



Regional Diagnostic Study on
the Application of Building Codes
in the Pacific



Vanuatu Case Study
Consultant's Report





This report was prepared by external consultant Rhys Gwilliam with support of the Pacific Region Infrastructure Facility (PRIF). PRIF is a multi-partner coordination and technical assistance facility for improved infrastructure in the Pacific. The PRIF development partners are the Asian Development Bank, Australian Department of Foreign Affairs and Trade, European Investment Bank, European Union, Japan International Cooperation Agency, New Zealand Ministry of Foreign Affairs and Trade, United States Department of State, and the World Bank Group.

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Published August 2021.

Photos courtesy of the author and the Asian Development Bank.

Note: In this publication, "\$" refers to United States dollars unless otherwise stated.





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Abbreviations

ADB	Asian Development Bank
HBCV	Home Building Code of Vanuatu
HBMV	Home Building Manual Vanuatu
NDMO	National Disaster Management Office
PRIF	Pacific Region Infrastructure Facility
MIPU	Ministry of Infrastructure and Public Utilities
MoIA	Ministry of Internal Affairs
MoIPU	Ministry of Infrastructure and Public Utilities





1. Introduction

The Regional Diagnostic Study on the Application of Building Codes in the Pacific investigates the capacity of Pacific countries to apply building codes or building construction specifications and standards and provides guidance in future assistance related to building code updates.

Among its detailed tasks, the study details the experience of Fiji, Solomon Islands, Vanuatu, each with experience in post-cyclone reconstruction. It does so using site interviews and participatory workshops with infrastructure ministries and local construction consultants and contractors.

The interviews and workshops aim to:

- identify the main constraints that prevent application of building codes requirements,
- explore actions and activities that will improve application of codes and better align or integrate them with emergency guidelines or other climate adaptation initiatives,
- identify gaps in the capacity of construction practitioners and government agencies to apply and promote the countries' building codes,
- provide recommendations on future building code updates appropriate to country capacity to apply and align them with other initiatives to improve resilience including integration with emergency guidelines or other climate adaptation initiatives, and
- prioritize areas of support needed by Pacific countries to guide future assistance programs supported by development partners.

This Country Report documents the second in-country mission to Vanuatu between 17–27 February 2019 undertaken by Rhys Gwilliam. Section 3 outlines the consultation process and methodology.

Based on key themes from the Vanuatu consultation process, as documented in section 3.4 of the report, enabling and constraining factors are identified, actions and activities proposed, and an action plan of initiatives recommended. Areas of support are suggested that PRIF development partners could provide to enable the action plan.

2. Context

2.1 Building Regulations, Legislation, and Standards

Status of the National Building Code of Vanuatu

The National Building Code of Vanuatu was developed in the late 1980s under an Australian Aid program and published in 1990.

A revision to the National Building Code of Vanuatu in 2000 updated it to international standards and referenced and incorporated recommendations from the Sanitation Master Plan for Port Vila.

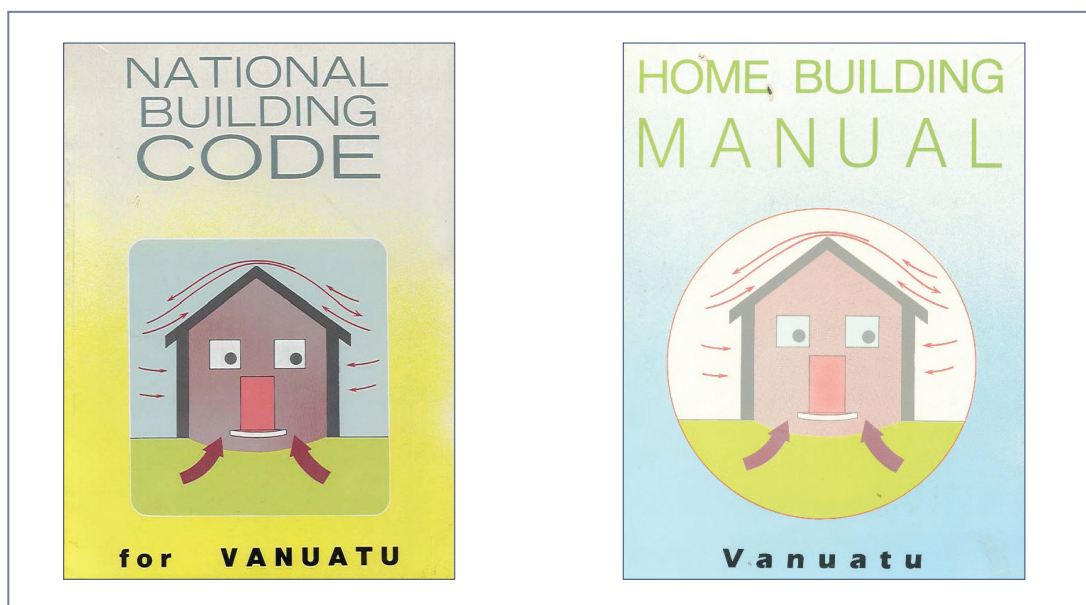
Construction related manuals related to the National Building Code

A Home Building Manual of Vanuatu was developed in the late 1980s under an Australian Aid program as a companion document to the National Building Code, and was published in conjunction with the National Building Code in 1990 (Figure 2-1).

The manual fully conforms with the structural requirements of the National Building Code and does not cover vernacular construction.

There have been no updates to the HBMV since publication in 1990.

Figure 2-1: Vanuatu - National Building Code and Home Building Manual



Building control legislation and parties responsible for applying, administering, and enforcing building regulations and standards

The National Building Code of Vanuatu was enacted in 2013 as the Building Code Act No 36 of 2013 and was gazetted as Order No 110 of 2017. The Physical Planning Act No 22 (Ch 193) 1986 and Municipalities Building by-laws provided building control prior to the gazettement of the 2013 Building Act in 2017.



The National Building Code is administered by the Ministry of Internal Affairs and maintained by the Ministry of Infrastructure and Public Utilities with the assistance of the Public Works Department. The act defines responsibilities of the Ministry of Internal Affairs as:

- Advising the minister on matters relating to building control.
- Overseeing periodic reviews of the National Building Code.
- Approving documents for use in establishing compliance with the National Building Code.
- Overseeing reviews of the operation of approval authorities in relation to their functions under this act.
- Disseminating information and providing educational programs on matters relating to building control.
- Consultation with the Vanuatu Fire Service and the Ministry of Infrastructure and Public Utilities (MoIPU) on any matters relating to their functions.

The act defines Ministry of Infrastructure and Public Utilities responsibilities as:

- Establish and administer a process for the approval of building inspectors.
- Maintain a registry of approved building inspectors.
- Provide technical advice and assistance to approval authorities in relation to their functions under this act.
- Establish and administer an accreditation process for building products and processes.
- Establish and maintain processes for approval of building certifiers and building inspectors.
- Maintain a register of building certifiers and building inspectors.

The act requires that buildings be constructed according to a building permit issued by one of the following approved authorities:

- Local government council
- Municipal council
- Ministry of Infrastructure and Public Utilities

The approval authority is expected to:

- Regularly inspect the construction of a building.
- Issue building inspection certificates.
- 3 days after inspection, produce an inspection report.
- Issue completion certificates.
- Issue fitness to occupy certificates.

Examples of offences under the building act include:

- Not building in accordance with the building permit.
- Changing the use of a building.
- Not completing any building work in contravention of a notice to make good
- Impersonating a building inspector.

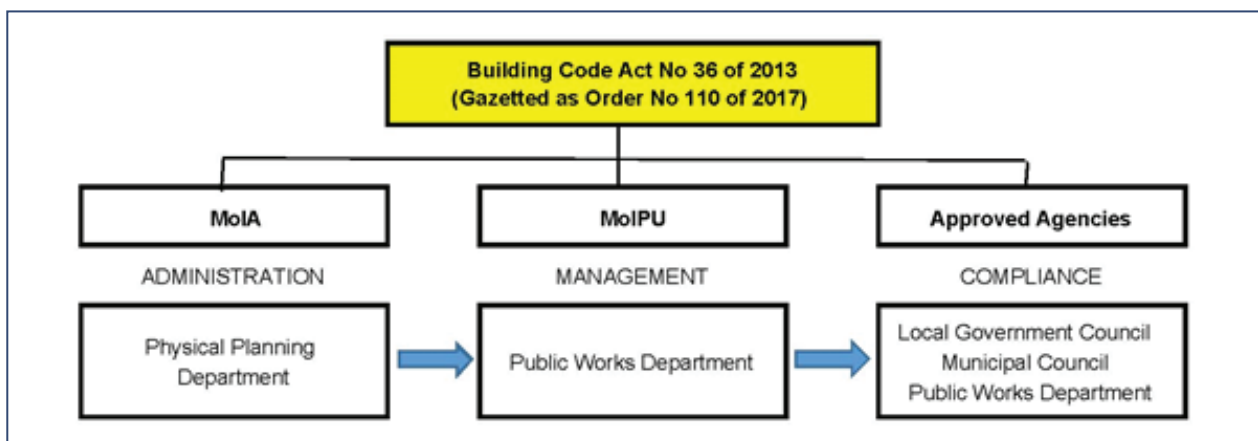
- Falsifying a building inspection certificate, a fitness to occupy certificate or a completion certificate.
- Making false or misleading statements in any document required to be supplied under the act regulations.

Penalties under the act prescribed for any offences are punishable on conviction to:

- a fine not exceeding 10 million vatu or,
- imprisonment for a period of not more than 1 year, or
- both.

The links between ministries and agencies responsible for administration, management, and compliance are illustrated below (Figure 2-2):

Figure 2-2: Ministries and Agencies Responsible for Administration, Management and Compliance



MoIA = Ministry of Internal Affairs, MoIPU = Ministry of Infrastructure and Public Utilities.

Source: Author provided.

Buildings to which the legislation applies

The Building Act applies to the construction of the following:

- Buildings owned in whole or in part by the state in any local government region.
- Buildings in any municipality.
- Buildings in any physical planning area.

Building consultants

Five locally established architectural/engineering firms carry out the bulk of design and construction supervision work for the government. The private sector uses these firms and other international consultants to provide design and construction supervision services. The locally established firms are familiar with the National Building Code and Home Building Manual and use these documents as design guidelines. The international consultants generally use Australian or New Zealand codes and standards.

There have been attempts to form a Vanuatu Institute of Engineers and Architects and associate it with the South Pacific Engineers Association based in Fiji and Samoa. These attempts have to date been unsuccessful due to a lack of time and resources.



Building contractors

There are 12 well-established local building companies with the capacity to finance their own construction works. Two of these firms, Fletcher Construction and Jiangsu Construction, are subsidiaries of large international construction groups. There are numerous smaller building companies with limited financial capacity. There is a Small Builders Association affiliated with the Vanuatu Chamber of Commerce. Most of the builders are unfamiliar with the National Building Code and Home Building Manual.

Insurers and financial lenders

Commercial banks and insurers require that insured buildings be cyclone and earthquake certified by qualified structural engineers in accordance with Australian and/or New Zealand standards. Compliance with the National Building Code is not a requirement.

Building standards

The National Building Code references Australian and New Zealand building standards. Where the standards from either Australia or New Zealand do not cover any specific areas, the relevant standards issued by the British Standards Institution or the American Society for Testing and Materials can be used. Some of the Australian and New Zealand standards referenced under the National Building Code of Vanuatu have been withdrawn or superseded.

There is no builder's licencing process.

There are limited materials testing facilities available at the Public Works Department, Shefa Division compound in Port Vila.

There is no legislation on **national trade measurement and standards** or agency responsible for monitoring standards.

2.2 Institutionalization

Technical and vocational institutes where construction technology is taught include:

- Vanuatu Institute of Technology (formerly the *Institut National de Technologie de Vanuatu*)
- Australia Pacific Technical College
- Vanuatu Rural Development and Training Centres Association

Curriculums at these institutes do not include introduction and application of the National Building Code of Vanuatu, though the Australia Pacific Technical College references the code in its carpentry training.

2.3 Training, Capacity Building, and Promotion

The Vanuatu government does not have courses to train building inspectors or programs to build the capacity of the regulatory bodies to administer and monitor compliance of the National Building Code. Strategies to promote the National Building Code to the public, builders, professional users, and technical and vocational institutions have not been developed.

Hard copies of the National Building Code are available at the municipal councils and a soft copy in pdf format is available online. Most architectural and engineering consulting firms are aware of both the National Building Code and Home Building Manual and use them on a day-to-day basis for design work.

After the devastation in Tanna by Cyclone Pam in March 2015 the Government of Vanuatu reviewed classroom standard designs and required that the rebuilt classrooms meet the following minimum design standards:

- New classrooms were to be constructed using the revised Ministry of Education and Training's Minimum Infrastructure Standards developed under the Australian funded Vanuatu Education Support Program. These revised standards included provision for accessible access, such as ramps.
- Structurally designed to meet the National Building Code of Vanuatu requirements, including earthquake resistance and withstanding a Category 4/5 cyclone.
- Some classrooms at each rural school should be cyclone resistant and can act as community evacuation centers during future cyclone events.

Figure 2-3: Classrooms constructed after Tropical Cyclone Pam in accordance with the National Building Code



Source: Author provided.

The classroom redesigns were promoted as meeting the requirements of the National Building Code. However, Vanuatu Building Professionals remain concerned that the National Building Code of Vanuatu is not being used at all or is inadequately applied in many private reconstruction situations and new builds leading to poor quality and non-resilient infrastructure. Many buildings currently being designed are using a mix of the Australian and New Zealand codes.



3. Vanuatu Consultation Process and Methodology

3.1 Bodies Consulted

The key bodies responsible for administering and monitoring compliance of the National Building Code of Vanuatu are:

- Ministry of Internal Affairs
- Ministry of Infrastructure and Public Utilities
- Public Works Department
- Port Vila Municipality
- Luganville Municipality

Other government organizations with an interest in application of the National Building Code include:

- Ministry of Health
- Ministry of Education and Training
- Prime Ministers Department
- Department of Environment
- Department of Climate Change
- Disaster Management Office
- Department of Energy
- Vanuatu Fire Service

All these government organizations were contacted about the study. Most sent representatives to the workshop. One-on-one interviews were held with the heads of the Departments responsible for administering and monitoring compliance of the National Building Code.

There are five locally established architectural/engineering firms and 12 well-established local building companies based in Port Vila. All were notified of the study and four of the consultants and two of the builders had representatives attend the workshop. One-on-one interviews were held with the three largest consulting firms.

The two main banks and insurance companies operating in Vanuatu were contacted in relation to engineering requirements on buildings they are funding or insuring. The country head of ANZ bank responded with comments on behalf of the local banking and insurance fraternity.

The Asian Development Bank, World Bank, and Australia's Department of Foreign Affairs and Trade are funding cyclone reconstruction in Vanuatu. One-on-one interviews were held with technical representatives from all three organizations and all were represented at the workshop.

3.2 One-on-One Site Interviews

One-on-one site interviews were held with the following people:

Government sector

- Harrison Leun—Ministry of Infrastructure and Public Utilities, Director General
- Allen Faeru—Public Works Department, Director
- Cherol Ala Ianna—Ministry of Internal Affairs, Director General
- Loius Mael—Ministry of Internal Affairs, Physical Planning
- Mandes Tangaras—Port Vila Municipal Council
- Jerry Sampson—Port Vila Municipal Council

Building Consultants

- Jay Jameson—Kramer Ausenco
- Saju Abraham—Kramer Ausenco
- Cyrille Mainguy—Mainguy Consulting Engineers
- Bikenibeu Ieremiah—BI Consulting Civil Engineering
- Solip Nato—BI Consulting Civil Engineering
- George Amos—BI Consulting Civil Engineering

Aid Donors

- Ted McDonnell—Public Works Department-DFAT
- Eric Bourdet—Public Works Department-ADB
- Gordon Craig Ministry of Education and Training—ADB/World Bank
- Arto Ahonen—ADB
- Nancy Wells—ADB/World Bank
- Nick Pilgrim—Port Vila Urban Improvement Project

3.3 Participatory Workshop

The one-day participatory workshop was held at the Ramada-Port Vila on 26 February 2019. The list of participants is attached as **Annex 2**. Participants break down as follows:

- 33 construction practitioners and regulators
- 2 women
- 21 government sector (64%) and 12 private sector (36%)
- All private sector engineering and architectural consulting firms in Vanuatu represented.
- 23 construction practitioners or regulators invited were unable to attend; most had views represented by other, nominated participants.



Participatory workshops are designed to bring a range of people together to seek their opinions, extract knowledge, and solve problems in a collaborative and creative environment. This process can be invaluable for reaching consensus on challenges and issues, agreeing solutions, and formulating practical and achievable interventions.

The Vanuatu Participatory Workshop sought opinions and recommendations from construction practitioners and government regulators on how Vanuatu's National Building Code and its administration and compliance enforcement procedures could be improved in given the lessons in recent disaster activity in the region.

Figure 3-1: Vanuatu participatory workshop, Private sector representatives



Source: Author provided.

The outcomes and key themes emerging from the workshop have informed the action plan as section 5 of this document and will help formulate a guidance document for PRIF for future assistance initiatives related to building code updates for all Pacific countries targeted under this study.

The workshop's three sessions included:

- **Session 1:** National Building Code and the Home Builders Manual
- **Session 2:** Administration and Compliance
- **Session 3:** Guidance Document and Road Map

The workshop PowerPoint is attached as **Annex 3** and workshop outcomes as **Annex 4**. A draft of the workshop outcomes was circulated to all participants and the final document attached has been amended to include their comments.

Figure 3-2: Vanuatu participatory workshop, national stakeholders, Port Vila



Source: Author provided.

3.4 Key Themes

Key themes emerging from the consultations and participatory workshop can be grouped under six headings:

- i. Adequacy of the National Building Code of Vanuatu
- ii. National Building Code of Vanuatu administration and compliance
- iii. National Building Code of Vanuatu training and capacity building
- iv. National Building Code of Vanuatu awareness and promotion
- v. Building standards
- vi. Insurance

The points raised can be summarized as follows:

- i. Adequacy of the National Building Code of Vanuatu
 - While the National Building Code has many shortcomings, industry is happy that one exists.
 - Gaps cannot be identified until the National Building Code is properly implemented.
 - The building act needs to be reviewed and a system of central control established.
 - A study/review is needed on how to properly implement the National Building Code.
 - The Ministries of Internal Affairs, Infrastructure and Public Utilities, and of Health, the Fire Department, Department of Environment, National Disaster Management Office (NDMO), and private sector architects and engineers need to be involved in a review of National Building Code administration and compliance processes.
 - Fire, egress, safety, and sanitation need to be reviewed.
 - Waste disposal needs to be addressed. It will be a big issue soon.
 - Sections on energy efficiency, disability accessibility, and climate change adaption are needed.
 - Guidelines on how to build local/simple/affordable housing could be included.
 - Areas where the National Building Code will apply need to be defined in the code.
 - Less reference should be made to Australia and New Zealand as it is difficult to their certified materials.
 - A closer relationship between the National Building Code, Home Building Manual and government agencies needs to be established.
 - Development of a three-level code—gold, silver, bronze—is encouraged. The bronze version could be a grassroots edition of the National Building Code in Bislama, targeting rural areas.
 - Developing a “build-back-better” guideline for improving the quality of buildings to withstand climate change events in collaboration with the Ministry of Climate Change Adaption and nongovernment organizations (NGOs) would be useful.
 - The gold standard must have disability design standards and must meet minimum environmental standards.
 - The Home Building Manual is very practical and builders understand it.

- The National Building Code needs to be an evolving document that incorporates current standards and use of available materials and building methods (e.g., precast buildings).
- Zones for cyclonic areas need to be specified.
- More robust and up-to-date data are needed, e.g., data on rainwater intensity and catchment loads.
- Language used is confusing: language between the National Building Code and standards does not match, e.g., Australia reference to importance levels in the wind loadings standard.
- The National Building Code needs to be linked to disaster management strategies.
- Cyclone categories (Cat 4, Cat 5, etc.) and earthquake categories (Richter scale) should be included as part of the National Building Code.
- The National Building Code should include a flow chart that shows how the building approval process is administered.
- The National Building Code needs to be available online.
- The National Building Code must be applicable to all throughout Vanuatu.

ii. National Building Code administration and compliance


- Resources to enforce National Building Code compliance are limited.
- There is no governance structure/framework/process for effective implementation of the act. It would be useful to have a legal expert review the act.
- A central control body, either in the Ministry of Internal Affairs or Ministry of Infrastructure and Public Utilities needs to be established for oversight of administration over the total building project lifecycle: planning-design-construction-occupation.
- A national coordinator working through a Vanuatu Institute of Engineers and Architects and a regional coordinator working through the South Pacific Engineers Association (in Samoa) should be recruited to support the implementation and compliance of an updated National Building Code.
- In recent times the Ministry of Infrastructure and Public Utilities has emphasized making resources available to apply the act and the National Building Code; their focus has been on transport (horizontal) infrastructure—there is no priority on building (vertical) infrastructure. This will need to change if the National Building Code is to be effectively applied throughout Vanuatu.
- It could be difficult to enforce a three-level code under the current act.
- Clear lines of responsibility need to be designated between the public and private sectors, Ministry of Internal Affairs, Ministry of Infrastructure and Public Utilities, urban councils, and provincial authorities.
- All existing documents relating to the built environment, National Building Code, Home Building Manual, Building Act, Environment Act, physical planning, water, sanitation, health, occupational health and safety, and lands need to be reviewed and harmonized under an updated National Building Code.
- Under the act better coordination is needed between Ministry of Internal Affairs administrative compliance and Ministry of Infrastructure and Public Utilities technical compliance.
- Better coordination is needed between Ministry of Internal Affairs and municipal councils.
- A panel of qualified technical building inspectors needs to be established.

iii. National Building Code training and capacity building

- Insufficient qualified staff are available to enforce compliance; for example, there are only two building inspectors in the whole country.
- Training and development and awareness are key solutions to improving the effective application of the National Building Code of Vanuatu. This training and awareness could be channelled through a newly formed Vanuatu Institute of Engineers and Architects.
- The Vanuatu Institute of Technology and Vanuatu Rural Development and Training Centres Association do not use the National Building Code for training. However, the Australia Pacific Technical College uses it in its carpentry training. Training should be developed that targets National Building Code planning, administration, and certification. The National Building Code needs to be included in the curriculums at Vanuatu Institute of Technology, Australia Pacific Technical College, and the Vanuatu Rural Development and Training Centres Association.
- Human resources capacity to administer and enforce the code needs to be built.
- A skills assessment for building professionals and regulators within the government and private sectors needs to be undertaken.
- Based on the skills assessment, future building professional needs can be established
- Building inspectors need training on how to enforce the National Building Code.
- Builders and designers should be trained in the National Building Code.
- Builders should be certified and licenced annually.
- Courses need to be developed to build private sector capacity.

iv. Building standards

- There is no local register of building professionals; a Vanuatu Institute of Engineers and Architects needs to be established.
- A Vanuatu Institute of Engineers and Architects could help provide the technical aspects of the National Building Code instead of relying solely on government.
- A Vanuatu Institute of Engineers and Architects could advocate and lobby government and the financial/insurance sector and provide professional advice on an approved list of consultants, professional development, and checks and balances on building professionals to ensure they are competent.
- Some buildings are being constructed within the town boundaries that have not been subject to the National Building Code permit process, e.g., some Chinese-funded buildings have all the drawings and specifications in Chinese.
- A Vanuatu Small Builders Association exists under the Vanuatu Chamber of Commerce; the association should advocate for registration of builders.
- Building materials need to be certified by an approved certification agency.
- There is no builder's licencing process—anyone can be a builder.
- A National Building Code should promote the specification of alternative materials e.g., an alternative to the use of sand around the Port Vila area.
- Quality assurance processes for both imported and locally produced building materials need to be legislated and regulated.

- 
- v. National Building Code awareness and promotion
- This workshop has been an excellent forum for the private and public sectors to discuss construction issues; more such workshops are needed regularly.
 - Understanding is lacking of when to use the National Building Code. Use, capacity, and compliance enforcement are also lacking. But the biggest impediment to proper application of the code is lack of public awareness.
 - There is no awareness on how to apply the Building Act, where the act applies and the penalties.
 - An awareness program needs to be developed and delivered about the benefits of the National Building Code that would include Vanuatu TV and radio, Vanuatu Institute of Technology, Australia Pacific Technical College, Vanuatu Rural Development and Training Centres Association, the education system, and social message providers, such as Wan Smol Bag.
 - Close working relationships need to be developed between the public and private sectors.
 - Greater public awareness is needed of the benefits of good-quality building design.
- vi. Financial and insurance providers
- Currently the banks and insurance companies are ensuring that commercial buildings comply with the relevant codes.
 - Banks and insurance companies should be engaged in a conversation around National Building Code compliance.

4. Issues and Outcomes

4.1 Building Legislation

Enabling factors


- The National Building Code of Vanuatu was enacted in 2013 as the Building Code Act No 36 of 2013 and was gazetted as Order No 110 of 2017.

Constraining factors

- The building act needs to be reviewed and a system of central control established.
- There is no governance structure/framework/process for the effective implementation of the act.
- It could be difficult to enforce a three-level code under the current act.
- Building control legislation is not harmonized with related legislation.

Proposed actions and activities

The Building Code Act of Parliament should be reviewed by a legal expert



Suggested legal activities would include exploring how the act could be updated to accommodate the following:

- i. Establish a central control body, either in Ministry of Internal Affairs or Ministry of Infrastructure and Public Utilities as oversight of the administration process over the total building project lifecycle: planning-design-construction-occupation.
- ii. Improve coordination between Ministry of Internal Affairs administrative compliance and Ministry of Infrastructure and Public Utilities technical compliance.
- iii. Clearly identify lines of responsibility between the public and private sectors, Ministry of Internal Affairs, Ministry of Infrastructure and Public Utilities, municipal councils, and provincial authorities.
- iv. Harmonize the Building Code Act with other legislation in related areas such as the environment, physical planning, water, sanitation, health, occupational health and safety, lands.
- v. Enforce a three-level code.

4.2 Building Regulations, National Building Code

Enabling factors

- A National Building Code of Vanuatu exists and has been legislated.
- Revision to the National Building Code in 2000 updated the international standards referenced and incorporated recommendations from the Sanitation Master Plan for Port Vila.
- The National Building Code is being applied by some Vanuatu-based engineering and architectural consultants.
- The National Building Code has many shortcomings, but industry is happy that one exists.

Constraining factors

- The National Building Code dates from 1990 and was updated only once, in 2000.
- Accessing Australian and New Zealand standards, which are referenced in the National Building Code, is difficult and costly.
- Gaps in the administration of the National Building Code cannot be identified until the code is properly implemented.

Proposed actions and activities

A building consulting firm should be engaged in a participatory exercise to review and update the National Building Code, building standards, and associated legislation. The Ministry of Internal Affairs, Ministry of Infrastructure and Public Utilities, Ministry of Health, Fire Department, Department of Environment, NDMO, and private sector architects and engineers all need to be involved in the review of the National Building Code of Vanuatu administration and compliance processes.

The consultant team should include an:

- architect
- structural engineer
- environmental engineer (health and amenity)

- mechanical/electrical engineer
- fire engineer
- disability expert
- climate change adaption expert
- environmental safeguards expert
- senior building inspector
- information technology expert to develop a national building code Vanuatu NBCV interactive online version.

A terms of reference should be developed for this review. An indicative program, inputs, and cost for this exercise is attached as **Annex 1**. The estimated cost is around \$325,000.

The review should include the following activities:

- i. Explore options for a three-level code with gold, silver, and bronze editions. The bronze version could be a grassroots edition of the National Building Code in Bislama targeting rural areas and include a “build-back-better” guideline for improving the quality of buildings to withstand climate change events. The build-back-better guideline should be developed in collaboration with the Ministry of Climate Change Adaption, NDMO, and interested NGOs.
- ii. Update building standards, particularly structural, wind, and seismic standards.
- iii. Work with the NDMO to align or integrate the code with emergency guidelines and other environmental and climate adaptation initiatives, including updating climate data such as rainfall and its impact on drainage.
- iv. Fire, egress, safety, and sanitation all need to be reviewed.
- v. Include sections on energy efficiency, and climate change adaption.
- vi. Address accessibility guidelines for people with disabilities.
- vii. Develop an online interactive version of the code with mobile phone application.
- viii. Address affordable housing, which could include guidelines on how to build local/simple/affordable housing.
- ix. Have a flow chart that shows how the building approval process is administered.
- x. Reference occupational health and safety (in particular, work safety, timber treatment, and asbestos issues).

Local financial and insurance institutions should be encouraged to adopt the updated National Building Code as the standard for approving building insurance and building loans.

4.3 Building Standards

Enabling factors

- The National Building Code of Vanuatu references Australian and New Zealand building design and building product standards.
- Materials testing facilities are available at the Public Works Department, Shefa Division compound in Port Vila.
- A Vanuatu Small Builders Association exists under the Vanuatu Chamber of Commerce.

Constraining factors

- The materials testing facilities available at the Public Works Department, Shefa Division compound in Port Vila are limited.
- There is no legislation on **national trade measurement and standards** or agency responsible for monitoring standards
- There is no mechanism in place to enforce building product quality compliance.
- There are no requirements for certification and accreditation of construction trades workers, building professionals, or construction companies.
- Accessing Australian/New Zealand standards, which are referred to in the National Building Code, can be difficult and costly for members of the building professions.

Proposed actions and activities

Building material quality control could be improved by developing an appropriate compliance system involving the following activities:

- i. Update the list of acceptable building product standards in a revised National Building Code.
- ii. Enable copies of relevant building standards to be readily accessible to building professionals.
- iii. Include in the building inspector's duty statement the monitoring of building products on site.
- iv. Introduce legislation on trade and building standards which schedules penalties for importing non-complying building materials.
- v. Support the Public Works Department to expand its materials testing facilities in Port Vila and/or identify an acceptable regional testing laboratory.

Improving workmanship standards would be a longer-term strategy. The strategy could involve introducing a system of national certification and accreditation, including annual licensing for all construction personnel (consultants, contractors, project managers, and trade people). The private sector, through a newly formed Vanuatu Institute of Engineers and Architects supported by the South Pacific Engineers Association, could work with relevant government ministries and training institutions to establish appropriate qualification benchmarks and design a regulatory framework in which certification, accreditation, and licensing can be administered and compliance monitored.

4.4 National Building Code Vanuatu Administration and Compliance, Training and Capacity Building

Enabling factors

- Legislation exists for administering and enforcing compliance of the National Building Code of Vanuatu.
- Local authority by-laws exist to determine building permit requirements.
- Port Vila and Luganville Municipalities have planning and building departments and employ building inspectors.



Constraining factors

- Resources to enforce National Building Code compliance are limited.
- There is no governance structure/framework/process for effective implementation of administration and compliance.
- The Ministry of Infrastructure and Public Utilities has emphasized making resources available to manage the National Building Code.
- The present procedures for obtaining a building permit, involving input from a variety of institutional bodies, is not very effective and is time consuming.
- There are insufficient building inspectors to manage the building permit process and enforce compliance.
- Building inspectors have not received any training on National Building Code compliance procedures.

Proposed actions and activities

A strategy to strengthen National Building Code application, building control, administration, and compliance enforcement procedures should be developed.

The strategy should include the following actions:


- i. A human resource consultant appointed to undertake a gap analysis of the current building control regulatory human resource environment.
- ii. Authorities responsible for processing building permits and monitoring compliance to be appropriately funded, including funds for logistical support such as vehicles.
- iii. A “one-stop-shop” approach should be considered for processing building permits.
- iv. In consultation with local construction practitioners, training opportunities associated with applying the National Building Code to be offered to building professionals.

The gap analysis would include the following activities:

- complete a baseline study on the number of building inspectors, where they are located, and their skill level;
- based on amount of building completed in Vanuatu over the past 3 years, determine the number of building inspectors required and in what locations;
- complete a gap analysis to determine the gap between the number of building inspectors required by location and the baseline study numbers;
- prepare a building inspector duty statement appropriate for Vanuatu; and
- undertake a skills gap analysis of the current cohort of building inspectors against the building inspector duty statement.

Based on the outcome of the gap analysis:

- Additional building inspector positions may need to be established and building technicians recruited to fill the positions.
- The Vanuatu government will need to allocate funds for additional salaries and logistical support, such as vehicles. Building permit fees should include the cost of inspections.
- Capacity building and training opportunities should be developed for building inspectors based on the approved duty statement.



Consideration could also be given to outsourcing building inspections to the private sector, as is done in Australia.

4.5 Institutionalization

Enabling factors

- Technical and vocational institutions exist in Vanuatu, where construction technology is taught.
- Training institutions support the concept of institutionalizing the updated National Building Code by incorporating its training elements into ongoing programs.
- The carpentry course at the Australia Pacific Technical College references the National Building Code.

Constraining factors

- The National Building Code is almost 30 years old, with only a minor update in 2000.
- The curriculum at Vanuatu's technical institutions does not include the introduction and application of the National Building Code.

Proposed actions and activities

The new, updated National Building Code should be included as part of the building professionals and trades workers training curriculum at:

- Vanuatu Institute of Technology
- Australia Pacific Technical College
- Vanuatu Rural Development and Training Centres Association

Government support should be provided for institutions to integrate the updated National Building Code into curriculums so that it becomes an integral part of the building professionals and trade workers professional and trade practice.

4.6 National Building Code Vanuatu Awareness and Promotion

Enabling factors

- One of the outcomes of tropical cyclone Pam was that the Vanuatu public became more aware of the need to cyclone proof buildings.
- The NDMO has a disaster management awareness program that could also promote the National Building Code.

Constraining factors

- No National Building Code public awareness programs have been delivered since publication in 1990.
- Technical and financial resources are lacking to fund preparation and delivery of appropriate public awareness programs.

Proposed actions and activities

A National Building Code awareness and promotion strategy should be developed.

The strategy should include consideration of the following:

- i. Published versions of the National Building Code and associated building standards should be readily available to building professionals and the public and a source identified where the hard copies can be purchased.
- ii. The National Building Code needs to be web-based and interactive with a mobile phone application.
- iii. Funding should be made available to regularly deliver the programs. This could involve a newly formed Vanuatu Engineers and Architects Institute, NDMO, NGOs, print, radio, and TV media. A media management company could be employed to roll out the awareness strategy.
- iv. Ethical awareness and industry best practice should be incorporated as a key element in all promotional activities.

5. Action Plan


One of the strongest messages to come out of the consultation process was that improvement in the quality of Vanuatu's construction standards was dependent on proper administration, management, and enforcement of the 2013 Building Act. This will require strong government commitment to improve the government capacity to apply the National Building Code.

This commitment could involve a statement from the Government of Vanuatu that would set out an action plan and timeline for short-term and long-term support for the National Building Code review, management, compliance, training, and promotional activities.

Based on the outcomes of consultation for this study, a suggested action plan of short-term and long-term actions to be carried out by the Government of Vanuatu could include:

Short term

- i. Engage a legal expert to review and rationalize current building control legislation and harmonize the legislation with related legislation.
- ii. Engage a building consulting firm to review and update the National Building Code, including associated manuals (silver and bronze versions). Refer to **Annex 1** for an indicative program, inputs, and costs for a building code review and update.
- iii. Engage a human resource consultant to undertake a gap analysis of the current building control regulatory human resource environment to identify shortfalls in regulatory resources and skills.
- iv. Engage a legal expert to draft a new law setting out trade and building material product standards and identify an appropriate body responsible for monitoring and enforcing building material quality compliance.
- v. Assist the local construction consulting industry to establish a Vanuatu Institute of Engineers and Architects to certify and accredit building professionals and promote good building design.

- 
- vi. Engage the Ministry of Internal Affairs, Ministry of Infrastructure and Public Utilities, NDMO, appropriate NGOs, and a private sector media management company to develop an awareness program to promote the launching of an updated National Building Code and associated manuals. Deliver the program to the public in urban and rural areas. A newly formed Vanuatu Institute of Engineers and Architects to also assist with this activity.
 - vii. Publish hard copies of the updated National Building Code and associated manuals and identify outlets where they can be purchased.
 - viii. Develop a National Building Code website that can be easily accessed by the public.

Long term

- i. Develop, fund, and deliver appropriate training courses targeted at building professionals who apply the National Building Code and building inspectors who monitor compliance.
- ii. Address quality control of building material testing by either:
 - a. identifying an acceptable regional testing laboratory and/or
 - b. committing funding to expanding the Public Works Department testing facility in Port Vila.
- iii. Support a newly formed Vanuatu Institute of Engineers and Architects to hold annual conferences and to instigate joint fellowship programs between government and private and industry sectors and industry sectors in other countries.
- iv. Support the integration of the updated National Building Code of Vanuatu into the curriculum of Vanuatu teaching institutes, such as the Australia Pacific Technical College, Vanuatu Institute of Technology, and Vanuatu Rural Development and Training Centres Association so that it becomes an integral part of the building professionals and trades workers professional and trade practice.
- v. Support and fund the institutionalization of National Building Code promotional activities so they are delivered regularly.

To facilitate this action plan, a National Building Code coordinator should be appointed for a 2-year term to be based in the ministry responsible for managing the National Building Code. The co-ordinator to work closely with consultants engaged to carry out the action plan activities, assist with the establishment of a Vanuatu Institute of Engineers and Architects associated with South Pacific Engineers Association, and provide support to both the National Building Code approval authorities and the newly formed Vanuatu Institute of Engineers and Architects to implement the plan.



6. Potential Areas for Support by PRIF Partners

PRIF development partners could provide material support to the Government of Vanuatu to assist with implementing the action plan. Suggested activities which PRIF development partners could support include:

- i. Recruit and fund the appointment of a national co-ordinator to implement the ACTION PLAN. The National Building Code national co-ordinator could be a member of a team of National Building Code national co-ordinators based in other Pacific countries all working under the umbrella of a regional co-ordinator.
- ii. Fund a legal expert to review building-control-related legislation.
- iii. Fund a team of building experts to review and update the National Building Code and develop associated building manuals.
- iv. Fund a human resource consultant to undertake a gap analysis of building control human resources and skill levels and develop appropriate training programs.
- v. Fund a legal expert to draft a new law on building trade practices and standards.
- vi. Fund the delivery of appropriate training programs to building inspectors and private building professionals over a 2-year period.
- vii. Fund an NGO and/or media management company to assist the Government of Vanuatu to develop and deliver an National Building Code launching program.
- viii. Fund the publishing and printing of the updated National Building Code.
- ix. Fund an NGO and/or media management company to assist the Government of Vanuatu to develop and deliver on a regular basis a National Building Code awareness program through print, radio, and TV media.

The national co-ordinator, supported by a regional co-ordinator, would be responsible for co-ordinating and facilitating these activities.



Annex 1

Indicative Program, Inputs, and Costs for a Building Code Review

PRIF-ADB: Diagnostic study on the capacity of Pacific Island Countries to apply their building codes
NATIONAL BUILDING CODE - BUILDING CODE REVIEW
INDICATIVE PERSONAL INPUTS AND COSTS

ACTIVITY DESCRIPTION	Week																							Total days	Rate USD	total USD	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
TEAM LEADER (ARCHITECT/BUILDING ENGINEER)	5	5			5	5	5	5	5	5			5	5	5	5	5	5	5			5	5	85	\$670	\$56,950	
STRUCTURAL ENGINEER		3				5	2	2		1			3	2	1	1	1	1	1			1	1	23	\$630	\$14,490	
ELECTRICAL/MECHANICAL ENGINEER			2			5	2	1		1			2	1	1	1	1	1	1			1	1	18	\$630	\$11,340	
ENVIRONMENTAL ENGINEER (HEALTH AND AMENITY)				2			5	2	1		1		2	1	1	1	1	1	1			1	1	18	\$630	\$11,340	
FIRE ENGINEER (FIRE RESISTENCE-ACCESS AND EGRESS)					2			5	2	1		1		2	1	1	1	1	1			1	1	18	\$630	\$11,340	
SENIOR BUILDING INSPECTOR						3			5	2	2		1		3	2	2	1	2			1	2	26	\$630	\$16,380	
DISABILITY EXPERT							1		5	1	1		1	1	1	1	1	1	1			1	1	14	\$630	\$8,820	
CLIMATE CHANGE ADAPTION EXPERT								1	5	2	1		1		2	1	1	1	1			1	1	17	\$630	\$10,710	
ENVIRONMENTAL SAFEGUARDS EXPERT									1	5	1	1		1	1		1	1	1			1	1	14	\$630	\$8,820	
IT EXPERT																							12	\$630	\$7,560		
ILLUSTRATOR																							17	\$550	\$9,350		
																								TOTAL PERSON DAYS			
																								262			
																									management fee	60%	\$100,260
																									trips:		\$41,164
																									Contingency		\$16,000
																									total USD		\$324,524

PRIF-ADB: Diagnostic study on the capacity of Pacific Island Countries to apply their building codes																								
VANUATU NATIONAL BUILDING CODE - BUILDING CODE REVIEW																								
INDICATIVE WORK PLAN																								
ACTIVITY DESCRIPTION	total Week																							
	wks	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1 INCEPTION REPORT	2																							
. Establish Consultancy Team																								
. Desk review of Current NBC and HBM																								
. Desk review current Building code literature																								
. Skype hook up with local consultants																								
. Finalise review methodology																								
. Prepare work plan																								
GoV / donor approve inception report	2																							
Donor/GoV prepares mission approvals																								
2 VANUATU CONSULTATION	2																							
. Briefing with Consultant representatives/GoV/Donor																								
. Site Interviews with individual Stakeholders																								
. Consultative workshop with all stakeholders																								
. Follow up site interviews																								
3 NBCV / HBMV REVIEW	4																							
. Record of findings from consultations																								
. Initial recommendations																								
. Draft review presented to Stakeholders for comment																								
. Draft review incorporates Stakeholder comments																								
GoV / donor approve Review	2																							
4 VANUATU BUILDING CODE SUITE REWRITE	7																							
. NBCV rewritten																								
. Building Manuals written																								
> HBM																								
> Simplified Handbook for Village buildings																								
. Draft NBCV presented to Stakeholders for comment																								
. Draft incorporates Stakeholder comments																								
GoV / donor approve Final NBC	2																							
5 PROJECT COMPLETION REPORT	2																							
. Record of NBCV review and rewrite																								
. Evaluation of review and rewrite process																								
. Lessons Learned																								
. Follow up steps for implementing the NBCV																								

PRIF-ADB: Diagnostic study on the capacity of Pacific Island					
Countries to apply their building codes					
VANUATU NATIONAL BUILDING CODE - BUILDING CODE REVIEW					
INDICATIVE TRAVEL COSTS					
Mile stone		RATE	NO	SUB-TOTAL	TOTAL
2	VANUATU CONSULTATION				\$26,405
	return economy flights (AUS/NZ/US - Van	\$1,200	11	\$13,200	
	MTE	\$150	11	\$1,650	
	hire vehicle (day)	\$80	21	\$1,680	
	perdiem	\$265	27	\$7,155	
	insurance	\$70	11	\$770	
	communications	\$50	9	\$450	
	Workshop venue	\$1,500	1	\$1,500	
3	PRESENT NBC REVIEW TO STAKEHOLDERS				\$4,695
	return economy flights (AUS/NZ/US - Van	\$1,200	1	\$1,200	
	MTE	\$150	1	\$150	
	hire vehicle (day)	\$80	5	\$400	
	perdiem	\$265	5	\$1,325	
	insurance	\$70	1	\$70	
	communications	\$50	1	\$50	
	Workshop venue	\$1,500	1	\$1,500	
4	PRESENT NBC REWRITE TO STAKEHOLDERS				\$4,695
	return economy flights (AUS/NZ/US - Van	\$1,200	1	\$1,200	
	MTE	\$150	1	\$150	
	hire vehicle (day)	\$80	5	\$400	
	perdiem	\$265	5	\$1,325	
	insurance	\$70	1	\$70	
	communications	\$50	1	\$50	
	Workshop venue	\$1,500	1	\$1,500	
				TOTAL	\$35,795
				15% MARGIN	\$5,369
					\$41,164

Annex 2

List of Workshop Participants

Date: Tuesday 26 February **Venue:** Ramada Hotel **Time:** 8.00am

TABLE 1: PRIVATE SECTOR BUILDERS AND BUILDING CONSULTANTS (7)

Stephanie Hamel	Engineers without Borders
Jay Jameson	Country Manager, Kramer Ausenco (Vanuatu) Ltd
Saju Abraham	Project Architect, Kramer Ausenco (Vanuatu) Ltd
Cyrille Mainguy	Consulting Engineer
Patteson Saru	Mainguy Consulting Services
Johnson Binaru	Consulting Engineer, QCL
Shem Iauko	Consulting Engineer, QCL

TABLE 2: PORT VILA AND LUGANVILLE MUNICIPALITIES MINISTRY OF INTERNAL AFFAIRS, PUBLIC WORKS DEPARTMENT (7)

Ted McDonnell	Public Buildings Recovery Program, Public Works Department
Eric Bourdet	National Project Management Advisor, Vanuatu Project Management Unit: Public Works Department
Mandes Tangaras	Port Vila Municipal Senior Building Officer
Jerry Sampson	Senior Town Planning Officer, Town Planning Unit, Port Vila Municipal Council
Othniel Bule	Acting Senior Planner, Luganville Municipality
Louis Mael	Physical Planning Unit, Ministry of Internal Affairs
Charlie Namaka	Prime Minister's Office

TABLE 3: MINISTRY OF HEALTH, MINISTRY OF EDUCATION (5)

Tim Egerton	Capital Projects Technical Advisor, Vanuatu Health Resource Mechanism (VHRM), Ministry of Health
John Tokataake	Provincial Maintenance Officer, MoET
Gordon Craig	Infrastructure Advisor, MoET
Chapman Mogeror	A/PEO Administration & Asset Management, Ministry of Education
Timothy Mote	Associate Principal Geohazards and Risk, Arup

TABLE 4: DEPARTMENT OF ENVIRONMENT, DEPARTMENT OF ENERGY, NATIONAL DISASTER MANAGEMENT OFFICE, PWD ENVIRONMENTAL SECTION (7)

Uravo Nafuki	Environmental Officer, PWD
Brian Smart	Technical Advisor, National Disaster Management Office
Misel Sisi	Manager, Energy Security Unit, Department of Energy
Willie Obed	Department of Energy

Osborne Melenamu	Department of Environmental Protection and Conservation
Tom Maimai	Department of Environmental Protection and Conservation
Andrew Wood	NDMO

TABLE 5: PWD, PRIVATE SECTOR BUILDERS AND BUILDING CONSULTANTS (7)


Andre Iatipu	Deputy Director, PWD
Junior Shim George	Director, PWD
Franconieri Franck	General Manager, Franconeri and Son Construction
Christophe Dinh	Christophe Dinh Construction
Bikenibeu Jeremiah	BI Consulting Civil Engineering
Solip Nato	Senior Civil Engineer, BI Consulting Civil Engineering
George Amos	Building Specialist, BI Consulting Civil Engineering

Invited but unable to attend

Jeffrey Kaitip	Director, Physical Planning Unit, Department of Local Authorities, Ministry of Internal Affairs
Harold Allanson	Acting Principal Architect, Public Works Department, Government of Vanuatu
Harrison Luen	Director General, Ministry of Infrastructure and Public Utilities
Gregoire Nimbtik	Director General Prime Minister's Office
Shadrack Welegtabit	Director, National Disaster Management Office
Harold Qualao	Qualao Consulting Ltd
Yvonne Qualao	Qualao Consulting Ltd
Lawrie CARLSON	Project Manager/Coordinator, Vanuatu Infrastructure Reconstruction and Improvement Project, Public Works Department
Jimmy Johnson Iokavil	Manager, Public Works Department, Shefa Division
Fredison Hosea	Acting Manager, Public Works Department, Sanma Division
Philippe de Greslan	Managing Director, Noreve Consulting Ltd, Vanuatu
McCartney Aga	Operations Manager, Department of Water Resources
Kieren Peter Davis	Department of Water Resources
Cherol Ala Ianna	Director General, Ministry of Internal Affairs
Ben Tabi	Acting Town Clerk Port Vila Municipal Council
Ronald Lumu	Architect/Draftsman, Lumu Design Build and Partners, Vila, Vanuatu
Allen Faeru	Engineer, Public Works Department
Arto Ahonen	Infrastructure Specialist, ADB
Bob Nakou	Coordinator Estate and Infrastructure Emalus Campus - University of the South Pacific
Robinson Toka	Acting Town Clerk Luganville Municipality
Nelson Kalo	Senior Mitigation officer Department of Climate Change
Avia Bomma	Chief Fire Officer Vanuatu Fire Service
Jenny Tuasu	Ministry of Internal Affairs

Annex 3

Workshop PowerPoint



Pacific Region Infrastructure Facility

**REGIONAL DIAGNOSTIC STUDY OF
CONSTRAINTS IN THE APPLICATION OF
BUILDING CODES IN THE PACIFIC**

VANUATU PARTICIPATORY WORKSHOP
Tuesday 26 February 2019

BACKGROUND

Pacific Regional Infrastructure Facility (PRIF) through the Asian Development Bank (ADB) are funding a study in 13 Pacific Island Countries to:

- Identify the major barriers that oppose or constrain the operationalisation of their building codes
- Provide guidance in future assistance initiatives related to building codes updates, capacity building, training and promotion



PACIFIC REGION INFRASTRUCTURE FACILITY (PRIF)

The Pacific Region Infrastructure Facility is a multi-partner coordination, research and technical assistance facility for improved infrastructure in the Pacific. The 8 PRIF Members are:

- Asian Development Bank
- Australian Department of Foreign Affairs and Trade
- European Union
- European Investment Bank
- Japan International Cooperation Agency
- New Zealand Ministry for Foreign Affairs and Trade
- World Bank Group
- US Department of State

OBJECTIVES OF THE VANUATU STUDY

- Identify gaps in the capacity of Vanuatu construction practitioners and government agencies to apply and promote the Vanuatu building code
- Provide recommendations on future building code updates
- Recommend areas of support needed by Vanuatu to guide future NBCV administrative and compliance assistance programs supported by the PRIF development partners



WORKSHOP PURPOSE

To seek opinions and recommendations from construction practitioners and government regulators on how Vanuatu's National Building Code and its administration and compliance enforcement procedures can be improved in light of the lessons learned from recent disaster activity in the region

WORKSHOP STRUCTURE

Introduction

Session 1: National Building Code and the Home Builders Manual

- The relevance and adequacy of National Building Code and the Home Builders Manual within Vanuatu's current construction environment and recommendations on future building code updates.



Session 2: Administration and Compliance

- The capacity of Vanuatu construction practitioners and government agencies to apply and promote the Vanuatu National Building code and the Home Builders Manual and recommendations on how administration and compliance can be improved

Session 3: Guidance Document and Road Map

- Recommendations for a suite of initiatives that can be for included in a Guidance Document for consideration by PRIF partners for funding support

VANUATU SITUATION

- The 1990 National Building Code of Vanuatu (NBCV) and Home Building Manual of Vanuatu (HBMV) were developed in the late 1980s under an Australian Aid program.
- The NBCV and HBCV were published in 1990
- The NBVC was updated in 2000 with current standards and sanitation amendments
- The Code was enacted in 2013 as the Building Code Act No 36 of 2013 and was gazetted as Order No 110 of 2017



BUILDING ACT No 36 of 2013

The Building Act applies to the construction of the following:

- Buildings owned in whole or in part by the State in any local government region
- Buildings in any municipality
- Buildings in any Physical Planning Area

ADMINISTRATION OF THE BUILDING ACT

The Code is administered by the Ministry of Internal Affairs and maintained by the Ministry of Infrastructure and Public Utilities with the assistance of the Public Works Department.



MINISTRY OF INTERNAL AFFAIRS RESPONSIBILITIES

- Advising the Minister on matters relating to building control
- Overseeing periodic reviews of the Code
- Approving documents for use in establishing compliance with the Code
- Overseeing reviews of the operation of Approval Authorities in relation to their functions under this Act
- Disseminating information and providing educational programs on matters relating to building control
- Consultation with the Vanuatu Fire Service and MIPU on any matters relating to their functions.

MoIPU RESPONSIBILITIES

- Establish and administer a process for the approval of building inspectors
- Maintain a registry of approved building inspectors
- Provide technical advice and assistance to Approval Authorities in relation to their functions under this Act
- Establish and administer a process for the accreditation of building products and processes
- Establish and maintain processes for approval of building certifiers and building inspectors;
- Maintain a register of building certifiers and building inspectors.



BUILDING PERMIT

Buildings must be constructed according to a building permit issued by one of the following Approved Authorities

- Local government council
- Municipal council
- Ministry of Infrastructure and Public Utilities

INSPECTIONS AND ENFORCEMENT

The Approval Authority is expected to:

- Inspect the construction of a building on a regular basis
- Issue Building Inspection Certificates
- 3 days after the inspection produce an Inspection Report
- Issue Completion Certificates
- Issue Fitness to Occupy Certificates



OFFENCES UNDER THE BUILDING ACT

Examples of offences under the building act:

- Does not build in accordance with the Building Permit
- Changes the use of a building
- Does any building work in contravention of a notice to make good
- Impersonates a Building Inspector
- Falsifies a Building Inspection Certificate, a Fitness to Occupy Certificate or a Completion Certificate
- Makes false or misleading statements in any document required to be supplied under the Act regulations

PENALTIES

Penalties under the Act prescribed for any offences are punishable on conviction to:

- A fine not exceeding 10 million Vatu or
- Imprisonment for a period of not more than 1 year, or
- Both.



PHYSICAL PLANNING ACT No 22 (Ch 193) 1986 & MUNICIPALITIES BUILDING BY-LAWS

The Physical Planning Act No 22 (Ch 193) 1986 and Municipalities Building By-laws provided building control prior to the gazetting of the 2013 Building Act in 2017.

SESSION 1: NATIONAL BUILDING CODE AND THE HOME BUILDERS MANUAL

- Main constraints that prevent the application of the Building Act and NBCV
- Gaps in the NBCV and HBMV
- Parts of the Building Act, NBCV and HBMV which need to be reviewed
- Suggestions on how weaknesses with the NBCV, HBV and associated building standards can be addressed.
- How the codes could be better integrated with national disaster emergency guidelines and other climate adaptation initiatives.
- How a revised code could accommodate consideration of cross cutting issues such as the environment, disability and accessibility and OHS
- Value and practicality of a three level code:
 - Gold:** Buildings designed to the NBC requiring certification by a university trained engineer
 - Silver:** Building designed in accordance with the HBM with assistance from a construction practitioner with a technical qualification
 - Bronze:** Building constructed by owner in accordance with a simple pictorial guide to housing standards



SESSION 2: ADMINISTRATION AND COMPLIANCE

- Weaknesses in the administration and compliance enforcement procedures, including enforcement of building standards
- Improvements to administration and compliance procedures within the capacity of Vanuatu to apply them
- Public and Private Sector Capacity and training constraints
- Initiatives to improve Public and Private Sector capacity and training
- NBCV promotion and training weaknesses
- NBCV promotion and training initiatives

SESSION 3: GUIDANCE DOCUMENT AND ROAD MAP

Recommendations for a suite of initiatives that can be included in a Guidance Document for consideration by PRIF partners that will:

- Guide future assistance initiatives related to building codes updates, building code administration and enforcement, training and promotion
- Improve infrastructure resilience and preparedness to future climate change events
- Help to develop a culture of “Build Back Better” for both reconstructed and new-build infrastructure

Annex 4

Workshop Outcomes

REGIONAL DIAGNOSTIC STUDY ON THE APPLICATION OF BUILDING CODES IN THE PACIFIC - VANUATU PARTICIPATORY WORKSHOP

Date: Tuesday 26 February **Venue:** Ramada Hotel **Time:** 8.00am

Overview

Refer attached Annex 1 LIST OF PARTICIPANTS. Participant breakdown as follows:

- 33 construction practitioners and regulators attended to workshop.
- 2 of the participants were woman.
- 21 of the participants were from the government sector (64%) and 12 from the private sector (36%).
- All private sector engineering and architectural consulting firms in Vanuatu were represented at the workshop.
- 23 construction practitioners or regulators invited to the workshop were unable to attend, however most had their views represented by other participants whom they had nominated.

Participants were grouped into 5 tables, each table representing a sector of the construction industry.

Each group nominated a presenter and a scribe. Each group had 30 minutes to discuss each topic and the scribe recorded the groups agreed opinions and recommendations. At the completion of the session each group presenter presented the group's opinions and recommendations to the whole workshop.

Group comments:

SESSION 1: NATIONAL BUILDING CODE AND THE HOME BUILDERS MANUAL

The relevance and adequacy of National Building Code and the Home builders Manual within Vanuatu's current construction environment and recommendations on future building code updates.

TABLE 1: PRIVATE SECTOR BUILDERS AND BUILDING CONSULTANTS

- While there are many technical short comings in the NBCV the industry are happy that there actually is a NBCV.
- Fire, egress, safety and sanitation all need to be reviewed.
- The review of the code should take a team approach including all Vanuatu building professionals and should not be a replica of Australia/New Zealand codes.
- Obtaining a copy of the NBCV can be difficult.

- There is no central agency to co-ordinate planning and compliance.
- The NBCV administrative process should include oversight of the total building project lifecycle planning-design-construction-occupation.
- Insufficient qualified staff are available to enforce compliance, for example there are only two building inspectors in the whole of the country.
- There is no local register of building professionals, a Vanuatu Institute of Engineers and Architects needs to be established.
- Some buildings are being constructed within the town boundaries that have not been subject to the NBCV permit process, eg some Chinese funded buildings have all the drawings and specifications in Chinese.
- This workshop is an excellent forum that brings the Private Sector and Public Sector together to discuss construction issues, there needs to be more of these types of workshops and they should be held on a regular basis.
- There is a lack of understanding of when to use the NBCV, a lack of use, a lack of capacity and a lack of compliance enforcement, however the biggest impediment to the proper application of the NBCV is lack of public awareness.
- Training and development and awareness are key solutions to improving the effective application of the NBCV, this training and awareness could be channelled through a newly formed Vanuatu Institute of Engineers and Architects.
- A Vanuatu Institute of Engineers and Architects could help provide the technical aspects of the NBCV instead of relying solely on the Government Sector.
- A national coordinator working through a Vanuatu Institute of Engineers and Architects and a regional coordinator working through the South Pacific Engineers Association (SPEA-currently based in Samoa) should be recruited to support the implementation and compliance of an updated NBCV.

TABLE 2: PORT VILA AND LUGANVILLE MUNICIPALITIES MINISTRY OF INTERNAL AFFAIRS, PUBLIC WORKS DEPARTMENT

NBCV accessibility:

- Copies of the NBCV are not readily available.
- There is insufficient awareness of the NBCV.
- There is no awareness on how to apply the Building Act, where the act applies and the penalties.

Compliance:

- There is a lack of technical resources to enforce the NBCV.
- In recent times the MoIPU has not placed emphasis on making resources available to apply the Act and the NBCV, their focus has been on transport (horizontal) infrastructure, there is no priority on building (vertical) infrastructure.
- The level of responsibilities between the MoIPU and MoIA for administering the Building Act is not clear.
- There is no governance structure/framework/process for effective implementation of the Act.
- There is a lack of resources and commitment to enact the Building Act laws.

- The appointment of a National Co-ordinator over at least a 2 year period to support the implementation of the Building Act is required.

Gaps:

- Waste disposal needs to be addressed in the NBCV, it will be a big issue in the near future.
- Disability access, the NBCV should be inclusive.
- A section on Energy Efficiency needs to be included.
- Guidelines on how to build local/simple/affordable housing should be included.
- There should be less reference to AS and NZS as it is difficult to get AS and NZS certified materials.
- Building materials need to be certified by an approved certification agency.

TABLE 3: MINISTRY OF HEALTH, MINISTRY OF EDUCATION

Main constraints:

- Lack of public awareness in building construction is the biggest impediment.
- No builder's licencing process, anyone can be a builder.
- Lack of trained building inspectors.
- There is a lack of technical skills available to implement the building act.
- Vanuatu Institute of Technology do not use the NBCV for training, however the Australia Pacific Training Coalition (APTC) do use it in their carpentry training.

Gaps in the NBCV and HBMV:

- Gaps cannot be identified until the NBCV is properly implemented.
- A study/review needs to be undertaken on how to properly implement the NBCV.

Weaknesses:

- The administration of the code needs to be centralised under one body.
- There is a lack of technical expertise to enable compliance of the NBCV to be properly enforced.

Three level Code (Gold, Silver, Bronze):

- Would be difficult to enforce a three level code under the current act.


TABLE 4: DEPARTMENT OF ENVIRONMENT, DEPARTMENT OF ENERGY, NATIONAL DISASTER MANAGEMENT OFFICE, PWD ENVIRONMENTAL SECTION

Energy efficiency:

- Energy efficiency needs to be incorporated into the NBCV.

Environment:

- The NBCV needs to be reviewed in terms of the availability of appropriate materials, eg asbestos.

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- Alternative materials need to be specified, eg an alternative to the use of sand around the Port Vila area.

Gaps:

- A closer relationship between the NBCV, HBMV and government agencies needs to be established.

Building design:

- Development of a three level code, Gold, Silver, Bronze, is encouraged.
- The Gold standard must have disability design standards and must meet minimum environmental standards.
- A standard to cover designs in rural areas needs to be developed.

Weakness:

- The major NBCV weakness is the lack of compliance enforcement.

TABLE 5: PWD, PRIVATE SECTOR BUILDERS AND BUILDING CONSULTANTS

Main Constraints:

- Limited Access.
- Lack of awareness and Information.
- Difficult to interpret.
- Structure to enforce the NBCV does not exist.

Gaps in the NBCV and HBMV:


- NBCV and HBMV are not linked.
- The HBMV is very practical and builders understand it.
- Lack of information and capacity to enforce the NBCV.

Building Act:

- The NBCV needs to be an evolving document that incorporates current standards and use of available materials and building methods (eg precast buildings).
- Zones for cyclonic areas needs to be specified.
- There needs to be more robust and up to date data included, eg data on rainwater intensity and catchment loads.

Weaknesses:

- Designs standards to disabled access need to be included.
- Language used is confusing, language between NBCV and standards does not match, eg AS reference to importance levels in the wind loadings standard.
- NBCV needs to be linked to disaster management strategies.
- Cyclone categories (Cat 4, Cat 5 etc) and earthquake categories (Richter scale) should be included as part of the NBCV.



Three level Code (Gold, Silver, Bronze):

- All levels will need to satisfy the Building Act.
- How do building standards apply to each level.

SESSION 2: ADMINISTRATION AND COMPLIANCE

The capacity of Vanuatu construction practitioners and government agencies to apply and promote the Vanuatu National Building code and the Home builders Manual and recommendations on how administration and compliance can be improved.

TABLE 1: PRIVATE SECTOR BUILDERS AND BUILDING CONSULTANTS

- The NBCV administrative process needs to be viewed within the context of the total building project lifecycle planning-design-construction-occupation with checks and balances and who is responsible for what.
- The NBCV should include a flow chart that shows how the building approval process is administered.
- MoIA, MoIPU, MoH Fire Department, Dept of Environment, NDMO and private sector architects and engineers all need to be involved in a review of the NBCV administration and compliance processes.
- Building inspectors can be drawn from the private as well as the government sectors.
- Government input is required for the planning, building permit, occupancy and warranty processes.
- A Vanuatu Builders Association exists under the Vanuatu Chamber of Commerce, the Association should advocate for the registration on builders.
- A Vanuatu Institute of Engineers and Architects should be formed to advocate and lobby to government and provide professional advice on an approved list of consultants, professional development and checks and balances on building professionals to ensure they are competent.
- Clear lines of responsibility need to be designated between the public and private sectors, MoIA, MoIPU, urban councils and provincial authorities.
- All existing documents relating to the built environment, NBCV, HBMV, Building Act, Environment Act, Physical Planning, Water, Sanitation, Health, OHS and Lands need to be reviewed and harmonised under an updated NBCV.
- A central agency needs to be established that reviews planning, approvals, enforcement and ongoing compliance.

TABLE 2: PORT VILA AND LUGANVILLE MUNICIPALITIES MINISTRY OF INTERNAL AFFAIRS, PUBLIC WORKS DEPARTMENT

Weaknesses in admin and compliance enforcement:

- Builders and designers should be trained in the NBCV.
- Builders should be certified.
- Under the act there needs to be better coordination between MoIA administrative compliance and MoIPU technical compliance.

- There needs to be better coordination between MoIA and municipal councils.
- Building inspectors are currently not certified, they are town planners and physical planners seconded to undertake building inspections.

Improvements:

- A national resource expert with a counterpart needs to be appointed to assist MoIA and MoIPU implement the NBCV.
- MoIA and MoIPU need to review their administration and compliance procedures and allocate sufficient resources.
- Courses need to be developed to build the capacity of the private sector.
- Procedures for building approval and compliance need to be simple and standardised.
- Building standards must apply to all building works at both the top and bottom sections of the private and public sectors, The NBCV must apply to everyone.
- Training should be developed that targets NBCV planning, administration and certification.

TABLE 3: MINISTRY OF HEALTH, MINISTRY OF EDUCATION

- There is no proper structure to enforce compliance of the NBCV.
- The building act needs to be reviewed and a system of central control established.
- Building Inspectors need training on how to enforce the NBCV.
- An awareness program needs to be developed that would include Vanuatu TV and radio, Vanuatu Institute of Technology, the education system and social message providers such as Wan Smol Bag.

TABLE 4: DEPARTMENT OF ENVIRONMENT, DEPARTMENT OF ENERGY, NATIONAL DISASTER MANAGEMENT OFFICE, PWD ENVIRONMENTAL SECTION

- The NBCV needs to be available on the internet.
- The NBCV needs to be included in the curriculum at Vanuatu Institute of Technology and APTC.
- A grassroots edition of the NBCV in Bislama should be developed for rural areas.
- The capacity of the human resources required to administer and enforce the code needs to be built.
- Awareness programs educating people about the benefits of the NBCV need to be developed and delivered.
- The NBCV must be applicable to all throughout Vanuatu.
- Close working relationships need to be developed between the public and private sectors.
- A central control body needs to be established to administer the NBCV.

TABLE 5: PWD, PRIVATE SECTOR BUILDERS AND BUILDING CONSULTANTS

Weaknesses:

- There is a lack of interest in enforcing the NBCV due to insufficient understanding of implementation procedures.
- There has been insufficient emphasis by the implementing agencies to use the NBCV and the relevant standards.

Improvements:

- An internet version of the NBCV needs to be developed.
- Need to have a panel of qualified technical building inspectors.
- The public need to be more aware of good quality building design.
- The capacity of the public and private sectors to apply and enforce the code needs to be built, currently the banks and insurance companies are ensuring that commercial buildings comply with the relevant codes.

SESSION 3: GUIDANCE DOCUMENT AND ROAD MAP

Recommendations for a suite of initiatives that can be for included in a Guidance Document for consideration by PRIF partners for funding support.

TABLE 1: PRIVATE SECTOR BUILDERS AND BUILDING CONSULTANTS

Short term priorities:

1. NBCV, HBMV and relevant standards (AS and NZS) to be available online.
2. A Building Code Workshop where the private sector will assist to provide training on compliance and certification.
3. Establish an Association of Building Professionals (Engineers and Architects).
4. Assist relevant authorities to implement the Building Act.
5. Engage Banks and Insurance companies in a conversation around NBCV compliance.

Long term priorities:

1. Assistance to support MoIA to develop a framework/implementation plan for the Building Act.
2. Support an Association of Building Professionals (Engineers and Architects) to regulate building professionals and builders and provide training.
3. Undertake a skills assessment for building professionals and regulators within the government and private sectors.
4. Based on the Skills Assessment establish future building professional needs.
5. Establish a NBCV curriculum with technical schools.
6. Establish regulations to support the Building Act

TABLE 2: PORT VILA AND LUGANVILE MUNICIPALITIES MINISTRY OF INTERNAL AFFAIRS, PUBLIC WORKS DEPARTMENT

1. NBCV, HBMV and relevant standards (AS and NZS) to be readily accessible in both print and online
2. A National Coordinator to be appointed to manage the review, application, administration and compliance enforcement procedures.
3. Improve the technical capacity of builders, designers, engineers, administrators, managers, etc to apply and administer the NBCV.


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4. Establish an Association of Building Professionals.
 5. Review the NBCV and the Building Act. Things that need to be included in the review are:
 - a. Disability
 - b. Environment
 - c. Energy efficiency
 - d. Waste disposal/treatment
 - e. Define the areas where the NBCV will apply
 6. Develop a proper governance structure of procedures and processes to efficiently implement the NBCV.
 7. Assistance to fund an awareness strategy.
 8. Advocacy at all levels for the implementation of the Building Act and NBCV.

TABLE 3: MINISTRY OF HEALTH, MINISTRY OF EDUCATION

1. Develop a publicity campaign to promote the NBCV.
2. Update the curriculum at vocational training schools to include the NBCV.
3. Develop NBCV courses at RTCs.
4. Develop a “Build Back Better” handbook for rural areas.
5. Train government regulatory staff on how to administer and enforce the NBCV and local technicians on how to apply the NBCV.
6. Review and update the current NBCV.
7. Train building inspectors.
8. Provide outside assistance for standardised procedures to administer and enforce the NBCV.
9. Translate the NBCV into Bislama
10. Print and distribute copies of the NBCV.(eg Tanna has one NBCV available on the island for 30,000 people).
11. Make the NBCV available on the internet.
12. Fund resources to implement assistance for standardised procedures.
13. Provide financial assistance for NBCV training.

TABLE 4: DEPARTMENT OF ENVIRONMENT, DEPARTMENT OF ENERGY, NATIONAL DISASTER MANAGEMENT OFFICE, PWD ENVIRONMENTAL SECTION

1. Integrate the NBCV into the Vanuatu Institute of Technology and RTC curriculum.
2. Develop a conceptual green building initiative.
3. Train more building inspectors.
4. Develop regulation guidelines procedures.
5. Ensure the NBCV is accessible and available to everyone including availability on the internet.
6. Translate the NBCV into French and Bislama.
7. Develop and distribute a “Build Back Better” guideline for improving the quality of buildings to withstand climate change events in collaboration with the Ministry and Climate Change Adaption and NGOs.



TABLE 5: PWD, PRIVATE SECTOR BUILDERS AND BUILDING CONSULTANTS

1. Review the legislative framework to capture the gaps identified under sessions 1 and 2.
2. Review and update the NBCV and the HBMV.
3. Establish proper mechanisms for governing the Building Act and NBCV.
4. Build the capacity of both the private and public sectors to apply and enforce the Building Act and NBCV.
5. Provide ready access to printed versions and through the internet for documents relating to the NBCV and the HBMV.
6. Ensure there are QA processes available for both imported and locally produced building materials.
7. Training to assist with the establishment of a Vanuatu Engineers and Architects Association.



