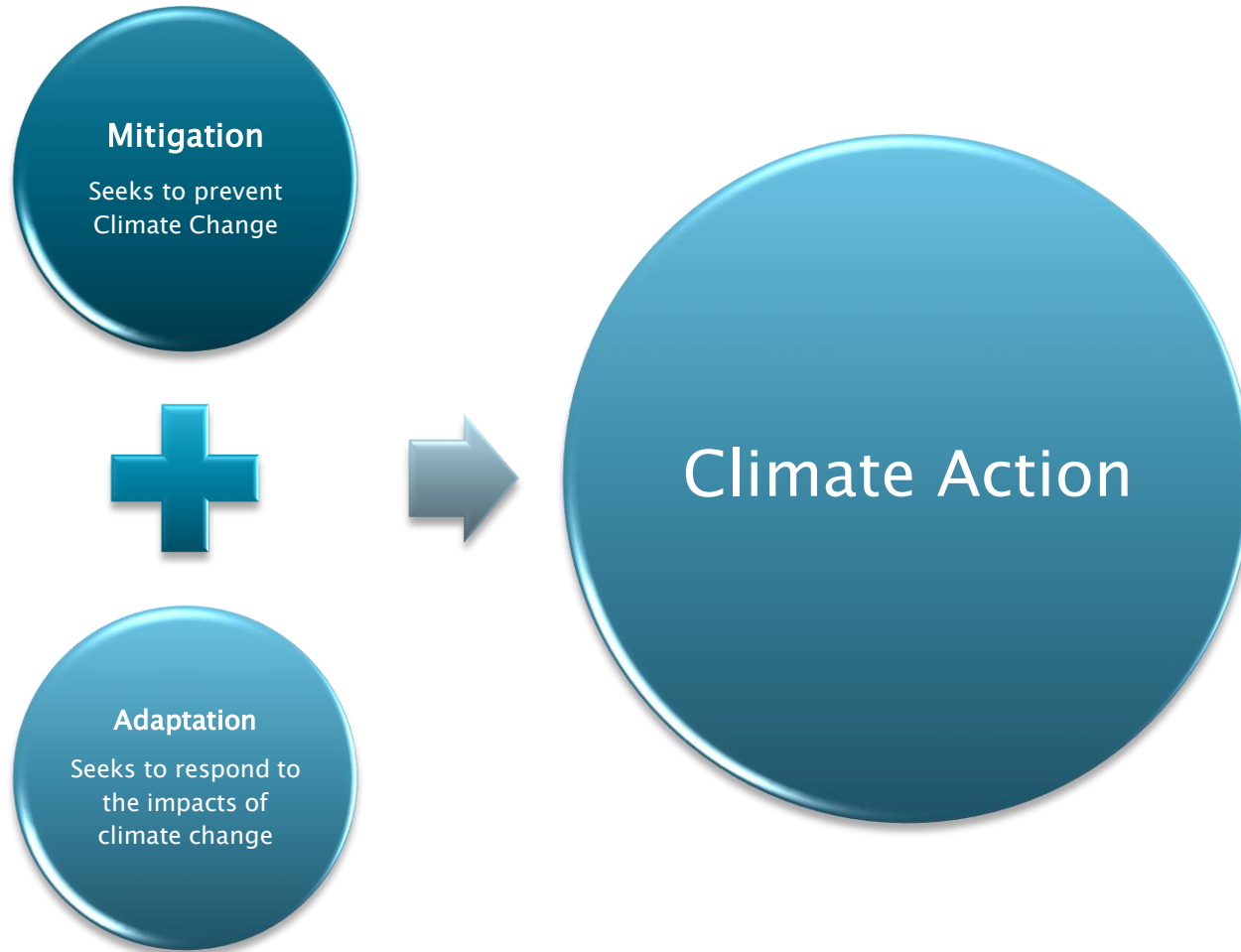


WICKLOW COUNTY COUNCIL CLIMATE CHANGE ADAPTATION STRATEGY

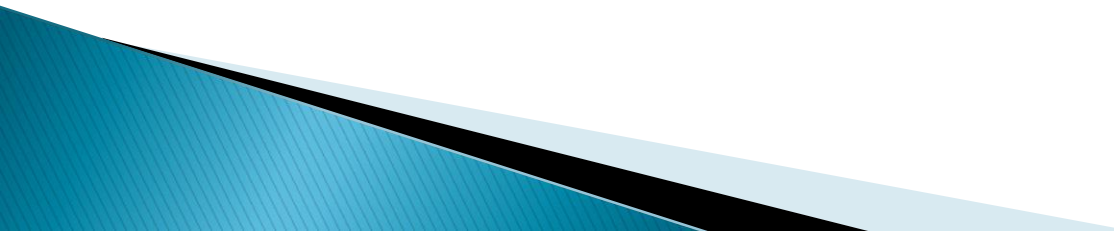
Planning, Development and Environment
June 2019



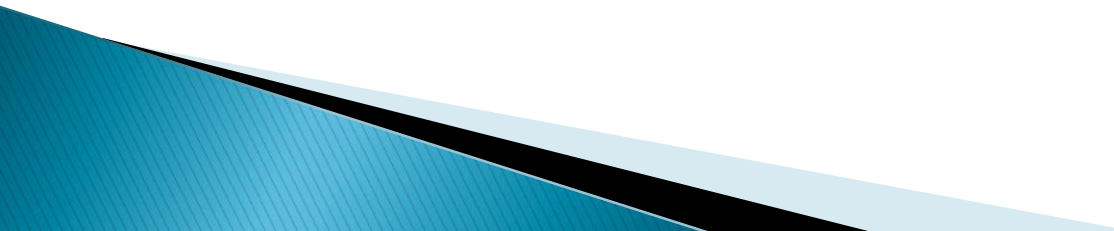
Adaptation Vs Mitigation



Why a Climate Change Adaptation Strategy?

- ▶ Adaptation involves taking steps to adapt to climate change already occurring and predicted.
 - ▶ The Climate Adaptation Strategy will influence Wicklow County Council's policies and procedures to ensure operations are resilient to a changing climate.
 - ▶ Adaptation will allow Wicklow County Council to moderate or avoid harm and exploit beneficial opportunities.
- 

What it doesn't aim to do?

- ▶ Be a full Climate Action Strategy. The focus is on adaptation not mitigation, although there are some cross cutting measures.
 - ▶ Focus on other environmental challenges such as plastics or pesticides.
 - ▶ Be a biodiversity action plan though it is highly relevant to consider the role played by biodiversity in building resilience and the impact of biodiversity loss on the adaptation process.
 - ▶ Instruct sectors outside the remit of WCC.
- 



Summary of Observed Climate Changes in Ireland

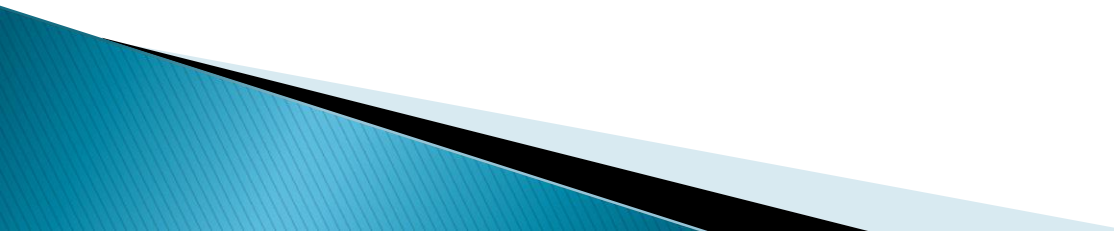
Ireland's climate is changing in line with global patterns;

- ▶ Temperatures are rising across all seasons.
- ▶ The timing and spatial distribution of precipitation (rain, sleet and snow) is changing.
- ▶ Sea levels are rising.
- ▶ The frequency and intensity of extreme weather events are changing.

Purpose of Strategy

- ▶ Wicklow County Council Adaptation Strategy takes on the role as the primary instrument at local level to:
 - Ensure an understanding of the key risks and vulnerabilities of climate change
 - Bring forward the implementation of climate resilient actions in a planned and proactive manner
 - Ensure that climate adaptation considerations are mainstreamed into all plans and policies and integrated into all operations and functions of the Local Authority.

Contents of Strategy Report

- ▶ Chapter 1: Introduction and Background
 - ▶ Chapter 2: Regional and Local Context
 - ▶ Chapter 3: Adaptation Baseline Assessment and Case Studies
 - ▶ Chapter 4: Climate Risk Identification
 - ▶ Chapter 5: Adaptation Goals, Objectives and Actions
 - ▶ Chapter 6: Implementation, Monitoring and Evaluation
- 

Example of Baseline Assessment

| CLIMATE HAZARD (EVENT): | | Heatwaves and drought | | | | |
|---|--|--|---|-------------|---|--------------------------------|
| Meteorological / Climatological Conditions: | | On a national basis, temperatures were above normal with heat wave conditions recorded at various times and stations between the 24th of June and 4th July. Absolute drought conditions were reported at 21 stations (22nd May to 14th July) with partial drought conditions being reported for some stations between the 18th June to 14th July (Source: Met Éireann) | | | | |
| Operational Area | Impact | Exposure & Sensitivity | Existing Adaptive Response | Consequence | | Other Relevant Actors |
| | | | | Level | Description | |
| GOVERNANCE AND BUSINESS OPERATIONS | | | | | | |
| Governance | More call outs for emergency services. | Upland areas of gorse, forest and bog. Coastal dune systems | Emergency response by fire services. | 3 | Loss of priority habitat. Temporary closure DART. Impact on | NPWS. Coillte. DART. Gardaí. |
| | Pressure on recreational and tourism resources | Blue Flag beaches. National Park heritage sites. | Litter warden visits. Staff monitoring visits. Increased clean ups. | 2 | Damage to amenity. Clean up costs. Traffic and parking | NPWS, Gardaí, Coastcare Group. |
| | Staff welfare | Working outdoors leading to dehydration, sun exposure | Provision advice water, sun glasses and sunscreen. | 1 | Increased cost for protection. Staff fatigue. | |
| Business Operations | Increase in visitors due to good weather | Creation of business opportunities due to increased visitor activity | Business support through LEO and Leader | 1 | Increased revenue for businesses and demand for accomodation. | Fáilte Ireland. |
| INFRASTRUCTURE AND BUILT ENVIRONMENT | | | | | | |
| Roads/Footpaths, bridges, projects construction and maintenance | Faster rate of deterioration due to melting tar. | Local roads comprising of tarred and chipped surfaces. Cracking due to shrinkage. | Chipping and emergency works. Scheduling of more intensive repair. | 2 | Increased costs and staff overtime. Reputational | TII |
| | Roads closed due to fires or tree fall. | Temporary closure of roads. Accident risk. | Call out of fire service and municipal district staff | 3 | Increased costs and staff overtime. Risk to life. | Emergency Services. |

Example of Baseline Assessment

| CLIMATE HAZARD (EVENT): | | High Sea Levels and Coastal Flooding | | | | |
|---|--|--|---|-------------|--|-------------------------------|
| Meteorological / Climatological Conditions: | | A combination of high winds, heavy rainfall and tide surges resulting in increased high sea levels and subsequent coastal erosion. Storm Frank in Dec 2015 and Storm Ophelia in October 2017 were examples of this combination which resulted in coastal erosion to the Murrough, North of Wicklow Town. | | | | |
| Operational Area | Impact | Exposure & Sensitivity | Existing Adaptive Response | Consequence | | Other Relevant Actors |
| | | | | Level | Description | |
| GOVERNANCE AND BUSINESS OPERATIONS | | | | | | |
| Governance | Coastal Flooding | Damage to properties, sea defences, critical infrastructure, services. | Emergency response by Fire services and LA staff, deployment of sandbags. Closure of services. Cautionary advice to public. | 3 | Call out fire service and other services. Staff fatigue. Cost. Safety. | Iarnród Éireann. Irish Water. |
| Asset Management | Damage community amenities. | Clean up and repair of damage done to community amenities | Staff engaged in cleanup and repair. Cost | 1 | Staff redeployment | Community Groups |
| Public Transport Services. | Closure or delay to public transport services. | Commuters unable to or delayed in travelling to work. | Major emergency team deployed. | 2 | Lack of Public Transport. Road network overloaded. | Iarnród Éireann. |

Winter Storms 2015/2016



- ▶ UK and Ireland costs Barney €198M, Desmond €970M, Eva €2.2B, Frank €310M
- ▶ WCC certified expenditure of €2,418,968
- ▶ Wicklow Swimming pool €190,000
- ▶ Roads, drains, culverts €1,355,000
- ▶ Housing repairs €38,000
- ▶ Fire crews €24,388
- ▶ Wicklow Library €1,000
- ▶ Damage to weir in Ashford and Coastal erosion The Murrough and Brittas Bay.

Storm Emma 2018



- ▶ WCC had a certified expenditure of €677,830 on the clearance of roads.
- ▶ €5,938,839 was the estimate for repairing damage to roads.
- ▶ Fire services dealt with 21 incidents.
- ▶ Several homes flooded in Wicklow Town and erosion on the coast.
- ▶ Plastic debris from as far as Holyhead washed up on beaches.
- ▶ Extra resourcing for homeless services.

Heatwave 2018



- ▶ Fire Service Call outs 2018
- ▶ Month Number of incident Costs
- ▶ April 19 €12,540
- ▶ May 33 €37,125
- ▶ June 132 €84,288

- ▶ €170,000 estimated extra expenditure on fire services for the summer

- ▶ School and homes evacuated in Kilmacanogue and Windgates.

- ▶ Beaches, lakes and key tourist sites extra busy. Parking issues and litter management issues.

Predicted risks

| CLIMATE HAZARD (EVENT): | | Strong Winds and Storms | | | | | | | | | |
|---|---|--|-------------|---|-----------------------|------------------------------|------------|----------|-----------------------------|------------|----------|
| Meteorological / Climatological Conditions: | | Winter of 2013 -2014: A run of winter storms, culminating in serious coastal damage and widespread, persistent flooding. Storm force winds occurred on 12 different days. Rainfall amounts of 1 ½ to 2 times above the normal and to saturated or waterlogged ground throughout the Country. Wind speeds above average for winter. | | | | | | | | | |
| Operational Area | Impact | Exposure & Sensitivity | Consequence | | Other Relevant Actors | Gross Risk Short Term 2020's | | | Gross Risk Medium Term 2050 | | |
| | | | Level | Description | | Impact | Likelihood | Exposure | Impact | Likelihood | Exposure |
| GOVERNANCE AND BUSINESS OPERATIONS | | | | | | Impact | Likelihood | Exposure | Impact | Likelihood | Exposure |
| Governance | Building Closure and damage. Cancellation of work. Emergency protocol in operation. | Unsafe travel conditions for staff and public. Damage to public building stock. | 3 | Buildings close due to risk of injury if travelling in high winds. Emergency call outs. Repair costs. | Gardai, HSE. | 3 | 2 | 6 | 3 | 4 | 12 |
| | Loss of electricity and mobile network | Closure of buildings. Impact on IT and central server. Loss of broadband and mobile services. Loss of water. | 3 | Loss of communication and operating systems | Irish Water, ESB. | 3 | 2 | 6 | 3 | 4 | 12 |
| Asset Management. | Damage community amenities. | Clean up and repair of damage done to community amenities | 1 | Staff redeployment | Community Groups. | 1 | 2 | 2 | 1 | 4 | 4 |

Predicted risks

| NATURAL RESOURCES AND FLOOD MANAGEMENT | | | | | | | | | | | |
|--|--|---|---|---|-----------------------|---|---|---|---|---|----|
| Biodiversity | Damage to habitats | Most noticeable in dune estuarine and coastal habitats but can affect all habitats type. Loss of biodiversity and tree cover. Erosion of soils. | 3 | Erosion and habitat loss | NPWS | 3 | 3 | 9 | 3 | 5 | 15 |
| Coastal Management | Inundation, leading to coastal erosion, loss of infrastructure, and damage to property and assets. | Cost of urgent repairs and clean ups. Loss of services. High cost of remedial action to prevent further inundation. Impact on tourism. Loss of biodiversity | 3 | Damage to property and assets. Risk to life. | Iarnrod Éireann, OPW. | 3 | 3 | 9 | 3 | 5 | 15 |
| | Change to wetland and coastal sites through saltwater intrusion | Impact on water quality and biodiversity. Increased vulnerability to erosion. | 2 | Loss of water quality. Habitat loss. | NPWS | 2 | 1 | 3 | 2 | 4 | 8 |
| LANDUSE AND DEVELOPMENT POLICY | | | | | | | | | | | |
| Spatial Planning and Land use | Limitation on suitability of land for urban expansion | Increased risk for development near coastal areas | 3 | Land vulnerable to increasing risk of flooding and erosion. | | 3 | 1 | 3 | 3 | 4 | 12 |

Aim of Adaptation Strategy



Ch 5: Adaptation Goals, Objectives and Actions

Theme 1: Local Adaptation Governance and Business Operations

Theme 2: Infrastructure and Built Environment

Theme 3: Land use and development

Theme 4: Drainage and Flood Management

Theme 5: Natural Resources and Cultural Infrastructure

Theme 6: Community Health and Wellbeing



Theme 1: Governance and Business Operations

| Objective: To ensure that climate adaptation is mainstreamed into all activities and operations of the Local Authority. | | | |
|---|--|---|--------------------------|
| No. | Action | Lead & Partner(s) | Budgeted Timeframe S/M/L |
| 1 | <p>Establish a Climate Action Steering Group, chaired by a Climate Adaptation Champion at Director of Services level with representatives from across key functions of local authority and the Chair of the Planning, Development and Environmental SPC, to:</p> <ul style="list-style-type: none"> • Ensure the successful implementation of the actions of this Climate Change Adaptation Plan and to report on progress. • Set Strategic Direction and assist in policy formation. • Encourage local innovation. | Management Team | ✓ Short |
| 2 | Mainstream Climate Action policy as integral consideration in the Corporate Plan objectives providing for the all local authority activities and the delivery of functions and services across the administrative area. | Corporate Services | ✓ Short |
| 3. | Ensure that Climate Action is listed as a standing item on the agenda of the Management Team meetings. | Management Team | ✓ Short |
| 4. | Integrate Climate Action into the Service Delivery Programme and provide for its translation to Team Development Plans and Personal Development Plans to enable actions to be directly pursued per operational area. | <p>Management Team</p> <p>Line Managers Human Resources</p> | ✓ Short |
| 5. | Compile a list of local service indicators to be used to track and monitor the progress of adaptation actions | Climate Action Steering Group | ✓ Short |
| 6. | Appoint a Climate Action Officer (CAO) with responsibility for climate related activity within the County administrative area | Management Team | x Short |

Actions

| THEME 2 : INFRASTRUCTURE AND BUILT ENVIRONMENT | Objective: To ensure and increase the resilience of infrastructural assets and inform investment decisions | | | | |
|--|--|---|--|----------|-----------------|
| | No. | Action | Lead & Partner(s) | Budgeted | Timeframe S/M/L |
| | 1. | Apply a robust risk assessment and management framework to Local Authority owned buildings and properties to identify and protect against the key vulnerabilities to the impacts of climate change and mitigate against service disruption. | CAO All Section Heads | x | Short |
| | 2. | Develop a climate change risk map with scenarios for the county. | CAO IT Section | x | Long |
| | 3. | Integrate climate considerations into the design, planning and construction of all roads, footpaths, bridges, roundabouts, amenity areas, recreational trails, public realm and other construction projects. Make provision to incorporate green infrastructure as a mechanism for carbon offset. | Roads & Transportation Municipal Districts NTA | ✓ | S/M/L |
| | 4. | Integrate climate considerations into the design, planning and construction of multilevel developments to take account of predicted flood events. | Planning | ✓ | Short |
| | 5. | Undertake a Risk Assessment of road infrastructure in the area to identify the severity of climate change risks on their function and condition. The risk assessment should provide for an understanding and quantification of risks posed. The findings should be integrated into decision making processes, road infrastructure programmes and investment strategies. | Roads & Transportation Municipal Districts NTA Local Communities. | ✓ | Medium |

Actions

| THEME 3: LANDUSE AND DEVELOPMENT | Objective: To Integrate climate action considerations into landuse planning policy and influence positive behaviour | | | | |
|----------------------------------|---|---|---|----------|-----------------|
| | No. | Action | Lead & Partner(s) | Budgeted | Timeframe S/M/L |
| | 1. | Identify and integrate climate change as a critical consideration and guiding principle informing all plans, strategies and policies prepared by the Council including the core strategy of the County Development Plan, Local Area Plans, Heritage Plan, Master plans, Transportation Plans, Tourism and Economic Plans. | Planning | ✓ | Short |
| | 2. | Integrate and promote climate-smart building and urban design performance outcomes in development standards through the development management process. | Planning Housing | ✓ | Short |
| | 3. | Promote the integrated planning, design and delivery of green infrastructure (including urban greening) through appropriate provisions in planning policies, development standards, infrastructural, public realm and community projects. | Planning Community Cultural and Social Development. Tourism. Economic Development. Housing. Environment. | ✓ | Short - Long |
| | 4. | Research and incorporate, in the content of the County Development Plan, measures in accordance with section 10 (n) of the Planning and Development Acts 2000 (as amended) for: (n) the promotion of sustainable settlement and transportation strategies in urban and rural areas including the promotion of measures to—(i) reduce energy demand in response to the likelihood of increases in energy and other costs due to long-term decline in non-renewable resources, (ii) reduce anthropogenic greenhouse gas emissions, and (iii) address the | Planning Department in consultation with external agencies and key stakeholders including E&M CARO. | x | Short |

Actions

| THEME 4: DRAINAGE AND FLOOD MANAGEMENT | Objective: To manage the risk of flooding through a variety of responses | | | | |
|--|--|--|--|----------|-----------------|
| | No. | Action | Lead & Partner(s) | Budgeted | Timeframe S/M/L |
| | 1. | Undertake and implement a surface water management plan for the assessment and management of flood risks with the aim of reducing the adverse consequences of flooding, to prioritise projects to reduce surface water flood risk and provide for detailed mapping of areas prone to surface water and groundwater flood risk. | Environment Municipal Districts Water Services | x | Short |
| | 2. | Stipulate the requirement for the design and specification of urban storm water drainage systems for new development to take account of the potential future impact of climate change. | Environment Planning Municipal Districts | ✓ | Short |
| | 3. | Draw up a Sustainable Urban Drainage Systems (SuDs) Policy and ensure the incorporation of the requirement for SuDs in local authority projects and private development sites. | Environment Planning Municipal Districts | ✓ | Short |
| | 4. | Promote and encourage Community involvement in the retrofit of SuDs in existing developments. | Environment CAO Municipal Districts Community, Cultural and Social Development | x | Medium |
| | 5. | Investigate best practice in storm runoff attenuation through the use of green infrastructure in urban open spaces. | Environment CAO | ✓ | Short - Medium |

Actions

| THEME 5: NATURAL RESOURCES AND CULTURAL INFRASTRUCTURE | Objective: To provide for enhancement of natural environment to work positively towards climate action. | | | | |
|--|---|--|---|----------|--------------------|
| | No. | Action | Lead & Partner(s) | Budgeted | Timeframe S/M/L |
| | 1. | Undertake and implement an active Tree Planting programme in the context of climate adaptation in conjunction with an awareness campaign that informs of the benefits to communities in improving air quality, offsetting carbon emissions, promoting biodiversity, limiting flood risk, reducing urban heat, as well aesthetic value. | Environment, Community, Cultural and Social Development, Planning | x | Short |
| | 2. | Make provision for natural borders/buffers using native and pollinator friendly species and include as an integral component of the design of greenways, tracks and trails and amenity areas to promote natural enhancement. | Roads & Transportation CAO | x | Short - Long |
| | 3. | Incorporate best practice on biodiversity for all planting schemes on municipal properties and in the public realm. | Municipal Districts Housing | x | Short |
| | 4. | Develop a tree policy which identifies the benefits of trees for climate action and also addresses maintenance concerns and facilitates good planning for the accommodation of trees as they mature. | Corporate Estate Environment CAO Municipal Districts | ✓ | Short |

Actions

| THEME 6: COMMUNITY HEALTH AND WELLBEING | Objective: To build capacity and resilience within communities | | | | |
|---|--|---|--|----------|-----------------|
| | No. | Action | Lead & Partner(s) | Budgeted | Timeframe S/M/L |
| | 1. | Through Public Participation Network (PPN) raise awareness of the impacts of climate change and ways for communities to increase response and resilience to these impacts. | PPN Community, Cultural and Social Development | x | Short |
| | 2. | Assess communities across the county in the context of their vulnerability to the impacts of climate change. Identify vulnerable communities and the risks to the community. | Municipal Districts Community, Cultural and Social Development | ✓ | Short |
| | 3. | For identified vulnerable communities, develop and implement a programme to enhance their capacity to respond to and recover from extreme weather events with specific aims to: help the vulnerable community to develop a stronger facilitating role for mitigating risks provide advice on the risk of extreme events affecting their locality Devise mitigating actions to enhance preparedness provide support to develop appropriate resilience arrangements to enable response and recovery | Municipal Districts Community, Cultural and Social Development. Community. | x | Medium |
| | 4. | Identify and integrate climate change as a consideration and guiding principle informing core strategy of LECP. | Community, Cultural and Social Development CAO | x | Medium |

Thank You

