, especially to see if there was any public consultation or EIA or Risk assessment carried out locally to assist in the process of making that amendment.

It is also a noted concern that while, there is this extensive control at the point of entry legislation, as reflected in the regulations listed, there is no check on agricultural seeds that are being imported by major local importers. CITC currently import seeds from Yates Australia and Takii (A Japanese Product). According to the Merchandise manager of CITC, their seeds did not have papers giving details of how the seeds were produced as there is no law they have been informed of that says they have to obtain that type of information. It also appears that the growers are knowledgeable on what they want and they request product orders. The Director of Totokoitu Research expressed concern about this type of uncontrolled importing as we could already have LMOs in the country, but we do not know it yet.

From the view point of the importers, the responsibility for consequences for introducing GM seeds is not theirs; it lies completely with the Ministry of Agriculture, including quarantine through to Customs, and the frontline people for Agriculture.

The importers said that they would continue to bring in seeds that the growers ask for as long as they are not regulated against and they will continue to not consider GM seeds concerns at all. It is also a concern, in view of biodiversity and biosafety issues of the country.

2.15 Possible modern biotechnology products in the country

LMOs and GM products, or products of modern biotechnology are now widely used in large countries. That being the case, there is the strong possibility that LMOs and GM products are already in the Cook Islands, and its entry has been unmonitored and no considerations were given to the effect they may have on the local environment, in particular, the local biodiversity. With the import of agricultural seeds, with no known information of their origin due to the so called “trade secrets”, or “guarded secrets” interference with the local biodiversity is either already in the process of, or is inevitable.

There are nine importers in the Cook Islands that bring in products (intentionally or not) that are and may be the products of modern biotechnology. These importers are listed in Table A below.

Pharmaceuticals are one such area where there are products of modern biotechnology. These are of synthetic chemical nature and are manufactured under the most stringent quality control regulations. There is no interface between their manufacture and the environment that would use LMOs or genetic modified ingredients. In the area of natural health supplements products are either manufactured from minerals or plant materials which are, again, guided secrets.

Table A Baseline Information – Importers and categories of products with possible LMO – Cook Islands (Adapted from Manarangi¹, 2004)

Importers	Categories of product with possible LMO
1. CITC Hardware center	Seeds and Agrochemicals
2. Rarotonga Water Services	Seeds
3. Rarotonga Nita Growers Association	Agrochemicals
4. Ministry of Agriculture	Animal Pharmaceuticals
5. CITC Pharmacy	Human and animal Pharmaceutical
6. Uka’s Surgery	Human Pharmaceutical
7. Cook Islands Pharmacy	Human and animal Pharmaceutical
8. Easter Honey Foundation	Animal Pharmaceutical
9. Ministry Of Health	Human Pharmaceutical

Human pharmaceuticals may be of concern to the Cook Islands, especially, those that may fall under LMO are the vaccines and insulin. Defined as a “suspension of dead or otherwise modified microorganisms (such as virus, bacteria and rickettsiae) for inoculation to produce immunity to a disease by stimulating the production of

¹ Manarangi, A. (March 2004). Assessing the Current State of Biotechnology and Biosafety in the Cook Islands, Page 8.

antibodies”, vaccine have been here in the Cook Islands for quite a while and have become very important to immunization schemes promoted by the health care system, especially with school children. If any of these vaccines are out of date they are disposed of by incineration.

For insulin, more commonly used nowadays is human insulin by people with diabetes, which is either produced by enzymatic modification and suitable purification of porcine insulin or by recombinant DNA technology in microorganisms, gene modification.

In the case of animal pharmaceuticals brought into the Cook Islands, they are mainly to control parasitoids antifungal and antibacterial.

In the area of agrochemicals imported, they are mainly for insects, fungal diseases and for weed control. However, one of the chemicals used for the control of insects is manufactured from the bacteria *Bacillus thuringiensis var. kurstaki*, marketed under many different trade names may be of the only concern.

Seeds that are imported into the Cook Islands by the two main importers are open pollinated and hybrid seeds. Open pollinated seeds are those that grow true to type or true to the parents. On the other hand hybrid seeds are the first generation derived through conventional methods by crossing two sets of parents and the parents are trade secrets or patent by seed companies. With genetic engineering advancing at a rapid pace no one would know if one or both of parents are genetically modified to develop the hybrid.

Apart from the two known importers there are individuals that import their own seeds or plants. This is an area of grave concern as there is no way of monitoring what is being imported and already become part of the biodiversity.

3 Regulatory Regime

3.1 Proposed regulatory regime

With the poor enforcement of the Animal and Plant Act and the urgent need to control and manage the introduction of animals and plants including LMOs and their products, it is timely that the current laws be reviewed and this new area, the biosafety become part of the new Biosecurity Act. The National Biosafety Coordinating Committee formulated and agreed on the following policies for immediate implementation.

Policy 1: A Biosecurity Act to address the importation of plants and animals including a provision to manage and control the handling of LMO and their products.

Policy 2: An Independent Biosecurity Agency to enforce the Biosecurity Act and ensure compliance.

Policy 3: The establishment of a Technical Committee to authorize and handle notification of any LMO or their products.

Policy 4: The Technical Committee membership to include experts or representatives of organizations that deals directly with Biosafety issues.

Policy 5: The Provision to manage and control the handling of LMO and their products to include AIA process, with risk assessment and risk management, compliance to the EIA process under the Environment Act to ensure public participation and wider community involvement.

Policy 6: Emergency procedures and environmental rehabilitation.

Future actions

1. The Government through Parliament to enact a Biosecurity law to manage the transboundary movement of any plant or animal including LMO.
2. In the Biosecurity Act, an Independent Biosecurity Agency to be established to carry out the functions and enforce the powers provided under the Act.
3. The Biosafety legislation to become a provision under the Biosecurity Act where a Technical Committee is established to consider any application for the importation of any LMO into the Cook Islands. The membership of the Technical Committee shall be comprised of specific competent authorities who are organizations that possess the technical capabilities and have specific link to Biosafety issues. Such organizations as:

Environment Services, Ministry of Agriculture, Ministry of Health, Ministry of Marine Resources, Ministry of Foreign Affairs and Immigration and MFEM's Customs Services.

4. The Independent Biosecurity Agency will be established as the Competent Authority or Administering Authority for Biosafety.
5. The Biosafety provision will take care of all applications to import LMO and their products
6. The Law makers will ensure the Interpretations and definitions under the Biosecurity Act are clear.
8. The Biosafety provision must strictly adapt the precautionary principle and AIA process outlined in the CBD and Cartagena Protocol.
9. To avoid any complications and confusion of roles, especially with that of the Environment Act 2003, the Public participation through the EIA process under the Environment Act is linked to the biosafety provision by subjecting any application to a project permit application under the Environment Act. Since the Environment Authority membership includes MPs and representatives of Traditional Leaders, this will cover the important community sectors at the decision making level.
10. The development of a strict enforcement and monitoring policy for the implementation of the Biosecurity Act is a priority issue after enactment.
11. The Biosecurity Act must cover the financing of any environmental rehabilitation plan through permit fees and heavy fines, and also emergency procedures in the case of accidents.
12. The Law makers, in developing the Biosecurity Act, in the regulation making powers of the Act, ensure specific needs to make the Act work effectively is covered and must also cover the issues such as what is to happen to LMOs and GM products that are already here?
13. It is mandatory that any Schedules to the new Act must be updated regularly, i.e. after a species is approved for importation.

3.2 Policy on Law Enforcement

An actual law enforcement manual or policy by Health and Agriculture Quarantine Officers at the borders is non-existent. Although there are procedures, they are rarely followed and no importer, individual, aircraft or ship has been arrested for accidental or intentional introduction of any plant or animal in any medium. Although it is clear from current legislation “no person shall...without the proper documentation. etc”. And if anyone did, Government has for years ignored the significance of this very important activity by allocating a small budget allocation to this area in present and previous administrations. In order to initiate a sustainable monitoring program to enable the

enforcement activities at the Ports of Entry the National Biosafety Coordinating Committee formulated and agreed on the following policies for immediate implementation.

Policy 1: Capacity building activities to improve quality of performance of biosecurity law enforcing agencies at the Ports of Entry

Policy 2: The new regulatory regime to have clear enforcement policy and must be strictly administered.

Policy 3: Public participation an important part of law enforcement.

Future actions

1. See Future Actions under the Regulatory Regime.
2. To assist in the enforcement of a new regulatory regime the approval process must involve a consultation process assisted by expertise from Agriculture, Environment Service, Health Department and the Quarantine officers.
3. To assist in the enforcement of a new regulatory regime, the decision making structure must avoid decisions to be made by one person (a non-political person) and without a complete and authorized information package.
4. The new regulatory regime must have clear line of responsibility set out for the officers in charge.
5. Bureaucrats subject to same rules as all people.
6. Prepare a clear and easy to follow enforcement policy for the new regulatory regime.
7. Strengthen/implementation of existing biosecurity laws.
8. Enforcement Officers to be properly trained and appropriately paid.

3.3 Proposed Legislative Framework

3.3.1 Introduction

This proposed regulatory regime provides a proposed legislative framework, in the context of being part of the overall biosecurity legislation, required to complete the

proposed National Biosafety Framework (NBF) for the Cook Islands. The proposed regime is based on issues discussed at the NBF consultative workshop held at Rarotonga in August of 2004 and the findings of three survey reports prepared under the NBF project. Subsequently, the National Biosafety Coordinating Committee (NBSC) in its deliberation of the 19th of October 2004 discussed the issues and agreed to the contents of the proposal.

This proposal is presented under the following categories:

1. Biosecurity and Living Modified Organisms
2. “Biosecurity” laws under the administration of an Independent Agency
3. Proposed Biosafety legislation (a provision under the proposed biosecurity act)

The following are the key features for the proposed regulatory regime to handle LMOs in the Cook Islands:

- A Biosecurity Act to manage the transboundary movement of LMO;
- An Independent Biosecurity Agency to be set up;
- Biosafety legislation – a provision under the Biosecurity Act;
- Competent authorities;
- Application of the LMO provision;
- Interpretation and definitions to be clearer; Technical Committee (TC) to consider permits for matters relating to the authorization of LMO to enter the Cook Islands;
- Management of LMOs (Prior Informed Advice process);
- Public participation through the EIA process – Application of the Environment Act 2003; Strict enforcement and monitoring; Environmental rehabilitation – For emergency procedures, heavy fines; and
- Further development policy – For regulations and transitional procedures.

A flow chart on how the proposed regulatory regime works is provided in figure 6.0.

3.3.2 Biosecurity and LMOs

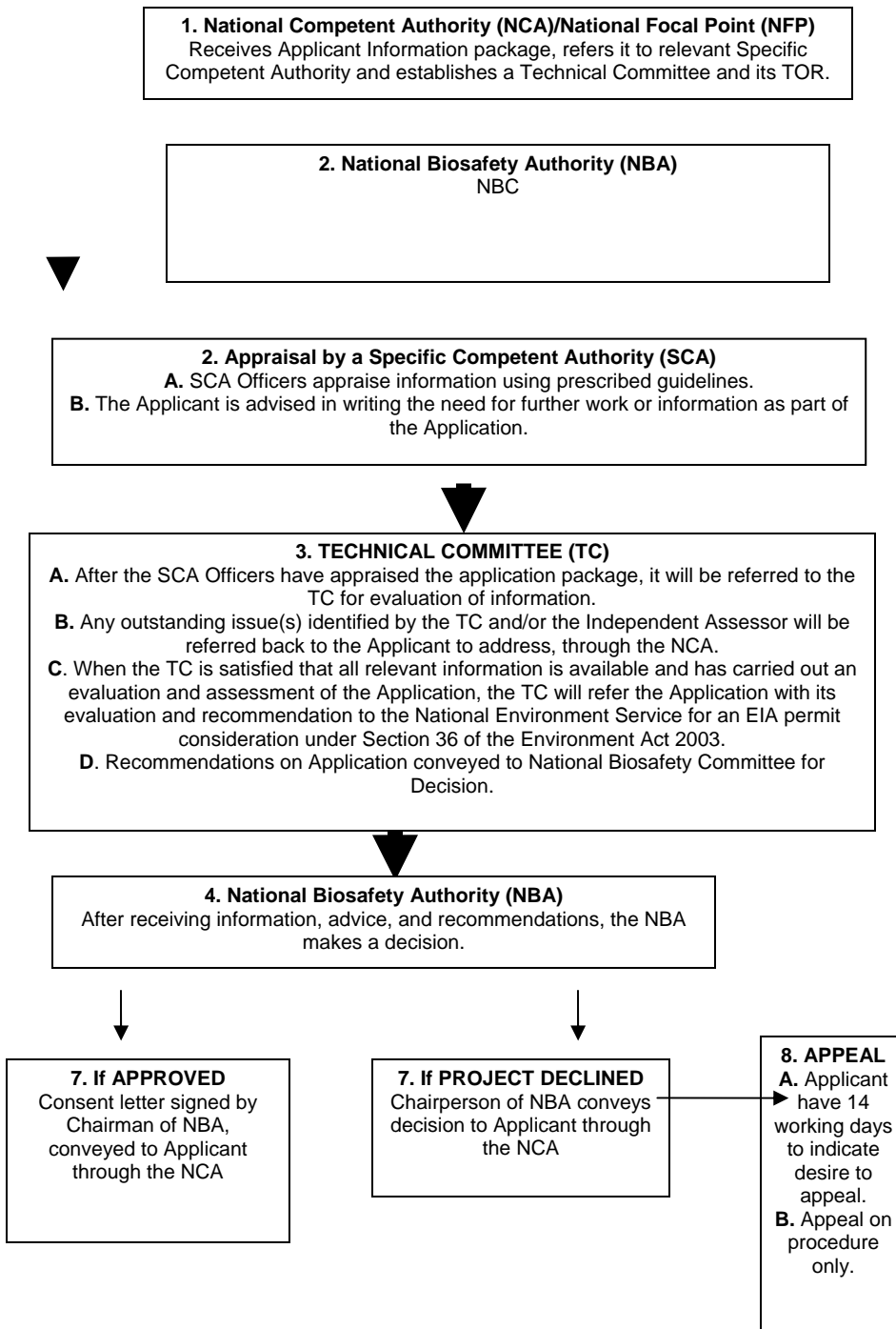
The Convention on Biological Diversity is one of the main breakthrough international agreements pertaining to environmental issues including but not limited to invasive species and protected areas. It emphasizes the biosafety issue which centers on the control of LMOs entering a country’s boundaries. Collectively the biosafety and other national environmental issues that deal with control, protection and emergency environmental issues responses are called ‘biosecurity’. The issues of biosecurity include but are not limited to bio-terrorism preparedness, emergency response to epidemic outbreaks, invasive species control, and LMO control.

It was brought up at the NBF national consultative workshop (NCW) that biosecurity issues such as invasive species (esp. plants and plant materials that are being smuggled in or accidentally introduced) are more of a priority issue than the control of LMOs alone and that the issue of biosecurity in this country, especially the introduction of animals and plants, has been extremely lax. The NBSC in its deliberation of the 19th October recommended that the NBF can be considered or used as a pathway towards addressing the more priority issue of implementing biosecurity laws before the situation here reaches

an emergency level with the continued unchecked importation of new species along with the overseas propelled trend towards modern biotechnology derivatives (LMOs).

Flow Chart

How the proposed regulatory regime will work



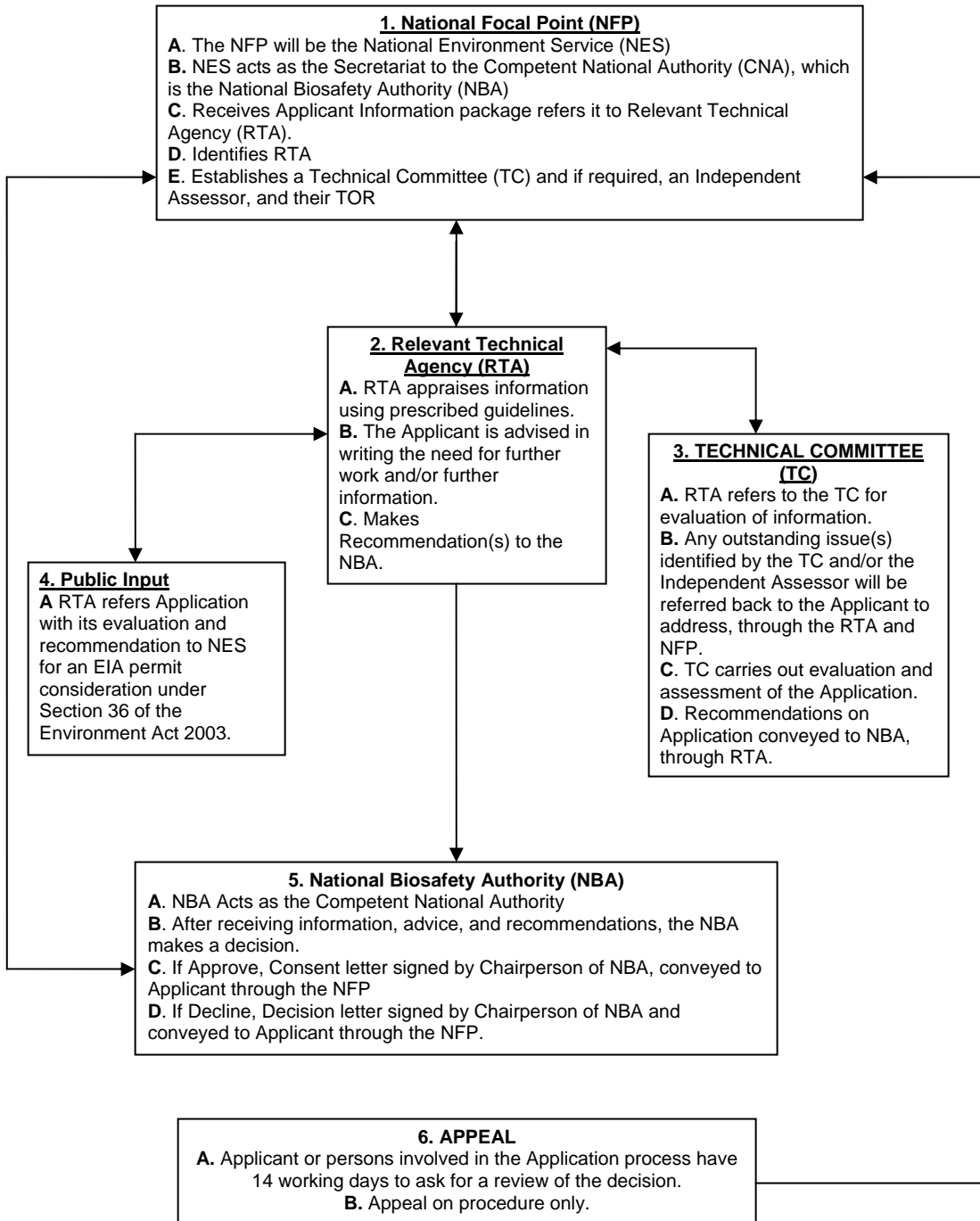


Figure 6.0 – Flow Chart, How the proposed regulatory regime works? (IBA – Independent Biosecurity Agency)

There is also the unattended introduction of invasive species, for example through water ballast from boats, that is at present being addressed through international conventions because of the lack of attention this matter is given here at the national level.

Having reviewed the outcome of the NCW, and also aware of the move by the Ministry of Agriculture to consolidate and strengthen its present ‘biosecurity’ laws, (i.e. biosecurity is a new term that is now applied to the Ministry of Agriculture’s Plants and Animals Act including regulations and amendments along with other legislations outside of the Ministry of Agriculture that deal with the introduction of living species), it was strongly recommended by the NBSC that the Ministry of Agriculture immediately pursue the consolidating and strengthening of these laws; especially the development of the concept of an “independent biosecurity agency” to implement those biosecurity laws.

This move highlights biosecurity as being a more immediate priority and a more frequently arising issue encompassing also the biosafety issue.

Having stated the above the consideration to strengthen biosecurity laws and their enforcement is in order.

The NBSC therefore strongly recommends the development of an Independent Biosecurity Agency (IBA) to implement the revised biosecurity laws including also the management of the introduction of LMOs into the country.

The Table below outlines the tentative timeframe for dealing with LMO applications. However it is expected that the times noted are to be the maximum unless a time extension became necessary.

	Activity	Timeframe
1	Acknowledgement of receipt	90 working days
2	Communication of decision	270 working days from the date of acknowledgement
3	Information of decision to the BCH	15 working days
4	Notify an applicant of a change in decision regarding a transboundary movement	30 working days
5	Party of imports’ response to changed decision on transboundary movement	90 working days
6	Notification of unintentional transboundary movement likely to have significant adverse effect	Immediate

3.3.3 “Biosecurity” laws under the administration of an independent agency

The proposed Independent Biosecurity Agency shall therefore be the overall administering authority for biosafety issues as well as the agency for the implementation of the revised biosecurity laws on the importation of plants (including plant materials) and animals (including animal materials).

In support of the consolidating and strengthening of the biosecurity laws, and after reviewing the outcome of the NCW, the NBSC noted that it is important in the revised biosecurity legislation, where the importer of any animal or plant and their products are uncertain of their origin and or if the origin links the imported animal or plant and their product to being or derived from an LMO product, that such imported matter must be destroyed unless it has been imported in accordance with the biosafety provision of the proposed biosecurity legislation. The degree of certainty shall be determined by the enforcement officers of the Independent Biosecurity Agency or other qualified persons engaged by them, after scrutinizing (using prescribed guidelines under the new biosecurity legislation) recognized scientific evidence provided by an internationally renowned and registered institute at the expense of the importer.

3.3.4 An independent biosecurity agency

With the strong recommendation from the NCW to set up an independent biosecurity agency, taking also into account the poor enforcement issue and the need to update the present ‘biosecurity’ laws to protect the country’s biological diversity from undesired consequences stemming from imported plants and animals, it is appropriate that the new biosecurity act establishes an Independent Biosecurity Agency to deal with both the biosecurity (as outlined in this proposal) and biosafety issues at both the international and national level. This is also in line with the recommendation of the National Biodiversity Strategic Action Plan (NBSAP) of 2002.

The agency shall provide the management and administrative structure that is needed to operate effectively; powers to carry out its functions; penalties for any offences or breaches under its provisions; regulation making powers and other provisions to allow the agency to effectively carry out its functions as a biosecurity agency as well as covering the issue of the safe transfer and handling of LMOs. The proposed biosecurity act will therefore include provisions for the prohibiting and control of LMOs and their products.

This proposal paper will focus on the LMO component of the proposed legislation to assist the legal drafting person to incorporate the wishes of the NCW, the NBSC, and thereby fulfill also the requirements of the Cartagena Protocol, into the proposed biosecurity act.

3.3.5 Proposed biosafety legislation (a provision under the proposed biosecurity act)

3.3.5.1 Purpose of the LMO provision

The protection and preservation of the biological diversity of the Cook Islands for social, aesthetic and economic gain for present and future generations through strict border control measures and prohibiting the entry of species that may threaten our biodiversity, or may compromise the promotion and application of sound environmental ethics are the most important considerations of this provision.

In accordance with the “precautionary principle” of the Convention on Biological Diversity and the objectives of the Protocol, the purposes of this legislation are:

- To provide an adequate level of protection in the field of safe introduction, transfer and handling of LMOs resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity;
- take into account risks to human health from LMOs; and
- Focus on the safe transfer and handling of any LMOs.

3.3.5.2 Moratorium on LMO and their products

Aware of the risks of uncontrolled and unintentional introduction of LMOs, the NBSC agrees to put a moratorium on all LMOs and derived products until the proposed biosecurity act with the LMO provision is in place and there is adequate capacity within the relevant institutions to handle, monitor and manage LMOs and derived products.

In the case of pharmaceutical products derived from LMOs, recognizing their continued usage, the NBSC agrees to have them reviewed by a technical committee (TC), which will be established under the proposed provision.

The NBSC recognizes the role of an “administering authority”, the Independent Biosecurity Agency and “specific competent authorities”, to oversee biosafety matters. ‘Specific competent authorities’ are those agencies that deal with Agricultural development, Marine Resources, Health and Environment.

In respect of the above, the “administering authority” i.e. the Independent Biosecurity Agency, is regarded as the Cook Islands competent authority for biosafety issues, providing also quarantine services as well as being the ultimate enforcement agency at the borders.

With regards to the issue of the implications of LMO introductions on this country’s biodiversity, the NBSC agrees to the recommendation by the NCW that a committee Technical Committee (TC), established under the proposed biosecurity act (the biosafety

provision) comprising of members from the specific competent authorities in the appropriate areas, shall consider any application to import any LMO into the country.

3.3.5.3 Application of the LMO provision

This provision shall apply to the environment of the Cook Islands, as defined under the Environment Act 2003, and to any organisms resulting from the processes of modern biotechnology that enter any port of the Cook Islands.

3.3.5.4 Management and administration

3.3.5.4.1 Administration

As part of the biosecurity legislation, the biosafety provision shall be administered by the Independent Biosecurity Agency and the Technical Committee established by the proposed biosecurity act for this purpose.

The Independent Biosecurity Agency shall, when required, establish a Technical Committee (TC) and may also call upon TC members when required. The composition of the TC shall be; the Director of the NES (who is chairperson and the competent authority, or representative of the competent authority for environmental matters), the Secretary of the Ministry of Agriculture (the competent Authority or representative of, agricultural science experts), the Secretary of Marine Resources (the competent authority or representative of all marine and aquaculture science experts), the Secretary of the Ministry of Health (the competent Authority or representative of Pharmaceutical product experts), the Secretary of the Ministry of Foreign Affairs and Immigration (the competent authority or representative for international affairs) and Officer in charge of customs and tariffs (the competent authority or representative on matters pertaining to trading laws).

Having the Director of Environment Services or a competent representative from the Environment Services, as Chairperson of the TC, is in recognition of the main area of concern regarding LMOs, i.e. the protection and sustainable use of the environment.

The TC will be responsible for the consideration of all applications to import any LMO as well as derived product into the country.

The Manager (It is suggested here that the proposed biosecurity act will establish the administrative head of the Agency as a Manager.) of the Independent Biosecurity Agency or a competent person from the Agency nominated by the Manager shall be the Secretariat to the TC and shall ensure all information and records of the TC are readily available to its members and that any information required to be released to the public is released in the most appropriate manner or information required from any individual or public body is acquired in a proper manner.

3.3.5.4.2 Enforcement and monitoring

Where an approval is given, the officers of the Independent Biosecurity Agency shall be given full responsibility for the delivery of the approval information at the chosen port of entry.

Where an approval is given, the specific competent authority responsible for the application shall be, together with the applicant, fully responsible for the transfer of the LMO into the country including, monitoring, monitoring of use, disposal and any emergency responses risks that may arise.

3.3.5.4.3 Funds

The financing required under this provision (the biosafety part of the biosecurity act) refers to costs incurred by the secretariat in supporting the TC.

The Cost to the secretariat includes the cost of independent assessors of risk assessments (EIA) and risk managements (Management of EIA conditions), the cost of public participation, publication and acquiring of information.

The applicant shall meet the costs of public participation.

All costs for the application including risk assessment and any information required during the advanced informed agreement (AIA) process shall be met by the applicant.

To cover emergency costs in case there is a breach or failure to comply with the risk management provisions, the importer shall deposit into the account of the Independent Biosecurity Agency, at the time the importation is approved, a fee to be determined by the TC. This amount shall be non-refundable and shall be based on the risk assessment.

3.4 Management of LMOs

3.4.1 Control prior to entry

No LMO shall be imported into the Cook Islands except with the prior written approval of the TC. Lack of scientific evidence on any imported LMO does not mean that the Cook Islands accept the risk and agree for the LMO to be imported into the country.

No application for the importation of an LMO shall be considered by the TC unless the applicant completes a screening process. In this process the following documents approved by a registered and internationally recognized institution shall be made available by the importer:

- Risk Assessment (EIA); and
- Risk Management procedure schedules.

Every application to be considered by the TC shall be subjected to Section 36 of the Environment Act 2003 and any appropriately prescribed guidelines that the Environment Act may require under that section. This is in recognition of the outcome of the NCW where consideration of applications shall be subjected to the scrutiny of the general public, technical people in the environment field as well as community leaders (or leader representatives) of the island or the country.

Every application lodged to and received by the Secretariat shall be in writing and shall initially be, in the case that the application is from an outside (i.e. from overseas) source, referred to the concerned specific competent authority for their expert appraisal before the Secretariat appraises it for acceptance.

In the case the application is from a source within the Cook Islands (i.e. an importer), then as with the overseas application, it will be referred to the concerned specific competent authority for appraisal.

In the case the applicant is one of the concerned specific competent authority, the application shall be referred to a recognized “concerned group” for their appraisal first before acceptance by the Secretariat for consideration. Such “concerned groups” must be registered as an organization that has a genuine or relevant interest in the area concerned. An example of a “concerned group” is the Pawpaw Growers Association.

The specific competent authority that receives the application together with the applicant shall be responsible for the presentation of the information on the application to the public or any interest groups that may be interested to study the application.

The TC shall take full consideration of a proposal after the public consultation process of the Environment Service is completed and approval of the EIA is given.

Once the applicant is advised of the TC’s decision, in the event the decision is in favor of the applicant, the applicant must show that all conditions and procedures are in place and that the TC is satisfied that those procedures and guidelines are properly installed or in place. No LMO is to leave its point of origin unless the TC is fully aware and satisfied that every procedure or guideline is in order.

Failure to comply with conditions and guidelines will result in the immediate termination of an approval given.

If the application is declined by the TC, the applicant may appeal for the right to re-submit but only if it can be shown that the TC have not followed its own procedures. The timing for such an appeal shall be consistent with that recommended under the Cartagena Protocol.

3.4.2 Control at port of entry – Border control

Through the Secretariat the TC shall provide to the Manager of the Independent Biosecurity Agency supporting documents for the purpose only of verifying the documents of any approved imported LMO.

The Independent Biosecurity Agency shall, without further consultation with the specific competent authority involved, confiscate and destroy any LMO at the port of entry that does not possess the complete documentations required and provided to it by the TC as part of the approved conditions and guidelines for importation of the LMO.

3.4.3 Monitoring and containment of LMOs

Any approved LMO for importation and transit shall be the responsibility of the appropriate specific competent authority together with the importer who shall together have allocated the manpower and institutional capability to monitor the LMO while in residence, or in transit, or during the period of trial, or while in use, until such time as the TC on the advice of the specific competent authority, has been satisfied and declares through appropriate means that the LMO is cleared or no longer a risk to the environment.

The specific competent authority will, as part of the approved conditions, provide competent personnel and institutional capability to support the monitoring of any LMO according to the conditions provided under the risk management schedule.

In the event that the specific competent authority, cannot provide and sustain the required competent personnel and institutional capability, to support the monitoring of any LMO according to the conditions provided under the risk management schedule, that application will not be considered or approved.

3.4.4 Emergency procedures

In the event of an emergency arising from an approved LMO, the conditions of the risk management emergency procedure shall apply.

Any costs to the competent authority shall be met by the importer of the LMO and shall be taken from the fees deposited with the Secretariat by the importer. The expenditure of such funds shall be documented according to the provisions of the MFEM Act and shall not be refundable to the importer. In the case the amount is not enough the importer shall, immediately after being advised of the emergency, pay the remaining costs for rehabilitation to the Independent Biosecurity Agency.

3.4.5 Penalties

In the consideration of maximum and minimum fines, it is important to bear in mind the devastating effect that genetically modified organisms can have on the local biodiversity including human beings and the effect on biodiversity that is directly important to agricultural and local medicinal practitioners along with costs that may be incurred by breaches to this legislation.

It is therefore a consideration here that heavy penalties are imposed both as a deterrent as well as a realistic figure to fund recovery programs.

It is proposed that in the case of any breaches of the conditions of any approval, the importer shall pay for or undertake approved rehabilitation costs and shall be liable to a cost not less than NZD500, 000.

3.4.6 Regulation making powers

To give full effect to the provisions of this legislation, the TC shall make recommendations to the Manager of the Independent Biosecurity Agency for regulations to be made in the following areas:

- Designating an area for quarantining accepted LMO.
- Regulating or prohibiting the trade of LMOs (e.g. seeds).
- Regulating or prohibiting the trade of GM derived products and food.
- Prescribing forms to be used under this provision.
- Prescribing procedures for the consideration of LMO.
- Prescribing guidelines to be used by the specific competent authorities or concerned groups to appraise applications for consideration of LMO.
- Providing for the taking of samples and their testing by laboratories.
- Prescribing procedures for the entry, inspection, or search of property, arrest of person, and seizure or forfeiture of any prohibited LMO, in the exercise of powers conferred by this provision.
- Regulating or protecting the use of locally acquired knowledge resulting from any research, data collection activity which includes interviews with traditional knowledge holders and local people, during the period of which an approved introduction of an LMO is being conducted, or the importation of any LMO derived product.
- Prescribing procedures for making an application for a written approval under this provision.
- Prescribing guidelines restricting or otherwise regulating the issuing of written approvals by the Technical Committee.
- Regulating the procedures for the destruction of any LMO in the case of an emergency.
- Prescribing fees for applications made under this provision.

3.4.7 Transitional procedures

Where there are in existence or proven to be in existence LMO (for example seeds), the TC shall give the importer of such LMO a period of time to be determined in which they shall come up with a full application for the consideration of their LMO in accordance to guidelines and procedures set out under this legislation as if such LMO is being considered for the first time.

In the event of failure to comply with the set period of time, the TC, under the terms and conditions of this legislation and at the expense of the importer, shall confiscate and destroy all LMOs (for example seeds) in the possession of the importer and also any individual that the importer has sold the seeds to, and this shall include plants growing or grown and their fruits etc. that have been sold to retailers or given to individuals. This will include also the outer islands.

In the case of LMO derived foods, LMO derived medicines and pharmaceuticals, the importer, the Ministry of Health, pharmacists, veterinary services and importers shall make similar applications to the TC for the continued use of those products according to the provisions of this legislation.

In the event of failure to comply with the set period of time, the TC, under the terms and conditions of this legislation, shall confiscate and destroy all LMOs in the possession of the importer and any individual who has imported the above products. This will include also the outer islands.

Any products, approved shall be listed in the Schedules as lists of approved products.

3.4.8 Schedules

For the biosafety provision, there are no existing laws.

Amendment to the Environment Act 2003 to cover LMOs under section 36 shall be attached as a schedule.

A table of approved/banned pharmaceuticals shall be attached as a schedule (to be updated after a product is approved).

A table of approved/banned LMOs (seeds etc) shall be attached as a schedule (to be updated after a product is approved).

A table of approved/banned foods derived from LMOs shall be attached as a schedule (to be updated after a product is approved).

3.4.9 Draft Bill

Proposed legal instrument for the biosafety regime has been drafted as a Biosecurity Bill and is attached as Appendix 6.

4 Mechanism to handle application

4.1 Policy on administering systems

It is recognized that Government administering systems of biosecurity law enforcing agencies, outside of the laws to import and export plants or animals, for example: Health, Agriculture, MMR and Environment Services have clear policies in the areas of permitting, monitoring and enforcement. With direct involvement with Biosafety issues, these agencies can be referred to as specific competent authorities in the area of responsibility and shall gain membership on the Technical Committee proposed under the new regulatory regime. The National Biosafety Coordinating Committee formulated and agreed on the following policies for immediate implementation.

Policy 1: Biosecurity law enforcing agencies, outside the laws to import and export plants or animals to have clear policies in the areas of permitting, monitoring and enforcement.

Policy 2: Capacity building activities to improve quality of performance of biosecurity law enforcing agencies.

Policy 3: Public participation an important part of decision making.

Policy 4: Emergency procedures and environmental rehabilitation must be upheld.

4.1.1 Future actions

1. Considering the seriousness and the highly technical nature of the issues of modern biotechnology, the biosecurity law enforcing agencies, outside of the laws to import and export plants or animals, for example: Health, Agriculture, MMR and Environment Services to have clear policies in the areas of permitting, monitoring and enforcement.
2. Support the establishment of an Independent Biosecurity Agency under a Biosecurity Act as outlined under the Regulatory Regime section.
3. Support mandatory requirements to update schedules (i.e. approved plants, animals and chemicals), provide for need for risk and management assessment and compliance with Environment Service EIA process and input into other management plans that other agencies may have that will be impacted upon.

4.2 Policy on appropriate cultural and social guidelines

The impacts of any new introduced species or product on the social and cultural environment of the Cook Islands is an area that is severely underrated and unattended. The Protocol highlights this area and insists that in the EIA or risk assessment that cultural and social issues are analyzed using guidelines, if possible, put together by local experts. In order to obtain appropriate guidelines in this area, the National Biosafety Coordinating Committee formulated and agreed that in order to improve government systems in handling notifications or requests for authorizations, the following policies are important.

Policy 1: Locally prepared social and cultural guidelines for EIA and risk assessment analysis for the Cook Islands.

4.2.1 Future actions

1. Local technical experts to identify appropriate scientific method to be used for impact analysis and in particular cultural and social issues
2. In considering the importation of an LMO, this must be made by a statutory body that will bear responsibilities and be responsible for the decision.
3. No LMO shall be imported without prior trial in other similar tropical islands environment and the information must reflect the social and cultural impact of such a trial.
4. As trade for financial gain will probably be the main reason for importing an LMO product the applicant for a permit to import must find out what information can host countries provide us e.g. controls, cure measures (through PICTA, PACER, and other trading agreements, WTO, GATT etc.).
5. Monitoring by approved guidelines and a clear reporting channels to the authorities.
6. To make a decision yes or no we need highly qualified people (culturally sensitive) who understand the pros and cons of LMO.
7. Carry out monitoring and data collection on social changes reflecting cultural change as a result of the LMO importation.

4.3 Importing policy

It is realized that Government administering systems of biosecurity laws, i.e. the Animal and Plant Act have not been updated to cover recent developments in plant and animal development, i.e. improved products from modern biotechnology. Considering the possible adverse consequences of continued importation of agricultural seeds without any checks of their origin, the National Biosafety Coordinating Committee formulated and agreed on the following policies for immediate implementation.

Policy 1: In developing the new Regulatory Regime Biosecurity law enforcing agencies outside the laws to import and export plants or animals to have clear policies in the areas of permitting, monitoring and enforcement.

Policy 2: Capacity building activities to improve quality of performance of biosecurity law enforcing agencies.

Policy 3: Public participation an important part of decision making.

4.3.1 Future actions

- 1.** Under the proposed Regulatory Regime, ensure that any amendment process for Principal Acts, especially relating to the importation of LMOs including their development, field tests, fermentation, or release, involve a public consultation process.
- 2.** See regulatory regime, in particular the policy on the importation of seeds with unknown parent information.
- 3.** See regulatory regime, in particular the policy on the importation of seeds and chemicals by individuals.
- 4.** Risk assessment guidelines on imported plants and animals, whether LMO or not to be established by local technical experts
- 5.** A set of approved criteria must be made and tested under local condition and the community must be consulted.
- 6.** For the risk assessment guidelines identify social economic and cultural impacts.
- 7.** Quarantine facility at the Ports of Entry and inter-island ports must be constructed, upgraded and operational at all times.
- 8.** As trade for financial gain will probably be the main reason for importing an LMO or GM product the applicant for a permit to import must find out what information can host countries provide us e.g. controls, cure measures (through PICTA, PACER, and other trading agreements, WTO, GATT etc.).
- 9.** Decision making processes must be transparent at all levels and reflected in the public awareness and education and promotion programs.
- 10.** To make a decision yes or no we need highly qualified people (scientific knowledge) who understand the pros and cons of LMOs.
- 11.** Monitoring by inspection, data collection and reporting to the authorities and the community.

12. Have the LMO trialed in other tropical islands environments before trial introduction into the Cook Islands.

4.4 Policy on sustainable monitoring activities by biosecurity agencies

Monitoring at the borders is none existent at the moment and this includes the fragmented approach to monitoring environmental indicators to realize changes to the environment by the relevant Government departments, especially those that are referred to as “biosecurity” law enforcing agencies. They neither have the facilities nor the personnel to do their job effectively.

Government have for years ignored the significance of this very important activity by the small, if any, budget allocation to this area by previous administrations. In order to initiate a sustainable monitoring program to enable the monitoring activities at the Ports of Entry and environmental indicators, the National Biosafety Coordinating Committee formulated and agreed on the following policies for immediate implementation.

Policy 1: Capacity building in biosecurity agencies in the area of research and monitoring of environmental indicators.

Policy 2: Capacity building activities to improve quality of performance of biosecurity law enforcing agencies at the Ports of Entry.

Policy 3: Linkage with regional research institutions to provide research capabilities and to assist with local capacity building activities.

4.4.1 Future actions

1. Monitoring at the Port of Entry is highly recommended by inspection of facilities (including Quarantine facilities) and their effectiveness to perform and reporting to the authorities and the community must be regularly made.
2. Establish a database on current and existing biodiversity for monitoring purposes.
3. Prior to the introduction of any LMO, the application must be accompanied by genuine documentation authorized by a re-known scientific institute. The information must be from trials carried out in other tropical islands environments before trial introduction into the Cook Islands.
4. A review of the current systems of notification and authorization must always be carried out over time.

5. A set and approved criteria must be made and tested under conditions similar to our own and these criteria must involve community participation.
6. Information on how other countries review and monitor their monitoring systems to be looked at and lessons learnt and where appropriate incorporate changes into our own.
7. A testing body is needed to look at our conditions with regard to an LMO being considered prior to any decision on whether or not to release it here.
8. More emphasis on follow-up monitoring and the use of regional institution to do the monitoring.

4.5 System for risk assessment

Systems for risk management and follow-up processes for monitoring and enforcement would need to be included. Who would do this including inspectors and their powers.

5 Monitoring and enforcement

5.1 Enforcement and Monitoring

Any approved LMO for importation and transit shall be the responsibility of the appropriate specific competent authority together with the importer who shall together have allocated the manpower and institutional capability to monitor the LMO while in residence, or in transit, or during the period of trial, or while in use, until such time as the TC on the advice of the specific competent authority, has been satisfied and declares through appropriate means that the LMO is cleared or no longer a risk to the environment.

The specific competent authority will, as part of the approved conditions, provide competent personnel and institutional capability to support the monitoring of any LMO according to the conditions provided under the risk management schedule.

In the event that the specific competent authority, cannot provide and sustain the required competent personnel and institutional capability, to support the monitoring of any LMO according to the conditions provided under the risk management schedule, that application will not be considered or approved.

5.2 Control at port of entry – Border control

Through the Secretariat the TC shall provide to the Manager of the Independent Biosecurity Agency supporting documents for the purpose only of verifying the documents of any approved imported LMO.

The Independent Biosecurity Agency shall, without further consultation with the specific competent authority involved, confiscate and destroy any LMO at the port of entry that does not possess the complete documentations required and provided to it by the TC as part of the approved conditions and guidelines for importation of the LMO.

5.3 Possible products already in the country

With the unmonitored presence of possible LMOs and GM derived products in the form of seeds, chemicals and pharmaceuticals imported by importers and individuals and the relaxed enforcement of the current plant and animal acts, the impact of those LMOs and GM derived products are totally unknown and there are not only no baseline data to monitor it against, the in-country capacity to deal with it is none existent. The National Biosafety Coordinating Committee formulated and agreed on the following policies for immediate implementation.

Policy 1: Those agencies that directly have something to do with biosafety issues to carry out baselines data collection on environmental indicators (including social and cultural changes) for future monitoring purposes.

Policy 2: Coordinating central agency to Identify stakeholders to assist awareness raising activities, monitor effects, and compliance to chosen appropriate regulatory regimes.

Policy 3: A clear and concise policy on importation and exportation of plants and animals (including parts thereof) must be put in place.

Policy 4: Up-skill existing frontline boarder control Officers to carry out stricter border control.

Policy 5: Review current regulatory regime to provide for a centralized and comprehensive permitting system.

5.3.1 Future actions

- 1.** Initiate a public awareness education campaign designed for both the private and public sectors including the two main decision making bodies of Government, i.e. Cabinet and Parliamentarians) informing them of the importance of biosafety issues and its impacts on the future Cook Islands environment and society.
- 2.** Produce clear and concise policy on import and export.
- 3.** Ensure that appropriate legislation is developed to incorporate biosafety issues as a matter of urgency. In the case of seeds, chemicals (especially the chemical mentioned above) and pharmaceuticals they should be subjected to the new legislation as if they were being imported for the first time.
- 4.** Control at the ports (Harbor and airport) of the movement of LMOs (from overseas and between islands), all cargoes and passengers (what consumers may bring in through their bag of food, as well as VIPs, they must also go through Quarantine)
- 5.** Suppliers of all kinds of manufactured goods to be subjected to strict (better) permitting system.
- 6.** Importers and suppliers to consider Biosafety matters and be responsible by following the policy and rules set up to protect the environment from undesirable products of modern biotechnology.
- 7.** Ensure that issues relating to biosafety are included in the National Strategic Plan by Government.

6 Mechanism for public awareness and participation

6.1 Policy on public awareness

Public awareness activities are vital in the pathway to better understanding by the general public of the biosafety issues. As this is a new and developing issue, Government organizations and those non-Government organizations linked with international organizations that have direct relevance to biosafety issues must work together as outlets of information and responsible for the dissemination of information in the appropriate form and language.

In order to initiate a sustainable public awareness program to enable a continuous program the National Biosafety Coordinating Committee formulated and agreed on the following policies for immediate implementation.

Policy 1: A single agency must be identified to coordinate public awareness activities.

Policy 2: The information provided under the Biosafety Clearing House must be easily and cheaply available to the general public on all islands.

Policy 3: Government budget policy to include supporting policies on public awareness programs with monitoring costs on the effect of those programs with the objective to maintain a clear understanding of the issues involved.

Policy 4: Public awareness program target groups to be clearly identified, e.g. MPs, traditional leaders, etc.

6.1.1 Future actions

1. Initiate and update the Biosafety Clearing House.
2. Advise Cabinet and Parliamentarians of the severity of the adverse consequences to the local biodiversity if one nasty LMO is let loose into our environment.
3. Seek budgetary support for relevant Government sectors to ensure the sustainability of their public awareness programs including website development.

4. Encourage NGO participation in public awareness programs through networking of information through the BCH.
5. For those that implement public awareness activities to use the concepts of “top down approach” and “bottom up approach”.
6. Food is important to attract people to participate at awareness raising workshops and therefore budgetary support to cater for this important attraction is recommended.
7. Those that implement public awareness to ensure everyone participates and that there is equal treatment of the participants.
8. Provide proper and appropriate information and in the appropriate language
9. Use of Community leaders and in the case of the outer islands, use the Island Secretary.

6.2 Policy on providing information and knowledge on biosafety

In view of the severity of the issues pertaining to modern biotechnology and considering the lack of capacity within the Cook Islands to deal with this highly technical subject, it will benefit those that are empowered to control our borders, i.e. Ports of Entry, to have the regulatory regime to achieve strict and effective control at the borders reviewed followed by an extensive up-skill program of officers. In this respect the National Biosafety Coordinating Committee formulated and agreed on the following policies for immediate implementation.

Policy 1: Organizations, i.e. Government and private businesses, that are directly involved in biosafety issues must be identified and their efforts, including capacity building activities, coordinated by an independent agency of Government.

Policy 2: Identify and build upon a central mechanism for dissemination of information and knowledge

Policy 3: Identify the role of local experts with tertiary training and traditional knowledge in specific fields in capacity building activities.

6.2.1 Future actions

1. Initiate a public awareness education campaign designed for both the private and public sectors (including the two main decision making bodies of Government, i.e. Cabinet and Parliamentarians) informing them of the importance of biosafety issues and its impacts (i.e. positive and negative) on the future Cook Islands environment and society.

2. Improve coordination of information, resources and knowledge of biosafety issues across related sectors that will impact on research, economic, security and handling procedures.
3. Encourage Ministries with functions related to biosafety issues to have resources to improve on those functions included in their annual budget process and budget.
4. Ensure that issues relating to biosafety are included in the National Strategic Plan by Government.

6.3 Confidentiality of information

In terms of the confidentiality of information provided by the applicants for the assessment and evaluation of LMO applications it is important that the public and the scientific community have a right to be informed of and comment on applications. It is also important that information on the effects on the environment or people should be available for this purpose. Information submitted in support of an application is normally in the public domain and may therefore be requested by members of the public.

An importer or exporter of LMOs or their products may request that specified information be treated confidential. If the responsible agency accepts the request, it will not be able to divulge the information to other parties. However, if the concerned agency rejects the request for confidentiality the applicant will be given the choice to withdraw the application with the confidential information.

The proposed legislation is to address protection of confidential information provided for LMO applications.

7 Conclusion

7.1 Policy on capacity building

The in-country capacity to deal with biosafety issues is inadequate. This statement is being repeated in this Framework over and over. This deficiency is found in our ability to enforce current laws and follow existing procedures that could assist in dealing with biosafety issues and the ability to and facilities for research in this area. There is a great need to address the country capacity to deal with this issue which will be greatly assisted through improved public awareness programs and support from Government of the proposed regulatory regime.

In order to initiate a sustainable capacity building program in-country the National Biosafety Coordinating Committee formulated and agreed on the following policies for immediate implementation.

Policy 1: Consolidate other capacity building policies and activities identified in this Framework.

Policy 2: Provide training of new recruits to biosecurity law enforcing agencies and review existing infrastructure with the view to upgrade existing staff.

Policy 3: Review and upgrade/update current procedures with the view to make it easily understood by individuals and government and business personnel that may be involved in the dealings with the movement of LMOs and GM products into the Cook Islands.

Policy 4: Maintain linkage with international institutions to assist in capacity building activities through work experience or full training in areas related to biosafety.

Policy 5: Public awareness programs to become a major capacity building effort to inform the general public which includes our leaders.

Policy 6: The use of experts in specific areas of expertise i.e. those identified in this Framework to participate in discussions to develop activities to enhance the in-country capacity to deal with biosafety issues.

7.1.1 Future Actions

1. There is urgency in training of current workers to be able to implement strict control at all Ports of Entry including airports at each island. In the case more workers are required,

Government must realize the severity of this issue so that various sectors involve take these into account in their budget.

2. To avoid risk to workers and the Port environment, there is a need to upgrade current facilities for security and risks to humans.
3. There is need to extend the human resources development program to include the training of new scientists to strengthen appropriate and more relevant experts for future developments in this area.
4. To build on existing and appropriate regional programs that will assist the Cook Islands to access regional laboratories and other institutions that may be used to verify information, monitor an LMO if one were to be introduced.
5. The Independent Biosecurity Agency proposed under the Regulatory regime to effectively coordinate by communication with identified stakeholders and technical experts.

See also Appendix 5.

References

Website: Europabio (European Association for Bioindustries)

An Explanatory Guide to the Cartagena Protocol on Biosafety, (2003) IUCN Environmental Policy and Law Paper No. 46.

Building Capacity for the Implementation of the Cartagena Protocol on biosafety, UNEP (March 2002).

Convention on Biological Diversity (TEXT and ANNEXES)

Cartagena Protocol on Biosafety to the Convention on Biological Diversity (TEXT AND ANNEXES). Montreal 2000.

Appendices

Appendix 1. **Biotechnology, modern biotechnology, biosafety, and international agreements**

Biotechnology

Biotechnology is defined as any technological application that uses biological systems, living organisms or derivatives of it to make or modify products or processes for specific uses.

There are two methods of biotechnology; the conventional or traditional method and the modern method or modern biotechnology.

Conventional/traditional biotechnology

Traditional/Conventional Biotechnology is the use of biological processes in the making of a product, e.g. bread is produced using yeast. Traditional Biotechnology processes have been widely used also in the areas of agriculture and medicine.

Traditional biotechnology has been used in the production of food for thousands of years. For example, for many centuries, the process of fermentation using micro-organisms (yeast and bacteria) to make beer, yogurt and cheese. Figure 1.0, below, illustrates a breakdown of the two areas of biotechnology using the conventional/traditional methods.

Desirable characteristics of plants and animals through selective breeding are selected for. Similarly, selective breeding can be used to reduce or eliminate undesirable characteristics in plants or animals.

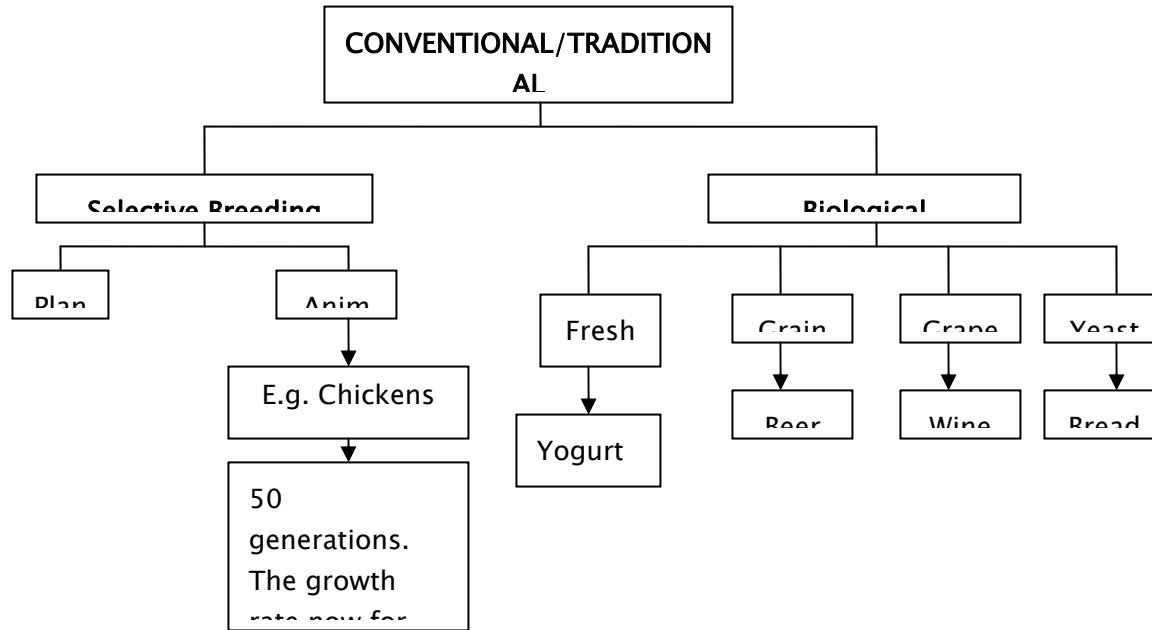


Figure 1.0 – Biotechnology (conventional and traditional method) food producing for human consumption.

Modern biotechnology

Scientists also use biotechnology techniques to modify plants or animals at the cellular (genetic) level and control particular attributes, such as resistance to diseases. This is known as modern biotechnology, or gene modification technology, or gene technology, or genetic engineering.

Traditional breeding methods involve many generations of livestock or crops for the desired traits to be achieved e.g. cross breeding pigs to produce pork with less fat. However, genetic modification techniques allow scientists to identify individual genes that control particular characteristics and transfer the selected gene (trans-gene) to another plant or animal to bring about the desired change much more rapidly. Figure 2.0, below, illustrates the process of modern biotechnology and the areas of products from LMO plants, or animals, or micro-organisms that are and can be produced.

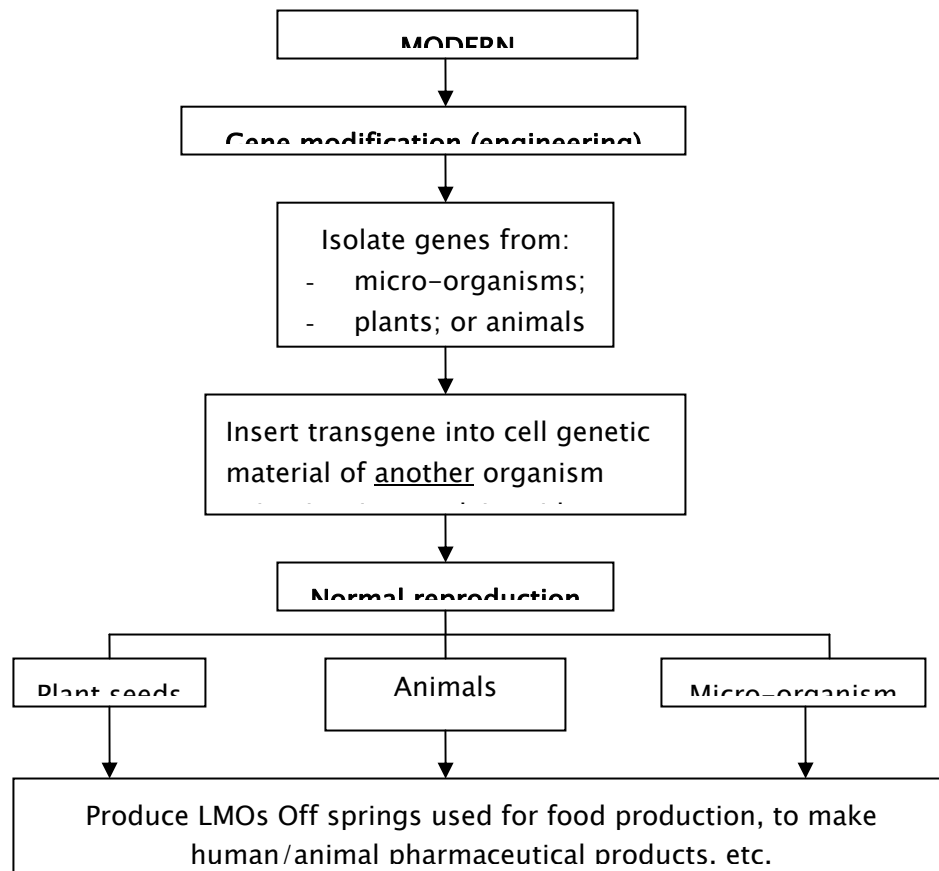


Figure 2.0 – Modern biotechnology: used for, pharmaceuticals, and for food production

Understanding the nature of DNA or deoxyribo-nucleic-acid has led the way to gene modification technology. Gene modification technology allows specific sequences of DNA to be manipulated to modify the characteristics of other organisms.

Modern biotechnology means the use of techniques that modify genetic material in ways other than occur under natural conditions i.e.:

- What scientists refer to as Recombinant Nucleic Acid techniques which involve the making of new combinations of genetic material by the insertion of nucleic acid molecules, produced outside of an organism, into a host organism.
- Techniques involving the direct introduction into an organism of heritable material prepared outside the organism (e.g. micro-injection, macro-injection and micro-encapsulation).

- Cell fusion (including protoplast fusion) or hybridization techniques where live cells with new combinations of heritable genetic material are formed through the fusion of two or more cells using methods that do not occur naturally.

It is very important to note, although modern biotechnology is different from conventional and traditional biotechnology, after the manipulation of the DNA to acquire a desired characteristic, the animal or plant undergoes normal reproduction as in conventional biotechnology to produce the products as shown in Figure 1.0.

In terms of its importance to Economic Development, and providing some examples, modern biotechnology falls under three categories; agricultural biotechnology, industrial biotechnology and healthcare biotechnology. These are explained below and illustrated in Figures 3.0, 4.0 and 5.0.

Agricultural biotechnology

Agricultural modern biotechnology mainly involves the introduction of foreign genes into economically important plant species resulting in resistance to pests or herbicides or, the production of novel products in plants. Plant biotechnology encompasses plant genetic engineering and plant molecular marker assisted breeding.

- Plant genetic engineering – selective, deliberate transfer of gene (s) from one organism to another to create new crops. E.g. cotton, maize, sweet potatoes, soya bean, etc. Another recent and appropriate example is the development of pawpaw in Hawaii that are resistant to the ring spot virus. There is also, and used in plant genetic engineering, the plant molecular marker assisted breeding – a technique that uses molecular markers to select for a particular trait of interest such as a marker that is associated with a gene that governs yield. A molecular marker is a short sequence of DNA that is tightly linked to the desired trait/gene and that selection for its presence ends up selecting also for the desirable trait e.g. maize that is tolerant to drought and maize streak virus.

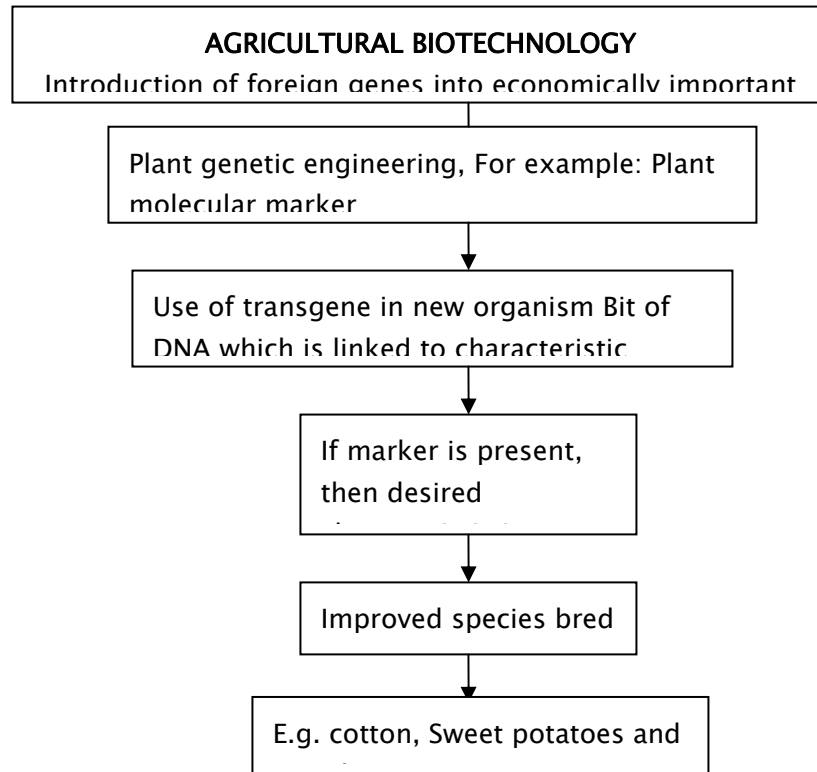


Figure 3.0 – Agricultural biotechnology (introduction of foreign genes into economically important plant species).

Industrial biotechnology

Industrial biotechnology is an emerging field within the Modern Biotechnology industry. It is understood that this technology is at varying stages of development and still a new area of technology application. It uses living cells like moulds, yeast, or bacteria and enzymes to produce goods.

Living cells can be “improved” to work as cell factories to produce modified microorganisms, and like enzymes which can be used in industry.

Enzymes are a part of life and present in all living beings. Whenever a substance is transformed into another nature uses enzymes to speed up the chemical process. As an alternative to some chemical processes to make products enzymes offer a biological route and potentially cleaner solution for industry. Eco-efficient (improved) enzymes consume less water, raw materials and energy. E.g. using these modified enzymes in washing

powder allows difficult stains to be removed at lower temperatures saving on the use of energy, water as well as reducing impact on the environment.

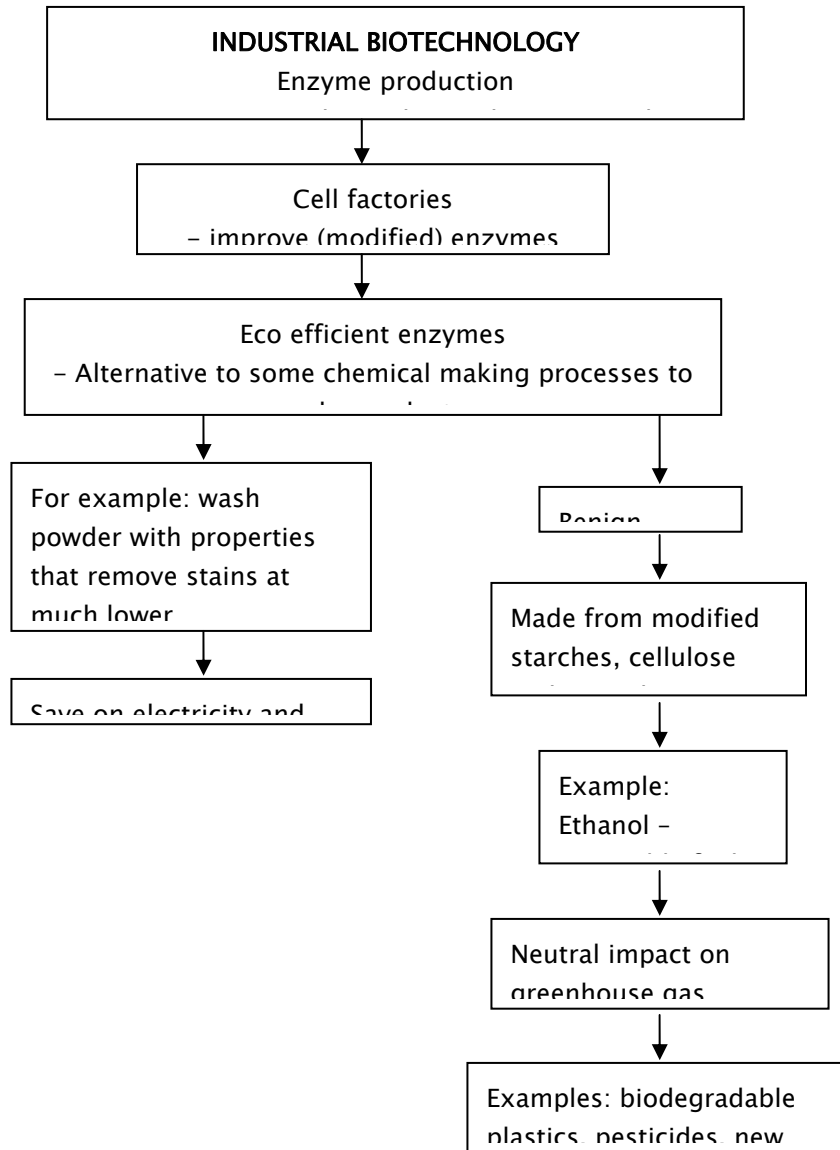


Figure 4.0 – Industrial biotechnology (enzyme production).

Substances made from renewable raw materials- or biomass-is an area of research under industrial biotechnology.

Biomass like starch, cellulose, vegetable oils and agricultural waste may be used to produce chemicals, biodegradable plastics, pesticides, new fibres and bio-fuels amongst other things. The processes of manufacturing them all use modified enzymes.

Ethanol, for example, a renewable fuel made out of biomass, has great potential to replace fossil fuels. It could have a neutral impact on green house gas emissions and can contribute to reducing global warming.

Figure 4.0 shows a simplified breakdown of this developing and still new area of technology application.

Healthcare biotechnology

This is also a new area of Modern Biotechnology. It is understood that some Healthcare Biotechnology products are currently at clinical and experimental trials stages overseas (it is not actually known if they are on the open market) while others are at various stages of research and development, and a few have been approved and are selling on the open market overseas.

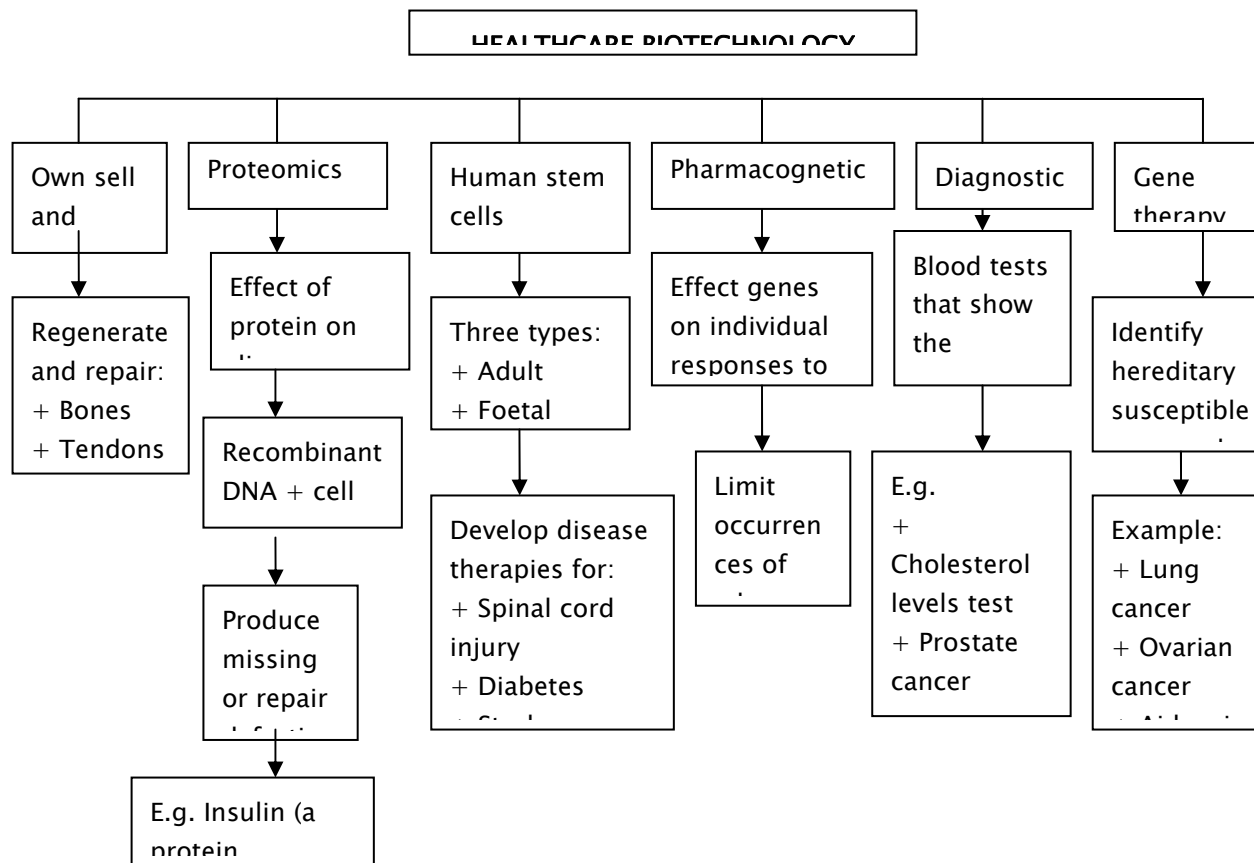


Figure 5.0 – Healthcare biotechnology

Figure 5.0 above illustrates 6 areas of research that have now advanced significantly and most still in trial phases.

The following excerpts have been quoted from the Europabio website to illustrate the benefits seen in Healthcare Biotechnology overseas and that this technology is still in its infancy.

“Biotechnology is providing doctors with more tools which are helping to move from the treatment of diseases to prevention and cure. A whole new range of tools are being developed to support the human body to utilize its own capacity to fight infectious or cancerous diseases as well as injuries.” (Dr. Erik Tanbuyzer, 2002)

“Today there are many more diseases than treatments. Just 10,000 of the 30,000 known diseases have treatments available...Some 20 to 30 million Europeans are affected by 5,000 rare diseases.” (Dr. Erik Tanbuyzer, 2002)

“...there are over 1,000 human hereditary diseases that can be identified using genetic tests.” (Dr. Erik Tanbuyzer, 2002)

“A recent study into genetic testing for mucoviscidosis revealed that one third of the voluntary cooperating European laboratories provided incorrect test results, often as a result of:

- Incorrect use of the technology,
- Insufficiently trained personnel,
- Interpretation errors, etc.”

Therefore stringent rules are needed for quality control in the development of healthcare biotechnology.

International Agreements

Convention on biological diversity

Convention on Biological Diversity (CBD), the parent agreement to the biosafety protocol

“The objectives of this Convention, to be pursued in accordance with its relevant provisions, are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.”

Article 19(3) of the CBD provides for the need for a protocol to address the pressing issues of modern biotechnology. The Convention recognized, on the one hand, that modern biotechnology offers wide ranging opportunities to address some important environmental issues and also health care issues, while on the other hand, it must be strictly monitored and controlled to protect the environment from the unknown and potentially irreversible negative effects posed to existing biodiversity.

Having stated the above, the CBD provides, that parties, i.e. countries including the Cook Islands that have signed and have become party to the convention, shall consider the need for and model for a protocol setting out appropriate procedures, including in particular, advance informed agreements, or referred to as AIA, in the field of the safe transfer, handling and use of any LMO resulting from modern biotechnology that may

have an adverse effect on the conservation and sustainable use of biological diversity (This is covered in article 19 (3) of the CBD). This article establishes the AIA procedure of the biosafety protocol as well.

The AIA procedure applies on the first occasion that a LMO (covered by article 7 of the Biosafety Protocol) is intentionally moved from one party to another party. The AIA is similar to the procedures of bringing a plant or animal into the Cook Islands under the Quarantine regulations except that detailed information is required on the plant or animal such as at the cellular level that may verify its origin and any tests and trials that may have been and has been undertaken in relation to that plant or animal. This is required to assist us to make a decision to allow or not allow the LMO to enter our country.

Cartagena protocol on biosafety

“In accordance with the precautionary approach contained in Principle 15 of the Rio Declaration on Environment and Development, the objective of this Protocol is to contribute to ensuring an adequate level of protection in the field of the safe transfer, handling and use of living modified organisms resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity, taking into account risks to human health, and specifically focusing on transboundary movements.”

In further implementing the CBD, the Cartagena Protocol recognizes the Precautionary approach of the Rio Declaration and the CBD. The Protocol also establishes, similar to the EIA, Risk assessment and Risk management processes as well as the AIA (advance informed agreement) procedure for decision-making on the transboundary movement of LMO’s.

The Cartagena Protocol also sets up competent authorities and National Focal Points of a country who will carry out the objectives of the Cartagena Protocol and set up the Framework in each country. The Cartagena Protocol emphasizes the importance of public participation and establishes a BCH (Biosafety clearing house) for exchange of information on scientific, environment, technical and legal matters.

For the Cook Islands, although pharmaceuticals are not included in the coverage of the Biosafety Protocol, under the guidance of the National Biosafety Coordinating Committee, it was considered appropriate that the framework will have coverage on this issue in the national framework to manage all LMOs.

Precautionary approach and Risk Assessment

Article 10(6) of the Biosafety Protocol, Decision Procedure, includes the Precautionary approach (explained in Principle 15 of the Rio Declaration) in regards to a decision on the introduction of a LMO into a country. This is relevant due to unknowns in regard to the effect on biodiversity of modified organisms and potentially irreversible damage possible to the local biodiversity.

The above Precautionary approach is also appropriate when dealing with pharmaceuticals which are derived from modern biotechnology techniques. Our consumption of these pharmaceutical/healthcare products introduces them into the local biodiversity and the Cook Islands needs to prepare to make decisions regarding the control of, or even the banning of some or all of these products.

In the case of FFP (Procedure for LMOs intended for direct use as food or feed, or for processing in article 11 of the Biosafety Protocol) require special consideration. The Cook Islands import fresh fruit and vegetables from New Zealand. We also import pig and chicken feed. The Officials understand that these products are safe to use and meet approved standards. However they are still not informed (in writing) whether or not products such as fruits and vegetables are LMOs, or in the case of pig and chicken feed, yeast for bakers etc, whether or not they are derived from LMOs. This issue is currently under discussion between the Cook Islands Quarantine Officials and the New Zealand authorities.

Guarded Trade Secrets such as information on whether or not a product contains LMO or was derived from LMO or if a seeds parents were modified so that the seed to be sold here is in fact an LMO, are not requested because they are 'guarded'. Examples of advertising wording on seed packages and in seed catalogues that could suggest that the seed is an LMO, such as "improved seed-to-maturity rates", "improved leaf quality", enhanced leaf coverage", "hardier, improved variety" or similar wording. There is currently no legislation that requires the importer to provide this information. According to one of the main importers, if there was a regulation in place, they will be guided by it.

How do we know these seeds were developed using conventional biotechnology? How can we find out when information on parent plants is under guarded Trade secrets?

Seed catalogues do not offer more information than variety name, 'improved' characteristics, a photograph and price. There are no guarantees, no origins of the variety information and a disclaimer at the back of the catalogue.

Section 3.11.2, the "Possible modern biotechnology products in the country" discusses the local issues on this subject.

"A risk assessment undertaken in accordance with Annex III."; and provided in article 15 of the Protocol on Biosafety. These assessments have been undertaken in areas of different climate, microclimate and biodiversity, even agricultural practice, from the Cook Islands.

Appendix 2. Existing “biosecurity” laws – Summary of purpose

Principal Act:	Regulation/Order/Year:	Summarized Purpose:	Relevance to biosafety framework consideration:
Cook Islands Act 1915	Prohibiting the Importation into the Cook Islands of certain goods, 1924	Prevent importation of animal diseases (Foot and mouth)	Procedures used still applicable Identification of places e.g. Western Australia where import from has been prohibited.
	The Cook Islands Port of Entry Order, 1960	Port of Control (Avarua and Avatiu)	Identified port of entry control
Plant Act 1973	The Fruit and Vegetables Export Regulations 1982	Export standard of fruits and vegetables	Requirement for quality and information on export crop. This is an applicable process in the reverse.
	Plant Quarantine Regulation 1993	Prevent importation of diseases	Procedures used can be modified slightly to accommodate LMOs at Port of entry.
	Domestic Plant Quarantine Regulations 1993	Prevent spread between islands of the Cook Islands of disease and invasive species	
Animal Act 1975	Animals Amendment Act 1981	Allow the importation and control of unlisted animals (rabbits specifically)	Easy to change the law to accommodate specific need. An example of a no public consultation in law change.
	Animals Importation Regulation 1982	Control the importation of meat and animals which are also to be landed at Rarotonga (reference to Aujisky's disease).	Identified port of entry control.
	Animal Diseases Prevention Regulations 1982	Prevent the importation of animals and diseases.	Procedures are still applicable
	Animals Amendment Act 1984-85	Importation of animals for a zoo.	Easy to change the law to accommodate specific need. An example of a no public consultation in law change.
	Animals Importation (Exemption) Order 1985	Importation of monkey	Process involved for testing etc can be improved and applied to LMO.
	Animals Importation (Ostriches) Regulation 1994	Importation of ostriches	Process involved for test etc can be improved if applied to LMO.
	Container Import Regulations 1993	Quarantining of containers arriving into the Cook islands	Procedures used still applicable
Ministry of Agriculture Act 1978		Promote and develop agriculture (planting and livestock)	The setting up of a Technical Advisory Committee provision could be used for research purpose to give advice.
Ministry of Marine Resources 1989		The management and development of local fisheries, licensing and monitoring of those license conditions for foreign fishing vessels	Permitting process for any species for aquaculture purpose.
Airport Authority Act 1985		improve, maintain, operate and manage airports and services and facilities connected with the operation of any airport	Providing of services at the Airport.
Pesticide Act 1987		to assess and evaluate every application for registration of a pesticide, to determine in its discretion the conditions of use of any pesticide, to cancel in its discretion the registration of any pesticide, and to promote the efficient, prudent and safe use of pesticides.	The concept of a board to register for import any pesticide and to reconsider a registered pesticide for disallowance.
Environment Act 2003		The conservation and management of the environment in a sustainable manner.	Conservation of the Biological diversity of the Cook Islands. Has the avenue already to support the biosafety framework.
Public Health Act 2004		To protect and safeguard the health of the people of the Cook Islands.	Handling of imported goods at port of entry, ensuring proper labeling (in the case of GM products)
Shipping Act 1998	Shipping (Maritime Security) Regulations 2004	To regulate those port facilities, used by ships engaged on domestic voyages and arriving or departing on an	Invasive species (can be paralleled to the environmental risks posed by an LMO). LMO identification can be included in the Port Action Plans.

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Principal Act:	Regulation/Order/Year:	Summarized Purpose:	Relevance to biosafety framework consideration:
		international voyage.	The use of maritime security committee to update listed LMO under the Action plan.

Appendix 3. Organizations and current capacity to deal with biosafety issues

Organization (I)	Website (II)	Policies Procedures (III)	Active Research (IV)	Knowledge of biosafety (V)	Active participation (VI)	Level of expertise (VII)	Area of expertise (VIII)	Existing facilities (IX)	Access to donor funds (X)	Category (XI)
1. Agriculture	None	Limited	Limited	Moderate	Yes	2	Research	Nil	Yes	1
2. Aid Management	None	None	Nil	Nil	Nil	Nil	Donor funds	Nil	Yes	2
3. Airport Authority	None	None	Nil	Nil	Nil	Nil	Aviation	Nil	No	1
4. BECO Ltd	None	None	Nil	Nil	Nil	Nil	Retail	Nil	No	3
5. CIANGO	None	None	Nil	Limited	Nil	Nil	Community	Nil	No	3
6. CITC	None	None	Nil	Limited	Yes	2	Retail	Nil	No	3
7. Cook Islands Pharmacy	None	None	Nil	Limited	Yes	2	Pharmaceuticals	Nil	No	3
8. Customs	None	None	Nil	Limited	Yes	Nil	Customs Regulations/trade	Nil	No	1
9. Education	None	None	Nil	Nil	Nil	2	Education Policy	Nil	No	2
10. Fare Supplies	None	None	Nil	Nil	Nil	Nil	Timber merchants	Nil	No	3
11. Ministry of Foreign Affairs and Immigration	None	None	Nil	Limited	Nil	1	International legal	Nil	Yes	1
12. Ministry of Health	None	None	Nil	Nil	Nil	Nil	Health Policy	Nil	No	1
13. Ministry of Internal Affairs	None	None	Nil	Nil	Nil	Nil	Community	Nil	No	3
14. Marine Resources	None	None	Yes	Nil	Nil	5	Marine resources	Nil	Yes	1
15. Meteorological Services	None	None	No	Nil	Nil	Nil	weather	Nil	No	3
16. MFEM	Yes	None	No	Nil	Nil	3	Finance, tax	Nil	No	3
Ministry of Transport	None	None	No	Nil	Nil	Nil	Transport	Nil	No	1
17. Ministry of Works										
18. National	None	Limited	No	Limited	Yes	2	Environment	Nil	Yes	1

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Organization (I)	Website (II)	Policies Procedures (III)	Active Research (IV)	Knowledge of biosafety (V)	Active participation (VI)	Level of expertise (VII)	Area of expertise (VIII)	Existing facilities (IX)	Access to donor funds (X)	Category (XI)
Environment Service							policy and compliance			
19. Natural Heritage Project	Yes	None	Yes	Limited	Nil	1	Nature research	Nil	Yes	1
20. OMI	None	None	No	Nil	Nil	1	Forestry	Nil	Yes	1
21. Parliament Services	None	None	No	Nil	Nil	Nil	Keeper of laws	Nil	No	3
22. Ports Authority	None	None	No	Nil	Limited	Nil	Shipping	Nil	No	1
23. Prime Ministers Department	None	None	No	Limited	Nil	1	Policy	Nil	No	1
24. Puaikura Vaka Council	None	None	None	Nil	Nil	Nil	Local Government	Nil	No	2
25. Quarantine Services	None	None	None	Limited	Yes	1	Quarantine	Nil	No	1
26. Takitumu Conservation Area	None	None	None	Nil	Nil	Nil	Conservation	Nil	No	2
27. Takitumu Vaka Council	None	None	None	Nil	Nil	Nil	Local Government	Nil	No	2
28. Taporoporoanga Ipekarea Society	None	None	None	Nil	Nil	Nil	Community	Nil	No	3
29. Te Aponga Uira	None	None	None	Nil	Nil	Nil	Power generation	Nil	No	2
30. Te Au O Tonga Vaka Council	None	None	None	Nil	Nil	Nil	Community	Nil	No	2
31. WWF	None	None	None	Nil	Nil	Nil	Community	Nil	No	3

Note: (I) Identifies those Organizations with relative interests to biosafety issues; (II) Organizations with websites that identified biosafety issues; (III) Organizations with policies and procedures relating to biosafety; (IV) Organizations that is involved directly with biosafety issues; (V) Organizations with knowledge on biosafety issues; (VI) Organizations that actively participate due to sector interests; (VII) Identifies the number of personnel within the organization with specialized skills relative to their organizations output.; (VIII) As in (VII), this section identifies the area of expertise of those persons identified; (IX) Facilities where either specialist laboratory with full research facilities that deal with biosafety issues or, where research is undertaken in a general capacity; (X) Access to funding for biosafety related projects; and (XI) Three categories have been identified: 1 – Organization with direct linkage relationship to biosafety issues and with current and ongoing involvement; 2 – Organization with indirect involvement; and 3 – Organizations with little or no involvement at all.

Appendix 4. Existing “biosecurity” laws - type of legislation, responsible authorities, legal arrangements and administration systems

Legislation:	Responsible Authority:	Legal arrangement of the legislation:			Administrative systems
		Border Control	Facilitate, support boarder control	Issues permits	
1. Regulations – Prohibiting the Importation into the Cook Islands of certain goods, 1924	Agriculture	x			Customs people at the time.
2. The Cook Islands Port of Entry Order , 1960	Customs	x			Customs people at the time
3. Plant Act 1973	Agriculture	x		X	MOAF, QD, Regs.
4. Animals Act 1975	Agriculture	x		X	MOF, QD, Regs.
5. Ministry of Agriculture Act 1978	Agriculture	x	X	X	MOA, QD, ATC, Regs.
6. Animals Amendment Act 1981	Agriculture	x		X	MOA, QD, Regs.
7. Animals Importation Regulation 1982	Agriculture	x		X	MOA, QD
8. Animal Diseases Prevention Regulations 1982	Agriculture	x		X	MOA, QD, Arrival card
9. The Fruit and Vegetables Export Regulations 1982	Agriculture	x		X	MOA, QD, Courts, Growers
10. Animals Amendment Act 1984-85	Agriculture	x		X	MOA, QD
11. Animals Importation (Exemption) Order 1985	Agriculture	x		X	MOA, QD
12. Animals Importation (Ostriches) Regulation 1994	Agriculture	x		X	MOA, Vets
13. Airport Authority Act 1985	Airport Authority			X	Airport Authority Board
14. Pesticide Act 1987	Agriculture			X	MOA, QD, Pesticide Board
15. Plant Quarantine Regulation 1993	Agriculture	x		X	MOA, QD
16. Domestic Plant Quarantine Regulations 1993	Agriculture	x	X	X	MOA, QD
17. Container Import Regulations 1993	Agriculture	x		X	MOA, QD
18. Ministry of Health Act 1995 – 1996	Health		X		MOH, Health Board
19. Environment Act 2003	Environment Service			X	NEC, IEA, TAC, EIA process, SMR, EN.
20. Public Health Act 2004	Health	x	X	X	MOH
21. Shipping (Maritime Security) Regulations 2004	Transport.	x	X	X	MOT

Note: (1): domestic or inter-island, MOA = Ministry of Agriculture, NEC = National Environment Council, TAC = Technical Advisory Committee, MOF = Ministry of Fisheries, MOH = Ministry of Health, EN = Environment Notice, SMR = Shared Management Regime, QD = Quarantine Division

Appendix 5. Biosafety capacity building needs database of specialized personnel

Name	Specialist Activity	Contact details	Organization	Designation
1. Andrew McBirney	Surveyor and Harbor management	andrewm@ports.co.ck	Ports Authority	Chief Executive
2. Antoine Nia	Environmental Science		National Environment Service	Environmental Officer
3. Arona Ngari	Weather	angari@oyster.net.ck	Meteorological Office	Meteorologist
4. Atatoa Herman	Civil Engineer	a.herman@mow.gov.ck	Ministry of Works	Secretary
5. Aukino Tairea	Transport regulations	transport@oyster.net.ck	Ministry of Transport	Secretary
6. Ben Parakoti	Civil Engineer		Water Works Division	Director
7. Ben Ponia	Marine Scientist	-	South Pacific Commission	Aquaculture Adviser
8. Chris Wong	Tourism	tourism@cookislands.gov.ck		
9. Edwin Pittman	Foreign Affairs	edwinp@mfa.gov.ck	Ministry of Foreign Affairs & Immigration	Secretary
10. Ewan Smith	Aviation Industry	ewan@airraro.co.ck	Cook Islands Chamber of Commerce	Chairman
11. Gerald McCormack	Research	gerald@nature.gov.ck	Natural Heritage Project	Director
12. Ian Bertram	Scientist – Aquaculture	I.Bertram@mmr.gov.ck	Ministry of Marine Resources	Secretary
13. Ian karika	Conservation	ipukarea@environment.org.ck	Rarotonga Environment Authority	Chairman
14. Imogen Ingram	Community Adviser	imogen@oyster.net.ck	Taporoporoanga Ipukarea Society	President
15. Joe Ngamata	Aviation	jngamata@airport.gov.ck	Airport Authority	Chief executive
16. Joseph Brider	Environmental Science		National Environment Service	Environmental officer
17. Josh Mitchell	Policy	rar@mmr.gov.ck	Ministry of Marine Resources	Director of policy
18. Julia Curry-Rongo	Writer/Information researcher	tusitala@oyster.net.ck	Island Friends Ltd	Director
19. Kato Tama	Soil scientist	-	Private sector	Businessman
20. Kori Raumea	Tropical Fisheries		Ministry of Marine Resources	Fisheries Officer
21. Maja Poeschka	Entomology	research@oyster.net.ck	Ministry of Agriculture	Entomologist
22. Ngapoko Ngatamaine	Customs/Tariffs		MFEM – Customs Division	Chief Customs Officer
22. Nga Mataio	Agriculture	cimoa@oyster.net.ck	Ministry of Agriculture	Head of Ministry
23. Nuku Raumea	Forestry/Policy		OMIA	Director of Forestry
24. O’thaniel Tangianau	Forestry/Policy	othaniel@omia.gov.ck	OMIA	Projects Adviser
25. Peter Graham	Legal adviser	P.W.graham@mmr.gov.ck	Ministry of Marine Resources	Legal Adviser
26. Pavai Taramai	Quarantine procedures	quarantine@oyster.net.ck	Quarantine Services	Quarantine Officer
27. Pira Wichman	Commissioner of Police	compo@police.gov.ck	National Police headquarters	Commissioner
28. Poona Samuel	Quarantine procedures/agriculture	cimoa@oyster.net.ck	Ministry of Agriculture	Technical Advisor
29. Repeta Puna	Education policy	repeat@education.gov.ck	Ministry of Education	Director of Policy
30. Tania Temata Apera	Environmental Policy	Tania@environment.org.ck	National Environment Service	International Environment Adviser
31. Taukea Raui	Horticulture	raui@oyster.net.ck	Private Sector	Consultant
32. Teariki Rongo	Science/Environmental Policy	tusitala@oyster.net.ck	Island Friends Ltd	Director/Consultant
33 Teina Rongo	Marine Scientist	teinarongo@ruatonga.com	Private sector	Consultant
34.. Tinirau Tamarua	Livestock	tinirau@omia.gov.ck	OMIA	Technical Advisor

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Name	Specialist Activity	Contact details	Organization	Designation
35. Tiraa Rarere	Agriculture		Ministry of Agriculture - Aitutaki	Research/Agriculture Officer
36. Tingika Elikana	Law		Crown Law Office	Crown Counselor
37. Tom Wichman	Science	Arorangi	Private Sector	Consultant
38 Tuae Tangianau	Policy	tuae@pmoffice.gov.ck	Office of the Prime Minister	Chief Policy Adviser
39. Tuangaru Bishop	Environment/Policy		Environment Service - Aitutaki	Senior Environment Officer
40. Tuaine Teokotai	Public Health/Sanitation		Department of Public Health	Chief Health Inspector
41. Vaine Teokotai	Human Health	sohl@com.ck	Ministry of Health	Secretary
42. Vaine Wichman	Social Economist	arama@oyster.net.ck	Arama & Associates	Economist/Consultant
43 Vaitoti Tupa	Environmental Policy	Vaitoti@oyster.net.ck	National Environment Service	Director
44. Vereara Maeva Taripo	Community Adviser	ciango@oyster.net.ck	CIANGO	President
45. Walter Tangata	Customs/Tariffs		MFEM-Customs Division	Customs Officer
46. William Wigmore	Research	research@oyster.net.ck	Ministry of Agriculture	Director of Research