

TYPOLOGY OF ACTIVITIES WITH CLIMATE CO-BENEFITS BY WB SECTOR

Major Sector	Page
Agriculture, Fishing and Forestry	1
Public Administration, Law and Justice.....	3
Information and Communications	6
Education	6
Finance.....	7
Health and Other Social Services	8
Energy and Mining	9
Transportation	11
Water, Sanitation and Flood Protection	13
Industry and Trade	14

AGRICULTURE, FISHING AND FORESTRY	
Activities with Adaptation Co-benefits	Activities with Mitigation Co-benefits
AB: Agricultural extension and research	
<ul style="list-style-type: none"> • Develop, test and introduce practices or techniques more resilient to CC&CV in farming systems, plant breeding, and livestock breeding. • Develop, test and introduce management systems for commons better adapted to CC&CV. • Research increased and new threats to agriculture, fishing, and forestry from CC&CV. • <i>Ex situ</i> conservation of species and germplasm adapted to CC&CV. • Support incorporation of CC&CV into extension services and programs. • Awareness raising of risks from CC&CV climate change risks or and/or benefits of adaptation. 	<ul style="list-style-type: none"> • Develop, test and introduce practices or techniques that reduce GHG emissions in crop production systems, animal husbandry systems, forest management systems and aquaculture management systems. • Develop, test and introduce practices or techniques to sequester CO₂ in agriculture, fishing and forestry. • Sustainable land and water management that addresses land degradation and agroecological conditions. • Sustainable grassland management
AH: Crops	
<ul style="list-style-type: none"> • Recover degraded areas for crop production through innovative management practices. • Introduce or expand soil management practices that control soil erosion, nutrient loss and improve the water regime in the soil profile (e.g. minimum tillage). • Introduce or expand use of crops or crop mix more suited to CC&CV • Reduce vulnerability of crop storage facilities to CC&CV. 	<ul style="list-style-type: none"> • Integrated organic and inorganic nutrient management. • Switch to soil management techniques that reduce GHG emissions or increase carbon sequestration. • Reduce CH₄ and NO_x emissions in rice cultivation (System of Rice Intensification). • Switch to less water intensive crops.

AGRICULTURE, FISHING AND FORESTRY	
Activities with Adaptation Co-benefits	Activities with Mitigation Co-benefits
AI: Irrigation and drainage	
<ul style="list-style-type: none"> • Change watershed, wetland and irrigation management systems and practices to reduce vulnerability to CC&CV. • Integrated ecosystem management approaches for watersheds and wetlands to reduce vulnerability to CC&CV. • Construct dams and water storage systems to manage changes in the water cycle due to CC&CV. • Incorporate risks from CC&CV in irrigation/water management planning • Capacity-building for farmers to incorporate CC&CV. • Monitoring climate change impact. 	<ul style="list-style-type: none"> • Introduce or expand water pumping for irrigation using <u>renewable energy sources</u>. • Replace <u>existing</u> water pumps with more energy efficient pumps. • Replace existing diesel pumps with electric pumps. • Revise irrigation water pricing policies to increase water use efficiency. • Restore natural drainage regime that sequesters carbon. • Sustainable grassland management.
AJ: Animal production	
<ul style="list-style-type: none"> • Change management practices or techniques to reduce vulnerability to CC&CV in animal health service, pasture management, fodder production and storage practices. • Change fish farming and aquaculture practices or techniques to reduce vulnerability to CC&CV (e.g. due to changes in water quality or variation in fishing season). 	<ul style="list-style-type: none"> • Increase sequestration capacity in fodder production and management. • Reduce release of GHGs in fodder production and management. • Manure management and methane capture in animal husbandry. • Change forage systems to reduce ruminant methane emissions. • Reduce fishing fleet. • Improve energy efficiency in fishing fleets.
AT: Forestry	
<ul style="list-style-type: none"> • Restore or maintain environmental services (including watershed functions). • Maintain resilience of forest systems. • Maintain productivity of forest systems. • Increased use of trees, woodlots, forests, wood and non-wood products in rural adaptation strategies. 	<ul style="list-style-type: none"> • Re-forestation and afforestation that increases vegetative cover or to sequesters carbon. • Sustainable peatland/wetland/forest management and protection. • Avoided deforestation. • Prepare for carbon markets or implement carbon finance market transactions.
AZ: General agriculture, fishing and forestry	
<ul style="list-style-type: none"> • Safeguard biodiversity as a resource to cope with CC&CV. • Establish protected areas for species migration responding to CC&CV. • Increase landscape connectivity in response to CC&CV. • Conserve threatened and endangered species <i>ex. situ</i>. • Invasive species management responding to CC&CV. • Use of ecosystem functions to cope with CC&CV. • Integrated Coastal Zone Management responding to CC&CV. 	<ul style="list-style-type: none"> • Intensify or expand farm production using techniques that reduce GHG emissions or increase carbon sequestration. • Manage or rehabilitate mangroves to increase carbon sequestration and/or decrease GHG emissions. • Manage or rehabilitate wetlands to increase carbon sequestration and/or decrease GHG emissions. • Sustainable Land and Water Management practices that address land degradation and agroecological conditions. • Activities with mitigation co-benefits listed under other subsectors of the Agriculture. Forestry and

AGRICULTURE, FISHING AND FORESTRY	
Activities with Adaptation Co-benefits	Activities with Mitigation Co-benefits
<ul style="list-style-type: none"> • Support risk-mitigation through agricultural and weather insurance products . • Establish early warning systems. • Activities with adaptation co-benefits listed under other subsectors of the Agriculture, Forestry and Fishing sector for projects that span more than five sectors. 	<p>Fishing sector for projects that span more than five sectors.</p>

PUBLIC ADMINISTRATION, LAW AND JUSTICE	
Activities with Adaptation Co-benefits	Activities with Mitigation Co-benefits
BC: Central government administration	
<ul style="list-style-type: none"> • Review institutional arrangements for incorporating CC&CV. • Develop cross sectoral adaptation strategy by central government. • Reform fiscal policy to support adaptation. • Upgrade meteorological service to include capacity to analyze Global climate/circulation models. 	<ul style="list-style-type: none"> • Review institutional operations and practices to reduce the carbon footprint of government institutions. • Develop cross sectoral mitigation planning by central government. • Fiscal policy reform to support GHG reduction.
BE: Compensation and unemployment insurance	
BG: Law and justice	
<ul style="list-style-type: none"> • Introduce, revise or enforce regulations implementing adaptation measures. • Activities by legislative bodies related to adaptation. 	<ul style="list-style-type: none"> • Introduce, revise or enforce regulations implementing measures to reduce GHG emission or sequester GHGs. • Activities by legislative bodies related to mitigation.
BH: Sub-national government administration	
<ul style="list-style-type: none"> • Develop cross sectoral adaptation strategy by sub-national institutions. • Land use and development planning and zoning that direct urban growth away from areas vulnerable to CC&CV. 	<ul style="list-style-type: none"> • Develop cross sectoral mitigation planning by sub-national government. • Urban planning and zoning to reduce carbon footprint.
BK: Compulsory health finance	
<ul style="list-style-type: none"> • Include climate related diseases in basic benefits of insurance policies. 	
BL: Public administration – Agriculture, fishing, forestry	
<ul style="list-style-type: none"> • Assess economic, environmental or social impact of CC&CV on agriculture, forestry and fishery. • Incorporate CC&CV considerations in rural policies and institutions • Establish or strengthen regulatory institutions and policies as instruments for adaptation to CC&CV. • Monitor impacts of CC&CV or the benefits of adaptation measures. 	<ul style="list-style-type: none"> • Introduce rules and regulations to reduce the emissions of GHGs, or absorption of GHGs in the agricultural, fishing and/or forestry sectors • Public administration of sustainable land and water management that address land degradation and agroecological conditions • Monitor carbon sequestration. • Establish or strengthen institutions, information systems and capacity building on energy and water use efficiency in agriculture, fishing forestry sector.

PUBLIC ADMINISTRATION, LAW AND JUSTICE	
Activities with Adaptation Co-benefits	Activities with Mitigation Co-benefits
	<ul style="list-style-type: none"> • Sector studies, surveys, assessments, on energy and water use efficiency in agriculture.
BM: Public administration – Information and communication	
	<ul style="list-style-type: none"> • Institutional support for energy efficiency improvements in information technologies
BN: Public administration – Education	
<ul style="list-style-type: none"> • Review of curricula to take account of climate aspects in basic education, vocational training and other forms of follow-up training and education. 	
BO: Public Administration – Finance	
<ul style="list-style-type: none"> • Fiscal policy and management measures in support of adaptation. • Economic research, modeling and policy making for adaptation. • Economic analysis of financial needs for adaptation to CC&CV (cost of adaptation). 	<ul style="list-style-type: none"> • Fiscal policy and management measures in support of mitigation. • Economic research, modeling and policy making for mitigation. • Reduce fossil-fuel consumption through taxes, levies or fees on energy or transport services.
BQ: Public administration – Health	
<ul style="list-style-type: none"> • Assess changes in risk, exposure or sensitivity to CC&CV related diseases for vulnerable groups. • Incorporate climate related health risks into clinical practice guidelines, and curricula for continuous medical education. • Take anticipatory and response measures to counteract increased exposure to climate related diseases. • Strengthen health management information systems. 	
BS: Public administration – Other social services	
<ul style="list-style-type: none"> • Identify groups vulnerable to CC&CV (such as floods and, droughts) and actions to counteract such exposure. • Strengthen civil society participation in the development of policies and programs to cope with CC&CV. • Reduce risk to, and align labor market with conditions resulting from CC&CV. 	
BT: Public administration – Industry and trade	
	<ul style="list-style-type: none"> • Introduce rules and regulations to reduce GHG emissions, or absorb of GHGs in industry and trade. • Marketing/trade policies that reduce energy consumption per unit of product.

PUBLIC ADMINISTRATION, LAW AND JUSTICE	
Activities with Adaptation Co-benefits	Activities with Mitigation Co-benefits
BU: Public administration – Energy and mining	
<ul style="list-style-type: none"> Account for extreme weather events (wind, ice, temperature) caused by CC&CV when planning for power system reliability. Improvements in hydro-meteorological forecasting and information tailored to energy generation under current and future climate trends as well as extreme events that will influence water storage calculations and water use, in energy generation and transmission, or energy demand profiles, transmission and generation efficiency, and infrastructure integrity. Change operational management practices at power generation facilities due to CC&CV. Reform (e.g unbundling, market structure) to reduce risk and vulnerability to CC&CV. Capacity building or strengthening capacity for energy sector institutions (national utility companies, regulators, ministries) to improve climate risk management in the energy sector. 	<ul style="list-style-type: none"> Capacity building related to energy efficiency improvements in the energy sector, and promotion of renewable energy, and efficient energy pricing. Administration (e.g. for monitoring/evaluation), sector studies, surveys, assessments and information systems on energy efficiency, and efficient energy pricing, and promotion of renewable energy. Sector reform and capacity building related to energy efficiency in energy sector, promotion of renewable energy and efficient energy pricing). Strengthen regulatory and institutional framework to support expansion of renewable power generation. Change operational procedures or techniques, or retrofit technologies to reduce GHG emissions in existing operations.
BV: Public administration – Transportation	
<ul style="list-style-type: none"> Incorporate risks from CC&CV in transportation system planning. Assess economic, environmental or social impact of CC&CV on transportation. 	<ul style="list-style-type: none"> Sector reform to improve energy efficiency in the transport sector (e.g. introduction of congestion tolls). Capacity building related to energy efficiency in the transport sector. Administration, sector studies, surveys, assessments and information systems on water and energy use efficiency and shift from higher carbon to lower-carbon transport modes in the transport sector.
BW: Public administration – Water, sanitation and flood protection	
<ul style="list-style-type: none"> Incorporate risks from CC&CV in water, sanitation and flood protection planning. Establish or strengthen water regulatory institutions and policies as instruments for adaption to CC&CV. Establish flood warning and disaster assessment systems. Assess economic, environmental or social impact of CC&CV on agriculture, forestry and fishery. 	<ul style="list-style-type: none"> Sector reform to improve water use efficiency (e.g. water pricing). Administration, sector studies, surveys, assessments, information systems and capacity building for energy and water use efficiency in water, sanitation and flood protection, and solid waste management.
BZ: General public administration	
<ul style="list-style-type: none"> Review of Public Sector Governance at central, regional or local level aimed at incorporating CC&CV aspects. Activities with adaptation co-benefits listed under other subsectors of the Public Administration for projects that span more than five sectors. 	<ul style="list-style-type: none"> Review of operations and practices in public sector institutions at central, regional and local level with regard to rules and regulations aiming at reducing the climate footprint of such institutions. Activities with mitigation co-benefits listed under other subsectors of the Public Administration for projects that span more than five sectors.

INFORMATION AND COMMUNICATIONS	
Activities with Adaptation Co-benefits	Activities with Mitigation Co-benefits
CA: Information technology	
<ul style="list-style-type: none"> • Development of emergency response systems for use during extreme weather events. 	<ul style="list-style-type: none"> • Improve energy efficiency in information technologies.
CT: Telecommunications	
<ul style="list-style-type: none"> • Development of telecommunications infrastructure for use as part of an emergency response system during extreme weather events. 	<ul style="list-style-type: none"> • Improve energy efficiency in telecommunications information technologies.
CZ: General information and communications	
<ul style="list-style-type: none"> • Public awareness raising campaign on CC&CV (including water use). • Enhance capacity of media to communicate impacts and consequences of CC&CV. • Activities with adaptation co-benefits listed under other subsectors of the Information and Communications sector for projects that span more than five sectors. 	<ul style="list-style-type: none"> • Activities with mitigation co-benefits listed under other subsectors of the Information and Communications sector for projects that span more than five sectors.

EDUCATION	
Activities with Adaptation Co-benefits	Activities with Mitigation Co-benefits
EC: Pre-primary education	
EL: Adult literacy/non-formal education	
<ul style="list-style-type: none"> • Awareness raising programs on CC&CV. 	
EP: Primary education	
<ul style="list-style-type: none"> • Development of Climate-adaptation focused curricula or programs. 	<ul style="list-style-type: none"> • Development of curricula or programs focused on reducing GHG emissions, energy consumption or water consumption.
ES: Secondary education	
ET: Tertiary education	
<ul style="list-style-type: none"> • Development of Climate-adaptation focused curricula or programs. 	<ul style="list-style-type: none"> • Development of curricula or programs focused on reducing GHG emissions, energy consumption or water consumption. • Support research on mitigation.
EV: Vocational training	
<ul style="list-style-type: none"> • Train for new business opportunities created by CC&CV. • Train for adapting to and coping with climate change (e.g. ecosystem based adaptation). 	<ul style="list-style-type: none"> • Train workers in GHG emission reducing activities. • Train managers or workers to improve water or energy efficiency in business operations. • Train managers/ workers in GHG reductions in business operations.

EDUCATION	
Activities with Adaptation Co-benefits	Activities with Mitigation Co-benefits
EZ: General education	
<ul style="list-style-type: none"> Capacity building to address vulnerability to CC&CV. Activities with adaptation co-benefit listed under other subsectors of the Education sector for projects that span more than five sectors. 	<ul style="list-style-type: none"> Activities with mitigation co-benefits listed under other subsectors of the Education sector for projects that span more than five sectors.
FINANCE	
Activities with Adaptation Co-benefits	Activities with Mitigation Co-benefits
FA: Banking	
<ul style="list-style-type: none"> Introduce regulations and programs to support climate resilient investments. 	<ul style="list-style-type: none"> Introduce regulations, programs or financial instruments to support GHG reducing activities.
FB: Non-compulsory health finance	
<ul style="list-style-type: none"> Include climate related diseases under the basic benefit packages of health insurance policies. Expand insurance eligibility to populations vulnerable to climate related diseases. 	
FC: Housing finance and real estate markets	
<ul style="list-style-type: none"> Incorporate vulnerability to CC&CV in housing design standards. Regulate or provide incentives in housing finance to discourage settlements in areas vulnerable to CC&CV. Regulate or provide incentives in housing finance to encourage upgrading of existing real estate that reduces vulnerability to CC&CV. 	<ul style="list-style-type: none"> Regulate or provide incentives in housing finance to support energy saving designs and standards.
FD: Non-compulsory pensions, insurance, and contractual savings	
<ul style="list-style-type: none"> Develop and introduce weather or climate indexed insurance programs (e.g. crop insurance). 	
FH: SME Finance	
<ul style="list-style-type: none"> Ease access to finance targeting adaptation to CC&CV by microfinance institutions. 	<ul style="list-style-type: none"> Provide lines of credit for investments in reduction of GHG emissions and/or absorption of GHGs. Support SMEs to reduce GHG emissions and/or absorption of GHG. Support to access carbon markets.
FL: Microfinance	
<ul style="list-style-type: none"> Ease access to finance targeting adaptation to CC&CV by microfinance institutions. 	<ul style="list-style-type: none"> Credit lines for investments in reduction of GHG emissions and/or absorption of GHGs. Support to SMEs to reduce GHG emissions and/or absorption of GHG. Support to access carbon markets.
FG: Payments systems, securities clearance, and settlement	

FINANCE	
Activities with Adaptation Co-benefits	Activities with Mitigation Co-benefits
FK: Capital markets	
<ul style="list-style-type: none"> • Introduce green bonds or other securities specifically targeted at adaptation to CC&CV. 	<ul style="list-style-type: none"> • Introduce green bonds or other securities specifically targeted at reducing GHG emission or sequestering GHGs.
FZ: General finance	
<ul style="list-style-type: none"> • Analysis of impact of CC&CV on long-term growth, and poverty. • Activities with adaptation co-benefits listed under other subsectors of the Finance sector for projects that span more than five sectors. 	<ul style="list-style-type: none"> • Activities with mitigation co-benefits listed under other subsectors of the Finance sector for projects that span more than five sectors.

HEALTH AND OTHER SOCIAL SERVICES	
Activities with Adaptation Co-benefits	Activities with Mitigation Co-benefits
JA: Health	
<ul style="list-style-type: none"> • Develop and introduce health surveillance and rapid response system that reduces the health impacts of CC&CV (e.g. heat-watch). • Develop guidelines on treatment of climate related health issues in newly exposed areas due to CC&CV. • Training and education of health personnel on treatment of CC&CV related health issues. • Upgrade health systems to respond to changes in environmental health risks from CC&CV (e.g. malaria). 	
JB: Other social services	
<ul style="list-style-type: none"> • Assess impact of CC&CV on livelihoods and poverty with a focus on vulnerable groups (women, indigenous people, and the elderly). • Inclusion of vulnerability to climate change as a poverty indicator. • Development of pricing and taxing policies supporting implementation of adaptation measures. Delivery of social services, including social infrastructure specifically designed to respond to risks caused by CC&CV. • Cooperation with CBOs, NGOs and local government in developing and implementing adaptation measures. • Development of social protection strategies to respond to CC&CV. • Inclusion of adaptation measures in public works programs. • Develop food safety/food security measures that take account of new conditions caused by climate change. Development of market-based risk financing mechanisms (insurance schemes). • Development of livelihood diversification strategies to reduce dependence of climate related income opportunities. 	

ENERGY AND MINING	
Activities with Adaptation Co-benefits	Activities with Mitigation Co-benefits
LA: Energy efficiency in power	
<ul style="list-style-type: none"> • Taking account of climate variability and change in planning and designing future energy supply mix. • . • . • Design and application of new design criteria and technical standards in planning location, and construction of power generation facilities in order to respond to CC&CV. • Reinforcement or establishment of new services for the energy and mining sectors to respond to increasing frequency in extreme climate events. • Climate adaptation-related advisory services, regulatory support. 	<ul style="list-style-type: none"> • Rehabilitate <u>existing</u> power plants to decrease GHG emission intensity • Replace existing power plant with more efficient facility. • Improve energy efficiency in end-use -- in buildings, agriculture, industry and municipal services, chillers. • Improve energy efficiency through norms, building codes, fuel efficiency standards, regulatory support, awareness and institutional strengthening (incl. capacity building). • Improve utility scale energy efficiency through efficient pricing (subsidy rationalization, end user tariffs, and regulations on generation, transmission, or distribution), energy use, and loss reduction. • Efficient energy market operations. • Strengthening capacity of institutions to plan for low-carbon growth and environmentally sustainable energy supply. • Waste heat recovery (including co-generation). • Reduce gas flaring. • Dedicated finance (including credits and guarantees) directly or through intermediaries for promoting energy-efficiency (investments or capacity building). • Pilot programs on above energy efficiency activities.
LM: Coal mining	
	<ul style="list-style-type: none"> • Substitute inputs to reduce GHG emission in existing coal mining operations. • Change operational procedures or techniques, or retrofit technologies to increase energy efficiency, conserve energy, or reduce GHG emissions in existing operations. • Improve water use efficiency in existing coal mining operations. • Coalbed methane capture for productive use
LS: Other mining and extractive industries	
	<ul style="list-style-type: none"> • Substitute inputs to reduce GHG emission in existing operations. • Change operational procedures or techniques, or retrofit technologies to increase energy efficiency, conserve energy, or reduce GHG emissions in existing operations. • Improve water use efficiency in existing mining and other extractive industries (excluding coal).
LC: Oil and gas	

ENERGY AND MINING	
Activities with Adaptation Co-benefits	Activities with Mitigation Co-benefits
	<ul style="list-style-type: none"> • Substitute inputs to reduce GHG emission in existing drilling and refinery operations. • Change operational procedures or techniques, or retrofit technologies to increase energy efficiency, conserve energy, or reduce GHG emissions in existing operations. • Use of associate gas that would otherwise be flared. • Improve water use efficiency in existing oil and gas refineries.
LG: Thermal power generation	
<ul style="list-style-type: none"> • Improve climate resilience of thermal generation plants. 	<ul style="list-style-type: none"> • Install carbon capture and storage capacity in power plants. • Replacement with lower-carbon emissions technologies (such as combined cycle gas turbines in the place of coal-fired power generation). • DO NOT INCLUDE new thermal generation plants (including high efficiency plants, e.g., super-and ultra critical power plants).
LT: Transmission and distribution of electricity	
<ul style="list-style-type: none"> • Incorporate effects of extreme weather events (wind, ice, temperature) caused by CC&CV in design standards of transmission & distribution lines. • Incorporate impact of CC&CV on power system reliability assessments. • Changes to power systems to cope with shifts in seasonal peak demand (winter/summer) resulting from CC&CV. 	<ul style="list-style-type: none"> • Rehabilitate transmission and distribution systems to reduce technical losses (DO NOT INCLUDE new or expansion of capacity in transmission & distribution systems). • Transmission & distribution capacity (new, expansion or strengthening of existing) or any new system (e.g., new ICT technology or other facility connected to the grid, like storage facility) to facilitate the integration of renewable energy sources into the grid.
LH: Large hydro	
<ul style="list-style-type: none"> • Incorporate CC&CV related risk factors (changes in precipitation, run-off, temperature, evapotranspiration) in hydro-meteorological forecasts related to water demand for energy generation. • Incorporate CC&CV risk factors (changes in precipitation, run-off, temperature, evapotranspiration) in assessments of total and seasonal water availability for hydropower generation and water storage. • Water flow management throughout the hydrological cycle for hydroelectricity generation. • Flood Protection or irrigation from construction of dams or water storage systems that manage changes in the water cycle due to CC&CV (only if activity is coded as sector code LH instead of AI or WD). 	<ul style="list-style-type: none"> • Rehabilitate existing hydropower plant. • Construct new hydropower plant. • Strengthen regulatory and institutional framework to support expansion of hydropower generation.
LR: Other renewable energy	

ENERGY AND MINING	
Activities with Adaptation Co-benefits	Activities with Mitigation Co-benefits
<ul style="list-style-type: none"> • Improve design of turbines to withstand higher wind speeds as a result of extreme weather events. • Improve design of solar panels to withstand higher intensity storms resulting from CC&CV. • Secure access to water for crops used as bioenergy source (i.e. biofuel). 	<ul style="list-style-type: none"> • Construct or rehabilitate energy generation capacity from renewable sources other than hydropower (biomass, geothermal, solar thermal, solar PV, wind) including demonstration and pilots. • Strengthen regulatory and institutional framework to support expansion of renewable energy production and use. • Support renewable energy technology manufacturers or marketers through financing instruments, market analysis and other studies, awareness-raising, capacity building and pilot.
LZ: General energy	
<ul style="list-style-type: none"> • Activities with adaptation co-benefits listed under other subsectors of the Energy sector for projects that span more than five sectors. 	<ul style="list-style-type: none"> • Change operational practices or technology to reduce net GHG or black carbon emissions. • Activities with mitigation co-benefits listed under other subsectors of the Energy sector for projects that span more than five sectors.

TRANSPORTATION	
Activities with Adaptation Co-benefits	Activities with Mitigation Co-benefits
TI: Rural and inter-urban roads and highways	
<ul style="list-style-type: none"> • Develop design standards that take account of CC&CV impacts. • Construct new roads and highways to climate resilient design standards. • Upgrade existing roads and highways to climate resilient design standards. • Enhance road and highway maintenance to respond to CC&CV. 	<ul style="list-style-type: none"> • Investment in roads and highways to improve traffic flow and reduce GHG emissions per unit transported (e.g. toll roads). • Traffic management to reduce GHG emissions per unit transported (e.g. speed limits, high occupancy vehicles, cars to buses). • Shift to lower-carbon modes of road and highway transport including research & development.
TC: Urban transport	
<ul style="list-style-type: none"> • Develop design standards to take account of CC&CV impacts. • Construct new roads and highways to climate resilient design standards. • Upgrade existing roads and highways to climate resilient design standards. • Enhanced road and highway maintenance to respond to CC&CV. 	<ul style="list-style-type: none"> • Urban traffic management to reduce GHG emissions per unit transported (e.g. speed limit, dedicated bicycle and pedestrian paths, urban bus transport, high occupancy vehicle lanes, and mass transit). • Shift from high carbon to lower-carbon modes of transport (Expand bus, rapid transit and other mass transit systems). • Research and development of lower-carbon modes of urban transport.
TP: Ports, waterways and shipping	
<ul style="list-style-type: none"> • Develop design standards to take account of CC&CV impacts. • Construct new ports to climate resilient design standards. • Upgrade existing ports to climate resilient 	<ul style="list-style-type: none"> • Transfer of bulk transport from roads and railways to ships as justified by reducing the carbon footprint per ton of cargo transported. • Improve waterways and port facilities to reduce the carbon intensity per unit transported (goods

TRANSPORTATION	
Activities with Adaptation Co-benefits	Activities with Mitigation Co-benefits
<p>design standards.</p> <ul style="list-style-type: none"> Enhanced port and waterway maintenance to respond to CC&CV. Setup new waterways or change existing waterways in response to CC&CV. 	<p>or people).</p> <ul style="list-style-type: none"> Research & development to reduce the GHG intensity in sea and lake bound transport operations.
TV: Aviation	
<ul style="list-style-type: none"> Develop design standards for airports, air traffic routes and other aviation infrastructure to take account of CC&CV. Construct new or upgrade existing airports and aviation infrastructure to climate resilient design standards. Enhance maintenance of airport/ aviation infrastructure in response to CC&CV. 	<ul style="list-style-type: none"> Reduce airport congestion before take-off and landing. Improvements in aviation facilities that reduce GHG emissions. Introduction of lower carbon aviation technologies. Shift from high carbon to lower-carbon transport modes. Reduction of carbon-content in aviation infrastructure facilities.
TW: Railways	
<ul style="list-style-type: none"> Development and application of new design criteria to take account of climate change impact on rail infrastructure. Investments specifically responding to new climate resilient criteria. Protect railways against extreme weather events (especially floods and storms) becoming more frequent and violent due to CC&CV. 	<ul style="list-style-type: none"> New railway lines for electricity based railcars. Convert diesel or coal railcars to electric. Introduce lower carbon engine/vehicle technologies. Improve and expand rail networks, locomotives and wagons to reduce GHG intensity per unit of transported (goods and people) e.g. introduction and expansion of high speed trains.
TZ: General transportation	
<ul style="list-style-type: none"> Development and application of design criteria to take account of climate change impact on transport infrastructure. Investments specifically responding to new climate resilient criteria. Protection of transport infrastructure against extreme weather events (especially floods and storms) becoming more frequent and violent due to CC&CV. Establishment of emergency services designed to cope with CC&CV related emergencies in the transport sector. Activities with adaptation co-benefits listed under other subsectors of the Transportation sector for projects that span more than five sectors. 	<ul style="list-style-type: none"> Shift from high carbon to lower-carbon transport modes such as from airplanes to trains, from cars to busses, from busses to trains and from trains to bicycles and walking. Improve traffic flow to reduce carbon emission per unit transported. Substitution of high carbon by lower carbon or non-fossil fuels thereby reducing carbon intensity per kilometer travelled. R&D in low-carbon or non-fossil fuel transport technologies Improve vehicle emission standards. Improve fuel efficiency standards. Strengthen vehicle inspection systems on emissions and fuel efficiency. Activities with mitigation co-benefits listed under other subsectors of the Transportation sector for projects that span more than five sectors.

WATER, SANITATION AND FLOOD PROTECTION	
Activities with Adaptation Co-benefits	Activities with Mitigation Co-benefits
WA: Sanitation	
<ul style="list-style-type: none"> Incorporate changes in design of sanitation systems in response to extreme weather and flood events arising from CC&CV. 	<ul style="list-style-type: none"> Reduce or capture methane emission from ventilated improved pit latrines.
WB: Solid waste management	
<ul style="list-style-type: none"> Incorporate changes in design of solid waste management systems in response to extreme weather and flood events arising from CC&CV. 	<ul style="list-style-type: none"> Introduce or expand compost landfill techniques. Upgrade existing landfills to capture methane for energy generation or gas flaring for CO₂ generation. Strengthen institutions or policies to mobilize carbon finance.
WC: Water supply	
<ul style="list-style-type: none"> Demand side management to respond to CC&CV by reducing water consumption or increasing water use efficiency. Supply side management to respond to CC&CV by expanding supplies, reducing water losses, or improving cooperation on shared water resources. 	<ul style="list-style-type: none"> Reduce energy intensity of <u>existing</u> water supply systems (e.g. replacing pumps). Reduce per capita water consumption using demand-side interventions (e.g. household water, shower, toilet, and dishwasher). Change production techniques to reduce water consumption per unit of output produced in industry or commerce.
WD: Flood protection	
<ul style="list-style-type: none"> Retain or reestablish mangrove forests and wetlands as protection against floods. Construct or strengthen polders, dykes, and embankments to protect against added risks from CC&CV. Incorporate CC&CV in design standards for drainage systems. Improve resilience of infrastructure (bridges, water supply, community infrastructure etc) to CC&CV related flood risks in infrastructure. Promote regional cooperation on hazard and flood risk reduction. Monitor impact of CC&CV as part of water resource management. 	<ul style="list-style-type: none"> Reestablish mangroves and floodplains with carbon sequestration properties. Rehabilitate land with carbon sequestration.
WT: Wastewater collection and transportation	
<ul style="list-style-type: none"> Treatment of wastewater conservation/re-use purposes to respond to declines in water availability due to CC&CV. 	<ul style="list-style-type: none"> Reduce GHG emission (methane and nitrous oxide) from wastewater.
WV: Wastewater treatment and disposal	
<ul style="list-style-type: none"> Incorporate changes in design of wastewater treatment and disposal systems in response to extreme weather and flood events arising from CC&CV. 	<ul style="list-style-type: none"> Reduce GHG emission (methane and nitrous oxide) from wastewater. Reduce energy consumption during wastewater treatment (e.g. from activated sludge to upflow anaerobic sludge). Capture or reuse of the biogas produced at sludge digestion. Energy production from wastewater.

WATER, SANITATION AND FLOOD PROTECTION	
Activities with Adaptation Co-benefits	Activities with Mitigation Co-benefits
WZ: General water, sanitation and flood protection	
<ul style="list-style-type: none"> • Develop water monitoring and information systems. • Develop and implement equitable sharing arrangements of water resources between competing demands (agriculture, hydropower, industry and household) under CC&CV. • Incorporate CC&CV related factors (e.g. changes in precipitation, temperature, run-off, and evapotranspiration) in hydro-meteorological forecasts, total and seasonal water availability, water demand and water storage planning. • Incorporate water cycles changes from CC&CV into national and trans-boundary water basin planning. • Design and implement conjunctive management strategies for groundwater and surface water incorporating water cycle changes resulting from CC&CV. • Activities with adaptation co-benefits listed under other subsectors of the Water Sanitation and Flood Protection sector for projects that span more than five sectors. • Improve physical system performance of river basins etc. • Emergency investments for climate-related natural disaster response. 	<ul style="list-style-type: none"> • Activities with mitigation co-benefits listed under other subsectors of the Water Sanitation and Flood Protection sector for projects that span more than five sectors.

INDUSTRY AND TRADE	
Activities with Adaptation Co-benefits	Activities with Mitigation Co-benefits
YA: Agro-industry marketing and trade	
<ul style="list-style-type: none"> • Marketing and trade support for changing agricultural product mix in response to CC&CV. • Support new income generating opportunities utilizing natural resource better adapted to CC&CV. 	<ul style="list-style-type: none"> • Marketing and trade support for products that reduce GHG emissions per unit of output. • Marketing and trade support to substitute agricultural products that use inputs with lower GHG emissions. • Marketing and trade support for agricultural products that use integrated organic and inorganic nutrient management. • Improve energy efficiency in <u>existing</u> production units.
YC: Housing construction	
<ul style="list-style-type: none"> • Incorporate new CC&CV resilient design standards in new buildings. 	<ul style="list-style-type: none"> • Install new heating and cooling systems using renewable energy. • Retrofit heating and cooling systems in existing housing units using renewable energy. • Promote energy efficient housing.
YD: Petrochemicals and fertilizers	

INDUSTRY AND TRADE	
Activities with Adaptation Co-benefits	Activities with Mitigation Co-benefits
YW: Other industry	
<ul style="list-style-type: none"> • Support industries that are better adapted to CC&CV. • Retrofit assets and capital to protect against CC&CV. • Incorporate new CC&CV resilient design standards. 	<ul style="list-style-type: none"> • Other GHG reducing measures.
YY: Other domestic and international trade	
<ul style="list-style-type: none"> • Trades support for industries that are better adapted to CC&CV. 	
YZ: General industry and trade	
<ul style="list-style-type: none"> • Activities with adaptation co-benefits listed under other subsectors of the Industry and Trade sector for projects that span more than five sectors. 	<ul style="list-style-type: none"> • Activities with mitigation co-benefits listed under other subsectors of the Industry and Trade sector for projects that span more than five sectors.