



# **A Research study on the role of the built environment stakeholders in climate change adaptation**

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**List of Abbreviations and Acronyms**

<b>BCA</b>	<b>Building and Construction Authority</b>
<b>BICC</b>	<b>Building Industry and Consultative Council</b>
<b>C&amp;D</b>	<b>Construction and Demolition</b>
<b>CAB</b>	<b>Climate Action Board</b>
<b>CoE</b>	<b>Chamber of Engineers</b>
<b>ERA</b>	<b>Environment and Resources Authority</b>
<b>KTP</b>	<b>Kamra tal-Periti</b>
<b>LCDS</b>	<b>Low Carbon Development Strategy</b>
<b>LEAF</b>	<b>Education about Forests</b>
<b>NBRIU</b>	<b>National Building Regulations Information and Support Unit</b>
<b>MCCAA</b>	<b>Malta Competition and Consumer Affairs Authority</b>
<b>MECP</b>	<b>Ministry for the Environment, Climate Change and Planning</b>
<b>MEEE</b>	<b>Ministry for Environment, Energy and Enterprise</b>
<b>MDA</b>	<b>Malta Developers Association</b>
<b>MRA</b>	<b>Malta Resources Authority</b>
<b>PA</b>	<b>Planning Authority</b>
<b>Periti</b>	<b>Architects and Civil Engineers</b>
<b>TM</b>	<b>Transport Malta</b>
<b>YRE</b>	<b>Young Reporters for the Environment</b>

## 1. Introduction

Malta's Climate Change Adaptation is governed by The National Adaptation Strategy published by the Ministry for Resources and Rural Affairs in May 2012. This strategy addresses sectors most vulnerable to climate change and provides recommendations for sustainability, water conservation, agriculture, human health and tourism. The strategy also has provisions for emergency actions required in high-risk areas.

In 2015, The Climate Action Act was published as Malta's main law related to climate change. The law aims to contribute to the mitigation of climate change by limiting greenhouse gas emissions and by protecting and enhancing greenhouse gas sinks and reservoirs. It includes the legal obligations for coherent and coordinated governance to deal with this challenge on a national level. The Malta Resources Authority (MRA) is designated as the national inventory agency for the elaboration of annual national inventories of greenhouse gas emissions and removals.

Another strategy being implemented is Malta's Low Carbon Development Strategy (2021) developed by the Ministry for the Environment, Climate Change and Planning (MECP). The strategy includes measures covering seven sectors: Energy, Transport, Buildings, Industry, Waste, Water and Agriculture and land-use, land-use change and forestry. This campaign aims to towards becoming carbon neutral by 2050.

## 2. Built environment stakeholders linked to climate change adaptation

### 2.1 Description of key stakeholders

In the context of Malta, some of the key built environment stakeholders linked to climate change adaptation include:

- The Planning Authority (PA), the planning agency in Malta which is responsible for ensuring sustainable, resilient development throughout the Maltese Islands and setting adequate planning policies and guidelines in an effort to promote sustainable building materials, innovative technologies and green infrastructure.
- Government agencies such as the Building Industry Consultative Council (BICC), the Building and Construction Authority (BCA) and Malta Competition and Consumer Affairs Authority (MCCAA), amongst others, play a key role in setting up of building codes, implement better standards, promote sustainable techniques, incentivise research and incentivise investment within the built environment by construction entities / construction material producers.

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- Environment Resources Authority (ERA) has the responsibility to assess, monitor and report on air quality and air pollution impacts including the industrial sector, to regulate the environmental impact of the industrial sector through permitting systems and enforces compliance with legislation;
- Transport Malta (TM) is the authority responsible for the promotion and development of the transport sector in Malta, by means of proper regulation. TM aims to achieve modal shifts and improve the public transport system since the road transport sector is the most important key source category for NOx emissions in Malta.
- Professionals such as architects and engineers who play another crucial role when it comes to the designing of building which can contribute to mitigation efforts against climate change, such as incorporating energy-efficient technologies. They also play a role in the building of resilient infrastructure which can withstand climate change impacts.
- Private Sector including construction companies which determine the terms of reference and the briefs for a project including the design, retrofitting, energy efficient system building technologies and innovative sustainable building materials or systems to be adopted
- NGOs are also important stakeholders as they assist the government agencies in disseminating information, provide technical assistance, promote public awareness and education, lobby for the implementation of additional / better policies to promote sustainable resilient buildings. They also often act as a bridge between the public and authorities which facilitates unilateral communication between all levels.

### **2.1.1 Local and National Governments**

The Maltese government has committed to move towards the EU's collective efforts of climate neutrality by 2050. This same ambition is also embedded in Malta's post-pandemic economic vision. This change calls for a paradigm shift towards policy-making, which centres around intelligent development principles. And within this line of thought Malta will fulfil its commitment through the adoption of the Low Carbon Development Strategy (LCDS) (2021). Furthermore, it calls for further public awareness and education to facilitate this transition.

In response to the climate change crisis, the Ministry for the Environment, Energy and Enterprise (MEEE) has launched the 2nd Edition of the nation-wide public awareness campaign to promote climate action. Under the slogan 'Activate Change', the #ClimateOn campaign aims at changing the general public's habits towards a more innovative way of life. It aims at instilling thoughts for solutions and highlight the benefits of a low-carbon society. The objective of the campaign is to turn on action to find practical solutions to address climate change. It highlights the fact that through simple but innovative ideas one can make a difference. The campaign targets to address the climate change crisis through climate mitigation and adaptation initiatives, youth empowerment,

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education, training and awareness dissemination. It will be engaging with many different stakeholders through a variety of sectors, to deliver the message for change in everyday actions to combat climate change.

The local construction industry has been experiencing an increase in activity in recent years, resulting in high amounts of construction and demolition waste (C&D). For this reason, a Construction and Demolition Waste Strategy for Malta, 2021-2030, has been introduced. It aims to identify ways of managing such waste and proposing short-term and long-term measures to be adapted to the industry, by shifting waste treatment from backfilling to re-using and recycling. This Strategy will contribute to Malta's transition towards a more circular economy, and will help protect the environment and human health from waste-related pollution while reducing consumption of raw minerals, and increasing the quality and quantities of C&D waste re-used and recycled. This Strategy will also act as a framework intended to bring about a cultural and behavioural shift within the sector in terms of its attitude towards excavation, demolition and construction methods (ERA, 2021).

The Climate Change Act establishes a Climate Action Board (CAB) as a body that represents government entities, the academia, business and civil society which ensures representation of all sectors of Maltese society in the fight against climate change, even by facilitating stakeholder dialogue. It aims to instil ownership relating to climate action governance across the public and private sectors. The Minister responsible for climate change shall every year, lay before the House of Representatives the report of the Climate Action Board. The Climate Action Act also sets up a Climate Action Fund, which has a separate juridical personality and serves to act as the financial instrument which supports the implementation of the Act namely measures to abate GHG emissions and to adopt carbon neutral technologies as well as to enhance sinks of such emissions whilst building a society, whose sectoral components are resilient to climate change.

The Malta Resources Authority (MRA) is a public corporate body set up in 2000 through the Malta Resources Act originally to regulate water, energy and mineral resources, to promote energy efficiency and renewable sources of energy, and with responsibilities in the areas of oil exploration and climate change. The Authority is responsible for climate change reporting and operation of the emission trading schemes.

The Building Industry Consultative Council (BICC) is an advisory council made up by all stakeholders involved within the construction sector. Its main aim is to advise the government on construction issues and also to assist the government in implementing the EU legislation and directives to ensure that Malta satisfies the commitments towards the energy targets. The BICC monitors the building industry and advises policy makers on ways to enhance a strong social and economic element to improve sustainable development.

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### **2.1.2 Private Sector**

The new mechanism, led by the United Nations Framework Convention on Climate Change (UNFCCC), will incentivise the private sector to implement mitigation activities across all sectors, encouraging innovation and the use of sustainable technologies. Malta's private sector may be able to invest in green projects and obtain credits that potentially could be traded with other countries, thereby also setting off their own emissions and reaching internal climate-related goals. Engaging in such projects could increase brand reputation and demand from green investors. These same carbon credits may then contribute towards carbon emission reduction at a national level, for countries to meet their NDCs (Grech & Bulteel, 2022).

Some private entities have taken up the challenge to take a more sustainable approach in their daily production. One clear example is that of Farsons Brewery, a private company that has incorporated several measures into its operation. The first is the installation of an array of Photovoltaic Panels producing 500MWh per year. As a brewery, they invested in a state-of-the-art chiller increasing efficiency and reducing electrical energy usage. They also took up a zero-waste policy where nothing is wasted from agricultural produce.

### **2.1.3 Community**

Several initiatives have been carried forward by the local community. One such example is led by the *Kummissjoni Interdjocesana Ambjent*. This is a community group ran by the Catholic Church in Malta with the notion of increasing knowledge on environmental and sustainability issues. As a small commission, the members of this group provide feedback on initiatives set out by the government as well as publish proposals for sustainability to be presented to the local government.

Each village or town in Malta is represented by a Local Council. These Local Councils have been an important factor in getting the local community directly involved in the implementation of climate change measures. One distinct example is the agreement of separation of waste. Whereby each household is to follow waste separation guidelines, and local councils organised the free collection service of such waste. Local Councils also form part of the COMPOSE PLUS project with the target of increasing the share of local renewable energy sources in Mediterranean countries. Another initiative is the Slow Streets Project directed at increasing pedestrian activity and promoting alternative transportation methods.

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### **2.1.4 Civil Organisations**

Several civil organisations and NGOs are currently active in Malta in the environmental field, working for environmental and social justice through a wide range of activities, projects and advocacy campaigns. Some of these organisations are listed below.

Nature Trust Malta is an NGO and partner to WWF. It is one of the longest established NGOs locally. The work carried out includes lobbying for protection of various species of plants and animals, in hope of protecting local endemic species. The organisation works on creating awareness and strongly advocates for education on sustainability. They have done this by implementing several programmes in Maltese schools called EkoSkola, YRE (Young Reporters for the Environment) and LEAF (Educating about forests). These programmes focus on informing students and process-based activities to allow students to develop skills through active participation. Nature Trust forms part of the Climate Action network Europe.

Moviment Graffiti is active against the exploitation of people, the environment and animals; with a vision of freedom and radical democracy. The NGO works on a number of issues affecting the community and strives to bring positive change by fighting for justice and equality through direct actions, protests and gatherings, build coalitions between different social forces and hold awareness-raising initiatives.

Rota is an NGO advocating for sustainable mobility in the Maltese Islands, inspiring people to cycle on their daily commutes. They work on pushing governmental entities to deliver better infrastructure for all road users, and most importantly cyclists.

The Malta Chamber and HSBC Malta Foundation also collaborated on a sustainability project called Establishing Malta's Framework for a Net Zero Carbon Building, targeting the island's construction industry, aiming to improve standards in energy efficiency and conservation. This framework follows models such as that of LEED certification.

### **2.1.5 Academia and research organisations**

The University of Malta is the highest teaching institute in Malta. It is a publicly funded institution that manages various climate change adaptation projects. The Climate Change Platform was also set up with the goals of facilitation collaboration between UM entities and individual academics interested in climate



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change issues as well as to promote research and teaching initiatives relating to climate change adaptation data and information is collected and research projects carried out.

The following are some projects within UM that address directly Climate Change adaptation:

A significant challenge in civil engineering is the reduced durability of structures in Extremely Aggressive Exposures (EAEs). Such severe and challenging conditions affect the structural performance, lead to quick deterioration and shorten the lifespan of these structures, resulting in the need for continuous and risky maintenance, which costs billions of euros each year. This was the focus of the ReSHEALience project carried out by several partners including the University of Malta. The project had 3 objectives: To increase significantly the durability of concrete to decrease maintenance and reduce the consumption of resources; to quantify and predict the durability of UHDC structures in different service conditions when subjected to EAEs, namely chloride-induced attack and chemical attack; to validate the capacity of the UHDC and the new developments, through 6 pilot studies covering two strategic sectors where the material is expected to add high value and generate large impacts (UM, 2020).

<https://www.um.edu.mt/ben/constructmanage/ourprojects/thereshealiencehorizon2020project>

The CESBA MED project tested 10 case studies from all over Europe. A common sustainability assessment framework at urban and building scale was selected after the testing phase to support the development of energy efficiency plans for public buildings in the context of their surrounding neighbourhood. Improving stakeholders' skills by offering targeted training courses is an essential component of CESBA MED strategic overview. Two courses are offered according to the identified target groups and the two scales, building and urban.

<https://cesba-med.research.um.edu.mt/>

Institute for Climate Change and Sustainable Development was set up within the University of Malta to promote social sustainability and conduct interdisciplinary research in areas related to sustainable development and climate change, including mitigation and adaptation. The Institute for Climate Change & Sustainable Development has worked on a number of initiatives on implementing sustainable mobility measures. One initiative in collaboration with Transport Malta, the Valletta Local Council and the Ministry for Tourism participates is the CIVITAS DESTINATIONS Project. This project aims to implement sustainable mobility measures and actions with the view to offering intelligent sustainable transport solutions for tourists and residents alike through

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innovation and cooperation with all major stakeholders. The project is focused on the Southern Harbour and Northern Harbour districts termed as the Valletta Region. the region endures a high number of mobility demand, which – particularly in recent years – is putting a high strain on the local transport infrastructure resulting in high traffic congestion and journey delays. In order to mitigate these negative externalities, a number of initiatives, which have yet been untested in Malta shall be implemented in order to assess their success in the local context and thus form the basis for future transport policy development.

<https://www.um.edu.mt/iccsd/ourprojects/civitasdestinations>

Enemalta strengthened its collaboration with university of Malta following the signing of a new agreement with the Faculty of engineering. Through this agreement both entities collaborate on research projects related to the generation and distribution of electricity together with the new technologies used in this field. Electrical engineering University students will have the opportunity to conduct work experience with Enemalta engineers and technicians. Enemalta and the University also agreed to promote engineering studies which will contribute to develop new professions which are essential for the the economic development of the country.

<https://www.enemalta.com.mt/news/collaboration-between-enemalta-and-university-of-malta/>

#### **2.1.6 Professional bodies**

The Chamber of Engineers (CoE) is the local professional organisation which is continuously discussing ways and means of both enhancing and safeguarding the profession. At both a local and European level, the Chamber actively participates in international discussion groups through the Chamber’s affiliation with the European Federation of National Engineering Associations (FEANI). The Chamber’s role in Malta is also recognised under the Inginiera Act (Cap.321). The Chamber has a representative voice on a number of Boards and Committess and projects the profession’s voice on governmental and societal levels. The CoE organises various activities such as seminars and webinars, discussion fora and awareness campaigns. It organises various training courses for the Engineering Community and the general public.

The Kamra tal-Periti (Chamber of Architects and Civil Engineers) traces its roots to the former Chamber of Architects which was established in 1920 to serve as a body for the self-regulation of one of the oldest established professions. The Chamber is somewhat unique amongst similar professional organisations in Malta since its regulatory remit and functions arise from specific Legislation. Today, the Kamra tal-Periti is established and governed by Subsidiary Legislation 390.01 which, amongst other things, specifically makes provision for the various functions that allow the Kamra to regulate the profession of Periti on a

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nationwide scale. The Kamra tal-Periti (KTP) has been vocal addressing the European Commission and national governments across Europe to strengthen the engineering profession by affording it the recognition it merits and providing the necessary legislative and regulatory infrastructure for architects and civil engineers to meet the challenges posed by the climate emergency in a safe and sustainable manner. The KTP speaks of the critical role that built environment professionals carry out in addressing this emergency. The KTP refers to research publications pointing to the fact that Malta's energy demand shall be growing significantly with the continued increase in population.

## 2.2 Primary data collection findings

The data generation methodology initially planned for Output 4 and 6 was through a series of interviews with different stakeholders. It was possible for the Malta Team to carry out 3 interviews: with a government official, an administrator of an ENGO as a representative of the broader local community and an entrepreneur as a representative of the private sector. A concern was raised within the Malta Team regarding the validity of the data generated through the interviews in view of the fact that an interview with just one representative of the sector would not provide a comprehensive understanding of the whole spectrum of the challenges faced by the different stakeholders. Due to the scale of the country and the close networking possibilities among the different organisation representing the stakeholders in Malta the Malta Team considered generating the data through a survey, in view also of the overlapping responsibilities different people take on different roles within different organisations. This situation is related to the scale of the country, in view also of the fact that the Malta Team was not in a position to contact the same representatives from the institutions to interview them for the different Outputs of the Beacon Project. Through the use of a survey as a data collection strategy it was possible to gather the data from more stakeholders in the sector and get a better understanding of the challenges faced. This approach validates the data generated.

The data collection template with the guiding questions for the interview which was originally discussed and set between the Malta Team and the Huddersfield Team as the teams responsible for Output 6 and Output 4 respectively was changed to into an online survey to distribute among different stakeholders in Malta.

Over 115 stakeholders provided their feedback through the survey.

### 3. Role and Responsibilities of the built environment stakeholders in climate change adaptation

The following tables lists the institutions and associations representing the built environment professionals.

Institution (Local)	Role and Responsibility
Building and Construction authority (BCA)	The BCA is responsible for the enforcement of building regulations in Malta. The regulations set standards for the design, construction, and maintenance of buildings in Malta and aim to ensure the safety, health, and welfare of building users.
Building Industry Consultative Council (BICC)	The BICC is a government-appointed council that provides advice and recommendations to the BCA and the relevant Ministries on matters related to the construction industry. The council is made up of representatives from various sectors of the construction industry, including built environment professionals.
National Building Regulations Information and Support Unit (NBRIU)	The NBRIU is a government agency that provides information and support related to building regulations in Malta. The agency offers training and advice to professionals in the construction industry to ensure compliance with building regulations.
Malta Developers Association (MDA)	The MDA represents property developers and contractors in Malta and advocates for their interests and concerns.
Malta Chamber of Commerce, Enterprise and Industry - Construction and Quarrying Business Section	This section represents the interests of businesses involved in construction and quarrying activities.
Chamber of Engineers (CoE)	This CoE represents engineers from various disciplines, including civil and structural engineers involved in the construction industry.
Kamra tal-Periti (KTP)	The KTP is the chamber representing architects and civil engineers in Malta. The organization is responsible for regulating the profession and ensuring that its members adhere to high ethical and professional standards. Kamra tal-Periti also provides support, resources, and education to its members, as well as advocates for the interests of architects and civil engineers in Malta.

Institution (International)	Role and Responsibility
Chartered Institute of Building (CIOB)	CIOB is a professional body for those working in the construction industry. While the CIOB is not based in Malta, it is an international organization with members in many countries, including Malta. The CIOB offers professional development, education, and training programs for individuals working in various roles within the construction industry. It also sets standards for professional conduct and ethics and works to promote best practices and high standards in the industry. CIOB offers various levels of membership, including student, graduate, chartered, and fellow, depending on an individual's qualifications, experience, and professional standing. Members of the CIOB can access a range of benefits, including networking opportunities, access to resources and publications, and discounts on training and events.
Institute of Structural Engineers (IStructE) Malta Regional Group	This group represents structural engineers who work in the construction industry and promotes the advancement of structural engineering in Malta.

#### 4. Challenges faced by built environment stakeholders in implementing climate change adaptation

The following list highlights the challenges that professionals in the built environment face in implementing climate change adaptations. These professionals operate both in the public sector and private entities. The list is provided in the order of importance as tallied from the survey. The points in bold where referred to consistently.

- **Clients' reluctance and budget**
- **Popular Culture and attitude**
- **Financial limitations**
- Public procurement
- Retrofitting
- Lack of sustainable materials
- Time factor

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- Lack of knowledge
- Limitations imposed by government entities
- Lack of enforcement
- Lack of training
- Lack of incentives

## 5. Educational Training Framework

### *5.1 Training required to become a professional*

The following table includes the individual study Units within the professional training courses for Architects and Civil Engineers (Periti) and Engineers in Malta that are directly links to Climate Change and Climate Change Adaptation. These study units were available to students during academic year 2022-2023. A number of respondents of the survey who has been in the profession for a considerable number of years pointed out that in their undergraduate formal training they did not address Climate Change and Climate Change Adaptation

No	Professionals	Formal Education in Climate Change Adaptation	Educational Institute Provider	Link	Additional remarks
1	Architect	-Materials and the Environment -Landscape and Human Impact -Introduction to Sustainable Development -Energy Efficient Design	UM	<a href="https://www.um.edu.mt/courses/studyunit/CNM1421">https://www.um.edu.mt/courses/studyunit/CNM1421</a> <a href="https://www.um.edu.mt/courses/studyunit/SPI1711">https://www.um.edu.mt/courses/studyunit/SPI1711</a> <a href="https://www.um.edu.mt/courses/studyunit/SPI1721">https://www.um.edu.mt/courses/studyunit/SPI1721</a> <a href="https://www.um.edu.mt/courses/studyunit/EVD2502">https://www.um.edu.mt/courses/studyunit/EVD2502</a> <a href="https://www.um.edu.mt/courses/studyunit/SPI3734">https://www.um.edu.mt/courses/studyunit/SPI3734</a>	These are four modules included in the formal training in becoming an Architect / Civil Engineer at the University of Malta.

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		-Water Resources and Waste Management			
2	Engineer	-Sustainable Engineering -Environmental Engineering	UM	<a href="https://www.um.edu.mt/courses/studyunit/ENR3010">https://www.um.edu.mt/courses/studyunit/ENR3010</a> <a href="https://www.um.edu.mt/courses/studyunit/MEC4400">https://www.um.edu.mt/courses/studyunit/MEC4400</a>	These modules are included in the formal training in becoming a Mechanical Engineer at the University of Malta
3	Town Planner	-Climate change and Sustainability in the Mediterranean -Environment and Resources: Issues and Management	UM	<a href="https://www.um.edu.mt/courses/studyunit/GEO3021">https://www.um.edu.mt/courses/studyunit/GEO3021</a> <a href="https://www.um.edu.mt/courses/studyunit/GEO3010">https://www.um.edu.mt/courses/studyunit/GEO3010</a>	
4	Anthropologist	No specific study units at UM			
5	Economist	-Economics of Environmental Policy		<a href="https://www.um.edu.mt/courses/studyunit/ECN2141">https://www.um.edu.mt/courses/studyunit/ECN2141</a>	
6	Sociologist	- Environmental Sociology	UM	<a href="https://www.um.edu.mt/courses/studyunit/SOC2010">https://www.um.edu.mt/courses/studyunit/SOC2010</a>	
7	Other	-Diploma in Climate Friendly Travel	ITS	<a href="https://its.edu.mt/course?course_code=D-CFT">https://its.edu.mt/course?course_code=D-CFT</a>	

### ***5.2 Continuing Professional Development Opportunities***

The following table includes a list of organisations that hold CPD courses related to Climate Change and Climate Change Adaptations for professionals operating within the sector

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No	Professionals	CPD in Climate Change Adaptation	Educational Institute /Provider	Link	Additional remarks
1	Architect	CPD Course for Periti Award in Concepts for the Decarbonisation of the Building Industry	BICC	<a href="https://heyzine.com/flip-book/db4049b7e1.html#page/6">https://heyzine.com/flip-book/db4049b7e1.html#page/6</a>	
2	Engineer	CPD courses for Engineers	Chamber of Engineers	<a href="https://www.coe.org.mt/training/">https://www.coe.org.mt/training/</a>	
3	Other	<p>-Technical Level Course, and Course for Decision Makers Environmental management for Business Environment, Politics and Government Policy</p> <p>-The Sustainable Management of Waste</p> <p>-Environmental (Green) Marketing</p>	CESBA MED (UM)	<p><a href="https://cesba-med.research.um.edu.mt/moodle/course/index.php?categoryid=11">https://cesba-med.research.um.edu.mt/moodle/course/index.php?categoryid=11</a></p> <p><a href="https://www.um.edu.mt/courses/studyunit/ISD2101">https://www.um.edu.mt/courses/studyunit/ISD2101</a></p> <p><a href="https://www.um.edu.mt/courses/studyunit/ISD3101">https://www.um.edu.mt/courses/studyunit/ISD3101</a></p> <p><a href="https://www.um.edu.mt/courses/studyunit/ISD3102">https://www.um.edu.mt/courses/studyunit/ISD3102</a></p> <p><a href="https://www.um.edu.mt/courses/studyunit/ISD3103">https://www.um.edu.mt/courses/studyunit/ISD3103</a></p>	



## 6 Assessment of the regulatory framework for built environment professionals

The following table outlines the regulatory framework for the built environment professionals

No	Professionals  (Provide applicable where and additional)	<i>Is there a regulatory framework for the professionals?</i>	<i>Licensing Requirements</i>	<i>Mutual Recognition Framework</i>	<i>Number of Registered Professionals</i>
1	Architect	<p>Kamra tal-Periti (KTP) or Chamber of Architects and Civil Engineers is a body of self-regulation of the profession.</p> <p>The Periti Warranting Board is the examining board deciding on admittance to the Warrant of Perit.</p>	<p>To obtain a Perit Warrant, one must have completed the training requirements including a 3-year B.Sc. in Built Environment Studies as well as a 2-year Master Programme in either Architecture or Civil / Structural Engineering.</p> <p>For warranting person one must have also undertaken training under the supervision of a warranted perit for a minimum period of a year.</p>	<p>Provided that an EU National who has the right to the title of "Architect" in accordance with Annex V or Annex VI of the Mutual Qualifications Recognition Act, and who wishes to establish himself in Malta, shall be automatically deemed as qualified to be entered in the list of Perit Arkitett FEANI</p>	1144 as of January 2021

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			<p>The Kamra tal-Periti itself also offers a paid up membership giving the member voting rights, increased resources, free or discounted entry to events and CPD courses etc.</p>		
2	Engineer	<p>The Chamber of Engineers (CoE) is the only local organisation catering for the interests of Maltese Professional Engineers.</p> <p>The warrant is recognized for providing the services of an engineer in Malta.</p>	<p>The Chamber’s membership offers access to technical innovation, cutting-edge information, networking opportunities, and exclusive member benefits.</p> <p>The eligibility requirements for the warrant are laid out in the Engineering Profession Act Article 3. (2). The following are required:  A 240 ECTS engineering degree at MQF Level 6  Three years relevant work experience in engineering under the supervision of a practicing engineer.</p>		

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3	Town Planner	Kamra Maltija ghal-Ippjanar (Malta Chamber of Planners) – Association  Unregulated Profession			11 as of 2018
4	Surveyor	Nil			
5	Anthropologist	Nil Malta Anthropological Society <sup>1</sup>			
6	Economist				
7	Sociologist	Nil Malta Sociological Association <sup>2</sup>			
8	Other	Project Managers			

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<sup>1</sup> Not a regulatory body

<sup>2</sup> Not a regulatory body

## 7 Identification of skill gaps

### ***7.1 Anticipation of skills needed for climate change adaptation***

Through the analysis of the data collected from all stakeholders through the survey it was evident that the majority of the individuals were of the opinion that the professional training provided by education institutions pertaining to their profession, did not prepare them well enough in dealing with climate change and innovative climate change mitigation measures. 66.3% of the respondents replied that education only was not enough to prepare them to tackle these issues within their professional role. Conversely, 33.7% feel that their specialisation or experience does not support actively in activities in climate change adaptation, while 46% feel that they do not have enough experience related to climate change adaptation.

The vast majority of respondents highlighted their place of work / organisations do not provide CPDs or similar training which is linked to climate change, or they do so in a very limited capacity. Only 14.2% replied that such training opportunities are provided, out of which many could only mention one instance where this was provided. This highlights the need for Malta to strengthen its post graduate, educational departments and tertiary educational institutions. In fact, a good portion (57.5%) of the respondents indicated that their organisation often experiences difficulties in finding qualified applicants to address climate change adaptation, while only 12.4% said that they do not have any particular issue in finding qualified personnel. The remaining percentage were not aware or involved in the recruitment aspect of the organisation and therefore, they could not comment on the availability of qualified personnel. This further emphasises the need to strengthen Malta's educational sector in order to tackle the issue of skilled workers and professionals.

78.8% of the stakeholders in Malta seem to be able to identify at least one skill gap pertaining to the built environment sector. Some of the most prevalent answers included software modelling, communication skills across all levels, lack of skilled workers, retrofitting skills, lack of qualified individuals who are able and willing to provide education, knowledge dissemination and effective enforcement.

### ***7.2 Actions to avoid labour shortages***

For the case of Malta, distinction between labour and skill labour needs to be noted. Locally there are many labourers working within the industry, however, partially due to the fact that the building industry has experienced a "boom" in recent years and due to the fact that the majority of these labourers have not received any formal training, the majority of the labour force in Malta is unskilled workers. As noted from the respondents' feedback, there seem to be a consensus that finding skilled labourers is becoming an increasing problem in Malta. This problem seems to accrue throughout all levels where approximately half of the respondents indicated that they have problems finding professional, knowledgeable personnel.

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Currently in Malta there are some actions being carried out with the aim of targeting the issue of lack of skilled labour shortage. Several educational institutions are offering a plethora of new courses in order to assist individuals to acquire formal training in their field. Some institutions are also providing other means by which individuals can obtain formal qualifications by providing evidence of their skill through an assessment based on their profession. The Validation of Informal and non-formal Learning (VINFL) framework enables individuals with skills and no formal training to acquire certification for their trade.

The Building Industry Consultative Council (BICC) is actively working, with the help of many other governmental entities, private sector, civil organisations, academia, and other professional bodies to regulate the construction industry, whereby only skilled workers would be allowed to carry out specific works. By regulating the sector, individuals who are interested in joining this industry, would need to obtain formal training in order to do so. BICC is also implementing a skill card, aimed for all levels within the building industry to officially recognise construction related qualifications even at lower levels. This is a two-pronged approach whereby individuals are incentivised to obtain additional training to obtain / update their skill card, but it also enables to easily identify and contact skilled labourers as necessary as individuals who eventually obtain a skill card are included in a publicly available online database. Ultimately more investment in education and training is required as this will help ensure that the labourers in Malta will have the necessary skills needed to meet the needs of the economy, industry, and national and international environmental targets. The following “topics” for training courses were suggested through the data collection process:

- Innovative materials
- Energy efficient products
- Innovative technologies (and use of software)
- Practical implementation and sharing of experiences/case studies.
- Decarbonisation
- Retrofitting and design
- Knowledge on Climate change and related environmental concerns
- Life cycle assessments
- Specific tools eg. How to measure carbon footprint
- Policy
- Motivating others.
- New Conceptual Frameworks
- The importance of interdisciplinary approach

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Additional efforts could also be done in order to incentivise individuals through policies which alleviate the harsh environs the construction industry could provide, such as a better work-life balance, flexible working arrangements, incentives for companies to retain older knowledgeable workers to spread knowledge, develop more apprentice programs through policies that support work-life balance, flexible working arrangements, and incentives for employers to hire and retain older workers

### ***7.3 Incentives in training for climate change adaptation***

As the industry continues to evolve, more and more major actors within the industry are recognising the importance of obtaining qualified individuals who possess a deep understanding of climate change adaptation measures. However, the feedback from the respondents, it seems that not many companies within the private sector invest in their workforce for them to obtain additional training. Unfortunately, this often falls on the individuals to pursue on their own. The Government does incentivise its public sector employees to carry out CPD courses, however these courses are seldomly related to climate change.

Financial incentives are also a recurring practice in order to entice investment in green infrastructure and sustainable technologies. These generally come in the form of grants by government entities or as tax rebates. While these incentives may not necessarily encourage more training for climate change adaptation, they do create a demand for a specific skill of individuals, specific materials, and expertise which has a trickle-down effect thought the whole industry. Companies which provide technologies or materials for which the government is provided grants for, would have an influx of demand, requiring additional personnel and more specifically highly trained personnel to carry out works safely, effectively, and as cost effectively as possible. Moreover, companies which cater for such materials are incentivised in investing in Malta, if they do not do so already, with the possibility of infiltrating the market and having an opportunity to diversify the market, by for example, importing new cutting-edge technologies within the industry. The beneficiaries of the grants would also experience first hand the benefits of investing in sustainable technologies and/or green infrastructure, by for example, seeing a reduction in electricity/water bills and better quality of life/living conditions.

### ***7.4 Skill shortages***

The responses provided by the respondents in the study validate the findings, highlighting the need for further training on climate change adaptations. However, organizations are not providing Continuing Professional Development (CPD) opportunities for their employees, see **7.1** and **7.2**. The respondents emphasize the importance of design over retrofitting but express a need to learn more about retrofitting. The respondents also mentioned that a comprehensive approach to sustainability is necessary, which include more specialised CPD courses not only for professionals but also for labourers and the

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general public. Professionals tend to feel helps when facing other stakeholders as they directly depend on these stakeholders for them to be able to achieve their sustainability goals. Through the feedback received it was also noted numerous times that an effective enforcement system is paramount for the success of implementation of climate change adaptation measures. Moreover, an effective enforcement system would result in drive a cultural shift where sustainability efforts are no longer something that only a few could take on, but a duty for everyone to aim for.

For the case of Malta, but not exclusively, retrofitting is an important aspect of the local built environment as a big portion of our building stock and infrastructure are “old” buildings or soon to be. According to statistics found in the LTRS 2050, roughly 72% of the Maltese residential building stock was built prior to 1990 (Ministry for the Environment Climate Change and Planning, 2021). Professionals are therefore, sometimes faced with hurdles and conflicting policies, where some possibly beneficial climate change adaptation measures are too expensive, illegal to do (scheduled/protected structures), or impractical to implement due to the structural limitations of the building. Therefore, more training in this regard is indispensable if Malta must contribute in an affective manner in combating climate change and mitigate against its impacts. There also need to be a comprehensive approach towards sustainability that includes specialized CPDs for professionals, workers, and the public.

Although all professionals recognise the importance and encourage the formulation of many more CPD courses and similar training, they feel that they do have the necessary skills to address climate change adaptation. Conflictingly however, they do not feel that their formal professional training has helped them significantly in dealing with their activity related to climate change adaptations. This was apparent particularly amongst the older respondents. It was of the opinion of the participants that most activities related to climate change adaptations are directly related to the planning and design stages to address decarbonisation and they do not give due importance to the retrofitting aspect, which as in the previous paragraph, is a consequential aspect to take into consideration.

Many organisations seem to experience difficulties in finding qualified applicants to address climate change adaptation, particularly site skilled workers, technical persons, and specialized professionals. Professionals are concerned about the lack of site skilled workers and would like more training on the implementation stage of a project, including sharing of experiences from the local context.

The lack of reduction and sharing information with the general public was pointed out as another common issue professionals face. The public lacks the will to endure the initial capital expenditures of climate change mitigation measures, possibly due to the lack of understanding of the issues at hand. Professionals see this as a very significant barrier to the adoption of climate change adaptation measures by the public. Addressing this gap requires a comprehensive approach that includes education and awareness campaigns to drive cultural shifts and promote sustainability efforts.

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In summary, the findings from the respondents underscore the urgent need for workforce development and specialized CPDs to address skill gaps in climate change adaptation measures. The lack of investment in workforce development is a significant barrier to achieving sustainability goals, and the public needs to be educated more on the impacts of climate change to encourage adoption of adaptation measures. An effective enforcement system is required to drive cultural shifts and acknowledge sustainability efforts.



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