A Toolkit for Operating Markets

UN WOMEN

United Nations Entity for Gender Equality and the Empowerment of Women

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A1 Purpose of the toolkit

This Toolkit provides operational guidance to local government personnel and others involved in the operation of markets.

Appendix A1 provides a template for developing the market rules.

Appendix A2 provides additional provisions that should be applied in the event of a pandemic or other infectious disease emergency.

This Manual complements two other separate Manuals that provide guidance on how to make physical improvements to market infrastructure, and how to run markets as a financially sustainable business.

A2 Why markets are important

Markets are vitally important as they provide affordable food and other essential goods to most people in the local community, and support the livelihoods of a large proportion of local families -commonly 25% of the population or more. They are also building blocks for the local economy, turning primary produce into cash that is then circulated around the local area. Although individual vendors may have low incomes, the total turnover of money within a market often makes it the biggest business in town.

In addition to trade, markets can also serve a number of other functions, acting as the social, cultural and economic hub of the community. For example well managed markets can be important for:

- seeking and providing information
- tourism
- social interaction
- consuming food and drink
- community education
- political campaigning
- advertising
- delivering services – financial, health, etc
- education and vocational training
- entertainment
- incubating small businesses.

Supporting these multiple functions provides potential for a thriving business that serves the interests of local government and its communities. However, to get the best results, markets should be seen as a joint venture between the Market Owners and the vendors. If the owners support vendors in their productivity and wellbeing, then market turnover will increase and everyone will benefit.

A3 The role of local government

Local government is often directly responsible for operating local markets, owning the land and paying the people involved in market operations (as employees or contractors). However local government also has responsibility for oversight of markets operated by private landowners, as specified by the Informal Sector Development and Control Act, and the National Informal Economy Policy.

A4 The roles of operational personnel

Supervision of the market usually involves one person employed as a Market Manager, with a number of assistants, attendants, fee collectors or gate keepers depending on market size (referred to in this Manual as "operational personnel"). These people are jointly responsible for:

- implementing the market rules, including collection of fees
- keeping markets in a safe and hygienic condition
- ensuring the wellbeing of people who use the market (vendors and customers).

In very small markets one person might be responsible for a number of different functions, whereas in larger markets a number of people might be involved in similar activities. Regardless of the number of operational personnel, it is important that market owners nominate specific people to take responsibility for overall management, security, collecting fees, cleaning, supervising the cleanliness of toilets, waste management and maintenance.

For the most part men are employed in these positions, while the majority of vendors are women. This can give rise to unfriendly and aggressive behaviour and a lack of appreciation of the vendors' needs. It is good practice to ensure that women as well as men are responsible for market operations, to give more gender balance. For example, recruiting women as security guards has often proved successful in shaming poor behaviour by men without resorting to aggression.

It is important that all operational personnel are recognisable by wearing uniforms with name tags, so that they can be held personally accountable for satisfactory or poor performance.

Template to be completed

The numbers and names of the operational personnel for this market are:

- overall responsibility: .....M or F
- security (number of people: .....) F.....M.....
- collecting fees (number of people: .....) F.....M.....
- general cleaning (number of people: .....) F.....M.....
- cleaning toilets (number of people: .....) F.....M.....
- waste management (number of people: .....) F.....M.....
- maintenance (number of people: .....) F.....M.....

The following people are permanent employees:	**The following people are casual employees:**	**The following people are supplied by contractors:**
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....

Suggested tasks for inclusion in the market manager's job description

The Market Manager is responsible for:

- overseeing all aspects of the operation of the market
- ensuring compliance with the market by-laws and the market rules
- ensuring fees are collected, recorded and deposited on a daily basis
- ensuring that the market is managed and maintained in a safe and healthy condition including overseeing prevention and response to sexual harassment
- carrying out regular inspections of the market to identify the need for pest control, maintenance or rectification of hazards
- supervising the activities of operational personnel nominated to work in the market
- consulting market vendors in reviewing market operations and making improvements
- maintaining a daily incident reporting log including reports of maintenance requirements, safety hazards and daily operational incidents
- ensuring that all operational personnel are provided with (and wear) uniforms and name tags, and a written description of their duties and responsibilities
- ensuring that all operational personnel have the necessary skills to carry out their duties including training on the market rules and operational guidelines
- regularly reviewing the performance of operational personnel, and ensuring they comply with the market rules and their job requirements
- preparing an annual operational plan and budget.

A5

The role of market vendors

Market vendors have a range of characteristics and needs. For example, they include:

- women, men, parents with children, elderly and disabled people
- groups of vendors from the same village or neighbourhood who like to work together
- farmer-vendors who may attend the market for a few days at a time, sometimes needing overnight accommodation
- wholesalers who sell bulk goods to commercial customers or to retailers
- regular vendors who sell in the same market every day
- vendors who rotate around different markets on different days.

Market vendors can significantly help in market operations if there is a climate of co-operation with the operational personnel. For example, they can assist in market hygiene, report incidents or issues that need attention, and contribute to operational policy. Some groups of women may be prepared to take over components of market operations on a business footing (such as managing the toilets). There is also the possibility of handing over management of the market to a vendors' association if it has the capacity to take this on.

For inclusion in the market rules

It is the responsibility of vendors to ensure that:

- the required fees are paid
- the goods they sell are kept in a clean and hygienic condition
- fresh fish or meat is kept cold
- the area around where they sell is kept clean
- any waste is placed in the bins provided
- single use plastic bags are not used or sold for wrapping goods
- any unsold goods are removed at the end of the day
- surfaces of any tables or stalls are cleaned at the end of the day
- if tables or stalls are the property of the vendor, these are constructed and maintained in a safe manner
- any observed incidents or conditions which present a danger to vendors or customers are promptly reported to the Market Manager.
- complaints are made in writing to the Market Owner.

Vendors may also be required to undertake training if this is provided locally, for example in safe food handling.

In the event of any dispute with vendors, the following agency can be asked to assist (insert name of agency and contact details):

..... (market vendors association)

..... (NGO)

..... (other advocate)

A6

Providing training and information

It is important that all operational personnel in markets, including contractors, casual staff and employees, have been trained in good practice and appropriate behaviour. This manual can provide the basis for their training. All personnel should be given a checklist of what is expected of them, and their performance should be subject to oversight and review.

It is also appropriate to provide training to vendors on their roles, and the ways that they can work with the operational personnel to improve the safety and comfort of the market for vendors and their customers.

Information can be given to vendors and customers about what is expected of them by way of written materials, including posters and signs. This should include information about the market rules.

For inclusion in market rules

Vendors may be required to undertake training if this is provided locally, for example in safe food handling.

A7 Collecting fees

The market rules should specify that the market owner (local government or private owner) has the power to charge fees. It may be appropriate to leave the fee amounts out of the rules so there is some flexibility to change these over time. However there should be information on display about what charges apply at any particular time.

Fees are sometimes charged for:

- a selling space, either as a standard fee or a variable fee depending on the size of the space
- an additional fee for high volume or bulky sales, based on goods brought into the market
- hiring furniture such as tables and seats (if not provided to all vendors)
- sale of ice to vendors of refrigerated goods (where ice makers are installed)
- use of toilets including purchase of toilet paper (where toilets are available)
- overnight storage (where provided)
- overnight accommodation (where provided).

Some market operators have set these fees on the assumption that they can make a lot of money from imposing them. Although some vendors may have a reasonable level of sales, their profits after meeting these costs can be quite small.

Unreasonable and unaffordable fees work against the interests of vendors, and can result in vendors deserting the market. For example, a vendor selling 100 kina (K) of goods per day may only be making 10K per day profit. It would be preferable to keep the basic fee to no more than 5% of average sales, or slightly more if additional services are included (such as storage and use of other facilities).

Good practice would be:

- keep the fees as simple as possible
- don't charge fees for vendors or their children to use the toilets
- keep the total fees paid to an affordable level.

Market operators need to decide when and how fees are collected. If fees are collected at the gate, this may rule out vendors who need to make some sales before they can afford to pay the fees. However collecting fees at a later time, when sales are underway, can create confusion. This is an area where consultation with the vendors would be a good idea to come up with a solution that is mutually acceptable.

A fee collection system is being introduced in some markets involving the option for vendors to purchase a weekly ticket that gives them the rights to a selling space, at a slightly reduced cost compared with the daily rate. These fees can be paid at the market office rather than at the gate. This appears to be a good practice in markets where most of the vendors sell in the same market every day.

For inclusion in the market rules

The current fee paid by vendors for a vending space is..... K

A vending space is approximately .....square metres

Vendors occupying more than this will pay .....K for each extra m2 they occupy

Additional fees to be paid are..... K (eg for secure overnight storage)

Fees will be payable at the following time of day: .....

Receipts will be given as soon as fees are paid.

Fees for use of toilets will not be charged to vendors who show their receipts.

A8 Opening hours

The market rules should give the authority to the Market Manager to set opening hours, but it is best to leave the actual opening hours out of the rules so that they can be varied from time to time.

Sometimes market opening hours are set for the convenience of the market owner or the operational personnel, for example minimising overtime and associated payments. This is not necessarily in the best interest of vendors or their customers. Vendors are likely to sell more goods if the market is kept open so that workers can shop after business hours, so that mothers can shop before and after school hours, and if the market is open for at least part of the weekend.

Some market activities may need to take place before or after the market is open to customers. For example if there is a lot of wholesale trade (bulk sale to middlemen or on-sellers) this is best restricted to a set period before the market is open to the public. Vendors may need early entry to set up their stalls. After the market closes to customers there needs to be time for vendors to clean up, and possibly arrange for overnight storage of their unsold goods. There also need to be set times for cleaning the market.

Consideration should be given to the safety of all personnel if market activities are conducted outside daylight hours. Good lighting may be needed to promote safety.

It is recommended that market operators work with vendors to decide on opening hours that will best meet everyone's needs.

Template to be completed

The current opening hours for the market are:

Monday to Friday .....until .....

Saturday: .....until .....

Sunday: .....until .....

Public holidays: .....until .....

Wholesaling activity may take place at the following times: .....

Vendors may bring goods into the market at the following time before opening: .....

Vendors must leave the market by the following time: .....

A9 Market rules

Many local governments have detailed by-laws regulating markets. These are often antiquated and legalistic documents that are largely ignored by market managers. It is appropriate that the by-laws should be replaced with a much simpler set of regulations that everyone can understand, outlining the legislation that needs to be observed such as the Public Health Act (1973). The market rules should be consistent with the by-laws but less detailed.

The market rules are a simple summary of the regulations that people using the market need to know about. Each market needs a set of rules that can be clearly communicated, explaining what is and is not permitted in the market. Some of these rules should be written onto signage at the market entrance, together with a notice about the current opening hours and fees.

These rules should include:

- banning alcohol and weapons, drunkenness and violent behaviour, sexual harassment, spitting, littering and vandalism
- specifying what types of goods can be sold and what sorts of packaging can be used (eg no single use plastic bags)

Other rules that could be documented in a handbook for vendors are:

- how vendors are allocated space to sell their goods
- where there is no market shelter, enabling vendors to build their own permanent shelters so long as these are kept in good condition and providing that they can be eventually removed to make way for more permanent market infrastructure within a given period of notice
- responsibilities of vendors to keep their selling areas clear of rubbish, and to clean tables at the end of each day
- responsibilities for both vendors and market operators to maintain healthy and safe conditions in the market
- procedures for food hygiene inspections and rectification of food safety problems
- penalties for breach of rules, including on-the-spot fines and seizure of goods
- procedure for appeals against such penalties
- procedure for lodging and hearing other complaints.

Market rules should be developed and periodically reviewed in consultation with the vendors, to ensure that they are workable.

See template for market rules attached as Appendix A1

Note that market operational personnel must also abide by the market rules in relation to their own behaviour.

A10

Controlling entry

In many markets, entry is controlled by a lockable gate, with the Market Manager being responsible for unlocking and locking the gate at the appointed times.

Managing the activities within a market usually requires that there is control over who enters, with the opportunity to collect fees and inform people about the market rules. The market entrance needs to be well located in relation to public transport (for customers) and unloading bulk goods (for vendors). There may also need to be separate entry for vehicles removing wastes from the market.

In larger markets, unloading areas for on-sellers and wholesalers should be separate from car parking areas and bus/PMV stops to avoid unnecessary congestion. A 'no-parking' zone created in front of the market can be useful for drop-offs in taxis or other cars.

It will be helpful if vendors can gain access to the market ahead of the official opening time, to set up their stalls. If they are required to pay fees at the gate the system needs to avoid congestion or lengthy queuing. Similarly when customers arrive, every effort should be made to control entry without creating congestion, as crime or aggression is likely in a crowded area. (See also Appendix 2 for additional provisions that should be applied in the event of a pandemic.)

Template for completion and insertion into appropriate job description

The person responsible for opening and closing the market is:

……..

In the absence of that person, this responsibility will be delegated to:

……..

These people are also responsible for ensuring that the signage at the market gate displays accurate information about market opening hours.

……..

……..

The person(s) responsible for managing behaviour and safeguarding against inappropriate entry is/are:

……..

……..

A11

Arranging space

For market operators, the simplest way of allocating space would be a first-come first-served arrangement with a standard site area or stall size allocated to each vendor on payment of the required fee. However there may need to be consideration given to the following:

- for larger markets, vendors are often arranged in areas dedicated to the sale of particular goods (eg raw fruit and vegetables, cooked foods, fish etc) so that vendors need to be allocated space within these areas
- some vendors may prefer to sell in groups where individuals know one another, so that they can look after one another's stalls and children
- some vendors might prefer to pay a weekly or monthly or annual fee in return for keeping the same space, so that their customers know where to find them
- if farmer-vendors have to travel from rural areas, they may arrive later than urban based vendors, and they should not be disadvantaged by the first-come first-served method
- similarly farmer-vendors and other intermittent vendors would be disadvantaged by an allocation system that favours those who can pay for a long-term allocation.

The system for balancing these competing interests needs to be fair and accountable, so there is no temptation for personnel to be bribed to allocate on favourable terms. The policy for allocating spaces should be developed in consultation with the vendors, and documented for everyone's information. As the best arrangement may vary from time to time, depending on availability of space to meet the needs of all potential vendors, it is suggested that this is left out of the market rules.

Circulation space between rows of stalls or vending areas should be wide enough to enable two way foot traffic without undue crowding. A minimum width of 2m would be desirable. (Note that this meets the requirements outlined in Appendix 2 for market operations in the event of a pandemic.)

Template for completion and insertion into appropriate job description

The person responsible for allocating space to vendors is:

.....

This person is also responsible for ensuring that the signage at the market gate displays accurate information about market opening hours.

The person responsible for collecting fees from vendors based on their space allocation and access to other services is:

.....

This person is also responsible for ensuring that vendors are provided with receipts promptly, that all receipted payments are recorded and deposited as required by the Market Manager.

A12

Occupational Health and Safety

It is the responsibility of the Market Manager to ensure that markets are kept in a safe and healthy condition for vendors and their customers.

The first thing to do is to carry out an occupational health and safety audit of the market. This can be done together with vendor representatives. Look for anything that could cause an accident, or that could encourage unhealthy bacteria, pests or vermin.

The next step is to fix these problems, putting priority on the items that are most dangerous. If there is not enough money available to fix the larger problems, draw these to the attention of the market owner and highlight the legal liability that could arise if the problem is not fixed. If there are still items presenting a danger you may need to consider closing off certain parts of the market.

It is important that markets provide shelter from sun, wind and rain for the wellbeing of vendors and their children, and to avoid potential damage to the goods they sell. Dust from unsealed surfaces and petrol fumes can also provoke ill health and damage goods.

Lack of access to clean toilets and washing facilities creates particular health dangers, but when they are provided it is important that they are kept in a clean and hygienic condition. Poor drainage and waste management can provide breeding grounds for insects and vermin. Roadside markets and those on the edge of traffic routes can be very dangerous unless there are protective barriers, and the fumes as well as fuel and oil spills in these location can lead to ill-health and contamination of goods.

Provision of lighting is highly desirable, particularly where market shelters create dark spaces, or if the market operates after dark. The danger can arise from accidents as well from crime.

Template for insertion into appropriate job descriptions

All operational personnel are responsible for the following:

- Report any observed accidents or conditions likely to cause an accident to the Market Manager
- Report any observed behaviour that is in breach of the market rules to the Market Manager, also summoning security personnel when appropriate.

A13

Security

Security in markets is very important, and particular personnel are likely to be appointed to ensure that markets are secure places for vendors and their customers. Sometimes local police are available to assist.

A particular problem in some markets is disruption caused by people who are drunk or high on drugs. Often these people are aggressive towards vendors and try to extort money, goods or sexual favours under threat of violence. Other problems arise if individuals pick pockets or otherwise steal from vendors or customers. It is important that security personnel are well trained in how to identify such trouble makers and remove them from the market without causing undue conflict, summoning help when appropriate.

Fencing around market sites can assist in market security, enabling exclusion of trouble makers as well as stray animals. However fencing can also lead to people being trapped inside the market if trouble erupts, so the means of escape in an emergency needs to be considered.

If there are overnight storage facilities for goods, then these should be made secure to prevent theft.

An additional measure that can reduce theft in the market is to encourage use of cashless systems such as redeemable phone payments. Adoption of these systems needs encouragement of both vendors and their customers.

Template for completion and insertion into appropriate job descriptions

The following people are responsible for market security:

.....

The duties of the security personnel are as follows:

- Prevent entry to the market by people carrying prohibited items.
- Seek to prevent crime, aggression or bullying within the market in a non-violent manner.
- Report to the Market Manager in the event that police need to be summoned, arrests made, or if on-the-spot fines are to be imposed.
- Support other operational personnel in crowd management
- (where appropriate) ensure the market is secure and safe at night.

Note that security personnel should not carry weapons, and should not be responsible for collecting fees or fines.

The following service contacts can be used in an emergency:
(note agency and phone contact)

.....(police)

.....(ambulance)

.....(GBV service)

.....(other)

A14 Promoting Hygiene

Market vendors may need to be trained in hygienic food handling to protect against cases of food poisoning. Market operational personnel may also benefit from this training. In addition, particular training and accreditation is appropriate for sellers of cooked foods.

Food can most easily be kept in a clean state if it is sold from stalls or tables raised above the ground, to protect it from dust or vermin. However the tables or stalls need to be easily and regularly cleaned.

If the market has a hard ground surface it is appropriate to sweep and/or hose it down on a regular basis. This could be at the end of each day for a busy market, or weekly for a smaller operation. Sweeping during the day runs the risk of creating unhealthy dust.

Vendors and customers should have access to clean hand washing facilities, as many diseases are passed on by unclean hands. (See Appendix 2 for specific provisions that should be applied in the event of a pandemic.)

Regular pest and vermin inspections should be conducted, with prompt remediation if problems are found.

Toilets should be cleaned as often as necessary to maintain hygienic conditions. It is appropriate to display signs reminding users about how to use the facilities, including changing and disposing of nappies, and disposing of sanitary pads. If there are fees for using the toilets it is suggested that these should not apply to vendors and their children, as they may need to use the facilities several times in a day. Toilet paper should be provided but it is recommended that it should not be sold as this could lead to unhealthy practices. Managing the toilets can be a business run by a market vendors' association, and this can be a good way of ensuring that women vendors' needs are met.

Bear in mind that if vendors or customers are denied affordable access to toilets, they are likely to use bushes in the surrounding area. This creates very unhealthy conditions, and also the potential danger of women or children being sexually assaulted.

It is essential that water is available for washing people and goods, as well as washing down the market stalls. If there is no reliable piped water supply, rainwater tanks should be installed.

Waste management is very important to maintain hygiene within the market. There need to be sufficient supply of bins so that people don't have to search for them, with bins large enough for disposing of wastes such as coconut husks. Waste bins should be emptied as soon as they are full, with waste being put into larger containers that are separated from the selling area, to be periodically transported out of the market. It is important that there are enough of these larger bins or skips so that they do not overflow, causing an unsightly and unhygienic environment.

Managing market wastes will be much more cost effective and environmentally sustainable if the food wastes can be kept separate from other wastes, so that they can be composted or used as livestock feed, or used to produce energy in the form of biogas. (See separate Manual on how to make physical improvements to market infrastructure.) This can provide a foundation for small businesses that could be operated by women. For many small markets, food wastes may be the only wastes produced. It will be much easier to keep the food wastes in a usable condition if single use plastic bags are banned from use.

Template for completion and insertion into appropriate job descriptions

The Market Manager is responsible for specifying or agreeing on the cleaning products to be used in the market. If employees are responsible for cleaning (rather than contractors), the market manager is responsible for ensuring an adequate supply of tools and cleaning products.

The person responsible for general cleaning of the market is:

.....

The following schedule will apply.

- Ensure bins are conveniently placed around the market for depositing waste.
- Ensure separation of organic wastes from other wastes.
- Empty bins into the bulk bins/skip before they are full.
- Sweep floors at the end of each day and intermittently as needed.
- Hose the market floor every ..... (day, week)
- Fully disinfect the market every ..... (day/week/month)
- Sweep and/or hose the area around the bulk waste bins each day after these have been collected.

The person responsible for keeping the toilets and washing areas in a clean and hygienic condition is:

.....

The following schedule will apply.

- Attendance to supervise use: .....(eg at all times)
- Inspect and clean as necessary every .....(hour, 2 hours, etc)
- Fully clean and disinfect every..... (3 hours, day etc)
- Ensure availability of toilet paper at all times.
- Ensure provision and emptying of receptacles for sanitary waste.
- Ensure signage is on display about appropriate use of facilities.
- Ensure taps are not left running.
- Report any plumbing problems to the Market Manager promptly.

The following personnel are responsible for removing wastes from the market:

.....

The following schedule will apply.

- All bulk waste containers will be taken away at the end of each trading day.
- Sufficient bulk containers will be provided to accommodate the volume of wastes being produced, with separate containers for organic wastes and other wastes.
- If the Market Manager identifies a need for more bulk containers, these will be provided.
- Avoid spillage arising from loading and transporting waste containers.
- Maintain daily records signed off by the Market Manager.

A15

Maintenance

Market infrastructure needs to be maintained so that it is kept in a safe and functional condition. This includes the ground surface, shelters, fencing and gates, water supply, power supply, toilets and washrooms, signage and lighting.

If vendors provide their own shelters and stalls, they are responsible for maintaining these structures. If they fall into disrepair, vendors should be required to either repair or remove them.

Some maintenance may be carried out by the market operational personnel, but other work may require people with trade skills. It is important that the Market Manager has a list of people who can be quickly brought in to carry out urgent repairs, and that there is a budget to pay for the cost involved. (See separate Manual on how to run markets as a financially sustainable business.) Women vendors should be considered for training and employment in maintenance activities as needed, maintaining their own stalls as well as contributing to maintenance of the common areas of the market.

Some maintenance may not be urgent, but should be carried out periodically so that the infrastructure is kept in good order. Some maintenance requirements can be identified through regular inspections, or reports from vendors. Carrying out maintenance in advance of things breaking down will be much cheaper than paying for urgent repairs in the long term

Template for completion and insertion into the Market Manager handbook

The following people may be called upon to carry out urgent repairs as needed (note names and phone contacts):

.....(general handyman)

.....(builder)

.....(plumber)

..... (electrician)

.....(other)

.....

A16 Enforcement

The market rules need to be enforced in a way that protects the wellbeing of vendors and customers who are responsibly going about their business. However it is important that enforcement is carried out in a way that de-escalates aggressive behaviour. If there is a risk of violence, then the police may need to be called.

One or more of the market operational personnel need to be allocated the job of enforcement. However it is important that they are able to summon back-up if needed. Also, as there is always a risk of situations being misinterpreted, there should be a right of appeal for people who are accused of breaching the rules, and a system for written complaints to be made to the Market Owners (ie the local government or the private landowner).

If any of the operational personnel breach the market rules or the terms of their engagement, the Market Manager has the role of enforcement.

Template for completion and insertion into appropriate job descriptions

All operational personnel are obliged to comply with the market rules.

All operational personnel should report any observed breaches of the market rules to the Market Manager.

The following person(s) is/are responsible for enforcing the market rules in relation to vendors and the general public:

.....

Penalties for breaching the market rules will be determined and implemented by the Market Manager in accordance with the market rules. In the absence of the Market Manager this responsibility is delegated to:

.....

The Market Manager is responsible for enforcing the market rules in relation to operational personnel, together with ensuring their satisfactory performance in carrying out their duties. The Market Owner is responsible for ensuring satisfactory performance by the Market Manager. Disciplinary action will be taken in accordance with the following adopted policies:

.....

(eg first verbal warning, second incident written warning, third warning termination of working arrangements, rights of appeal)

A17 Incident reporting

The Market Manager should maintain an incident book, in which to log the details of any event involving actual or potential accident, violence, harassment or crime on the day that the incident occurs. This is important in the event that police proceedings arise (for example if there is a pattern of behaviour over time), if people are harmed or if complaints are lodged.

All operational personnel should report breaches of the market rules, observed safety hazards and maintenance requirements to the Market Manager and they should be recorded in the incident book.

A18 Financial management

Markets should be run as a business, within which the vendors and the Market Owners share the benefits. It may be necessary for vendors to pay fees, but these should be set at an affordable level. Other income can be gained from car parking fees, advertising boards within the market, charges for political campaigning and other promotions. Other opportunities might arise from ordering bulk cleaning materials that are needed for cleaning the markets, with repackaging and sale of small quantities to customers within the market. Market Managers should look for these opportunities.

The income from market fees and other earnings should be used in maintaining and improving the conditions in the market, so that it becomes more productive and profitable as a business. It is not good practice to use the income from markets to subsidise other local government services.

Market Owners should set a budget for market operations, with the help of the Market Managers. This should show how the income is used to fund the following types of expenditure:

- operational personnel including the Market Manager, security personnel, cleaners, fee collectors, gate keepers, enforcement officers, waste management personnel
- uniforms and name badges
- signage
- costs of water, power, phone and waste management
- cost of materials such as cleaning products, stationery, bins
- repairs to damaged buildings and infrastructure
- preventative maintenance to extend the life of the buildings and infrastructure
- ongoing improvement to the conditions in the market.

Responsibilities of the Market Owner

- Establish a balanced budget that provides for safe and healthy operations of the market.
- Monitor financial performance against the budget.
- Provide responsible working conditions for operational personnel.
- Hire and fire of operational personnel as needed.
- Maintain a list of approved tradespeople who can carry out urgent repairs.
- Support the work of the Market Manager to ensure safe and healthy conditions for market vendors and their customers.
- Receive, record and respond to complaints
- Where possible, identify funding that can be used for continuous improvement of the market.

***Note** that some of these responsibilities may be delegated in writing to the Market Manager.*

A19

Making improvements

While some new markets have been built with government and/or donor funding, it is not appropriate to rely on this. Responsible market management should involve keeping the existing market infrastructure in good order, and working to continuously improve conditions. Consulting vendors on what improvements would be beneficial can help identify cost effective solutions

Formation of a Market Management Committee that can oversee the operations of the market as well as any improvement programs is strongly recommended.

Further guidance on how make physical improvements to market infrastructure is provided in a separate Manual.

A20 Checklist for market operators

Here is a checklist for scoring how well a market rates for its current operations. This might help in setting priorities for future improvements. It is suggested that the Market Manager seeks the input of market vendors and/or customers in completing this checklist.

Operations	***Poor (score = 1)***	***Just OK (score = 3)***	***Good (score = 5)***
Appropriate job descriptions			
Enough operational personnel			
Gender balance amongst personnel			
Operational personnel well trained			
Operational personnel well behaved			
Market vendors association active			
Market rules reviewed with vendors			
Incident book maintained daily			
Fees recorded and banked daily			
Conditions support health and safety			
Budget established for maintenance			
Regular maintenance inspections			
List of tradespeople for repairs			
Vendors have access to wash tubs			
Toilets in a hygienic condition			
Waste collection at least daily			
Waste collection areas clean & tidy			
Regular market cleaning is effective			
Clear emergency procedures			
Plans in place for improvement			
TOTALS			

Maximum score = 100

Note *that there is a separate checklist for operating markets in an emergency situation such as a pandemic in Appendix Two.*

APPENDIX A1
Template for market rules and job descriptions

i Opening times

These model rules can be adapted for use by different local governments and private market operators, to suit the needs of the particular local community.

The objective of the market rules is to provide a market environment which promotes economic activity and the affordability of goods and services for customers, as well as promoting the health, safety and amenity of all participants.

ii Permitted activities

Goods that can be sold in the market include the following (delete where not applicable)

- fresh fruit and vegetables
- sago, rice and other dried or processed staples
- snacks
- cooked foods
- fresh fish
- fresh meat
- eggs
- cold drinks
- hot drinks
- store goods
- water
- ice
- firewood
- live chickens
- cigarettes
- flowers
- traditional medicine
- second hand clothes
- craft items (eg bilums, carvings)
- traditional items (eg mats, brooms)
- household cleaning goods
- cooking utensils
- cardboard boxes

Note *markets are likely to be more successful if they sell a wide range of goods, so that they can operate as a one-stop shop for customers. There may be challenges in accommodating sale of cooked foods, as well as fresh fish or meat, but Market Managers should seek to find ways of promoting food safety while enabling these sales within the market.*

It is not appropriate for betel nut to be sold or chewed in the market, because of the potential for spitting to contribute to spreading disease.

iii Prohibited activities and goods

- selling betel nut
- selling drugs or alcohol
- cooking on open fires (if this creates a fire hazard)
- drinking alcohol or taking drugs
- chewing betel nut
- spitting
- littering
- drunken, violent or aggressive behaviour
- intimidation of women or children
- criminal behaviour such as pickpocketing and other theft
- loitering in a market for purposes other than participation in market activities
- other behaviour that disrupts peaceful trade within the market
- carrying weapons
- allowing entry by live animals apart from those on sale

Items can be deleted from or added to this list to suit local needs.

iv Penalties

If criminal behaviour is involved, local police will be requested to make an arrest.

The penalties for breaching rules are:

(a) for any general breach .....

(b) for violent behaviour, substance abuse or carrying weapons .....

(c) for other breaches.....

These penalties can be imposed by way of on-the-spot fines, which will be recorded in the market incident book and witnessed by the Market Manager.

v Fees

(Add details of applicable fees)

The fees for vendors to be able to sell their goods are (standard or variable fee)

.....

Additional fees for vendors are ..... (eg overnight storage)

Additional fees for customers are..... (eg use of toilets)

Note *it is not appropriate to charge vendors or their children for use of the toilets.*

vi Responsibilities of vendors

It is the responsibility of vendors to ensure that:

- the required fees are paid
- the goods they sell are kept in a clean and hygienic condition
- fresh fish or meat is kept cold
- the area around where they sell is kept clean
- any waste is placed in the bins provided
- single use plastic bags are not used or sold for wrapping goods
- any unsold goods are removed at the end of the day
- surfaces of any tables or stalls are cleaned at the end of the day
- if tables or stalls are the property of the vendor, these are constructed and maintained in a safe manner
- any observed incidents or conditions which present a danger to vendors or customers are promptly reported to the Market Manager
- complaints are made in writing to the Market Owner.

Vendors could also be required to undertake training if this is provided locally, for example in safe food handling. Such training may be particularly appropriate if sale of cooked foods is permitted.

.....

.....

vii Responsibilities of Market Managers

It is the responsibility of the Market Manager to ensure that:

- market opening hours are set after consultation with vendors
- a sign is erected at the market gate to publicise the opening hours, fees, and the rules of behaviour that will be enforced
- all vendors are provided with a document setting out all of the market rules
- receipts are provided promptly for any fees paid
- the common areas of the markets including toilets and washing facilities are kept in a clean and hygienic condition
- buildings and infrastructure are maintained in a safe and functional condition
- market rules are enforced to protect the safety and wellbeing of vendors and their customers
- either vendors are provided with shelters and tables to protect themselves and their goods from the weather, or else vendors are allowed to construct their own stalls on condition that they are constructed safely and well maintained
- bins are provided in multiple locations within the market for vendors or their customers to deposit waste
- bins are emptied as often as necessary to prevent overflowing, into large containers or skips that are separated from the selling area
- large bins or skips are removed from the market on a daily basis
- an incident book is maintained on a daily basis
- regular inspections of the market are conducted to identify pest control or maintenance requirements
- there is regular reporting to the Market Owner on market income and expenditure
- Market Owners are supported in preparing a balanced budget for market operations.

SAMPLE MARKET SIGN:..... MARKET

This market is open on the following days and at the stated times:

Monday to Friday: .....

Saturday:.....

Sunday Public holidays:.....

Wholesaling activity may take place for one hour before opening times
Vendors may bring goods into the market 30 minutes before opening hours

The fees to be paid by vendors are: .....

The following is prohibited:

- selling betel nut
- alcohol, drugs and other illegal goods
- drinking alcohol or taking drugs
- chewing betel nut
- spitting or littering
- drunken, violent or aggressive behaviour
- criminal behaviour such as theft
- loitering
- other behaviour that disrupts peaceful trade
- carrying weapons
- allowing entry by live animals apart from those on sale

Breaching these rules may result in on-the-spot fines or arrest.

WE ASK EVERYONE TO HELP KEEP THE MARKET AS A CLEAN AND SAFE PLACE

viii Shared responsibilities of the Market Owner and Market Manager

The Market Manager will report directly to the Market Owner (local governement or private owner) and will be supervised by the Market Owner. All other operational personnel will report directly to and be supervised by the Market Manager.

The performance of all operational personnel will be subject to ongoing supervision and periodic review. If performance is unsatisfactory, the following disciplinary arrangements will apply.

- First infringement – verbal warning, with written record of the warning being given in the daily Incident Log.
- Second infringement – written warning, with written report to the Market Owner.
- Third infringement – formal interview and performance review, with possible termination of employment or contract.

ix Other Responsibilities of the Market Owner

The Market Owner has overall responsibility for the operations of the market, though some operational functions will be delegated to the Market Manager. Specific functions of the Market Owner are as follows:

1. Establish a balanced budget that provides for safe and healthy operations of the market.
2. Monitor financial performance against the budget.
3. Provide safe and healthy working conditions for all operational personnel.
4. Hire operational personnel and terminate employment/contractual arrangements when necessary, unless delegated to the Market Manager.
5. Maintain a list of approved tradespeople who the Market Manager can hire to can carry out urgent repairs.
6. Support the work of the Market Manager to ensure safe and healthy conditions for market vendors and their customers.
7. Receive, record and respond to complaints.
8. Where possible, identify funding that can be used for continuous improvement of the market.

It is also strongly recommended that the Market Owner, which is often local government, should establish a Market Management Committee as a formally constituted body. Membership should include vendor representatives, officials with responsibility for law and order and health, as well as representatives from community organisations and the private sector. Quarterly meetings to review market operations would be appropriate. This Committee can also act as an oversight committee for market improvement contracts with more regular meetings during the construction period.

x JOB DESCRIPTION: Market Manager

The Market Manager has overall responsibility for the management of the market, and is answerable to the Market Owner for the market's performance.

***Note** that in many markets it may be appropriate to appoint a Deputy or Assistant Market Manager, and some of the following duties may be delegated to that person, as specified in their Job Description.*

Minimum qualifications for the Market Manager are a Diploma in Business Management or Accounting as well as experience in working with disadvantaged communities, including conflict management.

Particular duties of the Market Manager are as follows:

1. Ensure compliance of Operational Personnel, vendors and the general public with the market by-laws and the market rules.
2. Ensure fees and other takings are collected, recorded and safely deposited on a daily basis.
3. Ensure that the market is managed and maintained in a safe and healthy condition.
4. Carry out monthly inspections of the market to identify the need for pest control, maintenance or rectification of hazards, and record the results in the Incident Book.
5. Supervise the activities of all Operational Personnel nominated to work in the market including contractors engaged for specific functions (eg waste management, maintenance).
6. Consult market vendors in reviewing market operations and making improvements.
7. Maintain the Incident Book on a daily basis including reports of maintenance requirements and safety hazards, waste pick up timing and quality of service, cleaning schedules compliance and performance, breaches of the market rules and action taken.
8. Ensure that all Operational Personnel are provided with (and wear) uniforms and name tags, present themselves in a clean and tidy condition, and have a written description of their duties and responsibilities.
9. Ensure that all Operational Personnel have the necessary skills to carry out their duties including training on the market rules and operational guidelines.
10. Regularly review the performance of Operational Personnel, and ensure they comply with the market rules and their job requirements.
11. Maintain and display a list of trades people and emergency services that can be contacted when needed.
12. Approve a list of cleaning products and other materials that can be used in maintaining market hygiene.
13. Prepare an annual operational plan and budget for approval by the Market Owner.

Additional tasks to be undertaken by the Market Manager or delegated by written instruction to other personnel are:

- unlock and lock the market gates at the appointed times.
- collect fees from vendors and toilet attendants.
- allocate spaces to vendors.

The Market Manager should also maintain and display a site plan of the market showing arrangement of selling spaces, circulation corridors, entrance and exits including emergency exits, toilets, washing areas and other infrastructure.

xi JOB DESCRIPTION: Safety Officer/Fee Collector/Gatekeeper

Security guards must be licensed and must comply with the Security (Protection) Industry Act 2004. If a person without a security license is employed, they should be given an alternative title eg Safety Officer, Fee Collector or Gatekeeper, depending on how the duties are assigned.

The duties of these people can include the following:

1. Control entry and exit access to the market.
2. Prevent entry to persons carrying prohibited items, including (but not limited to):
   - **a.** betel nuts
   - **b.** drugs or alcohol
   - **c.** weapons (other than short knives for cleaning agricultural produce)
   - **d.** counterfeit goods
   - **e.** any other objects or substances that can compromise the safe operations of the market.
3. Support the Market Manager in vendor and crowd management, or other duties as they arise.
4. Ensure that market access is completely closed off and secure during non-operation hours.

These people and all other Operational Personnel should also:

- be neatly attired in unstained uniform with name badge clearly visible
- report any observed accidents or conditions likely to cause an accident to the Market Manager
- report any observed behaviour that is in breach of the market rules to the Market Manager, also summoning police or other emergency services when appropriate
- comply with the market rules in relation to their own behaviour, and provide a role model for the general public on how to behave respectfully towards one another.

These officers must not:

- fall asleep during duty hours
- engage in commercial or criminal activities at the markets
- collect fees or fines from vendors, wholesalers, etc. or extort money in any other way
- bring weapons of any sort into the market.

xii JOB DESCRIPTION: Toilet attendant

The duties of the Toilet Attendant are as follows:

1. Monitor the use of toilet facilities from opening time to closing time daily (or organise for a substitute person to perform duties if unavailable, as approved by the Market Manager).
2. Maintain the cleanliness of the toilets at all times, including supplying and using appropriate products and equipment for toilet cleaning as approved by the Market Manager.
3. Ensure a supply of waste receptacles at all times with regular removal and replacement of bins as necessary to maintain a clean and tidy environment, with wastes deposited in a bulk container as specified by the Market Manager.
4. Collect fees for use of toilets from market patrons as agreed with the Market Manager (but not from vendors or their children).
5. Allocate toilet tissues to people using the toilets.
6. Account for fees collected to the Market Manager at the end of each day.
7. Display signage about the proper use of toilet facilities.
8. Ensure the proper use of toilet facilities, including washing hands and not leaving the taps running continuously.
9. Prevent any harassment of people using the toilets, particularly women, children and disabled people.
10. Report any maintenance or repair issues to the Market Manager.

The Toilet Attendant and all other Operational Personnel should also:

- be neatly attired in unstained uniform with name badge clearly visible
- report any observed accidents or conditions likely to cause an accident to the Market Manager
- report any observed behaviour that is in breach of the market rules to the Market Manager, also summoning police or other emergency services when appropriate
- fully comply with the market rules in relation to their own behaviour, and provide a role model for the general public on how to behave respectfully towards one another.

xiii JOB DESCRIPTION: Cleaner

The duties of the Cleaners are as follows:

1. Sweep or mop common areas in the market in a way that avoids creating dust near to goods on sale as often as necessary to ensure a clean environment at all times, including clearing debris from surface drains.
2. Hose the market floor and clean all surfaces after closing at the end of each marketing day, including the toilet areas and surrounds.
3. Fully disinfect the market, also cleaning walls and signage on a weekly basis, at a time agreed with the Market Manager.
4. Ensure bins are conveniently placed around the market for depositing waste, and that they are emptied into the bulk waste containers on a regular basis to avoid overspilling.
5. Ensure separation of organic wastes from other wastes, and placement in the appropriate bulk waste containers.

Note *that if a contractor is engaged to perform cleaning duties, the tools and supplies for cleaning will be provided by the contractor as part of services rendered. However the use of any cleaning products including disinfectants should be approved by the Market Manager.*

The Cleaner(s) and all other Operational Personnel should also:

- be neatly attired in unstained uniform with name badge clearly visible
- report any observed accidents or conditions likely to cause an accident to the Market Manager
- report any observed behaviour that is in breach of the market rules to the Market Manager, also summoning police or other emergency services when appropriate
- fully comply with the market rules in relation to their own behaviour, and provide a role model for the general public on how to behave respectfully towards one another.

xiv Duties of waste removal personnel

The duties of the Waste Removal Personnel are as follows:

1. Provide bulk containers for receiving market wastes, to be placed on site in a position agreed with the Market Manager, and to enable separation of organic wastes from other wastes.
2. Remove the bulk market waste containers from the collection sites at the end of each day (or more regularly) to avoid any decomposition of wastes or overspilling of bulk containers at the market.
3. Dispose of waste in a way that is agreed with the Market Manager and the local Council, with separate storage and productive use of organic wastes preferred (eg composting or use as animal feed).
4. Ensure that any vehicles and equipment used are maintained in a safe and reliable manner, with any waste transport managed to avoid spillage.
5. Maintain written records of the completion of daily waste collection from the market, for the Market Manager to sign off, also confirming satisfactory performance.

The Waste Removal Personnel, like all other Operational Personnel, should also:

- be neatly attired in unstained uniform with name badge clearly visible.
- report any observed accidents or conditions likely to cause an accident to the Market Manager.
- Report any observed behaviour that is in breach of the market rules to the Market Manager, also summoning police or other emergency services when appropriate.
- fully comply with the market rules in relation to their own behaviour, and provide a role model for the general public on how to behave respectfully towards one another.

Contractors are responsible for the supply of tools and equipment to carry out the required tasks, ensuring the health and safety of their workers, as well as market users. Invoices should be submitted to the Market Manager for verification against the record of services provided, before payment.

xv Duties of maintenance personnel

The duties of the Maintenance Personnel are as follows.

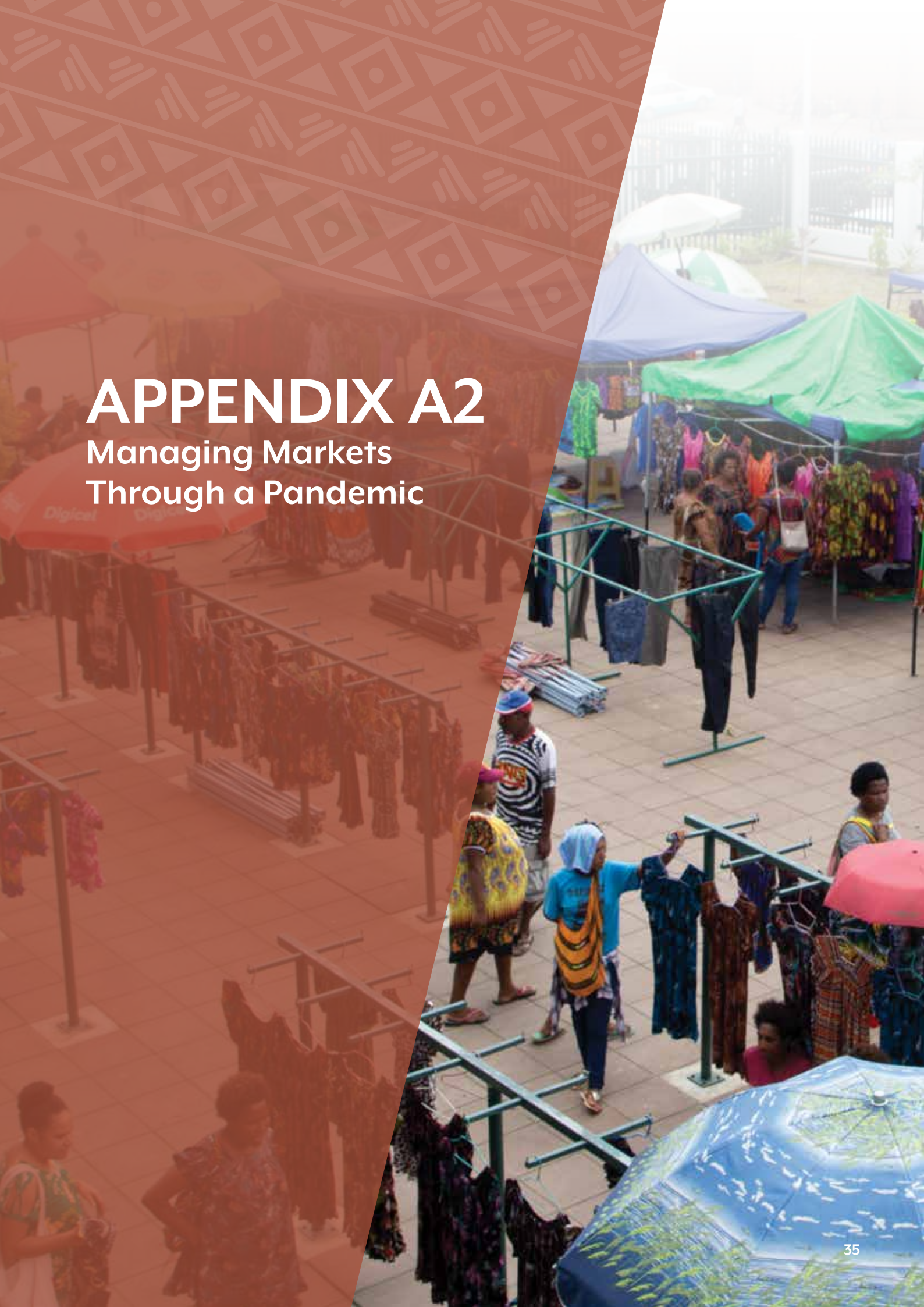
1. Confirm the extent of their experience, and their competence in different trade areas.
2. On request, provide the Market Manager with advice on the most cost effective ways of carrying out urgent repairs as well as routine maintenance on request, with indicative or firm pricing and required timelines.
3. Carry out repairs in a timely manner as soon as possible after the Market Manager approves the proposed work.
4. Maintain a written record of work done, including cost and timelines, for confirmation and approval by the Market Manager before payment.

The Maintenance Personnel, like all other Operational Personnel, should also:

- be neatly attired in unstained uniform with name badge clearly visible
- report any observed accidents or conditions likely to cause an accident to the Market Manager
- report any observed behaviour that is in breach of the market rules to the Market Manager, also summoning police or other emergency services when appropriate
- comply with the market rules in relation to their own behaviour, and provide a role model for the general public on how to behave respectfully towards one another.

Contractors are responsible for the supply of tools and equipment to carry out the required tasks, ensuring the health and safety of workers, as well as market users.

APPENDIX A2
Managing Markets Through a Pandemic



In 2000 Papua New Guinea took steps to minimise the impact of the COVID-19 virus, which had the potential to cause catastrophic outcomes if it was not contained. Mitigation was focused on social distancing and hygiene measures to prevent infection. Some of these practices involve improvements which may be retained after the current emergency has passed, while others involve more drastic changes which may be necessary if the virus takes hold. These guidelines have been developed in line with the experience gained from adaptation of markets so that they can continue to operate in a pandemic situation.

Local government and (where appropriate) local landowners or private operators must monitor the conditions within local markets to make sure that they meet the required standards. This may require controlling foot traffic at entry and exit points as well as limiting the number of vendors and customers in the market at any one time.

i Why focus on markets?

Large groups of people congregate in markets. In Port Moresby alone, thousands of people visit markets every day. Markets often have no running water and poor sanitation facilities. These factors can contribute to the spread of disease. Therefore it is essential to implement new practices within market operations that mitigate against the spread of the disease.

Throughout Papua New Guinea, markets are vital in supplying affordable food and other goods to the country's citizens. It is important that they are kept open even in emergencies such as a pandemic, so that communities are assured of food security and vendors can retain their income. However, if the situation makes it impossible to ensure the safe operation of markets, it is important to put in place alternative ways of distributing food and other essential goods to local communities.

Most of the major markets are operated by district or local governments, with established market managers and operational teams. However, there are also markets on privately owned land which are managed by the landowners, and roadside markets that are established without authorisation on public land. Local government is responsible for ensuring that markets operate appropriately, so the following guidelines should be applied to all of these types of markets. Adhering to these guidelines will help protect the livelihoods of informal vendors, while ensuring continuous safe food supply to the entire population.

ii The target for these guidelines

These guidelines have been developed for use by market vendors, market management committees, local and district governments, landowners and development partners intending to support business operations in markets.

iii Universal principles

The recommended actions in these guidelines are informed by the following universal principles:

INCLUSIVITY- ensuring that the interests of government, vendors and customers in markets are fully considered from both a public health and economic perspective. Therefore, it is important to ensure that vendors, mainly women, are consulted about implementation of the measures, and their ideas also considered in all decisions.

SUSTAINABILITY- cost efficient and effective implementation that is beneficial beyond the life of a pandemic such as COVID-19.

DO NO HARM- ensuring that the exercise of these guidelines does not promote other negative consequences to social cohesion, safety, health and economic prospects.

Phased out response- realising that some investments may require more time or resources for implementation, guidelines have been categorised into both immediate and long-term actions.

iv Providing training

Training on these guidelines should be provided to market management, operational staff, contractors and private landowners as well as vendors. It is important that everyone knows what is expected. In addition, everyone should be encouraged to give constructive feedback if there are areas that could be improved. Market management should be trained on the key messages and on effective strategies for conducting awareness for the public safely in a humanitarian crisis to avoid causing harm to either those disseminating the messages or those receiving them. UN Women has developed a guideline on how to deliver public awareness safely within the COVID-19 Context and this guideline can be used to provide face to face awareness messages safely.

v Overview of guidelines

AREA OF FOCUS	IMMEDIATE ACTIONS	LONG TERMS ACTIONS	RESPONSIBLE PARTIES
Providing information	• Ensure availability of information on the pandemic, its modes of transmission, prevention measures and available support services. • Ensure information is made available in simple and accessible formats for all, including those living with disability. • Ensure that those disseminating information are trained on how to deliver public awareness safely.	• Train market management, operational staff, contractors and private land owners on disaster preparedness.	Market management committees, community service organisations
Promoting hygiene	• Install hand washing stations at market entrances. • Regularly disinfect working surfaces. • Clean toilets, washing areas and drainage at least twice a day. • Provide soap dispensers next to water troughs. • Encourage customers to use their own shopping bags or clean bilums. • Encourage use of masks.	• Promote use of mobile money for payments (cashless transactions). • Construct additional ablution facilities. • Conduct anti- public spitting campaign. • Introduce by-laws with penalties for poor hygiene practices.	Vendors, Market Managers, community service organisations
Promoting social distancing	• Maintain at least 2m distance between market stalls. • Draw lines on the ground indicating where customers line up to avoid overcrowding. • Control entry and exit points to and from the market so only a certain number of customers are let in each time to prevent crowding. • Consider allowing vendors to operate in shifts to avoid crowding of vendor stalls. • Explain these measures to the public so they understand and can comply, including putting up signage.	• Design market stalls with plexiglass barriers between stalls. • Extend operating hours of markets. • Promote use of online buying and home delivery of pre-packaged goods.	Vendors, Market Managers, community service organisations
Safety and security	• Conduct health screening at market entrance, for example temperature checks. • Ask people indicating symptoms to kindly leave the market, return home and seek medical advice. • Ensure security personnel are well trained on COVID-19 prevention and crowd management.	• Conduct regular health promotion days within markets. • Physically separate areas for selling of live animals from fruits and vegetables. • physically separate any live animals from each other • include refrigeration facilities for fresh fish and meat sales	Vendors, Market Managers, community service organisations
Contingency planning	• Identify potential suppliers with capacity to deliver goods closer to residential areas. • Provide incentives for local delivery of fresh produce to hard to reach locations.	• Establish an emergency distribution network for fresh produce.	Vendors, Market Managers, community service organisations
Enforcement of guidelines	• Obtain buy-in of stakeholders through inclusive consultations on how to implement the guidelines. • Widely communicate the guidelines.	• Integrate guidelines into local level by-laws • Promote guidelines as the new norm	Vendors, Market Managers, community service organisations

vi Providing information

Information about the disease and appropriate protection should be displayed at the market entrance and prominently throughout the market. Such material should be clear on how to prevent infection, signs and symptoms, and where and how to access assistance, along with what the assistance entails. One consequence of a pandemic is a possible spike in the incidents of intimate partner violence and domestic violence. Messages should identify key partners providing essential services such as safe houses, HIV treatment, and services for people with disabilities.

Communication materials need to be tailored for the market setting and low literacy context. These materials can be provided to local market management and other duty bearers to distribute within the market area. There are also radio and TV commercials that can reach the general public on safe and hygienic practices to avoid and limit the spread of the coronavirus. More information in relation to the 2020 pandemic was accessed by contacting the COVID-19 free helpline – 1800200.

The messages in the posters can be reinforced by personal presentations to people in the markets, which can also expand on the guidelines for market operations.

In addition, special signage should be placed at the market entry, around toilets and washing areas to explain the new guidelines that apply to activities in markets.

For markets with a public announcement system, this can be used to give reminders to people to practice social distancing and hygienic behaviour.

vii Controlling entry and exit

Markets will have to operate in a way that reduces crowding and also keeps women safe. This might mean limiting the number of vendors so that there is the possibility for spacing them out and also limiting the number of customers who can be in the market at any one time. Hand washing and hand sanitizer facilities must be provided at every point of entry and exit. All persons entering the market should be required to wash their hands with soap for at least 20 seconds.

An assessment of market risks that that can lead to infection needs to be made in each market. This assessment needs to ensure the particular needs for women's safety are taken into account. For example, personnel controlling entry to a market need to prevent sexual harassment of women vendors.

This assessment needs to be made for each market. For example, some markets have established a limit to the number of customers that can be in the market at any one time, and when one person leaves another person may enter. As a rule of thumb the number of customers at any one time might be the same as the number of vendors. However there also needs to be a control on queueing up at the market gates to get in or out of the market. Rationing access to the market may need to go hand in hand with other measures for people to access food and other essential goods (such as packaging for household delivery, see below).

It is important to exclude people (market staff, vendors and customers) who are showing signs of sickness. This might require notices at the gate and promotion in the media stressing that people with symptoms (in the case of COVID-19 dry cough, difficulty breathing, loss of sense of smell, and high fever) should stay away. It may also be possible to use a temperature screening device if this can be obtained, indicating whether each person has a temperature or not. This requires designating and carefully controlling all entry and exit points in the market.

Vendors, customer, employees, contracted workers and Market Managers who show symptoms of the infection should be treated respectfully and directed to return home and seek medical advice. If there is local availability of testing, they should be referred to a testing facility and then put into quarantine until the test results are obtained and, if the test is positive, for a 14 day period.

viii Promoting hygiene

Making markets more hygienic places needs a combined effort by market management, workers and vendors as well as customers. Less crowding will make it easier to improve market hygiene.

Market Managers and workers need to make sure the physical environment is kept clean. This requires that markets have a reliable potable supply of water for washing hands and washing produce, as well as a supply of water for disinfecting surfaces, toilets, washing areas and drainage. Some markets already have a regular hose down (eg weekly or monthly) but they may need to increase this to a daily routine after the market closes and use disinfectants or soap.

Hand sanitizers and/or washing facilities must be provided next to toilets. Providing wall mounted liquid soap dispensers next to water troughs or sinks will help together with tippy tap hand washing stations at different locations and wash basins at the entrances to markets. Cashless money transactions can be explored to try and avoid using cash that may carry disease.

Vendors can play their part by providing hand sanitizers and disinfectant wipes on their stalls, for regular use by themselves or their customers. They should also ensure that the surfaces that they use for selling goods are clean and sanitary at all times.

At the end of each day, the vendors and market operational personnel must work together to ensure that all rubbish is removed from the market for proper disposal, and markets are thoroughly cleaned and disinfected.

All people within the market need to take personal responsibility for minimising the chances of cross-infection. They should be reminded not to cough or sneeze openly but rather to cough into their elbows. Ultimately wearing a mask or other face covering may become necessary.

People chewing betel nut and spitting in public places should be discouraged from entering the market. In times of danger from a pandemic this is even more important than usual, as infection can be spread in this way. Where feasible it is appropriate to prohibit betel nut chewing within the market, with strict penalties for spitting. This prohibition should also apply to chewing and spitting tobacco.

ix Social distancing for vendors

The recommended distance between stalls to minimise infection is 2m, with the hope that this will achieve a distance of at least 1.5m between people for most of the time. This is based on the likely distance that moisture droplets will travel between people if someone with a virus coughs or sneezes.

Enforcing this spacing requirement may mean that far fewer vendors can be accommodated than was previously the case. It may be necessary to provide a roster for registered vendors so that they only sell on certain days of the week. It may be possible to provide some additional ways of earning a living through setting up home delivery services (discussed below).

In some countries it is possible to set up plexiglass barriers between stalls, and this could be considered for larger urban markets.

x Social distancing for customers

Once the number of customers has been limited, it will be possible to encourage appropriate spacing as they shop for goods. Putting markers on the ground or barriers can show how customers should walk around the market with minimal contact.

Extending opening hours of markets may be possible in some markets where there are limited opening hours at present.

To encourage customers to limit how often they visit the market, they should be encouraged to do a weekly shop rather than making a daily visit.

xi Handling goods

It is more hygienic to wash or disinfect hands regularly rather than wearing plastic gloves, as the virus could stick to the gloves. Cleaning hands and sterilising utensils between sales is encouraged.

If the virus takes hold it may become necessary to insist that all vendors and customers wear facial coverings to prevent cross infection. In the meantime, provision of disposable tissues on each stall would be appropriate so that if anyone needs to cough or sneeze they can do so into a tissue and then dispose of it in a waste bin. This needs to be combined with a safe waste management system at each market.

It is not anticipated that vendors or customers will be required to wear protective clothing. However it is a requirement that clothing is washed regularly with soap and water and otherwise kept clean.

Customers should bring their own shopping bags. Use of bilums rather than purchase of plastic bags is encouraged, but bilums should be washed before bringing them into the market.

Goods on sale should be clean, and should be placed on clean surfaces. They should not spill onto the floor. Use of clean banana leaves or paper is acceptable but not used newspaper. Encourage pre-packaging of fresh produce.

Market Managers should ensure that the designated areas for the sale of fresh produce, fresh fish, meat and cooked foods are separated.

xii Providing a range of goods

It is important that people have access to the full range of essential goods and services that they need. If the main markets restrict the sale of some sorts of items, then it is important that there are other ways that people can buy these goods.

The main focus of markets is usually the sale of fresh fruit and vegetables. Some of these require preparation before they can be sold, such as washing, peeling, husking or cutting up. Doing this in advance of bringing the goods to market may help to reduce crowding around water troughs and production of wastes, but this may reduce the freshness of the produce. Market Managers need to work with vendors to decide on what is the best balance between the quality of the goods, the promotion of hygiene, and good management of wastes.

Some markets restrict the sale of cooked foods. This needs careful consideration, as the vendors often need to feed themselves and their children in the market, and it is important that they have access to nutritious meals. However there should be specific attention to hygienic preparation and sale, with requirements for hygienic containers, covering foods and refrigeration as appropriate. This needs to be worked out between the Market Manager and the vendors to find the best solutions. Any washing up of containers after the sale of foods may be best done by vendors after they leave the market, to avoid crowding of the water troughs.

Sale of fresh fish and meat creates additional problems in ensuring hygienic conditions. However it is important for nutrition that people have access to these protein foods. Refrigeration is essential, and larger markets should consider installing ice machines to supply ice to vendors. Consideration should also be given to how fresh meat and fish can be made available in local neighbourhoods without having to be sold along with other goods in the main markets (see below under "Distribution of goods").

The COVID-19 virus and some previous deadly viruses have arisen because of a transfer from live animals to humans in crowded conditions. Bats and pigs have most often been the hosts. While there are currently no restrictions on sale of live chickens, the sale of other live animals for food needs to be restricted. Sale of fruit bats and wild pigs in markets (dead or alive) may need to be banned. In addition, scavenging in markets by live animals such as pigs or dogs must be prevented.

xiii Handling money

Vendors should be encouraged to keep buckets of water with disinfectants to keep coins in so that it is cleaned upon receipt and when giving cash change to customers. Market vendors already keep money in buckets, so this would not be a completely new practice.

In the long run and because a virus can stay on surfaces for a long time, phone banking transfers or paying for goods with phone transfers should be encouraged. In the longer term this form of contactless trade might be phased in, so that both vendors and customers can avoid handling cash. There are additional security benefits from introducing cashless transactions.

xiv Enforcement

It is most important that enforcement of the new guidelines is carried out in a non-aggressive manner, avoiding creating hostilities and violence. The fact that enforcement agents are often men and market vendors are mainly women creates a situation where gender based violence can result if enforcement agents behave inappropriately. It is important that measures to ensure women's safety in accessing and working with the markets continue to be prioritised. A pandemic emergency is stressful for everyone, and a climate of co-operation is needed, with everyone working together to ensure our safety.

PART B:
Market Improvements

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B1 Preparation phase

Making an investment in physical improvements to a market needs some preparation, even before the design of the improvements. It is important to make good use of the available information on how the market functions at present, tapping into the expertise of the vendors as well as the market operational personnel. It is also essential to make sure that there are satisfactory arrangements for vendors to maintain their livelihoods while the physical improvements are made, either on the existing site or on a new site. Minimising disruption to the vendors will help in rapid re-establishment of a functioning market after the improvements are made.

B1.1 Orientation

It is essential that there is a briefing on the local context given to the market designer, supplemented by additional inquiries as necessary so that the social, economic and environmental context for market operations is understood. This may include::

- a general orientation to the town: location of transport node and commercial activity, where are people buying and selling.
- consultations/interviews with leaders, market and transport stakeholders, as well as vendors
- observations and interviews at market sites.

There are a number of previous reports arising from field research which can assist with the orientation process. One of these is the report on the National Audit of the Informal Economy prepared in 2019, which gives an overview of how workers in the informal economy make a living.

B1.2 Pre-occupancy survey

It is recommended that there is a survey of vendors before the improvements are made, to establish a baseline from which the relative success of the improvements can be assessed. This can also be used to identify vendor priorities for improvements, as an input to the design brief. UN Women has developed and tested a baseline survey tool that can be used for this purpose (see Appendix B1). UN Women has a separate training manual on how to conduct surveys with some tips on the do's and don'ts.

There is also the option to survey customers to identify what their priorities would be for improvements. It is likely that vendors will be aware of their customers' views, but there could be some different perspectives. Conducting focus group discussions with customers could be a useful adjunct to the survey of vendors.

As part of the preparatory survey work for improving an existing market, it is advisable to conduct a safety audit of the market space and its surroundings, to identify particular safety and security issues that need to be addressed. Some of these might be influenced by the physical environment (such as lack of lighting, areas hidden from public view, conditions affecting accessibility for able bodies and disabled people) and some are determined by how people behave in the space (such as substance abuse, gang activity, harassment, criminal behaviour). Safety audits should be conducted with the participation of women including vendors and any others who regularly use the space, to carefully inspect the area and identify women's perceptions and fears. The safety audit process recognises that the people who use the space are the experts in how it affects their feelings of safety and their actual vulnerability.

UN Women has prepared a separate handbook on how to conduct safety audits.
(UN Women (2017) Women's Safety Audits in Port Moresby: a handbook to guide local action)

B1.3 Consulting vendors

A pre-occupancy survey will raise awareness about the different options for improvements, and is likely to lead to some lively discussion between vendors on these issues. It is useful to build on this by providing opportunities for vendors to contribute to the development of the design brief. This will be made much easier if vendors can nominate a representative group to advise on behalf of all the vendors. If there is a vendors' association then forming such an advisory group may be relatively easy. If there is no such association, then forming an advisory group may be a useful first step towards formalising as a vendors' association.

A first step will be to prepare a diagrammatic site plan of the current market, so that comments and suggestions can be related to the current infrastructure. There are then many useful methods for facilitating participative design. Two stages in the participation process are recommended:

(i) ***Shared observations:*** a group of vendors can accompany a facilitator (preferably with the market designer) in walking through the market slowly along different pathways, with a recording of observations about features that are positive and those that are negative for the users, with questions asked and answered along the way. This information should be recorded as annotations on the site plan. This is a technique termed "transect mapping" and it can be similar to that used in conducting safety audits. Much can be learnt from people who are regular users of the market about the features that need to be retained and those that should be changed. Observations should be made about not only what is in front of the market stalls, but also what happens behind and under the stalls. For example, if you see babies sleeping under the tables, this can trigger a conversation about how mothers looking after young babies can best be supported. (see later section 2.11)

(ii) ***Model making:*** this can be a very useful way of facilitating participative design, as it enables vendors to examine different physical options by designing and spatially orienting components in different configurations, to find the preferred spatial arrangements. It is possible for the participating group to be provided with essential information that will assist the design process, such as traffic movements, drainage flows etc. Also, the participants will need model making equipment such as coloured cardboard, scissors, toy cars, blue tak and glue. This technique was used with great success in the design of the current Boroko Market after it had been destroyed by fire, with the current market reflecting the recommendations made through participative design.

B1.4 Decanting arrangements

"Decanting" is a term that refers to temporarily moving the occupants out of a facility while physical improvements are made. The arrangements for decanting vendors from a market during an improvement program need to take account of:

- whether there is room to decant the vendors into a different area on or near to the same site, while ensuring the health and safety of vendors and their customers during a building program
- the expected duration of the building program, taking account of possible extensions to the program due to weather events or other factors
- if a new site is needed for decanting, whether this is easily accessible for vendors and their customers, taking account of public transport links as well movement of as wholesale supplies
- what temporary infrastructure can be provided for the decanted vendors such as shelter, toilets and water supplies, parking and security.

The budget for setting up temporary infrastructure should be part of the market improvement budget. It may be cost effective to provide infrastructure that can be used for a different purpose after the decanting period, such as a specialist market (eg wholesaling, second hand clothes), or with infrastructure that is designed to be relocated to another site such as a smaller scale district market.

CASE STUDY

Around 2,000 vendors were relocated from the old Gordon's Market to other Port Moresby markets to make way for the two year construction program for the new Gordons Market. The aim was to enable a peaceful relocation to temporary vending sites that were safe and equipped with basic facilities (water, toilets, shelters and benches, security services and policing). Clear and ongoing communication was essential to ensure that economic livelihoods were maintained and that community disturbance was minimal. Boroko and Hohola markets were provided with infrastructure to support the relocation. Available services in the vicinity of the markets, potential security and public transport networks were important considerations.

The affected market vendors from Gordons Market were fully involved in working out the necessary relocation assistance, and provided with information about services in the areas they were moved to. This included setting up information points at the relocation sites to provide information to the relocated vendors and local community members. There was also a feedback system so that vendors and customers could lodge concerns and queries.

Prior to the relocation there were a number of vendors associations operating at Gordon's market, representing different categories of vendors. The NCDC provided support for maintain these groups so that they were still active when the vendors moved back into the new market.

(see the Gordon's Market Vendors' Temporary Relocation Strategy)

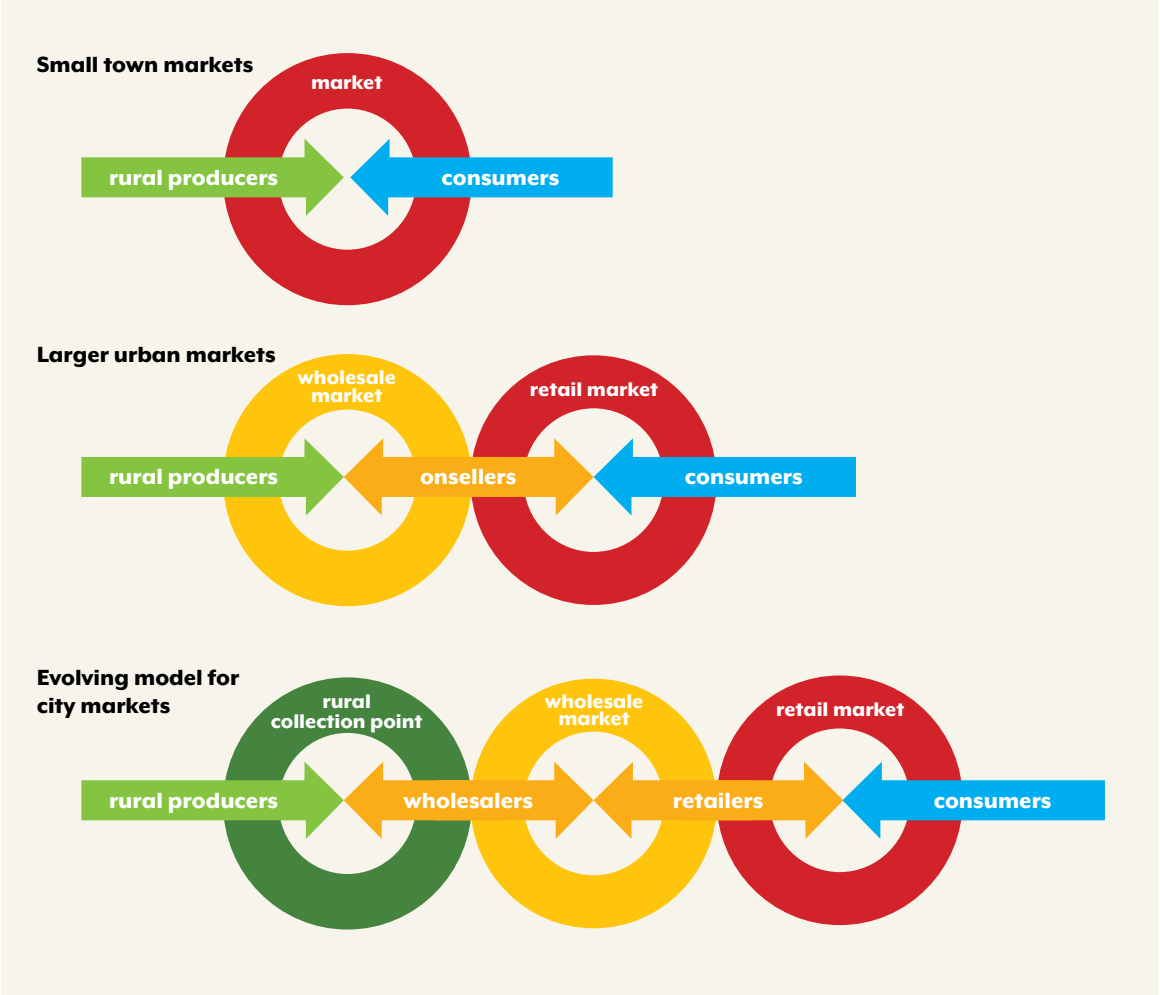
B1.5 Understanding wholesaling

It is important to appreciate how markets in Papua New Guinea are evolving. Traditional markets were places where rural producers could sell their produce (crops, fish, meat) to urban consumers. This is still the pattern in smaller towns. Even in larger urban centres there are producers who will sell directly to consumers, travelling in from villages and staying for several days until their produce is sold, or producing vegetables in urban gardens.

This pattern is changing however. Increasingly farmers are bringing their goods into urban centres and selling to people who will on-sell the goods in the market. The transactions between producers and on-sellers are often chaotic, partly because the space for organised on-selling is not accommodated within the market. Some markets elsewhere in Melanesia have designated hours for wholesaling before the market opens for customers, and this seems to work well.

In the longer term, as urban centres grow, it is likely that wholesale markets will be developed as separate places, for example at the city periphery, and there will be specialist wholesalers who sell to retail vendors in the markets. This can be seen already with some more commercial crops.

The diagram below illustrates this transition.



B2 The design brief

A successful market improvement project requires a good design brief, founded in a thorough understanding of user needs as well as the requirements of the client organisations (local government, funding agencies, development partners) for function, cost effectiveness and sustainability. Some suggestions for the design brief are provided here, and these can be customised for particular local communities and environments.

B2.1 Design principles

There are some important design principles for new markets and other public infrastructure that should be adopted by the designer.

(i) Understanding the business

First, it is important that there is a thorough understanding of the existing market and the way it functions. This can be assisted by providing the designer with an introductory profile of the local community and the history of its market. For many markets there are previous profiles that were prepared in 2010 that could be used as a basis. The profiles should also describe the physical characteristics of the market site, including any environmental constraints such as poor drainage or flooding.

(ii) Sustainable use of resources

Second, it is important that there is a commitment to sustainable use of resources, including use of renewable resources where possible, minimising waste and reducing environmental impact. Markets can be designed as an integral part of a localised circular economy, in which there is value adding to fresh produce, productive use of food wastes, sustainable use of water resources and appropriate application of renewable energy resources.

(iii)Low maintenance

In regional areas of Papua New Guinea it can be expected that there will be limited local financial resources for ongoing maintenance, so that bringing in materials for maintenance will be expensive and technical skills for maintaining built infrastructure will be scarce. For all these reasons it may be important to design a market that will have minimal maintenance requirements even if this increases the capital costs.

(iv)Value for money

The value for money (or balance between cost and benefit) needs to be assessed in terms of how the market meets the functional requirements of the design brief, specifically ensuring the health and safety of vendors, their suppliers and their customers while enabling them to carry out their business efficiently. Value for money over the design life of the market may be more important than the initial construction budget, so the design should ensure that functionality is not compromised, for example, by burdensome maintenance requirements that may be difficult to achieve.

(v) Flexible and adaptable design

It is desirable to provide a market design that will accommodate changing practices over time. A very good illustration of this has been provided by the 2020 pandemic emergency, which has necessitated radical changes to operational arrangements within markets, meeting social distancing and enhanced hygiene requirements. Over time there are likely to be ongoing changes brought about by social and economic circumstances. This calls for a “loose fit” design that enables space to be used in a number of ways.

Adaptable design can benefit from treating the different components of the built infrastructure in different ways ("system separation"). The primary structure such as the market building and external sealed paving can be designed and constructed as one component, with the brief providing for a high level of durability as well as flexibility. The other components (internal finishes and furnishings, fencing and gates) can be commissioned as a separate phase, with a high level of adaptability. This separation can be cost effective because the skill sets required for the different stages are quite different. The components included in the secondary phase can be subject to an annual cycle of review and adaptation to meet changing needs, maintaining their value and functionality, and taking advantage of emerging technologies.

(vi) Use of local resources

Decisions will need to be made locally about how to maximise use of local resources including local labour, involving local women as well as men. While it is highly desirable that the results of capital investment will flow into the local economy, and the use of local labour and materials can reduce overall costs, these considerations need to be weighed against the need for quantity control. Training for women and men as part of the construction program may be required. Sometimes cost effective solutions can be assisted by bringing in some prefabricated components from elsewhere in Papua New Guinea. There have also been instances where an overseas development partner required use of components manufactured overseas.

In making these decisions, it is helpful to evaluate what materials are available locally (eg timber, stone, building materials manufactured in the local area) and what level of skills is available including potential use of local contractors. Sometimes a balanced approach can be achieved by defining different parts of the improvement process, described above as system separation.

B2.2 Site requirements

While many improvement projects will involve works on an existing site, some projects will require selection of a new site. In either case, there needs to be an evaluation of whether the site is fit for purpose.

Local planning regulations may be a constraint on site selection, and a requirement for an environmental impact statement is a possibility. Building and public health regulations may require specific approvals. Beyond the regulatory processes it is important to ensure that all interested parties have been informed and have given consent, preferably in writing through a Memorandum of Understanding or other formal agreement. This may require compensation agreements with customary owners or other affected parties. Failure to secure agreement runs the risk of creating resentment that can lead to vandalism of market infrastructure or violence towards market occupants in future.

An analysis of the physical characteristics of the site is necessary in any case. Considerations will include the following.

- ***Is it large enough to accommodate the present and projected future demand from vendors and their customers?*** Note that if a substantial capital investment is involved, it would be expected that this would provide for a projected user profile over at least a ten year timeline.
- ***Is it physically safe from accident?*** Many roadside markets provide very little protection from traffic, with past tragic accidents of vehicles veering off the road, as well as hazards from fumes and fuel spills. One possibility is to relocate a roadside market to a space that is set back further from the road (without losing its connection), while another is to give extra consideration to physical barriers and other safety provisions. Relocating a roadside market will usually need to retain visibility from the road so that the market continues to attract customers from passing traffic.

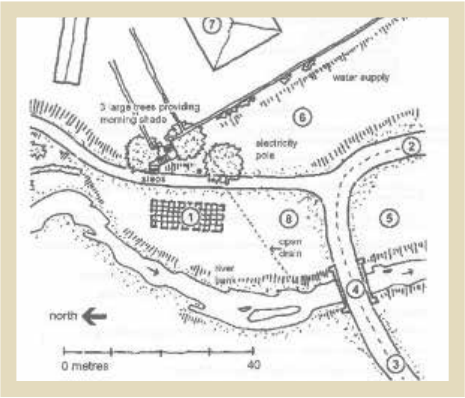
- ***Is it free from riverine or tidal flooding?*** Climate change could worsen current problems, and any degree of flooding presents a risk to vendors and their customers, livelihoods and the integrity of the infrastructure. It may be possible to mitigate flooding risks but only with a significant increase to project costs.
- ***Is it free from erosion or landslip?*** Many parts of Papua New Guinea have a shortage of flat land, but use of sloping land often brings with it risks of instability. It can be very expensive to include construction elements that stabilise the land set aside for the market site.
- ***Can public utilities be provided easily and cost effectively?*** Some markets may need to have their own power and water supply, but there may be advantages in connecting to reticulated supplies in larger urban centres.
- ***Is the land suitable for investment in major construction?*** The site needs to be assessed in terms of soil characteristics, site drainage (including drainage from surrounding land uses), as well as any natural or human-made obstructions to the building of the market. Ideally a site should be selected which minimises earthworks. The land area impacted by the new market should take account of the need for constructing drainage works and road widening, as necessary.
- ***Is there any conflict or benefit arising from use of the site for a market in relation to other nearby existing, proposed or possible land uses?*** The traffic generation created by a market could well cause conflict with other uses such as hospitals and schools, while co-location could be an advantage for some uses such as accommodation hostels.

The ideal market site would be large enough to cater for future expansion, gently sloping with stable soils, located to benefit from the existing community uses and layout while avoiding land use conflicts including traffic hazards, free from flooding or other natural hazards, and clear of obstructions.

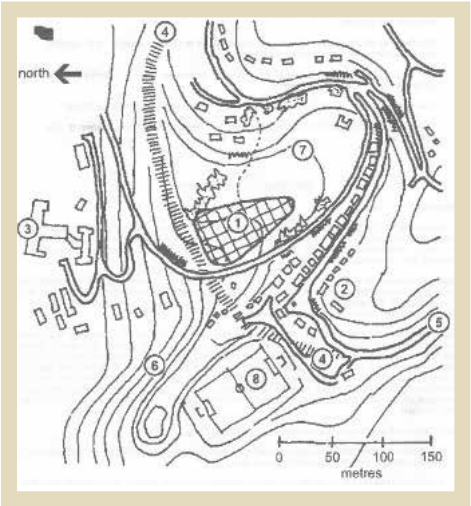
Access arrangements to the site are an additional important consideration and these are considered separately below.

The site analysis will be assisted by collecting available maps and aerial photographs, and carrying out supplementary research so that a site analysis plan can be drawn up. This should be presented in a format that is easy to understand by lay people so that it can be used in consultations and for explanation to decision makers. Examples of site analysis diagrams are provided as follows *(source = UN Food and Agriculture Organisation - FAO, undated)*.

Site analysis diagram for a small market



Site analysis diagram for a larger market



B2.3 Access arrangements

Good access is essential for the successful operation of a market, and this needs to be considered before, during and after any improvement program. Access is needed for the following.

- ***Bringing in goods for sale by vendors.*** Some markets may include a significant wholesaling activity, while others will rely on vendors each bringing in their goods for sale. Separate areas for wholesalers' and retailers' access are likely to be needed. Access by trucks is required with offloading areas for vendors and their goods.
- ***Bringing in vendors and customers by public transport.*** Ideally a bus/PMV stop should be right outside the market entrance. Experience has shown that if this is not the case, there are two unintended consequences:
  - vendors and customers are discouraged from using the market, and travel to another more conveniently configured market even if this is further away, and/or
  - roadside vendors set up informally around the bus stop, replacing some of the services provided by the market.
- ***Bringing in a range of other privately owned vehicles, including taxis, cars and small trucks.*** These bring vendors and customers into the market, and they often require short term parking (see B2.4 below).
- ***Foot traffic*** including people walking to the market as well as moving from buses or other vehicles. There may be dense foot traffic with possible queueing outside the market entrance, which would have the potential to spill over into an adjacent street unless there is adequate footpath provision.
- ***Waste collection vehicles*** will need to access the market to remove rubbish, with a daily collection preferred. This needs separate site access at predetermined times.
- ***Construction and maintenance activities*** may also need access for heavy machinery, and some of this may need to occur while the market is operating. A shared access with waste collection vehicles is a possibility.

Access arrangements need to separate these different types of movement so as to avoid congestion and traffic hazards. In particular, unloading areas for vendors and wholesalers should be separate from car parking areas, there should be a nominated setting down area for public transport, and safe pathways/queuing areas for foot traffic are essential components.

Access arrangements need to anticipate provisions for traffic management. For example, pedestrians need to be kept away from vehicles while they are entering or leaving the market. 'No-stopping' zones may need to be created in front of the market for drop-offs in taxis or other cars. Pedestrian crossings may be required to give right of way over vehicles at certain locations where conflicting use could occur. Speed humps may be required to slow vehicles approaching congested areas.

B2.4 Parking

There is no standard benchmark for the amount of parking that is needed at a market, as different localities have very different transport arrangements. However some dedicated parking is essential. A study of local parking demand, and an allowance for expanded demand over time, can produce a localised estimate.

Carpark surfaces need to be durable and well drained, able to withstand wear and tear from movement of a range of vehicle types including small trucks.

Sometimes the edges of parking areas are taken over for selling bulky goods such as firewood or other non-perishable items. While this is a market management issue, such alternative uses may need to be taken into account in the parking layout.

Markets in larger urban centres may have charges for parking, which can form a substantial part of market income. This can be another argument for making sure that parking provision is adequate, as the additional income can help establish a sustainable business framework for market operations.

B2.5 Entrance and exit

The market entrance needs to provide for controlled pedestrian movement, with lockable gates excluding public access outside the published marketing hours. Market fees may be collected from vendors at the gates, though alternative provisions for payment of fees may be desirable to reduce congestion. It can be anticipated that there may be congregations of people outside the gates in the lead up to opening time and beyond. Confining people into a restricted space brings risks of hostility and crime, so an open flow of people should be encouraged through spatial design.

Arising from COVID-19 experience, it is now a requirement that there is provision for hand washing and sanitisers at the market entrance, so that people entering the market can wash and clean their hands. Sufficient taps and sanitisation stations need to be provided to prevent overcrowding around these facilities.

The market gateway is a place where signage display should be accommodated – opening hours, market rules, hygiene requirements and other regulations. This suggests constructing durable frameworks for billboard display of signs. The gateway itself provides opportunities for celebratory design, presenting a positive image of the market and embracing local culture. Local artists can be engaged to assist. Visual presentation of messaging with a focus on pictures rather than words is appropriate, catering for people from different language groups as well as different levels of literacy.

The market gates are likely to be left open during opening hours, with market operational personnel providing supervision. However some larger markets may provide turnstiles or hinged barriers as a way of managing entrance and exit movements.

Special consideration needs to be given to the exit provisions for people leaving the market. The normal exit could be through the entrance, so long as this does not worsen the congestion arising from people entering through the gates. However there also needs to be separate provision for emergency exit, in the event that particular circumstances arise which require people to leave quickly. This could include a fire or an outbreak of violence, for example. A secondary gate that can be quickly unlocked in these circumstances would be desirable. Access for vehicles associated with waste management also needs consideration (see section B2.18).

B2.6 Fencing

Fencing around market sites is often seen as desirable to enable controlled access to the market. It is necessary for exclusion of people who are not intending to buy or sell, but rather to make trouble. People who are intoxicated or under the influence of drugs may be identified and excluded for this reason. People who are harassing vendors and/or intent on criminal activity may need to be ejected in a way that prevents re-entry. There is also a need to exclude roaming animals such as dogs or pigs, as their presence would threaten food safety and market hygiene.

In the past, fencing has also provided some security for women and children sleeping in the market overnight. This has been necessary when rural women travel into town for a few days at a time, and stay with their produce until it is sold. More recently this practice has been discouraged by provision of alternative overnight accommodation in some centres.

Fencing the market does have a downside. It could lead to entrapment of vendors and customers in a crowded market, preventing rapid escape in an emergency. For this reason, emergency exit provisions should be considered and carefully managed. As with many aspects of design, there is often the need for a careful decision that balances competing priorities. In some locations there may be a preference for not providing fences at all, to avoid feelings of entrapment, and in these cases it will be necessary to devise other ways of managing unwanted entry.

B2.7 Site surface/drainage

Effective drainage is a critical component of good market design, applied to roads, parking areas, pedestrian circulation areas, open air selling areas and covered selling areas, including drainage from ground surfaces as well as roofing. Drainage design needs to allow for very heavy downpours as well as potential clogging of drains by market refuse (vegetable peelings and the like). It should also provide for drainage when markets are hosed down as part of the cleaning regime, with possible chemical as well as organic contamination. Potential for ponding of stormwater should be prevented as this can create unsafe and unhealthy conditions within the market. This has clear implications for maintenance and management as well as market design.

Use of impervious paving is often preferred, but the impact of stormwater discharge from the market site should be addressed in off-site drainage infrastructure. Use of brick, cobbled pavers or gravel may allow some stormwater to be absorbed on site, reducing the external impact, but potentially increasing maintenance requirements.

Perimeter drainage is likely to be appropriate, with additional internal drains as required by topography and placement of infrastructure. Drainage design should take account of likely accumulation of debris from marketing activity, even though this can be minimised by regular sweeping by market cleaners. Drainage should also be designed to avoid presenting trip hazards for pedestrians, bearing in mind that crowded conditions may impede visibility of ground surface conditions.

Setting the edge of drainage channels flush with paving levels may help to avoid trip hazards. Dish shaped drains may aid cleaning efforts. Placing grates over drains will help prevent clogged drainage as long as the grates are swept clean - this type of design is preferred, but there is much experience of these being damaged so lift out modules that can be replaced would be appropriate. Designing the drainage system so that water velocity promotes self-cleaning is desirable where this does not compromise other design factors. Discharge of drains may require filtration before entering natural water bodies, with stormwater potentially being directed through vegetated areas.

Roof drainage needs to avoid the possibility for water spilling over onto the areas where vendors have set their stalls. The selling area can sometimes expand beyond the roofed area, so some vendors and their goods may be in a vulnerable position if there are overflowing gutters or if roofing simply discharges water onto the ground. This may suggest installation of oversized gutters, possibly with gutter covers to prevent blockage (which would also help with respect to fire events).

CASE STUDY

The new Wewak market was designed as several separate shelters with open space between, on the assumption that vendors would be located under the shelters. As more vendors moved in, the spaces between were occupied by vendors seated on the ground, sometimes protecting themselves from rain with umbrellas. The gutters on the market shelters were often blocked, and the overflowing water poured down on the vendors and their goods below in the event of a storm.

B2.8 Space allocation

Market design needs to accommodate an estimated number of vendors, based on evidence about current demand with an allowance for expansion. Given that there is often much demand from vendors who cannot get space in existing overcrowded markets, and that most markets are steadily growing in size as Papua New Guinea becomes more urbanised, provision for a 40-50% increase in the number of vendors may be appropriate.

Selling spaces commonly average around 10m2 per vendor. However the total area allocated for vendors with circulation for both vendors and their customers might be at least three times this area. The space between vendors' stalls needs to be 1.5 to 2m to facilitate the type of social distancing required in emergency situations.

The market site needs to provide for vendors and their customers plus a range of associated uses. It is not possible to specify the proportion of ancillary space, particularly as parking provision demands may vary between localities (some potentially shared with other land uses). It would be expected that waste management, assembly areas and provision for vehicle drop off would add at least 20% to the market area.

Allocation of spaces to vendors is a matter for market management. Some types of goods require larger selling spaces, and there may be different areas of the market set aside for different types of goods. However within these constraints, spaces are often allocated on a first come basis. If there is an ability for more regular vendors to pick out the same spot that they can occupy on an ongoing basis, this may help establish social relationships between vendors which assists in safety, but this may disadvantage rural vendors who have to travel long distances and may only sell in the market intermittently. These problems are exacerbated if some selling spaces appear to be more commercially advantageous than others. A spatial design that provides more equitable conditions throughout the market may be called for.

In arranging the selling spaces, there may need to be separate consideration of the need to accommodate different types of goods and activities such as:

- wholesale trading in bulk goods – which may be organised before the regular market opening hours or in a separate area
- fresh fruit and vegetable retail trading areas, with associated debris (peelings etc)
- sale of packaged and processed store produce (often referred to as "mini-markets")
- sale of dry goods such as grains
- sale of fish and meat commonly involving eskies and ice with access to washing facilities, sometimes requiring fly proof display facilities
- sales of cooked food, possibly with cooking on-site requiring use of various fuels, as well as access to washing up facilities
- sale of essential goods other than food such as firewood, cleaning utensils and materials
- second hand clothing sales which may need larger spaces and hanging frames
- sale of live animals, most commonly poultry, possibly with associated slaughter and butchering activities which need separation from other activities and particular provision for disposal of animal wastes.

Most markets have a policy about which goods are able to be sold in particular markets. Trading in betel nut and cigarettes is common in some markets, often alongside other goods, but may be completely banned in future. Since these policies and the demand for different goods may vary over time, the space allocation may need to provide for future flexibility and adaptation.

B2.9 Protection from weather

Traditional markets have often been open air, with vendors displaying their goods on mats or tables that they bring with them. This creates very harsh conditions for vendors and their children, as well as risking deterioration of the goods they sell due to rain, sun, wind, dust or other environmental conditions. While vendors may bring umbrellas with them to provide some protection, this provides only partial shelter. The need to carry goods plus umbrellas and stall furniture to and from the market is an additional burden. Over time some vendors may decide to build more permanent structures, which then become their property. However if there is not clear authorisation for these, there have been many instances where they are burnt down or otherwise destroyed, creating local conflict that can be ongoing for many years.

For these reasons, local governments and private market owners have often decided to provide built shelters for vendors. This is desirable to safeguard the health and wellbeing of vendors and their customers, and to maintain the quality of fresh foods. In the case of fish and meat, exposure to heat from the sun may result in food poisoning. Often the market shelters only provide for some of the marketing activities, with undercover spaces set aside for regular users, and intermittent farmer-vendors being allocated space on the outside. Sometimes the distribution of inside-outside space is determined by the types of goods on sale, with firewood being less susceptible to damage from weather for example.

Critical decisions are:

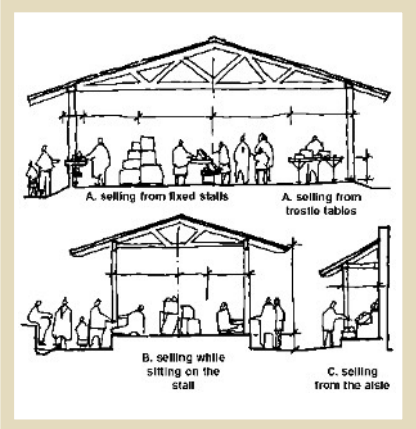
(i) whether to build one big structure or several structures

(ii) what the roof height should be

(iii) whether or by how much to enclose the walls.

The problem with providing several structures is that as the market becomes more popular, vendors may occupy the spaces between the shelters, often occupying spaces that need to be kept clear for circulation or drainage. The problem with large structures is that the internal areas can suffer from poor natural lighting and limited ventilation, though this can be alleviated by raising the roof height and/or inserting skylights and ventilation mechanisms. Tall roofing may provide opportunities for lofted spaces and other infrastructure though this involves higher costs. Open sided structures can mean that vendors near the outside edge are exposed to wind, dust, sun and driving rain. Enclosing the walls alleviates this but is likely to increase dependence on artificial lighting (with possible problems of reliability), and lack of through ventilation may produce unhealthy conditions for the occupants.

Provision of shelter barriers on the lower part of the wall with ventilation above may be an option for buildings with significant roof height. Providing wide overhangs can offset the exposure of peripheral stalls, and can also provide opportunities for customer circulation, as indicated below (source = FAO, undated) though this may remove the option of protective peripheral barriers. It is very important that these choices and compromises are discussed with vendors, to see what arrangements will work best for them.



Another consideration for building design is fire. This is a common hazard, with rural bushfires being common, and arson being an ever-present risk. Use of fire-resistant materials and a minimum distance of 8m between buildings is advisable.

B2.10 Provision for vendors

It is common for market shelters to include benches, tables or defined stalls. These should be provided to keep the food off the ground, and should be easily cleaned. Sometimes these are fixed concrete structures. Where sale of meat or fish is intended, surfacing with stainless steel may be desirable for ease of sanitation. As an alternative to fixed stalls, use of timber tables including movable trestle tables is possible. Tiered stands against external walls may be useful for some goods, such as second-hand clothes or packaged store goods.

A suggested minimum size of stall is suggested as 10m2, and this needs to include a bench depth of at least 2m. The bench needs to be shallow enough for a person to reach across it, but there also needs to be adequate space behind the bench for vendor seating, placing of goods that are not on display, sometimes sleeping areas for children and other paraphernalia that vendors have brought with them (which could include bedding and clothes for overnight sleeping). Again, consultation with vendors is essential so that their functional requirements can be met.

Because the actual space requirements may vary, there may be an advantage in having a modular design for benches and seating, so that several units can be combined for some purposes.

Provision of seating is desirable, though some markets may make plastic chairs available for daily hire, some vendors may be prepared to bring their own seats, and others may choose to stand or sit on the floor.

Some markets include construction of kiosks and shops to accommodate particular activities. However there are instances where commercial interests in leasing structure such as these competes with the economic performance of the market. It would be highly desirable to restrict use of kiosks to those activities that will complement the social and economic interests of vendors, such as provision of financial services, information booths or packaging. In some cases a kiosk arrangement might provide for diversification, eg preparation of cooked meals in market where sale of cooked foods is not otherwise available, or sale of meat and fish in refrigerated conditions. It would not be appropriate to allow activities which directly compete with what vendors are already doing.

B2.11 Provision for children

Because vendors often bring young children with them to the market, some market improvements have included components which provide specifically for children. These have not always been successful.

Previous consultations over market improvements in a highland community included much heated discussion about whether a child care centre should be provided. This was seen as beneficial for children, but impossible to implement because of local cultural concerns. It was thought that vendors would be suspicious that their children would be subject to sorcery or kidnap, and they were worried that they would “disappear” from the centre. Conversely, women who were potential operators of the child care centre were worried about what would happen if mothers failed to collect their children at the end of the day.

In another market it was decided to provide play equipment in an area that was clearly visible from all the vendor stalls. After the new market was occupied it was found that the play equipment was unused, so options for relocating the equipment and using this space for alternative used were pursued.

Providing for the safety and amenity of children continues to be a concern, and other options may need to be explored with the vendors to find locally appropriate solutions. In Australian markets there has been some success around organising children’s activities rather than establishing a separate space, and a culturally appropriate model for Papua New Guinea markets involving music, crafts or story telling might be practicable.

B2.12 Provision for people with a disability

The 2019 National Audit of the Informal Economy found that there was an unexpectedly high proportion of disabled people amongst workers in the informal economy, many of whom are likely to be market vendors. Disability access is therefore an essential design consideration for both vendors and their customers. Market design needs to provide level paved areas, avoiding steps where possible. Access to toilets and washing areas needs to enable use by disabled people. Use of wheelchairs is currently rare (possibly because of poor access, or lack of wheelchairs) but may become more common in future. Provision of handrails in appropriate locations including toilets would be appropriate (see Section B2.16).

B2.13 Safety from people

To fulfil their proper community function, markets need to be, and to feel to be, safe places.

They are likely to be crowded places, with plenty of activity, involving a mixed group of people that includes vulnerable individuals (women, youth, elderly and disabled people). That makes it vitally important that safety and security from anti-social or criminal attack is promoted through the design and management of market improvements. There may be times when social distancing needs to be achieved in markets, so this needs consideration in the context of crowd management.

This impact is different from, and in addition to, designing and managing for safety from accident which is addressed in Section B2.14 below. Working to prevent crime including assault requires different approaches.

Based on experience elsewhere, the design of the market and the way it is located and managed should therefore:

- enable vendors, management and customers to see what is happening in the market, so they are able to intervene or respond, with the hope that such community pressure will deter would-be criminals or inappropriate behaviour
- group, layout and design activity spaces in ways that provide views of all the active market spaces and do not create blind corners or hidden areas
- encourage a sense of pride, shared commitment and expectation by managers, vendors and their customers that the market will be a safe place
- through design and signage, make clear the layout of the market, including which areas are reserved for vendors, servicing and managing and not for customers
- work with others to ensure that access to the marketplace, its entries and transport stops are safe
- prevent unauthorised access to the market area and its structures after hours
- design the market structures to resist vandalism or theft.

As an example, the appropriate width and clear delineation of spaces and circulation routes with appropriate signage can help lessen the distractions and chaos of otherwise crowded conditions within which criminal activity thrives, such as bag snatching and picking pockets within crowded markets. In addition, the provision of an appropriately large and welcoming arrival space at the entry can lessen another point of crowding and potential risk.

The provision of good lighting (either natural or artificial) can do much to promote safety, by avoiding the creation of dark areas that can hide criminal behaviour. This involves both design and management.

Enabling those in the marketplace to see all spaces, and especially avoiding the creation of hidden spaces, needs to apply to the design of buildings, landscaping, transport stops, car parking, service delivery and other infrastructure components where people are.

Secure fencing (discussed in B2.6) can discourage unauthorised entry into the market when it is not open to the public, and is also useful so that market entry can be confined to people with legitimate reasons for being there. Using fencing that allows passers-by to see into the market site, rather than solid walls, can help provide further surveillance. Locating the market so that the site is visible from a passing traffic on an adjacent road also helps.

The risk of roof top equipment such as solar panels being vandalised or stolen can be reduced by the thoughtful design of walls and roofs and the distancing of overhanging trees.

Promoting security from theft requires a variety of design approaches. Providing secure storage of goods may be helpful not only during the night, but also so that vendors can safely leave their stalls during the day (for example to visit the toilets or washing facilities). Lockable space may enable them to keep any money they have in safety. Provision of banking facilities within the marketplace may avoid the need for vendors to travel outside the market with their cash takings, and provision of a phone banking agent that can convert money into phone credits and vice versa can also be helpful (see B2.24).

Toilets are areas within which women and their children may be particularly vulnerable to assault. Properly located facilities with direct over-looked paths to them and well lit common space areas around them are essential. The design of toilets is discussed in more detail below (see B2.15).

The risk of vandalism and graffiti might be lessened by involving local schools, artists and others in the community to contribute street and wall art and other expressions of local identity, fostering a sense of local pride that could help deter anti-social behavior. It is helpful if that interest in the safety of the market area is shared by not only by vendors, management and customers but also by neighbours and the broader community.

The inclusion of other uses and facilities (discussed in B2.28) can both usefully increase the amount of supportive activity on site and add to those agencies or groups with an interest in fostering security, as well as adding to market viability.

Once established, regular safety audits and discussions among key stakeholders about the incidence of anti-social or criminal activities is usually important as a basis for the introduction of further changes to improve security.

B2.14 Safety from accident

Occupational health and safety can be promoted by ensuring that design components are durable, capable of being maintained in a safe and usable condition, and that physical obstacles to safe movement and activity are avoided.

Provision of good lighting, either natural or artificial (discussed in B2.20) can do much to promote safety, by avoiding creation of dark areas that create a potential for tripping. Uneven surfaces can also be hazardous. Market access and circulation needs to accommodate not people with a disability but also able-bodied people carrying children or heavy loads.

Provision for safety in the case of catastrophic events and emergency situations should be considered. Many markets have been damaged as a result of fire, with bushfire, accidental fire and arson as possible causes. Use of fire resistant materials, spacing of buildings and provision of fire fighting equipment are potential mitigation measures.

Maintenance of all built infrastructure is essential in providing safety for vendors, customers and operational personnel (see B5.2).

B2.15 Provision of water

It is essential that clean hand washing facilities should be available for market vendors, to prevent disease spreading from unclean hands. Washing produce – vegetables, fruit, fish and meat – may also take place, as well as washing of containers and utensils, requiring large water troughs. If the market includes cooking food, there will be additional demand for washing utensils.

There is also likely to be a demand from vendors, their children and their customers for drinking water if there is a potable water supply. An external tap that enables filling drinking vessels may be convenient for this purpose.

The demand for water could extend to cleaning the market (sometimes with hoses) and ice making in some markets.

So markets need a reliable and hygienic water supply, some of it meeting standards for potable water. Often this can be obtained from public supplies of reticulated water. However water pressure may be low and there are instances where these supplies are interrupted for various reasons. It seems advisable in any case to provide for rainwater harvesting from the roofing of market shelters as a back-up supply. The collection points can be positioned near to the facilities requiring water access, particularly toilets and washing troughs.

In some districts water supply can rely on pumping from a borehole or well. In this case it is important to test the water to see how it can be appropriately used. A concrete apron or other bunding may be required to prevent spillage of water outwards as well as entry of pollutants that could contaminate the supply. Location at the perimeter of the market may be desirable, with easy access to drainage infrastructure.

B2.16 Provision of toilets

If markets are not provided with toilets there are likely to be a range of unhealthy and dangerous practices. Men may urinate in hidden areas within or around the market. Women and their children may seek more discreet areas in surrounding vegetation, but this creates conditions where they are vulnerable to sexual assault. The need for toilets is most urgent for vendors and their children as well as market operational personnel, who are likely to be in the market for long periods of time.

There is still a risk of sexual harassment and possible assault as well as insanitary practices around market toilets, where they are provided. While good supervision can address some of these problems, design is also a factor.

It is essential to provide separate toilet facilities for men and women, with some separation between them. Preferably they should be on opposite sides of the market, and a space for at least one person who will supervise the use of the toilets should be provided for each set of toilets. Sometimes fees are collected and toilet paper distributed by this person, and cleaning materials may be kept on hand.

Educational posters with diagrams and pictures may be required to advise about appropriate use of the toilet facilities. Provision of pedestal flushing toilets is increasingly common, but use of these may still be unfamiliar to people living in rural areas. It is also vital there is a place for disposal of sanitary items such as menstrual pads and babies' nappies, with appropriate signage. Provision of a baby changing room and table is desirable.

Toilets in markets are likely to be heavily used, so the design needs to provide for resilient appliances and ease of regular cleaning while maintaining access. At least three pedestal toilets should be provided for women and children (allowing for continued function if one toilet becomes blocked or otherwise non-functional), and at least two pedestal or squat toilets plus urinal for men. The actual number of pedestals needs to be configured for likely demand based on the maximum number of people (vendors and customers) present at any one time. The ratio of use is likely to be around 80% use by women and their children, so the sizing of facilities needs to take this into account. It is possible that there will be some queueing outside the toilets, and the space needs to be configured so that there is good visibility and a lack of crowding in these areas. Markets may be opened at times when there is limited or no daylight, so good lighting in and around these facilities is desirable.

There have often been problems in connecting toilets with an appropriate sewerage system. Municipal systems may be overloaded, leading to backing up of effluent. Some coastal markets have relied on discharge into the ocean, but tidal surge can lead to disastrous effluent discharge into the market itself. Climate change with associated rising sea levels, as well as potential contamination of the marine environment, suggests that this practice should be discontinued. It may be more appropriate to provide a dedicated septic tank disposal system for the market, appropriately sized for the likely level of use. This should be located so that potential contamination of food crops or groundwater is avoided.

B2.17 Power

The need for electrical power to supply a market depends on the activities taking place, but it can be anticipated that there will be a requirement for lighting at least (discussed in B2.20).

In many towns it may be possible to connect to a reticulated power supply, though there may be problems of reliability. Other options may be considered. Installation of solar panels on the roofing areas may be cost effective, but there have been instances of vandalism and theft which have rendered the power system ineffective. Installation of solar lighting with appropriate protection against vandalism may be more cost effective if lighting is the main power requirement.

Other power generation options include anaerobic digestion of organic wastes to produce biogas, and pyrolysis of woody wastes to produce syngas. The gas can be used as is (eg for cooking) or converted to electricity. While these technologies are available at a medium scale, consideration needs to be given to maintenance requirements and operational skills. The business case for these technologies should also consider the value of the byproducts - digestate and biochar as soil conditioners for example. Other options for gaining value from these wastes are discussed below (see B2.18).

Particular vendors may seek their own power supply. Those selling fish or meat might want power for a small fridge or chilling department. The alternative is for an ice making machine to be installed at the market, for these vendors to place in eskies. In either case a user-pays arrangement is likely – for example separately metered power supply, an add on fee for renting stalls, and/or fees for purchasing ice (see section B2.22).

In many cases, it is likely that an auxiliary power supply will be required for the market in the form of a diesel generator, to be turned on when there is a power cut in the reticulated supply. A generator can create fumes, and there are risks of fuel spillage. A concrete slab with perimeter containment would be appropriate, in a location away from the food sales areas.

B2.18 Waste management

Good waste management is essential in establishing healthy conditions for trade in foodstuffs, with control of harmful bacteria, vermin and associated diseases. This affects the health and wellbeing of vendors, their children, their customers and market operational personnel. It also impacts on the attractiveness of the market, as customers will avoid going to dirty markets.

An effective waste management system needs to include the following:

- portable open bins located throughout the market for collecting organic wastes, with other bins for non-organic wastes and signage to advise on waste separation
- portable enclosed bins in toilets for sanitary products including menstrual pads and used babies' nappies
- larger waste receptacles in a separate area of the market grounds into which wastes collected from the market can be regularly deposited, with waste separation
- a place for disposal of organic and non-organic wastes.

Larger waste receptables are likely to be removed from the market at the end of the day or more frequently. Waste skips (2m x 3m or larger) are used in some markets. In others, small trucks with separate containers for organic and non-organic wastes will be parked while being filled with the collected wastes, and then immediately moved off site. It is likely that the vast majority (80%+) of wastes will be organic in nature.

While non-organic wastes are likely to be buried in landfill, with some being incinerated, there are other options for processing organic wastes. These can have value for feeding livestock such as pigs, and pig farmers may be prepared to buy these wastes (subject to local regulations). Composting of wastes can be an effective and low cost solution, with compost being a valuable soil additive for farmers and gardeners. While composting wastes in open windrows can take several weeks, and create problems of insects and vermin, there are various ways of accelerating and enclosing the composting process that may be cost effective in particular circumstances.

CASE STUDY

At Lautoka market in Fiji, waste collection takes place several times per day, with wastes separated into organic and non-organic wastes in the back of the collection truck. Organic wastes are than composted for commercial sale at the Council's landfill site.

Anaerobic digestion of organic wastes (that is, excluding exposure to air) can be cost effective, particularly for wet food wastes, producing biogas as well as soil additives. More fibrous and woody wastes can be more effectively processed through pyrolysis. If on-site processing is required, there is also an available small scale (eg maximum 1 tonne per day) technology for high temperature containerised treatment of food wastes to produce a concentrated soil conditioner as an inert powder. These technologies have not yet been applied in Papua New Guinea's markets, but further advice with reference to practical applications elsewhere can be sought, as appropriate.

B2.19 Provision for cleaning

Market hygiene can be promoted by designs that include easily cleaned surfaces. It is also likely that periodic (sometimes daily) hosing of the whole market with water, possibly with added chemicals, will be carried out and this has implications for positioning of taps and drainage channels. Rainfall brings its own natural cleaning effect.

Some sweeping of ground surfaces is likely to be carried out at various times of day, to keep drains clear of debris, and to collect fallen wastes so they can be placed in waste receptacles. However sweeping during market hours may be limited in case it creates dust.

Market cleaners need a store for their cleaning equipment, with 10m2 suggested as an appropriate size to accommodate brooms and wheelbarrows as well as any other tools and chemicals.

B2.20 Lighting

It is highly desirable for the market to rely on natural lighting as much as possible, and this is influenced by the length and breadth of built structures, by the roofing height and shape, and by the design of skylights or other supportive devices.

Artificial lighting is likely to be needed so that the market can be used before dawn and after sunset as needed. In addition, an ability to vary the amount of artificial lighting will help ensure appropriate visibility, for example on dull days.

Specific illumination may also be needed for areas that are not well provided with natural lighting, and for areas where people are vulnerable to assault, such as the areas around toilets.

Use of vandal proof solar lights has been mentioned as a possibility. Regardless of the source of power, light fittings need to be low energy, robust and easily accessible for replacement of bulbs. It is essential to ensure that replacement bulbs can be easily sourced

B2.21 Storage

Some markets provide storage for vendors as a cupboard underneath the benches, and this can be useful for keeping personal effects. Such cupboards could also be used to store unsold goods at the end of the day, so these can be put on sale the following day. However other markets provide a separate secure storage arrangement for these goods. Without this facility vendors often take unsold goods home for use by their families, or to give to friends and relatives. For perishable fresh fruit and vegetables this may be the preferred solution, as offering lower quality produce for sale the next day might be less attractive for customers, and eventually less profitable for vendors. These options need to be discussed with the vendors.

Storage cupboards used for foodstuffs need to be easily cleaned, and made from durable materials that exclude pests and vermin.

Storage space is also necessary for tools and equipment used in market management, such as the cleaning store described earlier (see B2.19) as well as spare parts such as light bulbs, and basic maintenance tools.

B2.22 Refrigeration/ ice making

For markets where fresh fish or meat is sold, use of refrigeration should be encouraged. This can be by way of providing ice that can be put into vendors' eskies, from a common ice making plant.

B2.23 Cooking facilities

In some markets sale of cooked foods is allowed, in others vendors are allowed to cook at home and bring cooked food for sale in the market, and in some other markets vendors are allowed to cook and serve meals on site. These rules could vary over time, so it may be wise to provide markets that can accommodate these activities.

If food is cooked on site, this could be pursued in small kiosks using electricity. However in small markets it is more usual for vendors to provide their own cooking facilities and cook on open fires, or using bottled gas. This requires a dedicated area, and consideration should be given to minimising fire risks. If meals are served then the vendors' customers will benefit from seating, and access to facilities for washing utensils will be appropriate.

It is important that there are hand washing stations and facilities for cleaning utensils in association with sale of cooked food.

2.24 Financial services

At present only a minority of vendors have bank accounts, but use of phone credit transfers is common. Provision of some sort of banking facilities within the market is desirable, so that vendors do not need to take large quantities of cash with them when they leave the market, as they are then vulnerable to theft. In the present arrangement there is the possibility of providing a phone credit agent in the bank, who can convert cash into phone credits and vice versa. This typically involves a secure facility within a lockable shipping container. If banking becomes more common, installation of an ATM machine with deposit facilities might be useful. Provision should be made for some sort of financial services, even though the technology may change over time.

2.25 Arrangements for wholesaling

As discussed in B1.5, traditionally markets have involved farmers bringing their goods to market, and selling directly to consumers. However in larger urban centres it is becoming more common for wholesaling to involve intermediaries. Markets often need to accommodate wholesaling activity consisting of sale of bulk goods to retailers who can on-sell in smaller quantities. Sometimes this takes place in different parts of the market or on entirely different sites. It is also possible for wholesaling activity to take place in the hours before the market is open to the public. The preferred arrangement has implications for spatial design including transport and loading/unloading configuration. It needs to be designed in a way that will mitigate the harm caused by current chaotic wholesaling practices which include bullying farmers into selling their goods before they enter the market, for example in the car park.

B2.26 Overnight accommodation

In the past rural farmers who brought their goods into urban areas, mainly women, often slept in the markets overnight. This was partly because of the lack of affordable overnight accommodation but also so that they could guard the goods they had brought with them for sale the next day. Women and their children were vulnerable to theft and sexual assault during the night, especially in markets that were unfenced or otherwise insecure.

While there is increasing wholesaling of goods, there is still a large number of farmer-vendors who trade in district markets. Provision of storage facilities will be of considerable assistance in securing their goods overnight, but in many locations there is a need for dedicated overnight accommodation for women vendors and their children. This could be attached to the market or close by. Some of these accommodation facilities are now operational at various markets, so that there are lessons to be learnt about what works.

CASE STUDY

The accommodation provided at Koki Market in Port Moresby provides a possible model. This includes a large room with sleeping mats provided, toilets and shower facilities, and an external space with BBQ facilities. In addition, some provision of storage lockers at the accommodation unit may be appropriate for women selling high value, small scale and/or light weight items (eg bilums, vanilla) as well as to store personal possessions.

Provision of storage lockers at the accommodation unit may be appropriate for women selling high value, small scale and/or light weight items (eg bilums, vanilla) as well as to store personal possessions.

Safety considerations are very important in the location and design of overnight accommodation. There are many factors to be considered such as street lighting, visibility, separation from incompatible uses (such as places where men congregate to drink alcohol), proximity to the market and proximity to transport. Internally there needs to be provision for security, but also planned exit arrangements in case of emergency (such as intrusion or fire).

Some accommodation facilities have combined with other functions such as training, enterprises based on crafts, value adding to market produce, or health services. If accommodation is provided, this offers an opportunity to engage with farmer-vendors in capacity building and service delivery to primary producers.

B2.27 Administration office

The Market Manager and other operational staff need an office base, but the size will depend on the number of personnel and their duties. Many of the offices in large markets are very crowded, making it difficult to maintain paperwork filing systems as well as dealing with operational matters. A minimum of 15m^2 has been suggested elsewhere for the design of office space (FAO undated).

CASE STUDY

A market office was provided at the new Gerehu Market in Port Moresby which also includes a meeting room that can be used by the Market Vendors Association.

B2.28 Other facilities

A range of other facilities can be considered in the market design, and discussed with the vendors and other market users. These include the following.

- Creating sites for supportive facilities such as for police and health agencies may help attract investment by them and add to the activation and commitment of key stakeholders to the success of the market for the community.
- A public announcement system may be useful for broadcasting messages, including dealing with emergencies, and this could lead to other commercial uses.
- In larger markets, incorporation of a stage could accommodate use for entertainment and promotional activities, providing an additional revenue stream for the market.
- An information booth can be a useful adjunct in larger markets, to be offered to service organisations including NGOs, potentially used for health awareness or health service delivery.
- A meeting room can be useful for consultations with market vendors, and as a base for a market vendors' association. This could be co-located with the market office.
- Space for a clinic could be provided, as the market may be an ideal location when new clinic facilities are being planned
- A police post may be appropriate in locations where police are likely to be deployed to maintain law and order on a regular basis.

The initial proposals and the available budget may be limited to the core market functions. However a successful market provides a potential hub for service delivery across a number of areas, and this can be considered in long term planning for use of the site.

CASE STUDY

Port Vila Market is popular with local residents and tourists. It has a stage area that is well used for public announcements and entertainment.

B3 Contract Management

B3.1 Tendering procedures

It is likely that government agencies and funding providers including development partners will have established tendering procedures. These will aim to ensure that contracts are awarded on merit, with key considerations being value for money, quality of work and avoidance of risk. It is important that this process is not interfered with, as any corruption of the process may work against the public interest. Tenders should be sealed, and only opened at an appointed time before impartial witnesses. A rating system should be applied to compare the merits of different tenders.

Tender documents can be configured in various ways. It is possible to offer a design and construct contract, in which case a design brief must be provided, and a budget framework can be indicated. This could apply to a single market or several markets. However this would only be appropriate if potential tenderers have both the appropriate design skills and reliable construction capacity.

Whether or not the design and construction are separated, the tender documentation needs to include adequate provisions for managing risks of quality, timing and cost. Failings of quality will lead to increased maintenance costs with the burden of possible rectification and renewal. Time delays will impose hardship on displaced vendors and the whole community. Cost overruns may jeopardise project completion. If a project is terminated for any of these reasons there need to be safeguards to ensure that the site is left in a safe and usable condition.

Sometimes construction projects are staged. This can be a way of ensuring early commencement with limited funds. However there is a danger that lack of committed funds will mean that later stages will not proceed, so the staging should be configured with this in mind.

There is often a tension between tendering in a way that encourages speed and low risk through standardised solutions, and providing for construction that taps into local skills and resources. There are ways of managing this balance, which should be considered in the tendering process.

- requiring the tenderer to hire and train a specified proportion of workers, to subcontract to local firms or to use a specified proportion of local materials
- requiring the tenderer to hire and train a specified proportion of women amongst the workers or as employees of subcontracting firms
- separating the contract into different components, with some components configured to be within the capacity of local firms (see “system separation” discussed in section B2.1).

Providing for local input could possibly increase project costs or contract duration. On the other hand there could be cost savings from use of local resources, particularly in locations with high overheads from transport of materials. Additional considerations might be:

- how investment of part of the project budget into the local economy will benefit the whole community through the multiplier effect
- how building local skills and enterprise capacity will benefit the community in the long term
- how involving local people in construction will produce a sense of ownership that discourages vandalism and incentivises good management.

B3.2 Managing impact

Construction activity is likely to have a significant social, economic and environmental impact on the local area, and these impacts need to be carefully managed. Relevant management arrangements should be discussed with the local community and then built into the tender and contract.

Orientation of contract workers (including supervisors) in the local community should include introduction to local culture including cultural protocols to be followed. Local community leaders (women and men) may be able to provide this orientation.

Arrangements that maximise local economic benefit may include ensuring that local accommodation is used where possible, and that local transport services can be subcontracted. Information can be given to workers on where they can shop locally to purchase different sorts of goods, and what local services are available. This may discourage fly-in fly-out practices.

Managing environmental impacts should include:

- traffic safety ensured through management of vehicles entering and leaving the site, as well as efficient travel around the local area to transport people and materials
- soil conservation and reinstatement measures with reuse of stripped top soil, slope treatment and surface water drainage control, in order to reduce possible erosion and siltation risks
- storm water detention and drainage management to prevent adverse impact on natural water bodies
- dust suppression and noise management in locations near to uses that will be adversely affected by these impacts.

B3.3 Quality control

The processes for overseeing the contract need to be established. This will often require establishing an oversight committee on which the local government and funding agencies are represented, to approve of any necessary contract variations and to take action if the contractual obligations are not being met.

CASE STUDY

A Technical Steering Committee was established for the Gordons Market Redevelopment to provide direction, oversight and leadership. This extended from the planning and design phase into the tender and construction phase. The Technical Steering Committee was broadly based and inclusive, but a smaller Tender Review Panel was established, and a Subcommittee was active in overseeing construction, reporting back to the Technical Steering Committee on a bimonthly basis.

In a large urban centre it may be possible for the local government to provide an independent officer who can regularly inspect works to provide quality control on site (Clerk of Works or equivalent). In smaller centres there may be no-one locally who has the skills to perform this function, and an external person may need to be hired. This could be the designer or engineer who has been involved in the design process. The cost of these services should be accommodated in the overall project budget. Site instructions and variation approvals should only be given to the contractor through this nominated person, with relevant information or referrals for decisions being provided to the oversight committee. It would compromise the contract if there are other people such as local councillors giving instructions.

Depending on the delegations to the person responsible for quality control, they may be able to agree small changes to the contract specifications that are needed to address on-site issues. Larger changes may need to be agreed with the oversight committee. It is important to ensure that only essential changes are made during the construction process, and that the cost implications are carefully managed.

The contract will establish how the works should be carried out, and the standards of work to be achieved. Inspections for quality control will ensure that the works on site meet these requirements.

When the works on site are practically complete ("Practical Completion" stage), it will be appropriate for a thorough inspection including testing and commissioning different components (such as lighting, toilets, pumps, septic tanks). A "snagging list" can be drawn up identifying any areas that require additional work to fully comply with contract requirements before "Final Completion" is confirmed.

B3.4 Financial control

Financial control starts with establishing a realistic budget for the market improvement project. A conventional way of doing this would be to estimate the size of different components needed to meet demand and then deduce an average cost per square metre for construction. Additional costs for design, consultations, temporary relocation of vendors and quality control of the construction program need to be factored in.

Based on the recent cost of construction of new markets, cross validated by the prevalent benchmark costs per square metre, a capital investment of around US$6,000 or PNGK 20,000 per vendor appears to provide a reasonable budget for capital works (mid-2020 pricing and currency conversion). Provision needs to be made for inflation and contingencies. This establishes a budget within which fee collections can provide for a sustainable asset maintenance and replacement budget. (See separate Manual on how to run markets as a financially sustainable business.)

Once the budget is established, the design can be carried out following the design brief in such a way that it fits the project budget. A quantity surveyor can assess construction costs based on the design, allowing for locational factors that have cost implications, and including a contingency amount. This costing is then tested in the tendering process. If tenders exceed the project budget then the options are to increase the project budget or amend the specifications to reduce costs. If the tender indicates lower costs, then this provides an additional contingency buffer.

Cost control during construction is critically important. There are likely to be many problems encountered during construction which could lead to cost increases, such as difficulty in procuring materials, inclement weather or local environmental circumstances. The contingency amount provided in the budget may assist in accommodating these changes. If this amount is exceeded, then savings may need to be sought elsewhere in the project or the project budget increased.

B3.5 Provision for liquidated damages

While some overruns in cost and time may be inevitable, there is also the possibility that a contractor may fail to meet the required timing and cost targets in ways that cannot be justified as being beyond the contractor's control. The contract can include penalties to be paid by the contractor (deducted from the contract payments) in these events.

Delays or increased costs caused by bad weather are common. Some of this will be factored into the contract targets, but weather events could cause these to be exceeded. It is importance that site conditions are accurately recorded so that there is an objective accounting for justifiable variations due to weather conditions. Similarly other events or circumstances that impact on time and cost should be recorded in a site journal so that a fair adjustment of payments can be made.

3.6 Progress reporting

The oversight committee should be kept informed about the progress of the work on site, with any adjustments to estimated completion dates. Regular reports on a weekly or monthly basis may be required, plus reports on any exceptional circumstances that have significant implications. The oversight committee should in turn keep the local community informed.

Local people may not be familiar with the construction process, and it may be useful to explain the relevant steps, and the processes being used to manage the contract. If there is a representative committee from the market vendors then periodic meetings with these representatives would be useful (such as the Technical Steering Committee established for the Gordon's Market Redevelopment - see B3.3 above). Vendors should be kept informed about design variations as well as timing delays. In some cases it may be appropriate to agree design variations with the vendors before they are implemented..

B4 Re-occupation phase

B4.1 Handover with training

All too often a new market is occupied with inadequate preparation. The first part of the preparation is the handover of the new assets to the managing agency, usually local government. The handover should include easy-to-understand manuals and training presentations on how the physical assets should be maintained, where replacement components can be sourced, and where technical advice can be obtained when necessary.

The contract could require that the handover includes an asset register (see section B5.3) which will assist in establishing an ongoing asset management regime. Alternatively the asset register could be prepared by the designer or engineer as part of their contractual obligations.

The second component of the handover will be making arrangements with relevant authorities for provision of services and utilities, particularly power supply, water supply, waste disposal, telecommunications and policing.

In the lead up to the handover it will be appropriate to put in place all of the management arrangements for the new market. This might include hiring and training operational personnel, and consulting vendors about market rules and policies.

B4.2 Fee moratorium

There is often an inclination on the part of market management to immediately increase the fees paid by vendors when they occupy a new market. This is not good practice. Vendors may have suffered economically during the time they have been displaced, and they may need time to establish a new customer base in the new market. Raising fees may prevent them from building their businesses and profits, which will damage the market's performance.

Providing a fee moratorium (for example over a three month period) should be considered to assist vendors in the establishment phase. This may provide incentives for vendors to make their own investments in improving their businesses and complying with the requirements of the new management regime.

B4.3 Building the business

There have been some poor outcomes where Market Managers' performance is measured in terms of the amount of fees collected from vendors. This can limit the amount of trade generated by the market, encourage vendors to raise the prices paid by customers, and eventually drive vendors and their customers away.

A market operation is best seen as a joint venture between the Market Owners (eg local government) and the vendors. Such a collaborative arrangement requires ongoing dialogue, which will be made easier if the vendors have a representative association. If vendors are assisted in building their businesses they may be prepared to pay more in fees, and as the market becomes successful its income can be increased through additional opportunities (parking fees, advertising, promotional events etc). The Market Managers' performance should be assessed in terms of total turnover within the market, and successful management of the assets. (See separate Manual on how to run markets as a financially sustainable business.)

B4.4 Post occupancy survey

For any major capital works, it is good practice to conduct a survey of people using the infrastructure after construction, to see how successful it is in meeting their needs, and to identify any unintended adverse consequences that need to be addressed. A survey design has been developed for this purpose, and this is provided as Appendix B2.

B4.5 Defect rectification

Contract documentation should provide for a period after occupation (a 6-12 months "Defects Liability Period") within which any identified defects that are the fault of the contractor can be rectified at the contractor's expense. Some of the contract funding may be kept back for this purpose. A list of defects should be prepared by the person who has provided site supervision in consultation with the Market Manager, market vendors and the oversight committee. If there is disagreement with the contractor there may need to be arbitration. Once the defects have been rectified, the final payment to the contractor can be made.

B4.5 Budgeting for future works

When the market becomes operational there needs to be an established budget for ongoing asset management, including making repairs and replacing components as necessary, and ensuring that the assets are kept in good working order. Ideally the budget can be based on anticipated market revenues. It would be expected that maintenance expenditure will be low in the initial years after the improvements are made, but the budget should allow for increasing expenditure over time as market revenues grow.

If there are any project savings from the market improvement project it is suggested that these funds should be placed in an account for future expenditure on maintenance and incremental improvements or modifications over time.

The asset management budget is additional to the operational budget for personnel employed in the market, costs of utilities and services, as well as materials used in the market upkeep.

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B5 Asset Management

B5.1 What are assets?

Assets are facilities or infrastructure that provide benefit to the occupants, owners and/or the community as a whole. Public assets are those that are owned by government agencies and provided for community benefit. Markets are important public assets.

Typical market assets can be broken down into different components such as:

- building foundation and flooring
- building walls, windows and doors
- building roof
- car parks
- access roads
- fences and gates
- benches and seats
- storage rooms
- cold rooms
- security buildings
- kiosks
- market administration area
- toilets
- septic tank
- vegetable washing area
- water pipes, etc.

In addition there are essential infrastructure assets that support the market such as:

- transportation networks
- energy supply systems
- water supply
- wastewater and stormwater systems
- flood protection and land drainage systems
- solid waste facilities
- telecommunication networks.

Often these components are interrelated. A failure in one component may prevent the performance of other components. The consequences of component failure can be severe, sometimes life threatening.

B5.2 What is good asset management?

Good asset management involves keeping the assets in a safe and functional condition through an established maintenance system. This involves two types of maintenance:

- day to day repairs when it is observed that something needs to be fixed, noting that if problems are fixed right away the overall cost is far less than if repairs are delayed until components break down
- "cyclical" maintenance, which refers to work that is carried out according to a predetermined program, eg repainting every ten years, lubricating gate hinges monthly, replacing roofing sheets after 12 years.

If a good asset management system is in place, then the life of the assets will be extended, possibly indefinitely. The budget for asset management needs to ensure that components are maintained or replaced before they break down, so that the market continues to be physically safe and comfortable for vendors and their customers.

In developing an asset management system for a market, the following considerations apply:

- the estimated (or desired) life of the asset – for a new market it might have a specified design life of up to 20 years
- an appropriate budget for managing the costs of maintaining the asset over its life
- the desired standard of performance of the asset to meet community needs
- the preventative actions to be taken to minimise the breakdown of components
- the actions to be taken if any of the components do break down
- establishing and maintaining the necessary skills for asset management including passing these on as personnel change.

Good asset management requires regular inspection of different components, to see if there are repairs that are needed. It can be strengthened by encouraging all people involved in the running of the market, including the vendors, to report any maintenance requirements that come to their attention. Cyclical maintenance may require a schedule of technical assessments to identify major repair requirements or replacements (eg weekly, monthly, quarterly, annually).

When market improvements are made, it should be a requirement that the handover from the designer and contractor includes a handbook on the cyclical maintenance requirements that are needed for particular components, identifying the timing of any required inspections.

Sample Maintenance Schedule – Market Building

MONTHLY:

- ☑ Check the operation of all doors and windows, oil and adjust where necessary
- ☑ Check all internal lights and replace light bulbs where necessary
- ☑ Check all other electrical equipment:
  - Switches operate correctly
  - All power cords in good condition
  - No damage to equipment
- ☑ Check security system operation, including floodlighting
- ☑ Check smoke detectors (replace batteries if necessary)
- ☑ Check operation of water pipes, taps and replace washers etc where necessary
- ☑ Check operation of septic tanks and ensure they are emptied regularly.

QUARTERLY:

- ☑ Service septic tank unit in accordance with manufacturer's instructions

ANNUALLY:

- ☑ Physical inspection of building, grounds and fences to identify maintenance requirements

Good asset management provides the following benefits for the community and the local government or Market Owner:

- **Improved accountability by**
  - demonstrating to residents, market customers and fresh food sellers, as well as to national government and donors that markets are being well run
  - handing down good information on how to manage the markets across generations
  - reporting to the public on the full cost of maintaining the market in good running order over its lifetime
  - providing the ability to compare performance with that of other markets.
- **Improved communication and relationships with stall holders and customers by**
  - improved understanding of the standard of maintenance required
  - formal consultation/agreement with users on their expectations and roles
  - promotion of good asset management practice within the organisation
  - improved market satisfaction and market image.
- **Improved risk management by**
  - assessing the probability and consequences of asset failure
  - ensuring continuity of service
  - addressing the inter-relationships between different components and consequent risk management strategies
  - influencing decisions on end-of-life replacement as well as ongoing improvement decisions.
- **Improved financial efficiency by**
  - improved decision-making based on costs and benefits of alternatives
  - justification for maintenance works programs and funding requirements
  - recognition of all costs of owning and operating assets over their lifetime.

B5.3 What is an asset register?

This is a detailed description of each of the physical components of the market, its location, and the maintenance requirements that apply to each of these components. This could include the regularity of inspection, any routine maintenance required, as well as periodic replacement. Additional information for some components might include the cost of parts and where they can be obtained, as well a contact details for technical support.

Sample format for a Market Asset Register

Component	Condition	Quantity	Replacement value (total)	Maintenance Schedule	Annual Budget	Year Built
1. Gates • Hinges • Locks & Keys • Chain	Fair	5	K4,000	Monthly inspection • oil hinges • respond to reports of squeaks • check chains for wear • every 2 years rustproof and repaint • replace locks on request of Market Manager	500.00	2008

Once the asset register has been established (or for a new market, after it has been handed over by the designer or contractor) then the asset records should be maintained to show:

- any purchase or construction/replacement dates
- the purchase or construction/replacement cost
- the condition of the component when it was last inspected.
- any immediate or scheduled maintenance requirements.

Also add columns for:

- any supplier or installer who has been involved
- the person responsible for inspection and maintenance
- priorities for immediate attention.

For more complex components, there may be a need for an operating manual to be provided, and local market personnel should familiarise themselves with these instructions.

CASE STUDY
OF WHAT NOT TO DO:

In Kundiawa, when improvements were made to the market these included installation of a rice hulling machine for community use. This was popular but it needed regular maintenance. Unfortunately the machine had been imported from Brazil and the operating manual was in Portuguese, so the machine soon became unusable.

B5.4 What is asset depreciation?

Usually it is assumed that an asset loses some of its value for every year of its planned life. So if it is constructed with a ten year life in mind, it might lose 10% of its value each year. Money might need to be put aside to fund replacement after the ten year period. However if it is poorly maintained, it could lose its value even more quickly, and its life might be reduced.

Sample depreciation/replacement schedule for a Market Building with 10 year life (to be adjusted for inflation)

After ..	Year 1	Year 2	Year 3	Year 4	Year 5
Asset value	K9M	K8M	K7M	K6M	K 5M
Maintenance budget	K0.25M	K0.50M	K0.75M	K1M	K1.25M
Funds set aside for replacement after 10 years	K1M	K2M	K3M	K4M	K5M
Annual Budget	K1.25	K1.5M	K1.75M	K2M	K2.25M

Good asset management can extend the life of an asset and reduce its depreciation, possibly avoiding the need for replacement. In this case, rather than setting money aside for replacement, these funds could be continually invested in improving the market, replacing components along the way to extend the asset's life. If there is continual investment in the asset, then it may be possible to prevent depreciation completely. Continual investment may lead to the value of the asset increasing over time rather than depreciating.

Markets in Papua New Guinea are likely to continue to grow in size as urban populations grow, and as transport connections enable more rural producers to engage with the cash economy by selling their produce. Building a new market may therefore not be the end of the process of meeting community needs. Local government may need to look at a program of continuous improvements and expansion over time, possibly funded by the proceeds from running the market.

Some local governments are benefiting from receipt of funds from donors and/or the national government to make major improvements to their markets. This is likely to be a once only opportunity. It should not be assumed that if the market then falls into disrepair, someone will decide to replace it with another new market. Local governments need to demonstrate that they know how to take care of their assets and minimise any depreciation, so that they are trusted with other program funding in future. This is an important component of good governance.

B5.5 What if the assets are no longer needed?

Even with the best asset management system, some assets reach the end of their useful life. For example, this could occur if a market outgrows its site, and a new market needs to be built on a larger site. The old market is still an important asset that needs to be dealt with in a way that gets the best value for the community.

There are some circumstances in which the old market can be repurposed, making use of the buildings and other infrastructure for a new use. An example would be to turn the old market into a specialised market, such as a wholesaling market or a second hand clothes market.

Depending on the type of infrastructure, there may be possibilities to modify the old market for an entirely new use, such as a depot for transport or maintenance.

If there is no apparent value to be gained from retaining the infrastructure, a choice may need to be made about whether the buildings should be demolished to make the site available for other public use, or whether the site with buildings should be sold to another user. If the site is sold, then the funds gained can be invested in other more useful public infrastructure. An assessment should be made in terms of which solution is most cost effective in delivering benefits to the local community.

Decision making for redundant assets	Action
1. Regularly identify assets that are no longer required to provide a service.	
2. Establish whether the asset: a. Can be used for another service – whether 'as is' or with modification; b. Can be sold; c. Should be demolished; d. Should be gifted to a community group	
3. Prepare recommendations on actions to be undertaken	
4. Carry out the decisions on surplus assets.	

APPENDIX B1

MARKET PRE-OCCUPANCY QUESTIONNAIRE

Sample questionnaire (to be adapted and translated as appropriate)

Enumerators' Initials..... **Vendor Identifier** .....

Market..... **Gender of Vendor**.....

We are conducting research on how vendors are managing to conduct their trade before the market improvements. The information from the survey will help us assess how the future improvements deliver benefits to the vendors. Please be assured that the information collected from vendors will be treated in strictest confidence.

	Questions	Answers
1	How many days do you sell goods here in a typical week?	
2	What sorts of goods do you sell? *See coding sheet – enter up to three types of goods*	
3	How much money do you make from sales in a typical day?	*kina amount*
4	How much do you pay for the goods you sell on a typical day?	*kina amount*
5	How much money (if any) do you typically save from your daily earnings?	*kina amount*
6	Do you have full control over the money you earn and how it is spent? If not, explain what happens? *Write the full responses for coding later*	*Yes* *No*
7	Where do you obtain the goods you sell? *Code* *1. grow or produce them* *2. buy direct from producers* *3. buy from middle men*	

8 How much per day do you spend on travel to get to the market? *kina amount*

9 Do you usually have unsold goods left at the end of the day? How much as a proportion of what you bring to the market? %

10 What do you do with these unsold goods?
Code
1. give them away
2. take home for my family
3. store overnight and sell the next day
4. other – please state

11 How do you come to be selling in this particular spot?
Write the full responses for coding later

Are you happy with how space gets allocated?

If not, what would be a fairer arrangement?

12 How much do you pay per day in market fees? *kina amount*
Add up any extras eg.
-Use of toilet
-Water
-Storage
-Unloading or loading goods

13 Do you think these payments give good value for money? *tick* *Yes* *No*

14 What sorts of services do you think vendors should receive in return for their fees?

Write the full response for coding later

15 Apart from paying fees, is there any pressure for you to make additional payments to anyone in order for you to sell in this location?

Prompt for payments in response to extortion/threats

kina amount

paid to whom

16 Do you ever experience pressure for you or your children to give sexual favours to anyone in the market, or any form of violent behaviour?

Write the full response for coding later

17 If you do experience violence or sexual intimidation, what help do you think would be available?

Write the full response

	Yes	*No*
Have you accessed any services to help with this in the past?		
Were you satisfied with the outcome?		

18 Do you bring your children with you into the market? If so, how many children?

No of children<5

No of other children

	Yes	*No*
Does anyone look after any of your children while you are in the market?		

19 Are there any ways the market should be improved to make it easier and safer to look after children? *Yes* *No*

If yes, write the full response

20 How would you rate the features of the previous market before the improvements on a scale of 1-5 (5= very good)?

Available space		Opening hours	
Protection from weather		Range of goods on sale	
Comfortable space		Number of customers	
Safety		Market rules	
Provision of water		Arrangements for wholesaling *(explain)*	
Provision of toilets		Bus stops	
Waste disposal		Car Parking	
Cleanliness		Overnight accommodatio	
Lighting		Market vendors association	
Storage		Treatment of women	
Refrigeration		Decent environment for vendors' children	
Cooking facilities			
Arrangements for banking			

21 What are the main things that you are looking forward to in the new market, in order of their importance (for business or for wellbeing)?

Write the full response for coding later

22 Are there any things that worry you about the new market?

List in order of importance

23 Do you think the vendors had enough say about the improvements being made in the new market?

Yes *No*

tick

24 If vendors had more say, what do you think would have been done differently (if anything)?

What would there have been more of?

Write the full response for coding later

What might have been less important?

Write the full response for coding later

Thank you for your participation

Coding for types of goods on sale

01 Green vegetables
02 Root crops
03 Fruit
04 Sago
05 Fresh Fish
06 Salt fish
07 Meat
08 Rice
09 Cooked foods
10 Betel nut
11 Cigarettes
12 Flowers
13 Traditional medicine
14 Cold Drinks
15 Hot drinks and snacks (eg breakfast)
16 Home brew
17 Store goods (including mini-market)
18 Second hand clothes
19 Firewood
20 Water
21 Plastic bags
22 Cooking utensils
23 Household cleaning goods
24 Crafts
25 Traditional items (eg mats, brooms)
26 Eggs
27 Live chickens
28 Coffins
29 Other (state)

APPENDIX B2

MARKET POST-OCCUPANCY QUESTIONNAIRE

Sample questionnaire (to be adapted and translated as appropriate)

Enumerators' Initials..... **Vendor Identifier** .....

Market..... **Gender of Vendor**.....

We are conducting research on how changes to the market have affected the vendors. The information from the survey will help in future improvements as well as how the market is managed. Please be assured that the information collected from vendors will be treated in strictest confidence.

	Questions	Answers
1	How many days do you sell goods in this market in a typical week? How does this compare with the situation before the improvements? Did you sell goods here before and for how many days per week? *If the vendor did not sell in this market before the improvements enter 0*	*Now* *Before*
2	What sorts of goods do you sell? How does this compare with the situation before the improvements? *See coding sheet – enter up to three types of goods* *Answer this even of the vendor previously sold elsewhere, and for the following questions*	*Now* *Before*
3	How much do you make from sales in a typical day? How does this compare with the situation before the improvements? *Give percentage plus or minus – show clearly*	*present kina amount* *change from before* + % -
4	How much do you pay for the goods you sell on a typical day? How does this compare with the situation before the improvements? *Give percentage plus or minus*	*present kina amount* *change from before* + % -

5 Where do you obtain these goods?

Code
1. grow or produce them
2. buy direct from producers
3. buy from middle men

How does this compare with the situation before the improvements?

Use same codes

Now

Before

6 How much per day do you spend on travel to get to the market compared with before?

present kina amount

change from before
+ %
-

7 Do you usually have unsold goods left at the end of the day? How much as a proportion of what you bring to the market?

Is this more or less than you had left over before the improvements?

tick

%

More *Less*

8. What do you do with these unsold goods?

Code
1. give them away
2. take home for my family
3. store overnight and sell the next day
4. other – please state

9. What are the main things that are better about the new market, in order of their importance (for business or for wellbeing)?

Write the full response for coding later

10. Are there any things that are worse about the new market?

List in order of importance

11. How much do you pay per day in market fees?

Add up any extras

How much did you pay before the improvements?

Present kina amount

Previous amount

12. Do you think these payments give good value for money?

tick

Yes *No*

13. Are there any things that could have been done differently to make things better for the vendors?

Write the full response for coding later

14. How would you rate the following features of the market before and after the improvements on a scale of 1-5 ?

1 = poor, 2 – unsatisfactory, 3 = OK, 4 = good, 5 = very good

	Before	After		Before	After
Available space			Opening hours		
Protection from weather			Range of goods on sale		
Comfortable space			Number of customers		
Safety			Market rules		
Provision of water			Arrangements for wholesaling *(explain)*		
Provision of toilets			Bus stops		
Waste disposal			Car Parking		
Cleanliness			Overnight accommodation		
Lighting			Market vendors association		
Storage			Treatment of women		
Refrigeration			Decent environment for vendors' children		
Cooking facilities					
Arrangements for banking					

15. Do you think the vendors had enough say about how the improvements were made? *Yes* *No*

16. If vendors had more say, what do you think would have been done differently (if anything)?

What would there have been more of?

Write the full response for coding later

What might have been less important?

Write the full response for coding later

Thank you for your participation

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Running Markets as a Business

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C1 The need for a business model

It is evident that Papua New Guinea's markets are substantial business operations, but they suffer through not being run as a business. Rather, they are often seen as a source of funds that can be spent on other projects, and/or a nuisance in terms of the management challenges they create.

Market Owners need to recognise the potential benefits to be gained from reorienting their operations so that their markets prosper as business entities. This may require ensuring that their Market Managers have the necessary skills as well as the performance incentives to make these major businesses function effectively. They may need to train their existing managers in business development, or look for these skills when new Market Managers are appointed.

This report looks at:

(a) how market owners and operators can establish a financial model that ensures sustainable management and maintenance of markets

(b) ways in which market incomes can contribute most effectively to meeting requirements for market expenditure on management and maintenance

(c) how investing in the market as a business can have mutual benefits for the vendors and the market owners/operators

(d) how self-generated funds can enable incremental improvement of markets

(e) how major capital investment by the national government and its development partners might be prioritized to ensure best return on this investment.

The market is different from most conventional businesses in that it relies on the productivity of numerous self-employed vendors rather than recruiting its own workers. The success of the business relies on these vendors, the majority of whom are women, and the Market Manager needs to work in collaboration with the vendors to promote the business success of the market, for mutual benefit. The Market Manager needs to gain an appreciation of the challenges faced by these vendors, including the burden of family responsibilities such as childcare, an observed high rate of physical disability, and a vulnerability to gender based violence in the workplace, on transport and in the home.

If a productive partnership can be established, possibly through the formation of a representative market vendors association, then there are clear business opportunities that can be explored. These include:

- increasing market incomes from a wide range of sources so that the standards of market management and maintenance can be enhanced, supporting the wellbeing and productivity of vendors
- assisting individual vendors to build their own businesses so that the overall productivity of the market is improved
- diversifying the range of goods and services available in the market, to build the customer base and increase market turnover
- establishing a business model that provides for incremental improvements to the market over time, or which makes the case to the national government and its development partners for major capital investment in the form of loans and/or grants.

The following steps have been identified as appropriate for putting market operations on a business footing, and these are outlined in more detailed in the following sections. Some of the financial terms used are defined in Appendix C1.

- Establish a financial system that provides security and accountability for income received.
- Review the level of market vendors' fees to ensure they are affordable but make a fair contribution to running costs.
- Develop an annual budget based on current incomes from vendors' fees and other sources, with at least 25% allocated to maintenance of physical infrastructure and managed in a separate account.
- Secure additional market income opportunities with a target of matching the amount raised from vendors' fees with income from other sources. When this has been achieved, increase the allocation of funds for maintenance or physical improvements (eg to 50% of total income).
- Apply any surplus funds in ways that provide a return on investment.
- When the new business model has been consolidated, make the case for a soft loan from public or private funding agencies to make incremental improvements to market infrastructure.
- Draw on a record of successful market operations to make a business case to the national government and its development partners for major capital investment as grants.
- Increase market income further in line with the physical improvements, with the target of generating sufficient additional income to establish a sinking fund for maintaining the value of the physical assets (suggested as 1/3 of total revenue).

The expected annual return on investment for the local economy is suggested as more than 20% of the capital expenditure on market improvements, arising from the flow on effects of the increased earnings from vendors, spin off employment in other sectors (eg primary production and transport), and the contributions of resultant household expenditure to local Gross Domestic Production (GDP). This makes a very attractive case for investing in markets, provided they are run as a business.

C2 Establishing an accountable financial system

In many localities the income from market fees (largely paid by vendors) has been poorly accounted for, and the expenditure of both management and maintenance has been inadequate. This leads to unsatisfactory physical and social conditions within the market, with an adverse impact on the wellbeing of vendors and their ability to earn a living. There is much uncertainty among Market Owners and other operators about how to achieve adequate standards of market management and maintenance with the available resources. Improving the market budget might be a step by step process, as outlined in the following Sections.

The first step for Market Owners is to establish a financial accountability system that safeguards the revenue from vendors' fees. Many local governments have been surprised to find out the full scale of income being achieved, if all leakages are stopped. Good practice would be for a written record to be kept of all money received on a daily basis, with these records cross checked between the record keeper and the Market Manager. These funds should then be placed in a dedicated bank account, with weekly reconciliation between the written records and the bank statement. Any discrepancies should be reported to the Market Owner. In the case of a market owned and run by local government, such discrepancies should be reported to the finance department.

C3 Reviewing the level of market vendors' fees

This is not about maximising the income from vendors fees. The level of vendors' fees needs to be affordable, otherwise vendors will be driven away and the financial performance of the market will suffer. However the fees need to be large enough to contribute to the costs of running the market.

Establishing an affordable fee structure might require an assessment of vendor turnover and disposable income, bearing in mind that the fees need to be affordable by the least profitable vendors (who may be new to the business) if the market is to prosper. However, some types of trade are more profitable than others (eg the profit margin from selling live chickens is much greater than that from selling bananas). Setting fees at no more than 10% of the net profits being made by the least profitable group of vendors would appear to be reasonable as a benchmark. Net profits might be expected to be around 30% of total sales or turnover, so the appropriate fee level would be 3% of estimated minimum turnover. The fees paid should be the total of fees, with no punitive extras for using the toilet, storing goods overnight, renting chairs etc

C4 Developing an accountable annual budget

The next step is to prepare a budget that provides for safe operation of the market in a way that enables vendors to be productive. If the market is totally or largely dependent on vendors' fees initially, then it may be appropriate to devote around 3/4 of the income to management as a starting point, and 1/4 to maintenance and upgrading. Some suggestions for management structure are provided in Part A of this Manual. At a minimum there should be a Market Manager, a part time assistant to receive money and keep the records, and either employees or contractors who carry out the cleaning, security and waste management functions associated with the market.

Apart from maintenance and salaries, the operational budget for running a market needs to provide for:

- uniforms and equipment/materials
- contracted services
- utilities (power, water, telecommunications, sewerage if available).

While each market will have its own requirements based on the local environment and social dynamics, the following is an example of an initial operational budget for a small market of 200 vendors.

SAMPLE ANNUAL BUDGET FOR A SMALL MARKET

INCOME STREAM	kina	
market fees (200 vendors, 2K daily stall fee)	120,000	
EXPENDITURE		
staff salaries (manager, assistant)	30,000	
security contract	15,000	
cleaning contract	15,000	
rubbish removal	10,000	
uniforms and equipment/materials	10,000	
utilities	10,000	
maintenance	30,000	(25%)
TOTAL	**120,000**	

It is suggested that budget management should involve the market owner providing a monthly budget for the Market Manager based on the regular operational requirements, while setting aside the maintenance budget for periodic application as need arises. In relation to the sample annual budget, the monthly operational budget would therefore be as follows.

SAMPLE MONTHLY OPERATIONAL BUDGET FOR A SMALL MARKET

INCOME STREAM	kina
market fees (200 vendors, 2K daily stall fee)	10,000
OPERATIONAL EXPENDITURE (AMOUNTS ROUNDED)	
staff salaries (manager, assistant)	2,500
security contract	1,250
cleaning contract	1,250
rubbish removal	830
uniforms and equipment/materials	830
utilities	840
TOTAL	**7,500**

Any departure from the approved budget should be reported with a view to either increasing income or reducing expenditure.

In the sample provided above, the maintenance budget of K30,000 per year (derived from K2,500 per month out of the total income) should be managed separately. This should ensure that funding is available to meet necessary expenditure at the time it is required. If there are insufficient funds to meet urgent repair requirements as they arise (for example necessary work to ensure the safety of vendors and their customers) then the Market Owner may need to advance funds for these purposes to be refunded later in the year. However it would be expected that the maintenance fund will build up to a point where it can meet any urgent requirements. Moving unspent funds from the maintenance budget to a separate account may be desirable to ensure that these funds continue to be available as needed.

If a point is reached where there are funds that are clearly surplus to ongoing requirements, then these could be allocated to upgrading the physical infrastructure of the market (as discussed in C4 below).

C5 Securing additional market income

The next step is to look for ways of increasing market incomes so that there can be an increased budget for both management and maintenance.

The model presented in Section C4 above suggests that at least 25% of income should be spent on asset maintenance. This is far from optimal, and it would be highly desirable for markets to secure additional income so that more could be invested in both urgent and preventative maintenance as well as improved management. This would require markets to generate income apart from fees collected from vendors.

Different markets will have very different options for raising additional incomes, arising from the characteristics of their catchment environment and the local community. The various opportunities considered here are as follows:

- parking fees
- toilet fees for customers
- campaigns
- hire of facilities
- waste processing
- sale of power.
- wholesaling
- advertising
- fees for service providers
- special events
- sale of water and ice

Another way of optimising market revenue would be to look at ways of reducing operational costs. Possible ways of achieving this would be:

- devolving some management functions to the vendors themselves
- seeking funds for employment and training programs to subsidise salaries.

There are risks as well as costs and benefits associated with these options, and these would need to be assessed on a site specific basis. The focus of this section is therefore on ways of increasing market incomes.

C5.1 Parking fees

Where there are parking lots provided adjacent to markets there can be substantial revenue raised from parking fees. This is a successful model elsewhere in Melanesia. However it is likely to apply to the larger markets only.

If land is being acquired for a new market, and if sufficient land can be found for adjacent parking, this can provide a useful revenue stream. The land might be leased rather than purchased. It may also be possible for any unused land to be shared with other business users.

C5.2 Wholesaling

Larger markets often accommodate wholesaling activity (sale of bulk produce by primary producers to on-sellers) but this is often poorly organised with chaotic results. There is the possibility for a well structured wholesaling market to be conducted before the retail market opens. Suva Market in Fiji has successfully introduced this system.

An alternative system is to establish one or more separate wholesale markets at the edge of an urban centre, to relieve congestion at the retail market. These could be run as an adjunct business to the retail market.

Structuring wholesaling as a business could require producers and buyers to pay a fee to become registered (involving pre-qualification), and also to pay a fee for any overnight bulk storage required. Transactions could be managed by auctioning bulk produce, with a small percentage charged on turnover. Any unsold goods could then be offered at a discounted rate to the market's retail sellers or others.

C5.3 Toilet fees for customers

It is strongly recommended that vendors and their children should be able to use the market toilets for no additional charge on top of the vendor fees they have already paid. As vendors will be the major users, there is the option of making the toilets free for customers to use as well. However in a situation where there are no public toilets available nearby, this could lead to an undesirable situation where members of the public enter the market just to use the toilet rather than to buy goods. In this situation, given that the market will need to have toilet attendants on hand, there is the option for some fee collection from people who are not identified as vendors. This system would require vendors to have a form of identification (eg uniforms) that prevents customers being given false identification in order to use the toilets without paying a fee.

C5.4 Sale of cleaning products

Market operations require bulk purchase of cleaning chemicals and other products required for maintaining the market in a hygienic condition. There is the possibility for some of these products to be made available in small quantities for purchase by market customers. As well as producing an additional revenue stream, this could have community benefit in promoting hygienic practices, and it would reinforce the market's business performance as a one-stop-shop.

C5.5 Advertising

Given the numbers of people visiting a market on a daily basis, this is an ideal location for advertising products and services. These opportunities have been sought out by some companies, with arrangements made in response to individual requests. It is strongly recommended that market operators should develop a pricing structure that ensures consistent and accountable practices. Some policy decisions may need to be made about products or services that should not be advertised on the basis of community wellbeing (eg gambling, sale of alcohol, sale of unhealthy products such as cigarettes).

The physical design of markets could incorporate physical opportunities for advertising on building components or purpose-built structures. It would be reasonable for advertisers to be requested to pay a renewable annual fee for taking up these opportunities.

C5.6 Campaigns

Some forms of advertising are associated with particular campaigns conducted by public authorities or others. Health promotions are an example of this. It would be reasonable for advertising to be offered to support these campaigns at a concessional rate, perhaps with a reduced timeframe (eg quarterly fee). The rates could be higher for private campaigns such as electioneering.

Product promotion campaigns are a form of advertising that is often conducted as a new type of product is launched, with demonstration of the product on site. Markets would be very attractive as locations for launch of new products.

C5.7 Fees for service providers

There are different service providers which may benefit from operating occasionally or continually in a market, because of the access it gives to large numbers of people. This includes public service providers such as those delivering health and educational services, and private providers such as those delivering financial services.

It may be possible to establish an information booth than can be used intermittently by different service providers, as well as spaces that can be occupied for ongoing service provision. An example of the latter would be Digicel telephone banking services which typically operate out of a well secured shipping container, providing services that convert phone credits to cash and vice versa.

C5.8 Hire of facilities

Most of the larger urban markets operate six days per week, generally closing at sundown. Some of the smaller markets function on selected days, or in the evenings. Given the available infrastructure, it would be logical to consider whether there are commercial opportunities for using the markets at times when they are not required for marketing, or for the other operational activities such as cleaning. For most markets, the opportunities would be for evening activities and for functions that can operate on Sundays. The demand for use of facilities at these times will vary from place to place, and could include "pop-up" markets organised by different groups for particular types of goods.

Depending on the configuration of the market (and its flexibility) there could be an opportunity to open markets up for entertainment, including musical or theatrical performances. It would be appropriate for the Market Owners to set a fee for venue hire, with appropriate requirements for insurance and a bond to ensure they leave the premises in a clean and tidy condition.

There may be limited demand for using the marketplace on a Sunday, given the predominantly mainstream Christian religious practices within local communities including Sunday church going. Seventh Day Adventists could be attracted to using the market on these days, as they nominate Saturday as their day of rest. There are many Sunday markets successfully operated by Seventh Day Adventists throughout Melanesia. The option for running a Sunday market could be provided to the Seventh Day Adventists Church as well as multicultural communities for a specialist market operated in a way that does not conflict with the usual market offerings. As an example, one possibility would be a Sunday breakfast/lunch market, where the main offerings are cooked foods. Such a market is already run by the Seventh Day Adventist University on the outskirts of Port Moresby, and it is very popular.

C5.9 Waste processing

Markets generate significant quantities of wastes, most of which are organic, and which have potential to be converted into valuable resources. If the organic wastes can be kept separate from other wastes (excluding plastic bags, nappies etc) then these can be either processed on site or otherwise taken to another site for processing, with the end products being sold.

In Port Moresby it is considered that good quality compost would attract a high demand for use in urban gardens, and this could be sold in the markets. The demand for compost in other localities would need to be assessed. While compost can be produced in windrows with regular turning over several weeks, there are low-cost technologies for providing a much higher value product.

One technology that the NCDC has considered is tunnel composting in fabric tent structures, with control of moisture and temperature. This speeds up the composting process as well as producing a more consistent product. A further technology is to ferment the compost under a loose cover with added micro-organisms (bokashi mix or similar). This reduced greenhouse gas emissions, speeds up the process, and produces a higher volume of compost with superior nutrient properties.

Where land availability is limited, there is the possibility to introduce a fully contained processing unit that uses different processes to produce a fine powdered soil conditioner. This technology is already in use at some Australian markets, and some financial modelling has been done around introducing this in some Fijian markets.

There are further options for mixing wet organic wastes with sewage or other liquid wastes and extracting biogas. Alternatively if the organic waste stream is mixed with woody wastes there is the potential for a small scale pyrolysis producing energy, with biochar and wood vinegar as valuable byproducts for application in agriculture. Expert advice may need to be sought before introducing these options, to ensure that the technologies can be maintained locally and that the business case is sound.

C5.10 Sale of water, ice and power

Some of the waste processing technologies described above have the potential to produce energy in different forms which can be sold. For example, biogas could be sold to cooked food vendors for preparation of meals on site, or it could be used to run a cold store or refrigerated units for hire. Pyrolysis of wastes can produce pyrolysis oil, which can be used as a fuel for heating.

There are other opportunities apart from energy production from waste. If solar panels are provided as part of the market infrastructure, these may produce surplus electricity that can be sold to market vendors or customers on a user pay basis (eg charging mobile phones), or used to manufacture items for sale (eg fruit juice and smoothies).

Regardless of power availability, markets involved in selling fresh fish or meat can benefit from the production of ice for sale to vendors or their customers. Honiara Central Market in the Solomon Islands is an example where this practice is well established, with the sale of ice making a significant contribution to market revenue. In some localities, sale of ice might also attract purchase by businesses outside the market.

Sale of water is also a possibility if the market has secured a good supply which is excess to requirements for running the market. This might be limited to good quality drinking water, with a price charged for filling the customers' own containers. If rainwater or groundwater sources are used, there may be a need for regular testing and filtration before sale.

In these various ways it is possible for a market to contribute to public infrastructure and community wellbeing while also increasing its own financial sustainability.

C6 Reinvesting self-generated funds

C6.1 Raising and spending surplus funds

It is a priority that there are funds available for keeping the market in good order. However the many opportunities for the market to raise extra revenue may provide surplus funds that can be invested in different ways. In the past, local governments have often used available funds to cross-subsidise other areas of local government expenditure. Land owners have often maximised their appropriation of funds for personal use in the short term. This is not considered the best use of resources for the long term. It is in the public interest as well as private interests that such funds are invested in building the business performance of the market, with flow-on effects for the local economy.

A market should be seen as a commercial joint venture partnership between the Market Owners and the vendors. It is in the mutual interest of the partners that the profitability of vendors is strengthened by increasing market turnover. This will provide vendors with a capacity to contribute to the market's running costs and it will also increase the possibility for other revenue to be raised from market activities. Possibilities for investing funds to strengthen market performance include the following.

C6.2 Providing business training to vendors

One of the findings from the 2018 National Audit of the Informal Economy was that there is significant demand for capacity building amongst market vendors. It is often assumed that the main demand is for financial literacy training, but there are likely to be a broader range of training needs. If cashless transactions are to be encouraged on grounds of safety (which appears to be highly desirable) then training in use of these cashless systems would be appropriate, and this could extend to keeping records of transactions that can assist in building the vendors' business capability. Training in food safety would also be in the interests of vendors and their customers, with basic training for all food vendors, and additional prequalification training for cooked food and fresh meat or fish vendors. Given the need for their livelihoods to be maintained, it may be necessary to encourage vendors with a compensation payment for the time taken up by this training.

C6.3 Value adding and diversification

The Market Manager should ask the question "What additional types of activity would increase the range of goods and services available in the market and attract more customers?" If the Market Manager does not have the skills to answer this question, there may be others within the community who can assist. Markets often have numerous vendors selling the same goods at a similar price, and this is often because they have access to supplies or they are familiar with the activities involved. Diversification and value adding is likely to increase turnover, for the benefit of everyone. As an example, if there are numerous vendors selling bananas, some differentiation in selling different varieties may exist, giving customers a choice. However some vendors might be encouraged to dry bananas for sale as a snack food, and others might be encouraged to sell banana smoothies.

An example of diversification adding to the attractiveness of the market is the recent introduction of cut flowers being sold from Gordons Market in Port Moresby.

C6.4 Business incubation

In addition to encouraging new types of goods to be sold in the market, it may also be possible to support development of new businesses that can provide an alternative income for market vendors. This might be a way of diverting vendors from selling betel nut, as an example (in line with government policies).

While it may be possible for some women and men to develop new businesses in their residential areas, provision of a business incubation space in a market would provide immediate access to customers which could help in business development. Potential businesses might include soap making using raw materials from the market, clothing and shoe repairs, as examples. There may also be potential businesses which can arrange for packaging and transport of market goods for home delivery to customers.

C6.5 Providing grants or loans

One of the findings from the National Audit of the Informal Economy was that lack of access to financial services is a considerable obstacle for workers to build their businesses. While improving this situation needs intervention at the national level, involving financial service providers as well as government agencies, it may be possible for surplus market revenue to be applied as small grants or loans that enable individual vendors to build their businesses.

As an example, with reference to the banana sellers described earlier, it may be appropriate to offer soft loans for purchase of a solar dryer or a food processor. Repayments could be required via a small additional payment on top of the weekly market fee.

C6.6 Entrepreneurial investment

If funds are put aside for future market upgrading (including establishing a sinking fund for maintaining the value of assets in an improved market), it is appropriate to consider options for productive use of these funds in the interim, until they are needed for major upgrading or replacement. Putting these funds in a bank account would yield very little return, while investing in a higher risk financial investment vehicle would be inappropriate as the funds could be lost altogether. There may be other options to invest these funds in a way that can safely ensure that the funds will be available with interest in a few years' time.

The options available in any particular locality need to be assessed in terms of the local economy. However the requirements for investment would be that the capital can be easily released in a 5-10 year time horizon, when needed to pay for market improvements. It would also be appropriate for any public funds to be invested in ways that promote the public good.

One possibility would be to invest in housing or other built infrastructure that can later be sold. This could invigorate local economies and help build the capacity of the local building industry. Given the potential profits from property investment it may be appropriate to form a separate business entity to manage this program, with considerable oversight and accountability. It may be possible to form a Public-Private Partnership with the banking sector to provide the necessary skills in accountability as well as securing a financial services platform that will assist in the eventual sale of property (eg providing loans to purchasers).

The lack of available capital in regional areas means that such a property investment program could be a very positive contribution to local economies. However it is desirable to target areas of investment that are relatively neglected by the private sector, to avoid undesirable competition. There will be a range of local dynamics, indicating that the investment might be directed to low-cost housing, office premises, business incubators or serviced industrial land, as examples.

C7 Self-funded market improvements

While it would be highly desirable for a comprehensive program of market improvements to be implemented using external funding sources (national government or donor agencies and other development partners), this is unlikely to extend to all markets. Market Owners should therefore assess their options for mobilising resources that can incrementally improve markets over time.

The national government and its development partners might be encouraged to reward those Market Owners who are taking these steps, by allocating priority for major capital funding on the basis of good practice. Alternatively, decisions about where to invest might be determined by the nature of the market catchments, such as the potential to increase agricultural production. Directing funds to markets with the worst physical conditions may not be appropriate as it creates a risk that investment will be directed to those owner/operators with the worst record of asset management, and that the improvements will be short lived.

Another model would be for the national government and its development partners to offer a mix of soft loans and grants to incentivise local programs for incremental market improvements, providing these funds where the market operations indicate a business model. Banking institutions might also be encouraged to provide loans, with or without government incentives. This might enable smaller markets to expand to accommodate more vendors, as well as paying for management and maintenance.

As an example, a small market accommodating 200 vendors might be incrementally improved and expanded to accommodate 400 vendors with the following budget. It is assumed that market fees for vendors would initially be K2 per day, but could be gradually increased to K3.50 per day over five years, as substantial improvements are made (on the basis that vendors will be making more money). It is assumed that markets can raise revenue to match the income from market fees, and some tools for this have been explained in Section C5 above.

Initial Income Streams (Annual)	**kina**
Market fees (200 vendors x K2 per day)	120,000
Other incomes	120,000
Soft loan incentives (matching basis)	240,000
Recurrent Expenditure (management and routine maintenance)	240,000
Funds available for market improvements over a 5 year period	1,200,000

Expenditure Years 1-2 (example only)	**kina**
improved drainage and paving	100,000
additional stalls in empty spaces (covered/ uncovered areas)	110,000
enhanced rubbish separation, collection and recycling	50,000
toilet rehabilitation, additional vegetable washing area	50,000
fence expanded precinct area with new and attractive gateways	30,000
market management office and kiosk	20,000
site cleanup and repainting facelift	50,000
lockable storage facilities	50,000
additional lighting	20,000
	480,000

Expenditure Years 3-5 (example only)	**kina**
additional market shelters and associated paving	300,000
cooked foods shelter and facilities plus paving	200,000
rainwater harvesting tank/plumbing for emergency water supply	50,000
lock-up shops for incubator businesses	100,000
stage area for entertainment/public announcement	20,000
further enhancement to lighting	50,000
	720,000
Income streams by Year 6 (annual)	
Market fees (400 vendors x K3.50 per day)	430,000
Other incomes	430,000
	860,000
Recurrent expenditure Year 6 onwards (annual)	
Management	300,000
Asset maintenance	300,000
Loan repayment (5% interest, 6 year term)	260,000
	860,000

Markets would need to establish this or a similar sustainable management model (without overcharging the vendors) before they became eligible for funding assistance.

Any such model will be heavily dependent on the ability to raise additional revenue to match the income from vendors' fees, and the opportunity for such revenue raising will vary with locality. If this target is not feasible then a longer term (eg 10 years) and/or softer loan arrangement might be required.

It should also be noted that this level of capital investment is far less (around 1/7) of the budget allocated for capital improvements of markets in major project funding allocations (discussed in Section C8 below). In addition the model does not provide a sinking fund to prevent asset depreciation, such as would be required after major capital improvements (see Section C9). However it does offer a pathway to incremental improvement for all markets across Papua New Guinea, including providing interim measures for those that will eventually benefit from major funding investment.

C8 Externally funded market improvements

Based on the recent cost of construction of new markets, cross validated by the prevalent benchmark costs per square metre, a capital investment of around US$6,000 or K 20,000 per vendor has previously been assessed as providing a reasonable budget for capital works (mid-2020 pricing and currency conversion). Provision needs to be made for inflation and contingencies.

This notional budget needs to be assessed against the circumstances in particular local areas. It is likely that construction programs in more remote areas will incur higher costs due to transport of materials and reliance on import of skilled labour. However these additional costs can sometimes be offset if there are available local resources and unskilled labour. The other main factor influencing cost is design, and a balance needs to be struck between low cost/short life and high cost/long life. The design needs to achieve an affordable solution but with minimal ongoing maintenance costs. The notional formula provided above appears to achieve this in a range of locations.

Previous data on the likely financial performance of markets after improvements (see Appendix C2) indicate that there are greater net earnings for vendors in large markets, but the data on smaller and medium sized markets are mixed. There are other factors that might indicate where capital investment is likely to achieve the greatest benefits for local economies (and therefore for community wellbeing) including:

- likely expansion of nearby rural production
- rate of increase in numbers of market vendors
- rate of local population increase
- a complete absence of local markets.

As indicated earlier, there would be dangers in allocating priority on the basis of the poor condition of local markets, as this would effectively reward Market Owners for poor performance (and discourage interim market improvements). Where the poor state of a local market presents an overwhelming case for capital investment, it may be appropriate to look for a completely new ownership and operating arrangement.

A condition of major capital investments could be establishment of a sinking fund that can be drawn on as required to conduct cyclical maintenance, ie replace components before the end of their useful life and conduct preventative maintenance activity. This will extend the life of the assets (eg from 10 to 20 years), and it is likely to reduce the cost of maintenance over this lifetime. An adequate sinking fund will also enable the market to be incrementally adapted to meet changing needs over time.

Sample models for asset maintenance after a capital improvements program are suggested in the following Section C9, presuming the improvements have an initial design life of at least 10 years and that a budget of 10% of the capital investment per year is established to maintain the value of the assets. These figures are not adjusted for inflation.

C9 Post improvement business management

The post-improvement management model needs to assist vendors to take advantage of the improved working conditions so as to improve their earning capacity. This is essential so that the potential return on investment suggested in the previous Sections is actually achieved.

Unfortunately the reverse has often been the case, as Market Managers have sought to eliminate certain forms of trade from the newly improved markets, which has reduced the attractiveness of the markets for customers. In addition, vendors' fees have often been raised to a level which significantly reduced vendors' net earnings, or which led them to desert the market. There is consistent evidence from surveys and from other vendor feedback that have been carried out in some of Papua New Guinea's improved markets that the financial outcomes for vendors have actually been negative in some cases.

This unintended consequence must be avoided if market improvements are to have positive outcomes for vendors and for local economies. The performance requirements for Market Managers need to change so that they work in a collaborative manner with the vendors to ensure that the income for the market as a whole is increased, which will give the vendors a financial capacity to contribute to improved management.

Undesirable post-improvement market management practices	Desirable post-improvement market management practices
Local government and other Market Owners measure the financial success of a market by the level of income they receive from vendors.	Local government and other Market Owners measure the financial success of a market by the total turnover of the market, recognising that it is this which provides vendors with a capacity to pay fees, and also recognising that this contributes to the growth of the local economy.
Market Managers are encouraged to maximise the income they receive as vendors' fees, regardless of whether these are affordable by the vendors.	Market Managers work collaboratively with vendors to establish an affordable and fair level for market fees, justified by the improved working conditions and the need to maintain these.
The range of produce that can be sold in the market is restricted to make it easier to keep the new market clean and tidy (commonly removing sale of betel nut, meat and fish as well as cooked foods, and in some cases restricting trade to fresh fruit and vegetables).	Market Managers recognise that markets generate most business if they are a one-stop-shop for customers, providing a wide range of goods for sale. They work with vendors to establish appropriate ways of ensuring healthy and safe sale of all types of goods.

If the post-improvement management regime is focused on increasing market turnover, then it should be realistic to achieve a good return on investment for any funds used to improve markets, le with a target of 15% annual return on capital in terms of the benefits for market turnover, and more than 20% rate of return in terms of the value to the local economy (see Appendix C2 for justification).

A sustainable financial model for improved markets needs to ensure that there is sufficient revenue to achieve not only a good standard of management but also adequate funding to maintain the physical assets in good order. This involves providing funds for preventative maintenance and future component replacement as well as establishing a capacity to deal with day-to-day repair requirements. It would be desirable to increase the funding available for management activities as well as for maintenance, and in addition to set funds aside for component replacement so that the value of the physical infrastructure is retained over time.

Some of this revenue will need to be raised from vendors' fees, and it has been suggested that these should be set at a level that does not exceed 10% of the net earnings of those vendors who earn the least. While there is some capacity to raise vendor fees after improvement because of the likely increase in turnover, there is likely to be a significant shortfall of funding if an appropriate level of management and maintenance is to be achieved.

Currently vendor fees are commonly set at around K2-3 per day, but there are often additional fees charged for use of toilets, storage of goods and other services. There is a justification for fees to be increased in line with market improvements, and most vendors would see this as justifiable so long as they have improved working conditions.

An argument could be made that fees should be maintained at the current level, which for many markets equates to around 6% of vendors' average net earnings (2% of total sales). However this would only provide a very limited contribution to market upkeep. An alternative proposition would be for the anticipated increase in net earnings to be split between the vendor and market upkeep, with some phasing in of the increased fee amounts (in line with incrementally increased market turnover). This could be justified if the fee was all encompassing, ie including use of toilets and access to storage etc. The following table identifies the impact of these two options.

	Targeted increase in turnover (kina)	**Targeted increase in annual average vendors' net earnings (kina)**	**Likely current market revenue from vendor fees (kina)**	**Increased market revenue from fees if set at 6% of increased vendor net earnings (kina)**	**Increased market revenue from fees if set at previous vendor net earnings + 50% of increased net earnings (kina)**
Large Market (1000 vendors)	1,200,000	1,600	936,000	1,056,000	1,736,000
Medium Sized Market (500 vendors)	450,000	1,000	312,000	330,000	562,000
Small Market (200 vendors)	180,000	1,000	124,800	132,000	224,800

If the second option is selected, the fee rate for a large market would be just over K 5.5 per day, similar to the new fee rates at the improved Gordons Market. This could be achieved by setting the fee at K6 per day or K30 per 6 day week. The fee for a medium or small sized market would be just over K3.5 per day, and this could be achieved by a daily fee of K4 and a weekly rate of K24.

In order to achieve sufficient funds for management and maintenance, it is suggested that market owners/operators should aim to match the revenue raised from vendors' fees with income from other sources. The wide range of opportunities outlined previously suggests that this should be achievable, and this would give the following annual income for the various sizes of markets as follows.

- Large Markets (1000 vendors) K3,420,000
- Medium Sized Market (500 vendors) K1,124,000
- Small Market (200 vendors) K449,600

It is suggested that notional targets for application of these funds should be:

- 1/3 operational costs
- 1/3 maintenance costs
- 1/3 sinking fund for component replacement and market adaptation (see below).

After a market has been improved through capital investment, it would be expected that the cost of maintenance will be minimal in the initial few years, but that these costs will increase over time. The reduced need for maintenance expenditure in the first year provides the opportunity for any new fee structure to be phased in. It would also be appropriate to consider providing registered vendors with a "fee holiday" for the first few months, to assist them in building their businesses as customers are attracted to the new market. This would help to build the overall business of the market, in the mutual interests of the vendors and the market owners/operators.

The models indicate that routine maintenance costs will increase over time as the infrastructure gets older, but that there is continual investment to make sure that the useful like of the physical infrastructure can be extended.

LARGE MARKET (1,000 VENDORS)

	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Asset value after depreciation	K20M	K18M	K16M	K14M	K 12M
Repairs budget	K0.5M	K0.6M	K0.7M	K0.8M	K0.9M
Replacement of components	K0.2M	K0.3M	K0.4M	K0.5M	K0.6M
Contributions to Sinking Fund	K1.3M	K1.1M	K0.9M	K0.7M	K0.5M

If this was achieved, after five years the sinking fund would contain K4.5M towards major upgradings or change which could extend the life of the assets, so that any demolition and replacement is deferred.

MEDIUM SIZED MARKET (500 VENDORS)

	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Asset value after depreciation	K10M	K9M	K8M	K7M	K 6M
Repairs budget	K0.25M	K0.3M	K0.35M	K0.4M	K0.45M
Replacement of components	K0.1M	K0.15M	K0.2M	K0.25M	K0.3M
Contributions to Sinking Fund	K0.65M	K0.55M	K0.45M	K0.35M	K0.25M

In this model, the sinking fund contains K2.25M after five years, for reinvestment in keeping the market fit-for-purpose. This could include extending it to accommodate more vendors for example, or adding on new functions.

SMALL MARKET (200 VENDORS)

	Year 1	Year 2	Year 3	Year 4	Year 5
Asset value after depreciation	K4M	K3.6M	K3.2M	K2.8M	K 2.4M
Repairs budget	K100,000	K120,000	K140,000	K160,000	K180,000
Replacement of components	K40,000	K60,000	K80,000	K100,000	K120,000
Contributions to Sinking Fund	K260,000	K220,000	K180,000	K140,000	K100,000

In this model the sinking fund would contain K900,000 at the end of five years, for reinvestment in capital works.

These are large sums, far greater than would have been budgeted in the past, but they reflect the scale of investment that would be needed to ensure sustainable asset management in a dynamic environment. They are also achievable within the financial models suggested earlier for raising and allocating market revenues. Consideration would need to be given to how the sinking fund can be secured, so that it is not appropriated for other purposes. It is recognised that there will be much pressure to spend whatever funds are available in the short term rather than setting them aside for the long term, and investing them in a way that achieves long term returns on investment may provide an appropriate option. Some options for this were previously discussed in Section C6.6.

What is clear from the earlier and the updated tables is that markets are multi-million kina businesses, and significant generators of employment. This provides a justification for investing in infrastructure and services that will promote the wellbeing of those participating in the business, particularly the vendors, and supporting them in becoming even more economically productive. These investments need to be supported by an ongoing regime for protecting the value of the assets, and generating funds for extending the life of the built infrastructure. The return on investment would be seen in increased economic activity, helping to build the local economy.

APPENDIX C1
GLOSSARY OF FINANCIAL TERMS

- ***Depreciation in asset value:*** the reduction in value of assets such as infrastructure or equipment that will take place over time due to wear and tear and/or obsolescence unless there is corresponding investment in maintenance and periodic asset replacement.
- ***GDP:*** Gross Domestic Product which measures local productivity.
- ***Net earnings/profits:*** that proportion of earnings which is left over from the cost of bringing goods to sale.
- ***Turnover:*** the monetary value of all goods and services sold.
- ***Multiplier effect:*** the effect resulting from a given increase in spending because of flow-on effects – this can be expressed in terms of a financial multiplier within the economy or an employment multiplier in terms of job creation.
- ***Preventative maintenance (or cyclical maintenance):*** provision for carrying out maintenance work before things break down, including replacement of components before the end of their useful life.
- ***Profit margin:*** net earnings as a proportion of turnover.
- ***Return on capital:*** this is the conventional formula for assessing business performance on an annual basis and it can be expressed by the formula:

  $$\frac{\text{earnings before interest and tax (EBIT)}}{\text{capital employed}} \times 100\%$$

- ***Sinking fund:*** a fund into which money is deposited on a regular basis for future application to major repairs and replacement of physical infrastructure.

APPENDIX C2
FINANCIAL PERFORMANCE OF MARKETS

This Manual draws on financial modelling carried out in various markets in 2010, plus subsequent research carried out by UN Women throughout Melanesia as well as evidence from recent market improvement programs. This has produced updated modelling that can be applied to various sizes of markets, with specific templates for those with 200, 400 and 1,000 vendors.

While a monetary value can be placed on employment benefits and contributions to household expenditure, there are other benefits that are less easily quantified. An important consideration is the food security that markets provide, ensuring access to affordable food by local communities. This becomes particularly evident in times of emergency (cyclone, earthquake, pandemic etc) when access to imported foods is disrupted, and shops may be temporarily closed. The first sign of a return to normality is often the re-establishment of market stalls selling food to local people. Without this lifeline, emergency situations would be considerably worsened by food shortages.

In many countries, markets offer a wide range of non-monetary benefits such as social interaction, entertainment and tourism experience. In Papua New Guinea, markets are particularly crowded and chaotic so that these benefits are not readily apparent. However the economic benefits are considerable. These can be assessed in terms of:

- total turnover of the market (volume of sales) with flow on benefits in the local economy
- net earnings of vendors and direct employees
- net earnings of people who indirectly benefit from the market eg in the transport industry, waste management, primary production
- flow on effects from household spending by households who derive earnings directly or indirectly from markets.

Taking all these considerations into account, the local market is likely to be one of the most significant businesses in any particular town or city, and it is often the biggest business in a regional centre. As an example, work carried out in Honiara Central Market (Solomon Islands) estimated that the household incomes of 15% of residents in Honiara were directly or indirectly provided by this one market.

A useful way of developing a financial model for market operations is to consider the market and its vendors as a single business. It costs a certain amount of money up front to build, it spends an annual amount of money on upkeep, and it generates income that can be used to remunerate the people working within the business (ie the vendors as well as the market employees and contractors). As an economic entity the market is a significant business.

Examples from the 2010 financial analysis are as follows.

	estimated annual turnover (kina)	**vendors' net earnings as % of turnover (kina)**	**actual number of vendors**
Nine Mile Market	11,500,000	34%	300
Gordons Market	56,000,000	42%	1,500
Kundiawa Main Market	5,000,000	20%	300
Kundiawa Second Hand Clothes Market	12,000,000	41%	300
Kundiawa Informal Market	13,000,000	60%	450
Kundiawa Mini-Markets	10,000,000	35%	300

These data indicate the considerable difference in turnover and earnings between markets in different locations, as well as differences between markets selling different types of goods. Gordons Market is the largest in Papua New Guinea, and earnings were around 25% higher than achieved in the smaller suburban Nine Mile Market (which no longer exists). However the regional town of Kundiawa indicated that the lowest earnings were achieved in the improved and regulated town market, while informal trading in a range of other markets provided greater turnover and better incomes. This phenomenon was also noted in the 2018 National Audit of the Informal Economy.

Based on the 2018 National Audit, vendor incomes across all centres have increased by around 30% since 2010. The number of vendors in markets has also increased, and the above turnover figures might be around 50% higher in 2020. These assumptions have been used to develop the following notional model for how markets in Papua New Guinea are likely to be functioning at present.

	number of vendors	**estimated annual turnover (kina)**	**vendors' net earnings as % of turnover (kina)**	**average vendor net annual income (kina)**
Large Market	1,000	40,000,000	40%	16,000
Medium Sized Market	500	18,000,000	30%	10,000
Small Market	200	8,000,000	25%	10,000

If funds are invested in improving the physical infrastructure for markets, it would be assumed that this would enable vendors to be more productive and therefore increase market turnover. This can then have a flow on effect in providing increased earnings for workers, additional spin-off employment, and increased household expenditure in the local economy.

Assessing targets for the return on investment in terms of increased productivity in the local economy can be based on a presumed multiplier effect, ie the number of extra jobs and associated turnover arising indirectly from the market vendors' activities. The retail multiplier in developed economies is commonly between 1.5 and 2.00 (Iowa State University et al) but this reflects a situation where functions are highly specialised and well defined.

In Papua New Guinea, vendors commonly list one or more "unpaid assistants" as part of their business operation. While some of these workers might be part time, the data suggests that there is already a multiplier of at least 1.00 arising from these additional workers. Second, there is a considerable multiplier arising from workers in the transport industry (moving goods as well as vendors and their customers to and from the market) and from primary producers who grow much the produce that is sold in markets. These multipliers will vary with local circumstances, however one of the Honiara markets (Solomon Islands) it was estimated that each vendor sold goods produced by around 5 primary producers. It would appear to be a reasonable assumption that every vendor supports at least 4 other jobs at present, and that this is a result of the volume of turnover in the market. If the turnover increases as a result of market improvements, this is likely to have spin off benefits in terms of more helpers employed by the vendors and more people employed in the transport and primary production sectors.

Of course, this assumption is based on there being sufficient customers for an increased supply of goods in the market. This is considered achievable as the poor conditions in many markets suppress trade at the moment, with many individuals and businesses choosing to buy more expensive imported goods in cleaner and safer supermarkets at present. Increasing turnover of locally produced foods in markets would have an impact on import substitution, with significant benefits for the national economy.

Based on the recent cost of construction of new markets, a capital investment of around K 20,000 per vendor has been assessed as providing a reasonable budget for capital works for major market improvements (mid-2020 pricing). It would be expected that with good management the improved markets could improve productivity and market turnover, and a target of 15% is suggested as achievable from both increased turnover per vendor and an increased number of vendors. By way of illustration, a calculation can be made about how many full-time equivalent jobs this would support at the 2020 minimum wage rate of K 4.10 per hour or K180.00 per week. On this basis, the targets for flow on benefits from investment in market improvements can be proposed as follows.

	Capital investment (kina)	**Targeted increase in annual turnover (kina)**	**Consequent increase in total equivalent full time jobs**	**Consequent increase in the annual GDP (kina) of the local economy**	**Return on investment per year**
Large Market (1000 vendors)	20,000,000	1,200,000	576	4,800,000	24%
Medium Sized Market (500 vendors)	10,000,000	450,000	216	1,800,000	18%
Small Market (200 vendors)	4,000,000	180,000	84	720,000	22%

This table indicates that if the targeted increase in turnover is achieved, capital investment in market improvements could achieve a return on investment of over 20% per year in terms of local employment and local GDP. There would be few comparable investments which would achieve such a good rate of return.

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