ഒക്ടോബർ 2025

ലക്കം 8

അമൃത് വാർത്താപത്രിക

National e-Governance Award 2025 for PMS & WQMIS

भारत सरकार
प्रशासनिक सुधार और लोक शिकायत विभाग
द्वारा
ऐनी गवर्नमेंट प्रोरोस सी इंजीनियरिंग बाइ यूज ऑफ टेक्नोलाजी फार डिजिटल ट्रांसफार्मेशन
के लिए
राष्ट्रीय ई-गवर्नेंस पुरस्कार 2025
(रजत)
राज्य मिशन प्रबंधन इकाई अमृत, केरल
के
प्रोजेक्ट मानीटरिंग सिस्टम एंड वाटर क्वालिटी मानीटरिंग इनफार्मेशन सिस्टम
को
प्रदान किया जाता है

Government of India
Department of Administrative Reforms and Public Grievances
is pleased to present
National Award for e-Governance 2025
(Silver)
to
Project Monitoring System and Water Quality Monitoring Information System
of
State Mission Management Unit, Kerala
in category
Government Process Re-engineering by Use of Technology for Digital Transformation

वी. श्रीनिवास / V. Srinivas
सचिव / Secretary

PMS & WQMIS - “Centralized System for Project Monitoring and Water Quality Monitoring”

CAT-1-00201

सत्यमेव जयते

भारत सरकार

प्रशासनिक सुधार और लोक शिकायत विभाग

द्वारा

श्रेणी-गवर्नमेंट प्रोसेस री-इंजीनियरिंग बाइ यूज ऑफ टेक्नोलॉजी फॉर डिजिटल ट्रांसफॉर्मेशन

के लिए

राष्ट्रीय ई-गवर्नेंस पुरस्कार 2025

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प्रोजेक्ट मॉनीटरिंग सिस्टम एंड वाटर क्वालिटी मॉनीटरिंग इनफॉर्मेशन सिस्टम

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State Mission Management Unit Amrut, Kerala

in category

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वी.श्रीनिवास / V. Srinivas

सचिव / Secretary

അമൃത് വാർത്താ പത്രിക

ഒക്ടോബർ 2025 | പുസ്തകം 4 | ലക്കം 8

എഡിറ്റോറിയൽ

അമൃത് മിഷൻ പ്രവർത്തനങ്ങളിൽ ദേശീയ ശ്രദ്ധയും അംഗീകാരവും നേടിക്കൊണ്ട് ഒരു നാഴികക്കല്ല് കൂടി കൈവരിക്കുവാൻ നമുക്ക് സാധിച്ചു. കേരള അമൃത് മിഷന്റെ പ്രോജക്ട് മോണിറ്ററിംഗ് ആന്റ് വാട്ടർ ക്വാളിറ്റി മോണിറ്ററിംഗ് സിസ്റ്റത്തിന് കേന്ദ്ര സർക്കാരിന്റെ 2025 ലെ ദേശീയ ഇ-ഗവേണൻസ് സിൽവർ അവാർഡ് ലഭിച്ചു. അമൃത് പ്രോജക്ടുകളുടെ നിരീക്ഷണത്തിനും, ജല ഗുണ നിലവാര പരിശോധനയ്ക്കും വേണ്ടിയുള്ള ഓൺലൈൻ സംവിധാനം ഒരുക്കിയതിനാണ് അവാർഡ്. 22.09.2025 ന് വിശാഖപട്ടണത്ത് നടന്ന 28-ാമത് ദേശീയ ഇ-ഗവേണൻസ് സമ്മേളനത്തിൽ കേന്ദ്ര സഹമന്ത്രി ഡോ. ജിതേന്ദ്ര സിംഗിൽ നിന്നും അമൃത് കേരള മിഷന് വേണ്ടി എനിക്ക് അവാർഡ് സ്വീകരിക്കുവാൻ സാധിച്ചു. 5 ലക്ഷം രൂപയും പ്രശസ്തി പത്രവും ട്രോഫിയും അടങ്ങുന്നതാണ് അവാർഡ്. ഈ അഭിമാനാർഹമായ നേട്ടത്തിന് പിന്നിൽ പ്രവർത്തിച്ച എല്ലാ അമൃത് മിഷൻ ജീവനക്കാർക്കും നന്ദി അർപ്പിക്കുന്നു. ജല വിതരണം, സിവറേജ്, ഡ്രെയിനേജ്, അർബൻ ട്രാൻസ്പോർട്ട്, ജലാശയങ്ങളുടെ പുനരുജ്ജീവനം, ഹരിത ഇടങ്ങളും, പാർക്കുകളും എന്നിങ്ങനെ 6 സെക്ടറുകളിലായി അമൃത് ഒന്നും രണ്ടും ഘട്ടങ്ങളിലൂടെ നടപ്പിലാക്കി വരുന്ന 1845 പ്രോജക്ടുകളുടെ മോണിറ്ററിംഗ് നടത്തുവാനാണ് ഈ സംവിധാനം തയ്യാറാക്കിയിരിക്കുന്നത്.

സുസ്ഥിര നഗര വികസനത്തിലധിഷ്ഠിതമായി അടിസ്ഥാന ഭൗതീക വികസന സൗകര്യങ്ങൾ ആസൂത്രണം ചെയ്യുവാനായി രൂപീകരിച്ച അർബൻ പോളിസി കമ്മീഷന്റെ അന്തിമ റിപ്പോർട്ടിന്റെ അടിസ്ഥാനത്തിൽ നടത്തിയ കേരള അർബൻ കോൺക്ലേവ് 2025 അമൃത് മിഷനും ക്രീയാത്മകമായി പങ്കെടുത്തു. കോൺക്ലേവിനോടനുബന്ധിച്ച് അമൃത് മിഷന്റെ നേട്ടങ്ങൾ വിളിച്ചോതുന്ന പ്രദർശന സ്റ്റാൾ ഒരുക്കിയിരുന്നു. നഗരങ്ങൾക്ക് വികസനത്തിന്റെ അമൃതേകി മുന്നോട്ട് പോകുന്ന മിഷൻ ഏവരുടെയും പ്രശംസ പിടിച്ചുപറ്റി.

പാലക്കാട് നഗരസഭയിലെ സെപ്റ്റേജ് ട്രീറ്റ്മെന്റ് പ്ലാന്റിന്റെ നിർമാണം ത്വരിതഗതിയിൽ നടന്നുവരികയാണ്. മാലിന്യ സംസ്കരണ പ്രവർത്തനങ്ങളോട് മുഖം തിരിച്ചു നിന്ന സമൂഹത്തിന്റെ മനംമാറ്റം ഈ പ്രവർത്തനങ്ങൾ പൂർത്തി യാക്കുവാൻ ഉത്തേജകമായിട്ടുണ്ട്. ഇനിയും കൃത്യമായ ബോധവത്ക്കരണ പ്രവർത്തനങ്ങളിലൂടെ മാലിന്യ സംസ്കരണ രംഗത്ത് നവമായൊരു കാഴ്ചപ്പാട് രൂപപ്പെടുത്തിയെടുക്കാൻ നമുക്ക് സാധിക്കും. ശേഷിക്കുന്ന സിവേജ് സെപ്റ്റേജ് സെക്ടറുകളിലെ പ്രവർത്തനങ്ങൾ കൂടി അടിയന്തിരമായി പൂർത്തീകരിക്കുവാൻ ശ്രദ്ധിക്കണം.

മിഷൻ ഡയറക്ടർ

തദ്ദേശസ്വയംഭരണ വകുപ്പ്
കേരള സർക്കാർ

ചീഫ് എഡിറ്റർ
സൂരജ് ഷാജി ഐ.എ.എസ്സ്
മിഷൻ ഡയറക്ടർ

എഡിറ്റർ
മുരളി കൊച്ചുകൃഷ്ണൻ
എൻവിയോൺമെന്റ് എക്സപർട്ട് കം
ഹൈഡ്രോ ജിയോളജിസ്റ്റ്

അസിസ്റ്റന്റ് എഡിറ്റർ
സാവിയോ സജി ഇ.ആർ.

സ്റ്റേറ്റ് മിഷൻ മാനേജ്മെന്റ് യൂണിറ്റ് (അമൃത്)
നാലാം നില, മീനാക്ഷിപ്ലാസാ,
ആർടെക് ബിൽഡിംഗ്,
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(സ്വകാര്യ വിതരണത്തിന് മാത്രം)

കേരള അർബൻ കോൺക്ലേവ് 2025

അമൃത് വാർത്താ പത്രിക

ഒക്ടോബർ 2025

ഉള്ളടക്കം

പെങ്ങന്നൂർ നഗരസഭയിൽ ജലവിതരണ പദ്ധതിയുടെ രണ്ടാംഘട്ട പ്രവർത്തനങ്ങൾ ഉദ്ഘാടനം ചെയ്തു

കേരള അർബൻ കോൺക്ലേവ് 2025

‘കേരള അർബൻ കോൺക്ലേവ് 2025’

കേരളത്തിന്റെ സമഗ്ര നഗരനയം രൂപപ്പെടുത്തുക എന്ന ലക്ഷ്യത്തോടെ സംഘടിപ്പിച്ച ‘കേരള അർബൻ കോൺക്ലേവ് 2025’ ബഹു. മുഖ്യമന്ത്രി ശ്രീ. പിണറായി വിജയൻ ഉദ്ഘാടനം ചെയ്തു. ബഹു. കേന്ദ്ര നഗരകാര്യ വകുപ്പ് മന്ത്രി ശ്രീ. മനോഹർലാൽ ഖട്ടർ മുഖ്യാതിഥിയായി പങ്കെടുത്തു. ചടങ്ങിൽ ബഹു. തദ്ദേശ സ്വയംഭരണ വകുപ്പ് മന്ത്രി ശ്രീ. എം.ബി. രാജേഷ് അദ്ധ്യക്ഷനായിരുന്നു. ‘ആസ്പയറിംഗ് സിറ്റീസ് ട്രെവിംഗ് കമ്മ്യൂണിറ്റീസ്’’ എന്ന ആശയത്തിൽ അധിഷ്ഠിതമായാണ് കോൺക്ലേവ് സംഘടിപ്പിച്ചത്.

ഉദ്ഘാടന സമ്മേളനത്തിനുശേഷം വിദേശ രാജ്യങ്ങളിൽ നിന്നുള്ള മന്ത്രിമാരും കേന്ദ്ര മന്ത്രിമാരും പങ്കെടുത്ത ഹൈ ലെവൽ പൊളിറ്റിക്കൽ ഫോറം ഓഫ് മിനിസ്റ്റേഴ്സും, കേരളത്തിലെ മുഴുവൻ കോർപ്പറേഷൻ മേയർമാരും മുനിസിപ്പൽ ചെയർപേഴ്സൺമാരും പങ്കെടുക്കുത്ത കൗൺസിലേഴ്സ് അസംബ്ലിയും സംഘടിപ്പിച്ചിരുന്നു.

രണ്ടു ദിവസങ്ങളിലായി 36 സെക്ഷനുകളിലായി 295 പ്രഭാഷകർ വിവിധ വിഷയങ്ങളിൽ പ്രഭാഷണം നടത്തി. മൂന്ന് ഹൈലെവൽ പൊളിറ്റിക്കൽ ഫോറങ്ങളും അഞ്ച് പ്ലീനറി സെക്ഷനുകളും 10 നയരൂപീകരണ സെക്ഷനും രണ്ട് ഫോക്കസ് സെക്ഷനും അഞ്ച് ഫയർസൈഡ് ചാറ്റും 11 വട്ടമേശ സമ്മേളനങ്ങളും കോൺക്ലേവിന്റെ ഭാഗമായി സംഘടിപ്പിച്ചിരുന്നു.

കേരള അർബൻ കോൺക്ലേവ് 2025
ചിത്രങ്ങളിലൂടെ.....

ഇ-ഗവേണൻസ് - ദേശീയ അവാർഡ്

അമൃത് മിഷന്റെ പ്രോജക്ട് മോണിറ്ററിംഗ് ആന്റ് വാട്ടർ ക്വാളിറ്റി മോണിറ്ററിംഗ് സിസ്റ്റത്തിന് കേന്ദ്ര സർക്കാരിന്റെ 2025 ലെ ദേശീയ ഇ-ഗവേണൻസ് സിൽവർ അവാർഡ് ലഭിച്ചു. അമൃത് പ്രോജക്ടുകളുടെ നിരീക്ഷണത്തിനും, ജല ഗുണ നിലവാര പരിശോധനയ്ക്കും വേണ്ടിയുള്ള ഓൺലൈൻ സംവിധാനം ഒരുക്കിയതിനാണ് അവാർഡ്. 22.09.2025 ന് വിശാഖപട്ടണത്ത് നടന്ന 28-ാമത് ദേശീയ ഇ-ഗവേണൻസ് സമ്മേളനത്തിൽ കേന്ദ്ര സഹമന്ത്രി ഡോ. ജിതേന്ദ്ര സിംഗിൽ നിന്നും അമൃത് കേരള മിഷൻ ഡയറക്ടർ ശ്രീ. സൂരജ് ഷാജി ഐ.എ.എസ്. അവാർഡ് ഏറ്റുവാങ്ങി. 5 ലക്ഷം രൂപയും പ്രശസ്തി പത്രവും ട്രോഫിയും അടങ്ങുന്നതാണ് അവാർഡ്.

ജല വിതരണം, സിവറേജ്, ഡ്രെയിനേജ്, അർബൻ ട്രാൻസ്പോർട്ട്, ജലാശയങ്ങളുടെ പുനരുജ്ജീവനം, ഹരിത ഇടങ്ങളും, പാർക്കുകളും എന്നിങ്ങനെ 6 സെക്ടറുകളിലായി അമൃത് ഒന്നും രണ്ടും ഘട്ടങ്ങളിലൂടെ നടപ്പിലാക്കി വരുന്ന 1845 പ്രോജക്ടുകളുടെ മോണിറ്ററിംഗ് നടത്തുവാനാണ് ഈ സംവിധാനം തയ്യാറാക്കിയിരിക്കുന്നത്. നഗരസഭാ തലത്തിൽ സിറ്റി മിഷൻ മാനേജ്മെന്റ് യൂണിറ്റിലെ എക്സപർട്ടുകളാണ് പ്രോജക്ട് സംബന്ധമായ എല്ലാ വിവരങ്ങളും ഈ സംവിധാനത്തിലേയ്ക്ക് അപ്ഡേറ്റ് ചെയ്യുന്നത്. ഈ വിവരങ്ങൾ വിശകലനം ചെയ്യുകയും ഒരു ഡാഷ്ബോർഡിലൂടെ പ്രസിദ്ധീകരിക്കുകയും ചെയ്യുന്നു. ഡാഷ്ബോർഡിലൂടെയുള്ള പദ്ധതിയുടെ വിവരങ്ങൾ അമൃത് മിഷന്റെ ഔദ്യോഗിക വെബ്സൈറ്റിലൂടെ (https://amrutkerala.in) ലഭ്യമാണ്.

2768 കോടി രൂപയുടെ പ്രവർത്തനങ്ങളാണ് അമൃത് ഒന്നും രണ്ടും പദ്ധതികളിലായി കേരളം ഇതുവരെ പൂർത്തിയാക്കിയത്. ജലവിതരണ പദ്ധതികൾക്കായി 1848 കോടിയും മലിനജല സംസ്കരണത്തിന് 359 കോടിയും അമൃത് പദ്ധതികൾ വഴി നടപ്പിലാക്കിയിട്ടുണ്ട്. ബാക്കിയുള്ള പദ്ധതികൾ പുരോഗമിക്കുകയാണ്. അമൃത് ഒന്നും രണ്ടും പദ്ധതികളിലായി ആകെ 5872 കോടിയുടെ അമൃത് പദ്ധതികളിൽ 3337 കോടി സംസ്ഥാന സർക്കാരിന്റെയും നഗരസഭയുടെയും വിഹിതവും 2535 കോടി കേന്ദ്ര വിഹിതവുമാണ്.

ദേശീയ അംഗീകാരം നേടിയ അമൃത് കേരള ടീം തദ്ദേശ സ്വയംഭരണ വകുപ്പ് പ്രിൻസിപ്പൽ സെക്രട്ടറിയോടൊപ്പം

भारत सरकार
प्रशासनिक सुधार और लोक शिकायत विभाग
द्वारा
श्रेष्ठी गवर्नमेंट प्रोसेस से इंजीनियरिंग बाइ यूज ऑफ टेक्नोलाजी फार डिजिटल ट्रांसफार्मेशन
के लिए
राष्ट्रीय ई-गवर्नेंस पुरस्कार 2025
(रजत)
राज्य मिशन प्रबंधन इकाई अमृत, केरल
के
प्रोजेक्ट मानीटरिंग सिस्टम एंड वाटर क्वालिटी मानीटरिंग इनफार्मेशन सिस्टम
को
प्रदान किया जाता है

Government of India
Department of Administrative Reforms and Public Grievances
is pleased to present
National Award for e-Governance 2025
(Silver)
to
Project Monitoring System and Water Quality Monitoring Information System
of
State Mission Management Unit Amrut, Kerala
in category
Government Process Re-engineering by Use of Technology for Digital Transformation

वी. श्रीनिवास / V. Srinivas
सचिव / Secretary

കൂടാതെ നഗരസഭാതലത്തിൽ നടക്കുന്ന ജല ഗുണനിലവാര പരിശോധനാ ഫലങ്ങളും ഈ സംവിധാനം വഴി നിരീക്ഷിക്കപ്പെടുന്നു. ജല ഗുണനിലവാര പരിശോധനയ്ക്കായി സ്വയം സഹായക സംഘങ്ങളിലെ (എസ്.എച്ച്.ജി.) സ്ത്രീകളെ, നഗരസഭകളും കുടുംബശ്രീ യൂണിറ്റും ചേർന്ന് തിരഞ്ഞെടുക്കുകയും അമൃത് മിഷന്റെ നേതൃത്വത്തിൽ ജലഗുണനിലവാര പരിശോധനയിൽ പരിശീലനം നൽകുകയും ചെയ്യുന്നു. ഇങ്ങനെ പരിശീലനം നേടിയ അംഗങ്ങൾ ജലസ്രോതസ്സുകളിൽ നിന്നും ജലം ശേഖരിച്ച് വാട്ടർ ടെസ്റ്റിംഗ് കിറ്റ് ഉപയോഗിച്ച് ഗുണനിലവാരം പരിശോധിക്കുന്നു. പരിശോധനാ റിസൾട്ട്, പ്രോജക്ട് മോണിറ്ററിംഗ് ആന്റ് വാട്ടർ ക്വാളിറ്റി മോണിറ്ററിംഗ് സിസ്റ്റത്തിലേയ്ക്ക് മൊബൈൽ ആപ്ലിക്കേഷൻ വഴി രേഖപ്പെടുത്തുന്നു. ഈ വിവരങ്ങൾ വിശകലനം ചെയ്യുകയും ഒരു ഡാഷ്ബോർഡിലൂടെ പ്രസിദ്ധീകരിക്കുകയും ചെയ്യുന്നു. ജല ഗുണ നിലവാര വ്യതിയാനങ്ങൾ വേഗത്തിൽ മനസ്സിലാക്കുന്നതിനും ആവശ്യമായ ഇടപെടലുകൾ നടത്തുന്നതിനും ഇത് സഹായിക്കുന്നു.

എല്ലാ തരത്തിലുമുള്ള നഗര പദ്ധതികൾ നിരീക്ഷിക്കുവാൻ തക്കമുള്ള സവിശേഷതകളുള്ളതിനാൽ കാര്യക്ഷമവും സമഗ്രവും സുസ്ഥിരവുമായ നഗര ഇ-ഗവേണൻസ് സംവിധാനത്തിലേയ്ക്കുള്ള മുന്നേറ്റം ഇതിലൂടെ സാധ്യമാകുന്നു. അതിനാൽ തന്നെ എല്ലാ വകുപ്പുകൾക്കും പദ്ധതി നിർവ്വഹണ ഏജൻസികൾക്കും ഇത് ഒരു മാതൃകയായി സ്വീകരിക്കുവാനും വളരെ എളുപ്പത്തിൽ പകർത്തുവാനും സാധിക്കുന്നതാണ്.

കൊച്ചി നഗരസഭയിൽ അമൃത് പദ്ധതിയിൽ ഉൾപ്പെടുത്തി നവീകരിച്ച എ.എ. കൊച്ചുണ്ണി മാസ്റ്റർ പാർക്ക് കോർപ്പറേഷൻ മേയർ ഉദ്ഘാടനം ചെയ്യുന്നു.

6 THEMATIC AREAS OF PROJECTS

ACHIEVEMENTS

1

Water Supply

- 6 Water Treatment Plant of 265 MLD
- 2.9 lakh beneficiaries (Tap connections)
- 3154 Kilometre Water Supply Network
- 20 Water Tanks (OHSR) of 365 lakh litre Capacity
- 21 Water KIOSK

2

Sewerage & Septage Management

- 7 Sewerage Treatment Plant of 28.2 MLD
- 2 Mobile Septage Treatment Units
- 87 Kilometre Sewerage Network
- 5015 Sewer Connections
- 86975 Household covered under Septage Management

3

Water Body Rejuvenation

- 385 Acre water body rejuvenated
- 375 water bodies under rejuvenation
- Biodiversity enhanced
- Groundwater & Surfacewater pollution reduced
- Groundwater recharging enhanced

4

Non- Motorized Urban Transport

- 5 Multilevel Car Parking (MLCP)
- 78 Km. Footpath & 7 Km. Cycle Track
- 27 Foot over bridges
- 1 Skywalk & 1 Subways

5

Green Spaces & Parks

- 156 Acre developed
- Reduced urban heat island effects
- Preserved water biodiversity
- Improved air quality
- Child & Divyang friendly

6

Stormwater Drainage

- 332 Kilometre Drain Network
- 1356 water logging points eliminated
- Prevent urban flooding
- Reduced Soil erosion
- Covered & fenced drain reduced solid waste pollution

യാക്കര 100 കെ.എൽ.ഡി. സെപ്റ്റേജ് ട്രീറ്റ്മെന്റ് പ്ലാന്റ്

അമൃത് 1.0 യിൽ സിവേജ് & സെപ്റ്റേജ് സെക്ടറിൽ ഉൾപ്പെടുത്തി പാലക്കാട് നഗരസഭയിലെ യാക്കരയിൽ സ്ഥാപിക്കുന്ന സെപ്റ്റേജ് ട്രീറ്റ്മെന്റ് പ്ലാന്റിന്റെ നിർമാണം പുരോഗമിച്ചുവരുന്നു. 100 കെ.എൽ.ഡി. ശേഷിയുള്ള പ്ലാന്റാണ് സ്ഥാപിക്കുന്നത്. 3.86 കോടി രൂപ ചെലവിൽ നിർമാണ ചെലവ് കണക്കാക്കിയിരിക്കുന്ന പ്ലാന്റിന്റെ നിർമാണം ഉടൻ പൂർത്തീകരിക്കും.

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"Climate Change Oriented Water Resources Challenges and Options"- Where insights Meet Foresights.....

Introduction:

Fresh water resources are under stress around the world due to the exponential growth in population and per capita resource use, that are the drivers of energy consumption, anthropogenic climate, and hydrologic change. Significant research has been done on climate change assessment, mitigation and adaptation. However, there is only fragmentary research on global hydrologic change and the available data is limited, despite recognition of its importance. This degradation of fresh water resources is a harbinger of a major crisis. Its impact on humans and the ecology may be at least as severe as that caused by greenhouse gasses. Increasing urbanization is altering areas near river courses and low-lying coastal areas. Intensification of agriculture is contributing to deforestation and further desertification. Increased water use for agriculture and urbanization is leading to hydrologic modifications. It is important to understand, predict and manage the potential impacts of climate change on regional and global water resources. Local human modifications of the hydrologic cycle through direct use, storage and redistribution, changes in land cover and use, and pollution, is a primary concern for local and global risk management. A changing climate increases the uncertainty associated with the future availability and variability of fresh water sources. These are exacer bating factors of human-induced changes in the local, terrestrial hydrologic cycle. The effects are more pronounced at the river basin level and consequently in the groundwater resources. Since the immediate impacts of degradation of a freshwater resource are felt locally, assessment and recognition of the evolution of a *global water crisis* has been slow.

Water is an integral component of climate change and the primary medium through which it exhibits and also its impacts. With the world facing growing water challenges in many regions, how climate change will affect future societies cannot be understood without looking at its impact on the most vital resources of our planet. Water in a Changing World shows that changes in our water resources are shaped to a great extent by a number of key externalities, among them climate change, and that decisions taken far from the conventionally defined water sector have a tremendous influence on water resources and how they are used or misused. Water in a Changing World describes the dynamic linkages that interconnect changes in climate, the state of our water resources, demographic expansion and migration issues, food and energy shortages, and the continuing challenge of poverty. Rather than addressing these issues in isolation, it argues that **a holistic approach is crucial, if we are to solve the crises we face today and to avoid worse crises tomorrow.**

Fig: 1-Integrated and holistic approaches towards Water and climate change is required.

Water and Climate Variability Changes:

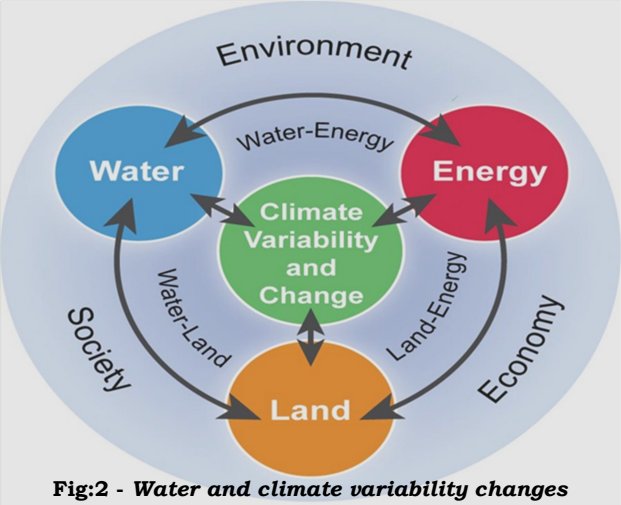

Fig:2 - *Water and climate variability changes*

Water is the lifeblood of the planet and the state of the resource affects all natural, social and economic systems. Water is the fundamental link between the climate system, human society and the environment. Climate change directly affects the water cycle and, through it, the quantity and quality of water resources available to meet human and environmental demands. It can lead to both floods and drought. Rising sea levels have a serious effect on coastal aquifers, a major source of urban and regional water supply systems, and higher water temperatures and changes in extremes can exacerbate many forms of water pollution. Water supply reliability, health, agriculture, energy and aquatic ecosystems – all will feel the impact of these changes to the water cycle. The demand for water to meet these needs is also affected by climate change. The importance of water to sustainable social and economic development cannot be underestimated, yet many countries are already facing multiple water challenges, all of them compounded by climate change.

Climate change is primarily a water crisis. We feel its impacts through worsening floods, rising sea levels, shrinking ice fields, wildfires and droughts. However, water can fight climate change. Sustainable water management is central to build-up the resilience of societies and ecosystems and to reducing carbon emissions. Everyone has a role to play – actions at the individual and household levels are more vital.

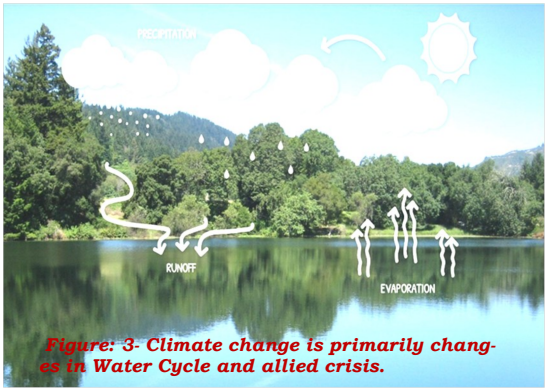

Figure: 3- Climate change is primarily changes in Water Cycle and allied crisis.

In India, the hydrological cycle is deeply influenced by climate change, leading to significant shifts in precipitation patterns, river flows, and water availability. The monsoon, which is a critical component of India's water cycle, has become increasingly erratic, causing extreme events such as prolonged droughts and intense floods. Melting glaciers in the Himalayas, a crucial freshwater source for northern India, are altering river flows, impacting agriculture and drinking water supplies. Rising temperatures also accelerate evaporation, reducing soil moisture and groundwater recharge, exacerbating water scarcity in already arid regions. These changes pose challenges for food security, livelihoods, and disaster management across the country.

Basic Facts:

- By 2050, the number of people at risk of floods will increase from its current level of 1.2 billion to 1.6 billion. In the early to mid-2010s, 1.9 billion people, or 27% of the global population, lived in potential severely water-scarce areas. In 2050, this number will increase to 2.7 to 3.2 billion people**. (UNITED NATION 2020).**
- Over a fifth of the world's basins have recently experienced either rapid increases in their surface water area indicative of flooding, a growth in reservoirs and newly inundated land; or rapid declines in surface water area indicating drying up of lakes, reservoirs, wetlands, floodplains and seasonal water bodies. **(United Nations Water 2021)**
- The ambition of new climate change mitigation pledges for 2030 needs to be four times higher to limit global warming to 2°C and seven times higher to get on track to limit global warming to 1.5°C. **(United nation Environment program 2021)**
- The current Arctic sea-ice cover (both annual and late summer) is at its lowest level since at least 1850 and is projected to reach practically ice-free conditions at its summer minimum at least once before 2050.

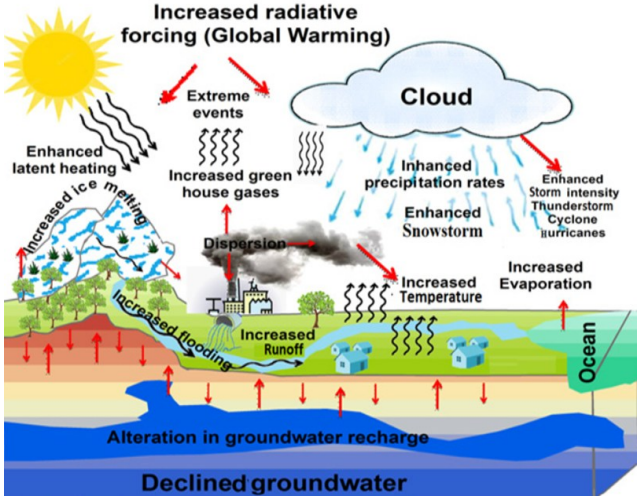

Figure:4: Influence of Hydrological cycle in context of climate change

Water related Climate Risk and Essentials to Cope Up/ Adaptation:

Climate Risk	Sector wise Sensitivity analysis	Impacts/Maladaptation	List of resources essential to cope
Warmer temperatures	Changes in watershed vegetation may alter the recharge of groundwater aquifers and change the quantity and quality of runoff into surface waters. Increased evaporation in surface sources of water. Increasing biological and chemical degradation of water quality. Changes in watershed vegetation pest and risks in watershed areas. Changes in watershed agricultural practices and in the resulting pollution loads from agriculture. Increased frequency or intensity of drought.	Depletion of both surface and groundwater recourses. Change in quality and quantity of water recourses Drought cycle period decreases.	Judicious utilization of water resources. Enhancement of soil and water conservation measures. Changes in agricultural patterns.
More Frequent and/or Intense Extreme Weather Events	Increased turbidity and sedimentation of surface water. Changes in nature of rainfall pattern leading to inadequate infiltration/groundwater recharge resulting in reduced flow and/or yield of water. More frequent and/or intense flash floods damaging infrastructure and disrupting services. Potential loss of reservoir storage as a result of increased erosion in watershed. Increased loading of pathogenic bacteria and parasites in reservoirs. Operational challenges to aquifer storage and recovery and water reclamation facilities.	Rise in turbidity levels in surface groundwater resources. Erratic rainfall patterns. Reduction in infiltration and percolation rate towards groundwater resources. Drastic changes in the groundwater regime of the project site. Intense flash flood at times of extreme rainfall intensity	Coping measures needs to combine a suite of technical / structural and non-structural measures. Promotion of integrated water resource management practices (IWRM) Run-off and flood management. Promotion of rainwater harvesting and recharge structures. Promotion of location specific soil and water conservation measures. Conservation of traditional water harvesting structures. Promotion of artificial recharge systems. Regular maintenance of traditional water bodies by desilting and bund management. Timely maintenance of canal flow paths. Technical knowledge up gradation of the watershed committee and LSG department on the type of specific adaptation measures required for climate adaptive measures.
Changes in Precipitation	Reduced replenishment rates of groundwater resulting in declining water tables		"Same as mentioned above."

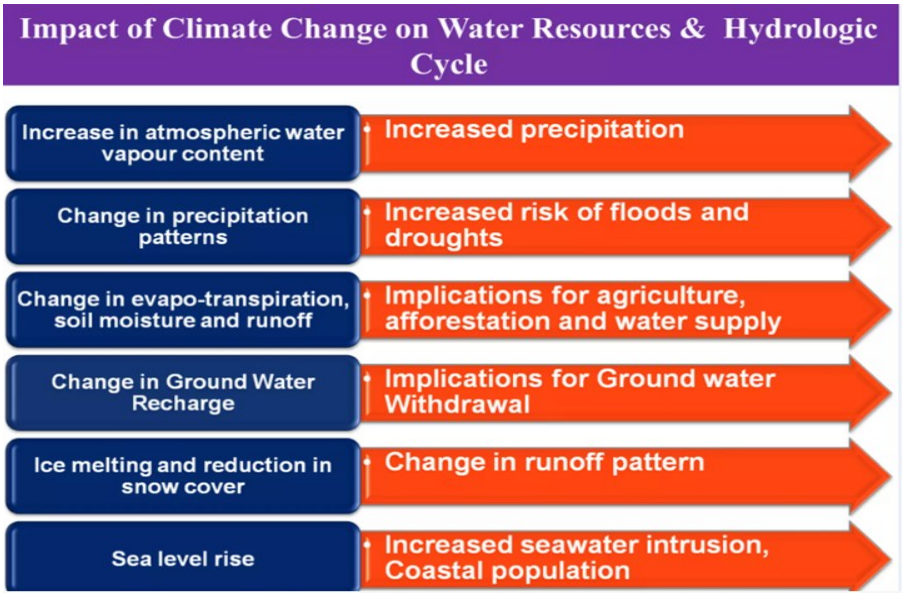

Figure:5:- Various Impacts of Climate change on Water resources and Hydrological cycles.

Climate Variability Based Disasters:

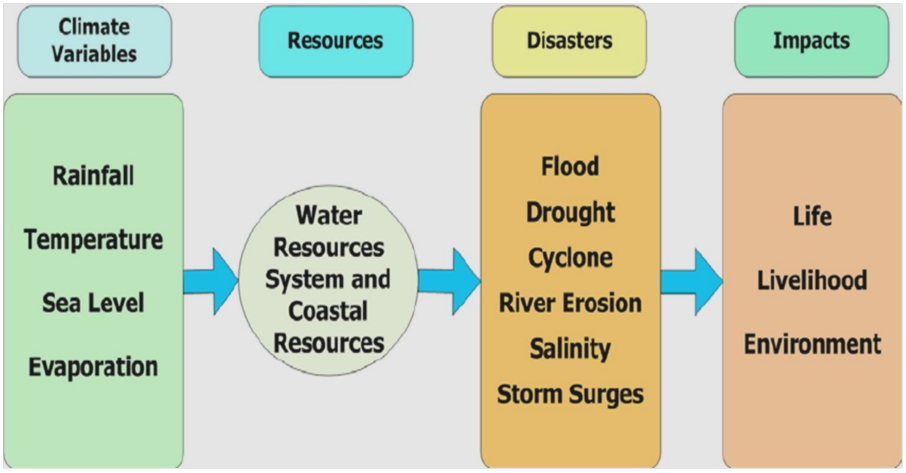

Figure: 6- Climate variability and Impacts

Key factors:

- There is mounting evidence in many regions of the impact of climate change on the Earth's hydrological cycle.
- Climate change is a basic driver of change in water resource availability and use alongside demographic, economic, social and technological forces, with which it interacts in a dynamic fashion.
- Lateral thinking **'out of the box'** is essential, both from those within the water sector and all others whose decisions have a major impact on water.
- Information about the status of availability and use of water and the potential impact of climate change is too poor to support informed policy decisions. There is an urgent need to gather, analyse and model data at all relevant levels – globally, Regionally and locally – and to reverse the decline in observational systems.
- Alongside mitigation, Governments/ Non-government agencies must adapt to climate change, and give priority to water resources management as a key aspect of adaptation to changes already in train.
- Due to future uncertainties, the keynote for adaptation must be resilience – managing risks and building the capacity to deal with unpredictable events. No-regret and low-regret measures should be prioritised.

The issue explained:

1. **Water and climate change are inextricably linked:** Extreme weather events are making water more scarce, more unpredictable, more polluted or all three. These impacts throughout the water cycle threaten sustainable development, biodiversity, and people's access to water and sanitation.

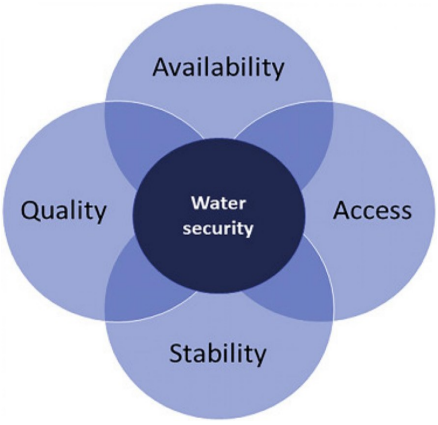

Figure:7 Climate change Impact on water Security

Climate change significantly impacts water security by altering the availability, quality, and distribution of freshwater resources. Rising temperatures increase evaporation rates and disrupt precipitation patterns, leading to more frequent droughts and floods. Melting glaciers and changing snowmelt cycles affect water supply in regions dependent on these sources, while sea-level rise threatens coastal freshwater aquifers with saltwater intrusion. Extreme weather events can damage water infrastructure and contaminate supplies, further compromising access. These challenges exacerbate existing water stress, affecting agriculture, industry, and communities, particularly in vulnerable regions with limited adaptive capacity.

2. Flooding and Rising sea levels can contaminate land and water resources with saltwater or faecal matter, can cause damage to water and sanitation infrastructure, such as waterpoints, wells, toilets and wastewater treatment facilities.

3. Glaciers, ice caps and snow fields are rapidly disappearing: Meltwater feeds many of the great river systems. Volatility in the cryosphere can affect the regulation of freshwater resources for vast numbers of people in lowland areas.

4. Droughts and wildfires are destabilizing communities and triggering civil unrest and migration in many areas. Destruction of vegetation and tree cover exacerbates soil erosion and reduces groundwater recharge, increasing water scarcity and food insecurity.

Climate change is intensifying extreme drought scenarios by altering precipitation patterns, increasing temperatures, and accelerating evaporation rates. Prolonged and severe droughts reduce water availability for agriculture, drinking, and ecosystems, leading to crop failures, food insecurity, and biodiversity loss. Regions dependent on seasonal rainfall or glacial melt are particularly vulnerable. Additionally, droughts increase the risk of wildfires, degrade soil health, and strain water management systems, creating a cycle of environmental and socio-economic challenges. These impacts are exacerbated in areas with poor water governance or over-extraction of groundwater, heightening vulnerability to future climate extremes.

5. Growing demand for water increases the need for energy-intensive water pumping, transportation, and treatment, and has contributed to the degradation of critical water-dependent carbon sinks such as peatlands. Water-intensive agriculture for food production, particularly meat, and for growing crops used as biofuels, can further exacerbate water scarcity.

6. Climate change, over exploitation of Groundwater and Sea water Intrusion

Climate Change intensifies Global water challenges in altering rainfall patterns, causing more extreme weather events. These changes disrupt groundwater recharge, making it harder to replenish vital under ground-water reserves. Further, Overexploitation of groundwater for agriculture, industry, and domestic use is depleting aquifers faster than they can be replenished. Ground water depletion lowers water tables, causing wells to dry up and threatening food security, particularly in water-scarce regions. It also leads to land subsidence, where the ground sinks, damaging infrastructure and reducing groundwater storage capacity. In coastal areas, over-pumping groundwater can cause seawater intrusion, where saltwater contaminates freshwater aquifers. Sea water intrusion degrades the quality of groundwater, making it unsuitable for drinking, irrigation, and industrial uses. This contamination increases desalination costs, putting further strain on already limited water resources. Climate change exacerbates seawater intrusion by rising sea levels and increasing the frequency of coastal storms.

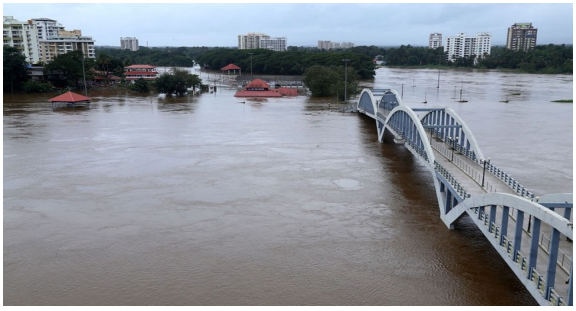

Figure:7 -Flooding *and raising sea levels in Kerala, India*

Figure:8 Melting of ice caps and snow field at Himalayas

Figure :9 *On set of Drought / Forest Fire*

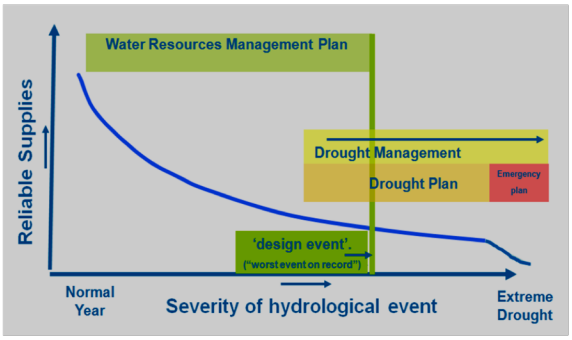

Figure 10- Climate change, severity of Hydrological Event leading to Extreme Drought

Figure: 11- *Over use/Exploitation of ground-water resources and Energy resources.*

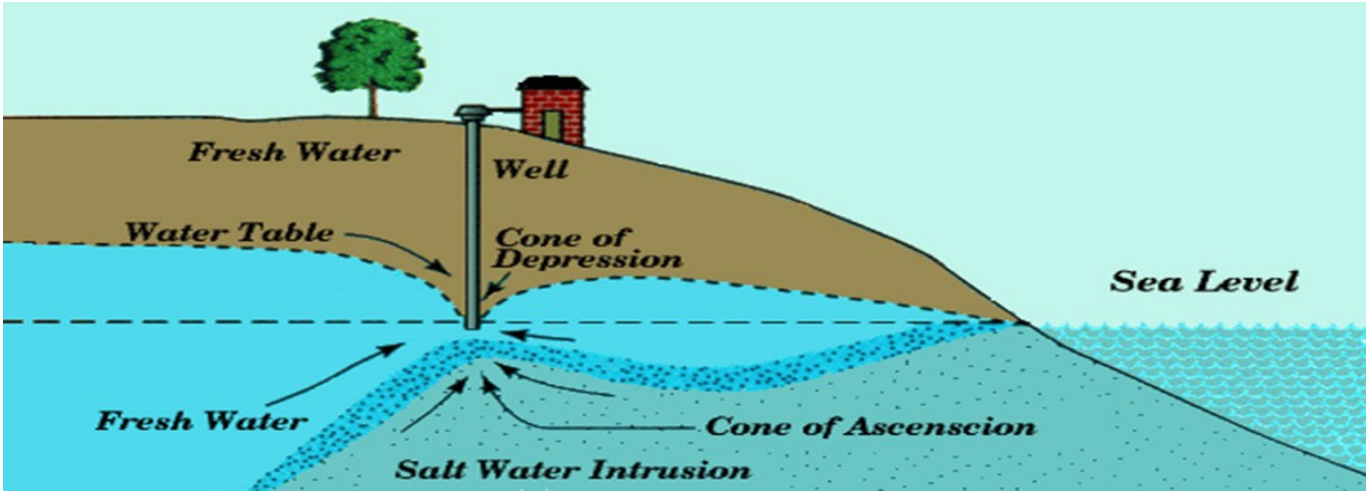

Figure :12-Climate change, over exploitation of Groundwater and Sea water Intrusion

Adaptation/Resilient Mechanism:

Adaptation to climate change will demand a firm commitment from leaders in government, private sector and civil society worldwide. Public policy on key water services and functions must prioritize a strengthening of competencies and institutions, and ensuring the infrastructure investment necessary for long-term water security. But policy choices and other decisions made outside the water domain are also crucial if we are to change and improve how water is allocated and used, as well as making the adaptation to new, more efficient management systems more effective and less costly. The international community will have to balance investments to reduce risks and to prepare for increasingly severe climate events against investments to improve responses to the crises already being experienced today. Both are vital, and focusing on today's problems can also create greater resilience for dealing with the problems of tomorrow.

Climate-resilient water management

Climate-resilient water management involves adaptive strategies to ensure sustainable and equitable water resources in the face of climate change. It integrates practices like rainwater harvesting, efficient irrigation systems, and the restoration of wetlands and watersheds to enhance natural water storage and recharge. Utilizing advanced technologies such as real-time monitoring, predictive analytics, and AI for demand forecasting can optimize water usage. Incorporating community participation and policies that promote conservation and reduce over-extraction further strengthen resilience. This approach ensures water security while mitigating the risks of floods, droughts, and other climate-induced water challenges.

Figure 13: Climate Resilient Water Management

Climate Change Mitigation:

"Mitigation comprises human interventions to reduce the sources or enhance the sinks of greenhouse gases (GHGs). While mitigation options are also available across every major water-related sector, they remain largely unrecognized" (WWDR, 2020).

Existing strategies to adapt and build climate resilience in water:

Three basic strategies exist to meet water needs as climate variability and the frequency of extremes rise:

1. **Ensure equity in supply and efficiency in demand** by seeing to it that water is supplied to all users when needed, in the amounts needed and at the quality needed, with the definition of "need" incorporating efficiency and use considerations.

2. Increase water storage, from soil to watershed, with the aim to buffer fluctuations in water availability.

3. Reduce water-related risks by avoiding damage to livelihoods, infrastructure and the environment as hydrologic systems fluctuate.

Climate change is already impacting the water sector, which is still far from having its house in order, particularly in relation to the Sustainable Development Goal 6 targets. Addressing water-related risks often requires tackling these "old" issues first — or at least simultaneously — across three interconnected levels:

- Integrated water resources management principles and water governance structures to decide on who gets what water, when and how, should be in place and work for the interests of the poorest and most vulnerable stakeholders.
- Institutions need to gather data and be risk-informed, prepared and capable of planning ahead and investing in resilient systems and resource management.
- People need to be empowered to act through information, knowledge, assets, practices and voice in decision-making on access and management.

Principles to follow for a water-secure future:

To address water availability, quality and equity, principles of integrated water resources management need to be put into practice. This has proven to be a tough and slow but fundamental process that is needed as the basis for climate-resilient development.

Increasing access to climate-resilient WASH services demands strengthening the institutional, technical, organisational and financial capacities of the institutions that are responsible for service delivery, from the local to the national level.

We need to build awareness and understanding around how climate change affects water users, their water supply systems, livelihoods and the water resource management they depend on. Through this, actions can be identified and promoted at scale that make water access endure over time, bringing greater water and food security for all.

Strategy 1: Ensuring equity in water supply and efficiency in demand:

In a water-scarce context, the priority is ensuring the human right to water and sanitation for all, especially those who have no access to safe water. All people have a right to a minimum amount of water to cover their most basic needs. As long as universal coverage remains unmet, planning and investment in projects that expand service access — and, by extension, water use — stays imperative.

An assessment of climate resilience of community-level water and sanitation systems should be done. Climate change in the shape of more frequent intense rainfall and flooding is a complicating factor on top of this pre-existing inequity.

Yet there are many systems and sectors in which water demand can be better managed, reducing water waste (and associated energy waste). Examples of curbing water demand are reducing water losses in use systems (by fixing leakages, changing irrigation methods and ensuring maintenance); shifting zones, timing, patterns and crop varieties towards lower water demand and/or greater drought tolerance; the re-use of water; and measuring and valuing water use, also economically. Perhaps the most evident action is to avoid water pollution and treat wastewater, thereby maintaining water quality for downstream and future uses. Especially in dry areas, overuse of water should be addressed through awareness raising, monitoring of use and practices, and technologies that fit the context.

Strategy 2: Increasing water storage:

Climate change increases the variability of rainfall patterns in time and space, making water availability more unpredictable for water users and worrying farmers. Increased water storage is often an important adaptation strategy, with the aim to buffer fluctuations in water availability when rainfall patterns become more variable across the seasons.

Variations can be buffered at different scales, from plot to watershed: Water needs to infiltrate where it falls, and runoff needs to be slowed down as much as possible in a watershed to reduce water flow during intense events and water's erosive power. Water managers need to analyze the water cycle at the watershed level. Possible actions to increase storage capacity include soil conservation, fertility and moisture management practices, building terraces and stone walls, and ensuring vegetation cover through reforestation, conservation and restoration. Water storage can be done in and through natural systems (e.g., wetland and natural pond management, managed aquifer recharge) and in-built systems (e.g., reservoirs and their operation, small-scale rainwater harvesting systems at the household or plot level).

It is always the conserving and restoring ecosystems from a landscape and watershed perspective. Conserving, restoring and sustainably using ecosystems and biodiversity are fundamental to sustainable development and enhancing climate and disaster resilience. This should be done in combination with structural measures such as surface storage to overcome sudden dry spells in the rainy season and improve water infiltration to feed mountain springs

Strategy 3: Reducing water-related risks for people and infrastructure

Climate change brings higher risks of floods and droughts, which lead to interrupted services and damage or loss of water infrastructure and livelihoods. To reduce these risks, our most important ally is the natural environment and working with and through nature-based solutions for water-related risks. This strategy includes preventive measures such as hazard, vulnerability and risk awareness and mapping, territorial planning, adjusting design criteria for water systems, and building housing and drainage on high ground. It also includes preparedness measures such as physical or vegetative riverbank protection, monitoring and early warning systems.

climate risks and adaptation measures structurally in our WASH and water governance projects in both rural and urban areas. Our programs should include awareness building, vulnerability and risk assessments, and the promotion of concrete measures that people can take to reduce risks and build resilience.

What if water use adds to the problem of global warming?

Though climate change is affecting water availability, which demands adaptive measures, the energy use in the sector also contributes to the problem of greenhouse gas emissions (e.g., though fossil fuelled pumping of water for irrigation or water supply systems). Plus, mitigation efforts such as large-scale reforestation for carbon capture can evaporate scarce surface water. Coherency and trade offs must be considered between water use, emissions and carbon storage is the new vista to be analysed properly.

Principles to follow for a water-Secure future:

To address water availability, quality and equity, principles of integrated water resources management need to be put into practice. This has proven to be a tough and slow but fundamental process that is needed as the basis for climate-resilient development.

Increasing access to climate-resilient WASH services demands strengthening the institutional, technical, organizational and financial capacities of the institutions that are responsible for service delivery, from the local to the national level.

We need to build awareness and understanding around how climate change affects water users, their water supply systems, livelihoods and the water resource management they depend on. Through this, actions can be identified and promoted at scale that make water access endure over time, bringing greater water and food security for all.

The Way Forward:

- **Climate policymakers must put water at the heart of action plans**. Sustainable water management helps society adapt to climate change by building resilience, protecting health and saving lives. It also mitigates climate change itself by protecting ecosystems and reducing carbon emissions from water and sanitation transportation and treatment.
- **Politicians must cooperate across national borders** to balance the water needs of communities, industry, agriculture and ecosystems.
- **Innovative financing for water resource management** will be needed to help attract investment, create jobs, and support governments in fulfilling their water and climate goals.

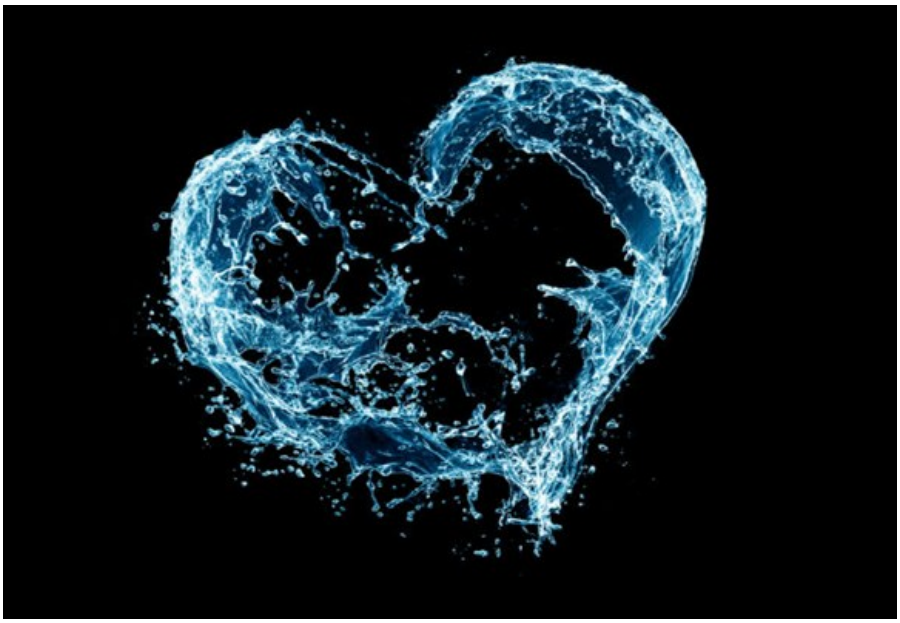

FIGURE : 14. Putting Water at the heart of action plans

Sustainable, affordable and scalable water solutions include:

- **Improving carbon storage.** Peatlands store at least twice as much carbon as all of Earth's forests. Mangrove soils can sequester up to three or four times more carbon than terrestrial soils. Protecting and expanding these types of environments can have a major impact on climate change.
- **Protecting natural buffers.** Coastal mangroves and wetlands are effective and inexpensive natural barriers to flooding, extreme weather events and erosion, as the vegetation helps regulate water flow and binds the soil in flood plains, river banks and coastlines.
- **Harvesting rainwater-** Rainwater capture is particularly useful in regions with uneven rainfall distribution to build resilience to shocks and ensure supplies for dry periods. Techniques include rooftop capture for small-scale use and surface dams to slow run-off to reduce soil erosion and increase aquifer recharge.
- **Adopting climate-smart Agriculture practices:** Using conservation techniques to improve organic matter to increase soil moisture retention; drip irrigation; reducing post-harvest losses and food waste; and, transforming waste into a source of nutrients or biofuels/biogas.
- **Reusing Treated wastewater.** Unconventional water resources, such as regulated treated wastewater, can be used for irrigation and industrial and municipal purposes. Safely managed wastewater is an affordable and sustainable source of water, energy, nutrients and other recoverable materials.
- **Judiciously Harnessing groundwater:** In many places, groundwater is over-used and polluted; in other places, it is an unknown quantity. Exploring, protecting and sustainably using groundwater is central to adapting to climate change and meeting the needs of a growing population.

FIGURE: 17* (A) *Sprinkler irrigation practices

FIGURE: 17* (B) *Drip Irrigation practices

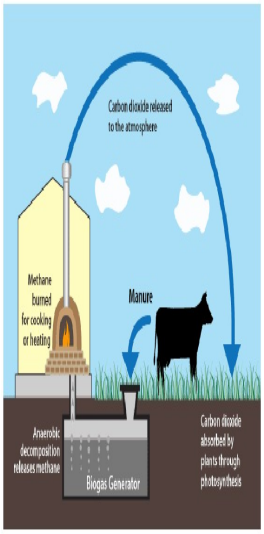

FIGURE: 17 (C) Biogas generation from cow dung slurry as part of anaerobic processes. "Another way to think of the differences is that biomass is the raw material and bio-gas is the End product"

FIGURE :15 Diverse mangrove forest have highest carbon storage facility.

FIGURE:16 Conservation of Wetlands.

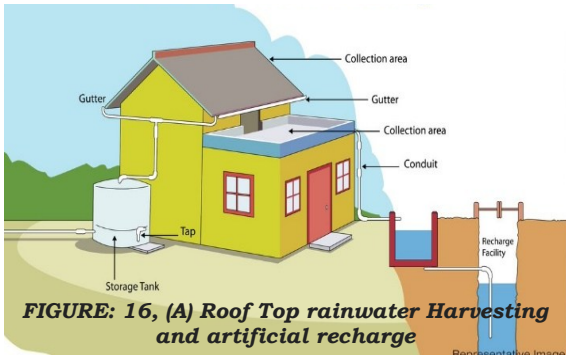

FIGURE: 16, (A) Roof Top rainwater Harvesting and artificial recharge

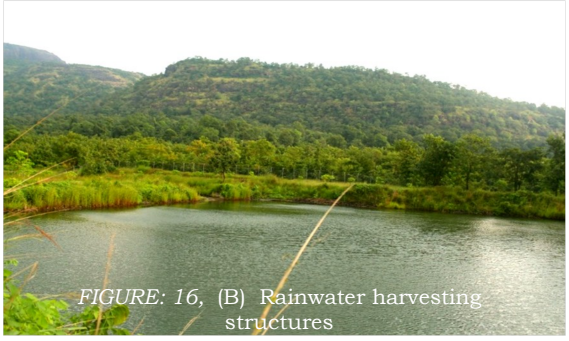

FIGURE: 16, (B) Rainwater harvesting structures

FIGURE: 16, (C) Check Dam for rainwater harvesting

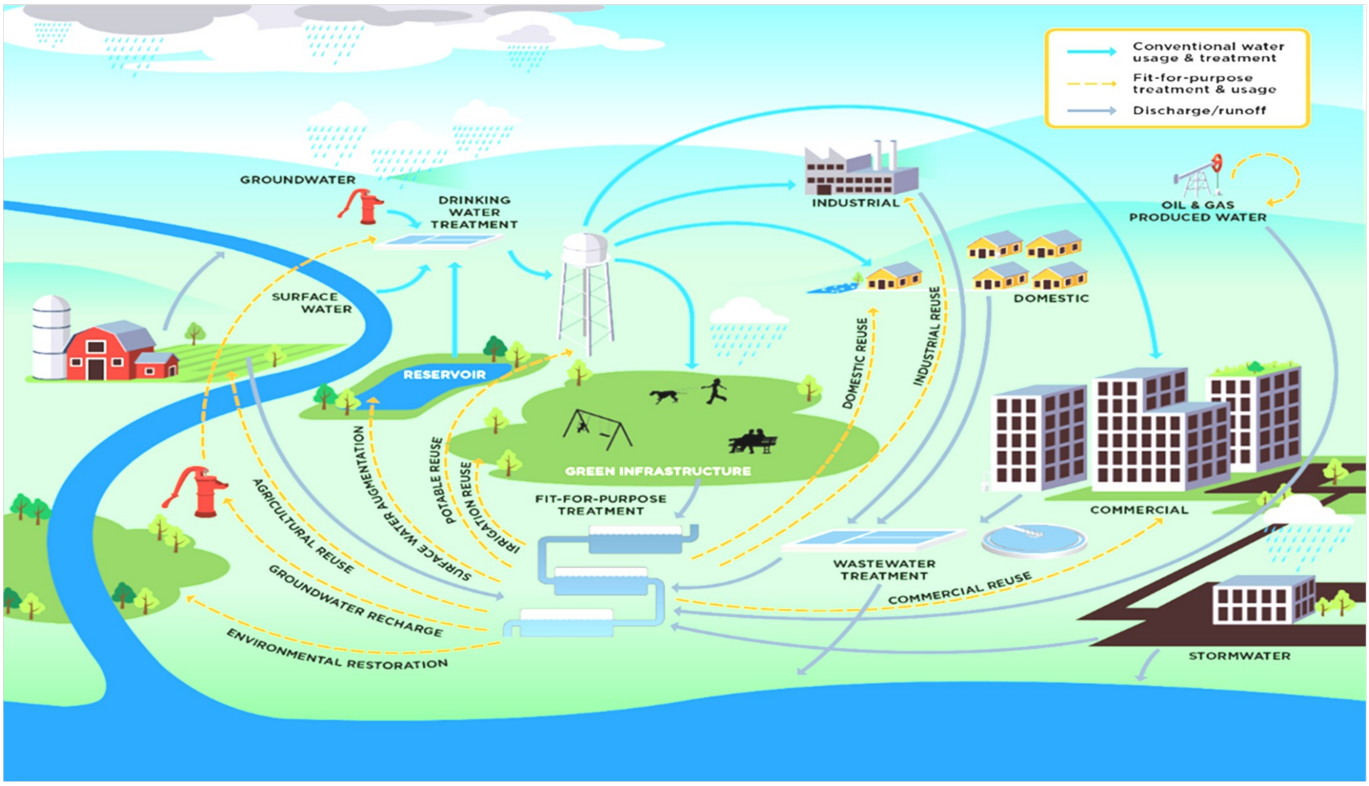

FIGURE: 18 ***Waste water treatment for re-cycle and re-use***

Better Soil and Water Conservation practices:

Soil and water conservation practices are those activities at the micro watershed level which maintain or enhance the productive capacity of the land including soil, water and vegetation in areas prone to degradation through the processes as:

- **To control runoff Prevention or reduction of soil erosion, compaction, salinity;**
- **Conservation of drainage/runoff of water and to harvest Excess rainwater**
- **Maintenance or improvement of soil fertility and land capability.**

The elaborated actions of various Soil and water conservation measures are:

- Managing the river/stream flow regime to provide overall benefits such as reducing river bank, erosion, decreasing sediment transport and accumulation and improving water quality.
- Maintaining an adequate supply of water to meet demands for irrigation, agriculture, as well as domestic and industrial uses at acceptable levels of assurance
- Maintaining water quality criteria that meet government standards and other societal Norms
- Land utilization based on land capability.
- Top soil protection.
- Reducing the siltation in water bodies/reservoirs.
- Keep vegetative cover whole the year.
- Rain water conservation as per location specific conditions
- Proper drainage facility for excess water
- Construction of check dams and other water conservation and recharge measures for life-saving irrigation
- Increasing ground water storage,
- Inter and sequence cropping,
- Efficient use of marginal lands
- Maintaining sustainability of ecosystem,
- Increasing farm income through integrated farming system by appropriate Soil and water conservation measures,

FIGURE:19 *Soil and water conservation practices*

- Practicing alternate land use systems,
- Reducing vulnerability to natural disasters such as floods, droughts and landslides.
- Utilizing natural resources effectively to mitigate adverse effects, prevent environmental degradation, enhance water yield and increase biomass production.
- Promoting appropriate agricultural and forestry land use practices and associated soil and water conservation measures that allow production levels that provide sufficient water and soil moisture
- income to land users without causing any long-term negative impacts on the natural resources of the watershed
- Distributing the benefits of land and water resources development more equally amongst the stakeholders
- To promote Social and Economic development
- To decrease local vulnerability to climatic extremes
- To ensure maintenance of Environment and biodiversity.

The Land and Water resources development in a micro watershed is attributed to the various soil and water conservation measures taken up in the watershed. Thus, the soil and water resources conservation are considered as a fundamental aspect of micro-watershed development and management.

The various aspects of Land and water development and its conservation measures are broadly classified in to **Physical, Biological and agronomic Measures**.

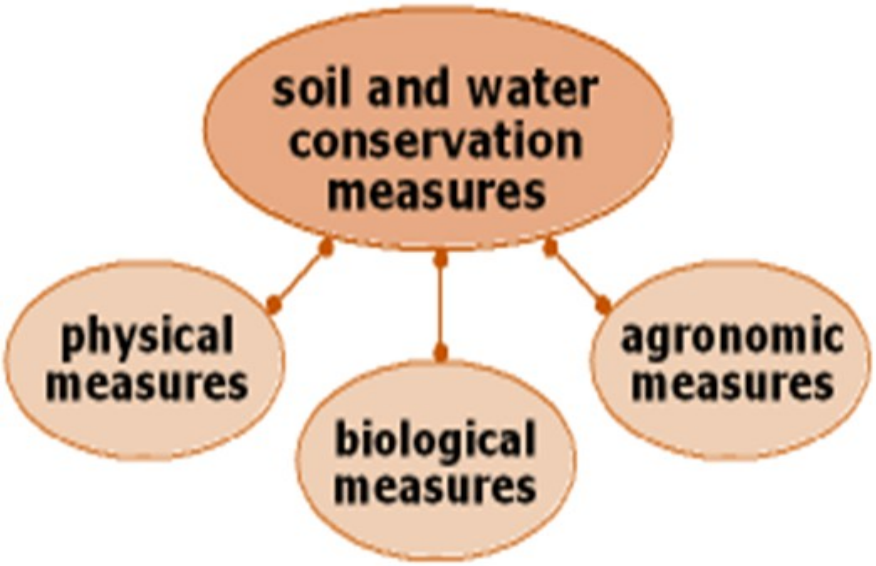

FIGURE :20 Various soil and water conservation measures

Various Soil and Water conservation practices are detailed as below:

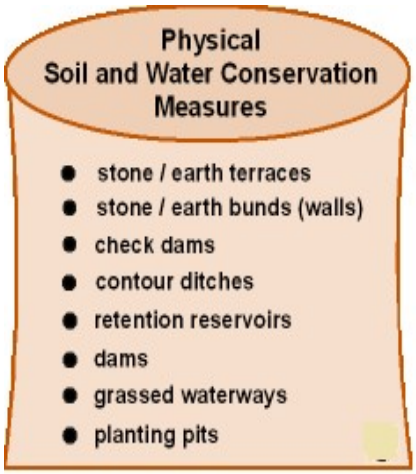

FIGURE: 21.A Physical Measures

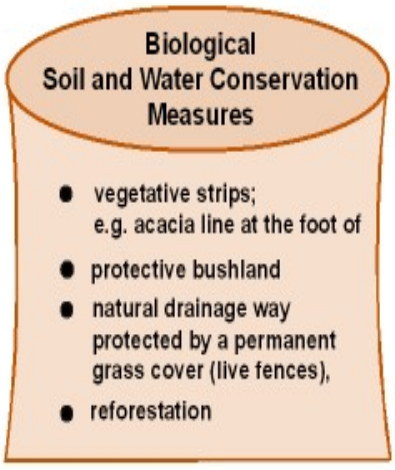

FIGURE: 21.B Biological Measures

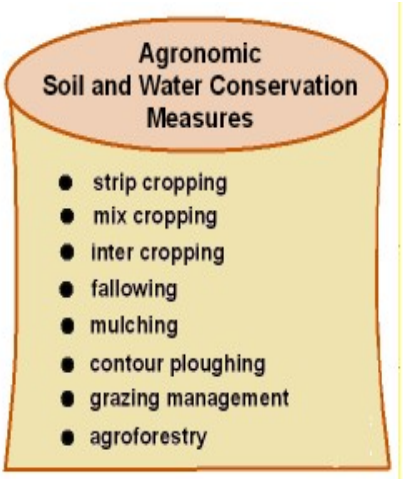

FIGURE: 21.B Agronomic Measures.

Conclusion:

Climate change is certain to have significant impacts on surface water and groundwater resources, including changes in water availability, quality, and ecosystem function. The adaptation measures, such as water conservation by rainwater harvesting and artificial recharge, watershed management, restoration of wetlands and riparian zones, infrastructure adaptation, and ecosystem-based adaptation, groundwater recharge techniques, and effective monitoring and management, better soil and water conservation measures or practices including biological (agroforestry and agricultural) and mechanical measures (terracing, bunding, trenching, check dams, etc.) is imperative to reduce runoff, soil erosion and to improve soil quality, water quality, moisture conservation, and overall crop productivity in a sustainable way. Biological measures are economically feasible and environmentally friendly; also improve soil properties along with the conservation of soil and water resources. Further, the combined use of biological and mechanical measures will help in improving and sustaining the agricultural productivity. further, promotion of **integrated water resources management (IWRM)** and the development of climate-resilient water supply infrastructure are also critical for ensuring the sustainable management of surface water and groundwater resources in the face of climate change.

Priority should be given to identify, evaluate and refinement of the water harvesting techniques and artificial/ managed aquifer recharge system in different agro-Ecological regions of the country to mitigate the climate change impact on water resources as part of micro watershed or small hydrological units. Studies should thoroughly concentrate on upstream-downstream linkages at micro watershed scales for assessing impact on flow Regimes (surface and ground water resources) and perennialism of streams and rivers needs to be initiated. It is important to consider the interconnected nature of water resources and to adopt a holistic approach to water management to ensure the sustainable management of surface and groundwater water resources. Also, immediate research studies to be initiated on impact of sea level rise on the coastal watershed /groundwater regime, vulnerability of water resources to climate change and identifying key risks and prioritizing the adaptation responses /options as detailed above for building resilience against those challenges.

The Need of the Hour is the Collaboration Across Sectors, Leveraging Traditional Knowledge, Modern Technologies and Global Commitments is Essential to Mitigate Climate Impacts on Water resources and Ensure Long-term Water Security.

തളിപ്പറമ്പ് മുനിസിപ്പാലിറ്റിയിലെ വട്ടപ്പാറയിൽ 1 ലക്ഷം ലിറ്റർ ശേഷിയുള്ള ജലസംഭരണിക്ക് മുനിസപ്പൽ ചെയർപേഴ്സൺ തറക്കല്ലിട്ടു.

AMRUT PROGRESS

AMRUT 1

Outlay: 2357 Cr.

TOTAL PROJECTS

1108 Nos.

Water Suppy, Sewerage, Drainage, Urban Transport, Green Spaces & Parks

AWARDED

1108 Nos.

Awarded all projects of worth Rs. 2322 Cr.

COMPLETED

1056 Nos.

52 projects are ongoing

EXPENDITURE

2229 Cr.

95% of expenditure achieved

AMRUT 2.0

Outlay: 3515 Cr.

TOTAL PROJECTS

737 Nos.

Water Suppy, Sewerage, Waterbody Rejuvenation, Green Spaces & Parks

AWARDED

447 Nos.

Awarded projects of worth Rs. 1500 Cr.

COMPLETED

134 Nos.

603 projects are ongoing

EXPENDITURE

555 Cr.

Expenditure achieved through the awarded projects

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