User Manual: Sangker River Basin Decision Support System

Investing in Climate Change Adaptation through Agroecological Landscape Restoration: A Nature-Based Solution for Climate Resilience
(Technical Assistance 6539)

November 2023

Aerial view of agricultural farms in Takhes Meanchey, Cambodia (photo by ICEM)

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Deliverable summaries	TA-6539 Investing in Climate Change Adaptation through Agroecological Landscape Restoration: A Nature-based Solution for Climate Resilience led to the preparation of the following knowledge products: • KP1 (1): Landscape Restoration Country Profile: Philippines • KP1 (2): Landscape Restoration Country Profile: Cambodia • KP3: Business Models to Encourage Private Sector Participation in Sustainable Land and Forest Landscape Management • KP4 (1): Climate Change Risk and Adaptation Options Assessment – Sangker River Basin, Cambodia • KP4 (2): Climate Change Risk and Adaptation Options Assessment – Manupali Watershed, Mindanao River Basin, the Philippines • KP5: Good practices manual on biodiverse forest and landscape restoration • KP6: Community-based Climate Vulnerability Assessment and Adaptation Planning for Resilient Agroecosystems • KP 7: Applying Advanced Technologies in Support of Landscape Restoration and Climate Change Adaptation • KP8 (1): User Manual: Sangker River Basin Decision Support System • KP8 (2): User Manual: Mindanao/Manupali River Basin Decision Support System • KP8 (3): Admin Manual: Sangker River Basin Decision Support System • KP8 (4): Admin Manual: Mindanao/Manupali River Basin Decision Support System • KP9 (1): Restoration plans for demonstration areas in Cambodia and the Philippines • KP9 (2): Gender and Social Inclusion in the Mindanao River Basin, the Philippines, and the Sangker River Basin, Cambodia • KP 10: Integrating the principles of ecological agriculture into upland farming systems of Manupali Watershed, the Philippines
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Photo credit	Front page: Aerial view of agricultural farms in Takhes Meanchey, Cambodia (photo by ICEM) Back page: Aerial view of agricultural farms in Dontret, Cambodia (photo by ICEM)

Abbreviations

ADB	Asian Development Bank
DSS	Decision Support System
GCM	Global Climate Model
ICEM	International Centre for Environmental Management
MoE	Ministry of Environment
KP8	Knowledge Product 8
OGC	Open Geospatial Consortium
RGC	Royal Government of Cambodia
SDI	Spatial Data Infrastructure
TA	Technical Assistance
WFS	Web Feature Service
WMS	Web Map Service
WMTS	Web Map Tile Service

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1. Introduction to TA-6539

This ADB Knowledge and Support Technical Assistance (TA) project contributes to implementation, integration and future scaling of landscape restoration measures in the region by developing, demonstrating and documenting learnings from an innovative set of project activities in target watersheds in Cambodia and the Philippines. This TA aims to explore, assess and promote innovative interventions for forest restoration and agroecology for climate change adaptation.

This TA seeks to influence pipeline programs being developed by the RGC and ADB, in particular the next phase of *the Cambodia: Water Resources Management Sector Development Program* with the Ministry of Water Resources and Meteorology (MOWRAM) and the *Integrated Landscape Management Project with the Ministry of Environment (MOE)*. In particular, the TA will focus in Cambodia on landscapes where the government has a clear mandate for restoration - such as the protected areas and community management zones within them under the responsibility of the MoE.

The TA takes an integrated approach in working with Cambodia and the Philippines to achieve the following project objectives:

- To develop, evaluate and promote innovative approaches to climate change adaptation through agroecological landscape restoration;
- To strengthen the capacity of communities to restore and manage their climate-resilience landscapes for food and nutrition security;
- To support the member countries with analytical studies at sub-national and community level to understand the degradation and climate change vulnerability context of agriculture-forest lands supporting rural livelihoods;
- To assess and recommend appropriate agroecological, actionable and cost-effective climate change adaptation interventions via landscape restoration and sustainable landscape management; and
- To contribute to design of specific investments for climate change adaptation.

Under Phase III - *Climate adaptation options with forest and agroecological restoration* - a key output is development of a decision support system (KP8) for the Sangker River basin. The purpose of the decision support system (DSS) is to inform agroecological landscape restoration planning for the Sangker River basin case study. The DSS supports prioritizing restoration sites and adaptation options within the watersheds, and additionally provides local and provincial governments with a comprehensive spatial knowledgebase for informing sustainable development planning.

1.1 Protected Areas Management

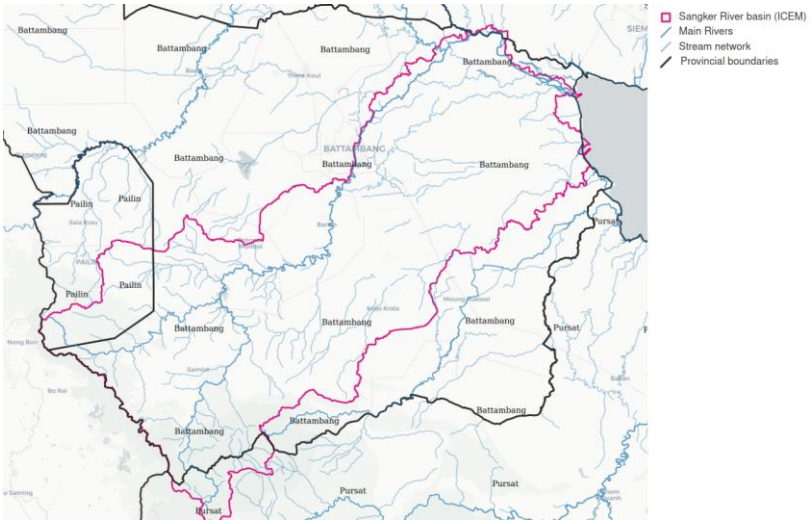
TA-6539 is jointly implemented by ICEM and the Ministry of Environment (MoE), Royal Government of Cambodia (RGC). Natural resources protection, biodiversity conservation, and sustainable resources management fall within the mandate of the Ministry of Environment (MoE). The MoE is tasked with identifying and defining protected areas (RGC 2008, article 14).[1] Nine different types of protected areas have been designated within Cambodia through the Protected Areas Law of 2008 and the subsequent declaration of Biodiversity Conservation Corridors in 2017. These include national parks, marine parks, Ramsar sites, wildlife sanctuaries, biosphere reserves, protected landscapes, multi-purpose-use management areas, natural heritage sites, and biodiversity conservation corridors (ODC 2017). [2] Nearly 50 protected areas, or almost 40% of Cambodia's total geographical area, were in existence as of 2017.

[1] RGC (2008) Protected Area Law. January 2018. Royal Government of Cambodia. https://portal.mrcmekong.org/assets/v1/documents/Cambodian-Law/-Protected-Areas-Law-(2008).pdf. Last accessed 23 Nov 2023.

[2] ODC (2016) Protected areas. Open Development Cambodia. https://opendevelopmentcambodia.net/topics/protected-areas/. Last accessed 23 Nov 2023.

1.2 TA-6539 Sangker River Decision Support System

Figure 1: Sangker River Basin, Cambodia



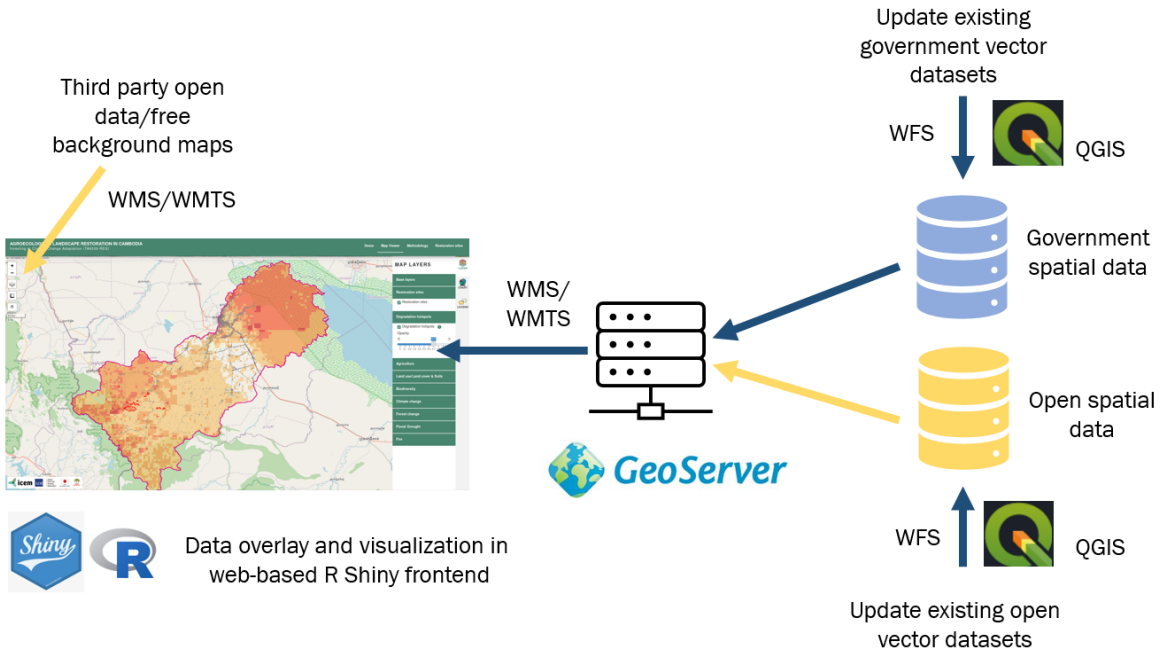
Through discussions with the MoE during project implementation, it was agreed to develop a decision support system (DSS) that focuses on the identification of restoration sites and to enhance data visualization and access to datasets relevant to the Sangker River basin (Figure 1). The developed DSS comprises two main components: a GeoServer[3] backend which connects to a database of geospatial files derived from open online source and from the RGC, and a frontend map viewer developed using the R Shiny web-based framework[4] (Figure 2). The government data integrated into the DSS are detailed in Annex 1 and a list of all datasets in Annex 2.

The TA-6539 Sangker River Decision Support System (or DSS) developed under this project complements earlier DSSs developed by the MoE (e.g., LISA[5], CAM-MeDiA[6], Cambodia Climate Change Toolbox[7]) and aims to develop spatial data infrastructure (SDI) to facilitate the identification of restoration sites and to improve access to data and information for supporting the sustainable management of water resources at river basin scale.

This DSS facilitates consolidation of key data resources of the Sangker River basin and facilitates their use for identifying sites for restoration and supporting river basin management. The platform makes use of the well-known GeoServer application as a database backend and a frontend interface has been developed using the R Shiny web-based framework. Both software components are open source and have strong user and developer communities. The GeoServer application provides functionality for the sharing of spatial data services that are compliant with international Open Geospatial Consortium (OGC) protocols (such as WMS, WMTS, and WFS). In addition to the DSS developed in this project that will enable users to explore river basin data, these spatial data services can be leveraged by the MoE and other stakeholders for accessing geospatial data through desktop GIS applications or for inclusion into other web-based platforms.

[3] http://geoserver.org
[4] https://shiny.rstudio.com
[5] https://lisa.icem.com.au
[6] https://camatlas.icem.com.au
[7] https://dss.icem.com.au/cambodiadss

Figure 2: Schematic Diagram of DSS Software Components and Data Flow



In summary, the objectives of the DSS are as follows:

- Sangker River basin planning
- Define the spatial distribution of hazards
- Identify areas in need of restoration
- Provide a single point of access for all data for use by development planners
- Facilitate multicriteria analyses
- Demonstrate a tool that has potential to be scaled to support the planning and management of all river basins in Cambodia.

The development version of the DSS can be accessed at:

https://shinydev.icem.com.au/agrocam

The URL of the official version of the DSS will be finalized after its deployment to a government server.

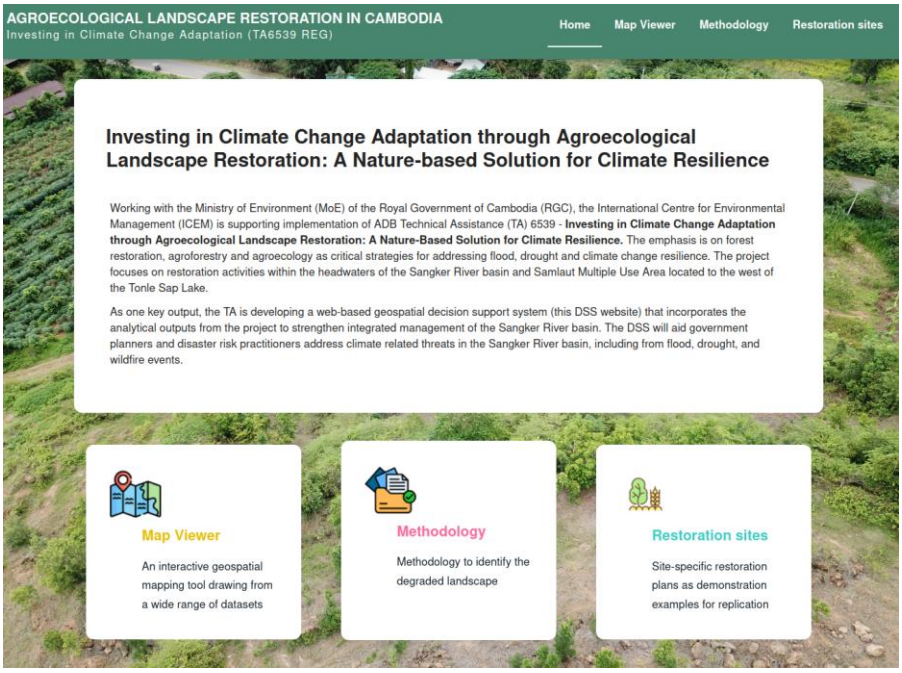
2. User Manual

The purpose of this *User Manual* is to provide guidance to users of the DSS, the MoE and other river basin stakeholders, in identifying restoration sites and to support planning in the Sangker River basin. A separate System Administration Manual is prepared to provide guidance on the installation, configuration, and management of the DSS.

Datasets integrated into the DSS include those from open sources as well as data supplied by the government. Datasets have been compiled into various categories and can be viewed via the DSS's map viewer. Key categories of data include base layers, biodiversity, land use/land cover, restoration sites (from this project), degradation hotspots, climate change, forest change, flood/drought, agriculture, and historical fire incidence. A summary of the MoE data integrated into the platform is presented in Annex 1 and a full list of data integrated into the site is provided in Annex 2.

From the DSS's *home page* (Figure 3) there are links to key parts of the DSS including the map viewer, the methodology used to generate the degradation hotspots data layer, and details of the TA-6539 restoration sites. **A key function of the map viewer is to facilitate the identification of restoration hotspots within the river basin.**

Figure 3: DSS Home Page



The default view of the map viewer showing the Sangker River basin is shown in Figure 4, with the degradation hotspot layer for the entire Sangker River basin displayed in Figure 5, and over the western side of the basin and highlighting the location of restoration sites in Figure 6.

Figure 4: The Sangker River Basin

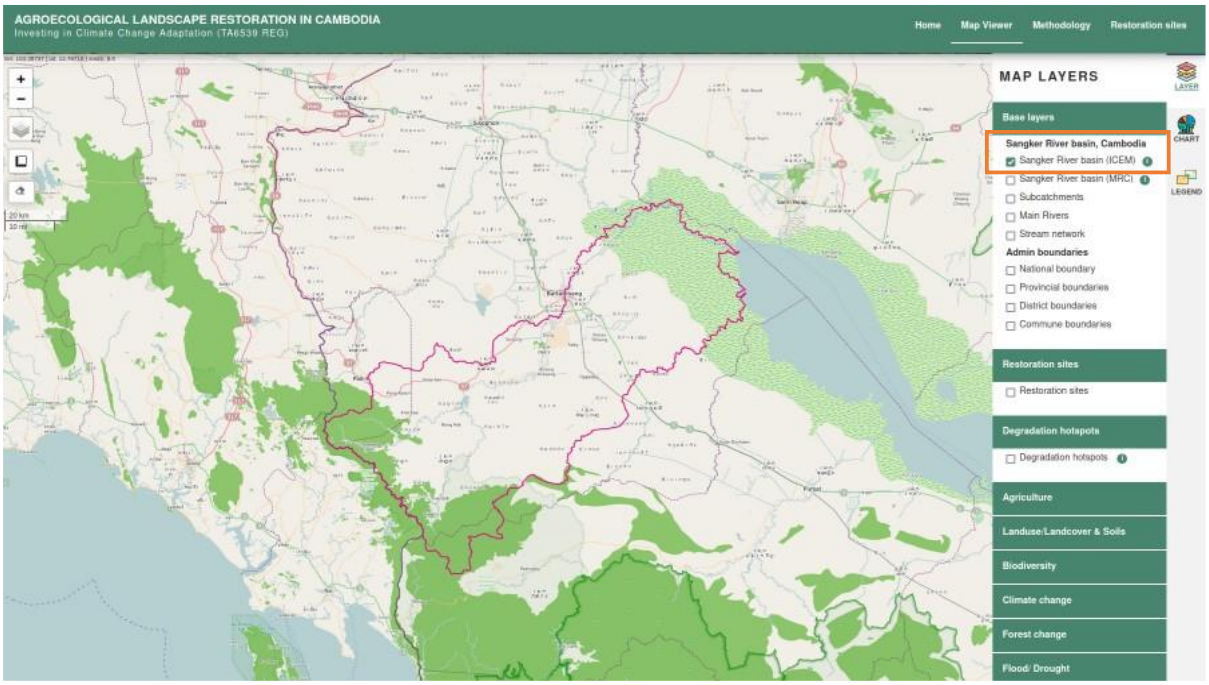
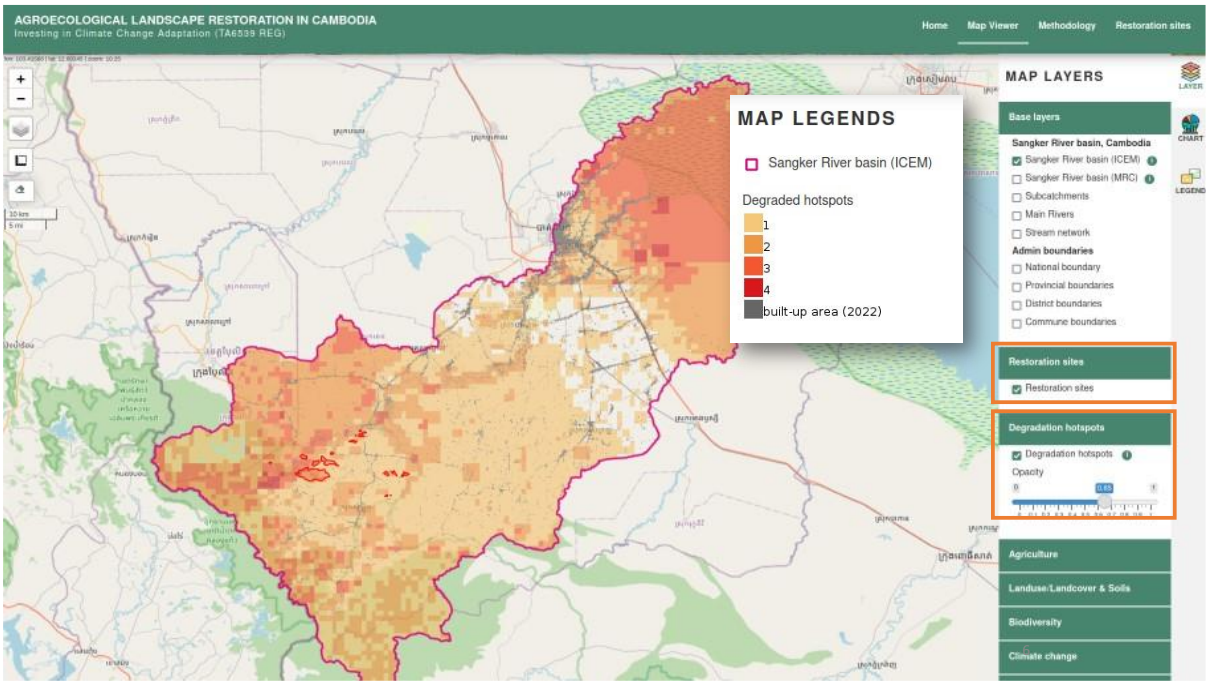
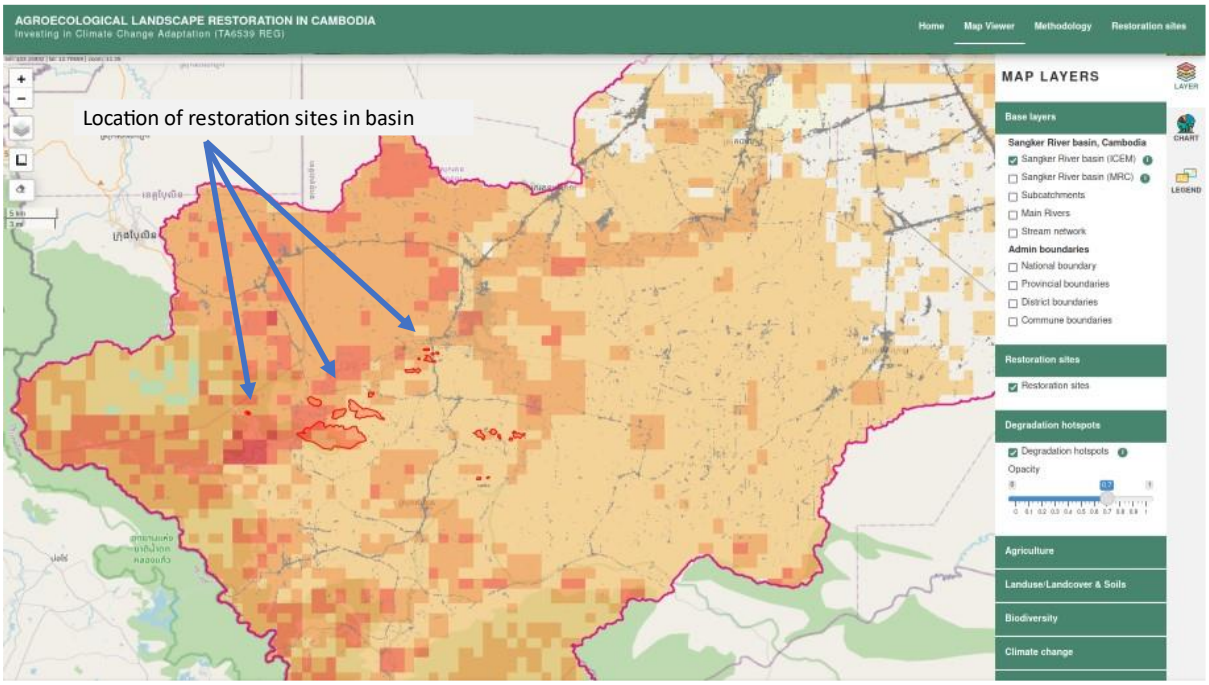


Figure 5: Degradation Hotspots over the Sangker River Basin



The composite degradation hotspot layer shows the areas within the basin that have potential for being the most degraded and can be used by planners for the preliminary assessment and identification of sites for restoration.

Figure 6: Degradation Hotspots over the Western Side of Sangker River Basin and Showing the Location of Project Restoration Sites



2.1 Identifying Degraded Sites for Restoration

The composite degradation hotspot layer shows the areas within the basin that have the potential to be the most degraded and can be used by planners for a preliminary assessment for restoration. The degradation hotpot composite layer is derived through consideration of four factors: flood, drought, historical fire incidence, and the status of forest cover (whether degraded or not) (Figure 7).

Figure 7: Table of Input Datasets Used to Create the Hotspot Degradation Layer

Factors	Value	Score
☑ Flood Opacity Flood risk Low Moderate Medium High Extreme	Low to medium risk	0
	High and extreme risk	1
☐ Drought	Below or Equal to median value (4.2 months)	0
	Above median value (4.2 months)	1
☐ Fire incidence	No fire detected	0
	Fire detected	1
☐ Status of forest cover (2022)	Forest remaining	0
	Forest loss	1
☐ Degradation hotspots	Degradation hotspots The red composite index of '4' indicates an area with highest potential degradation.	0-4

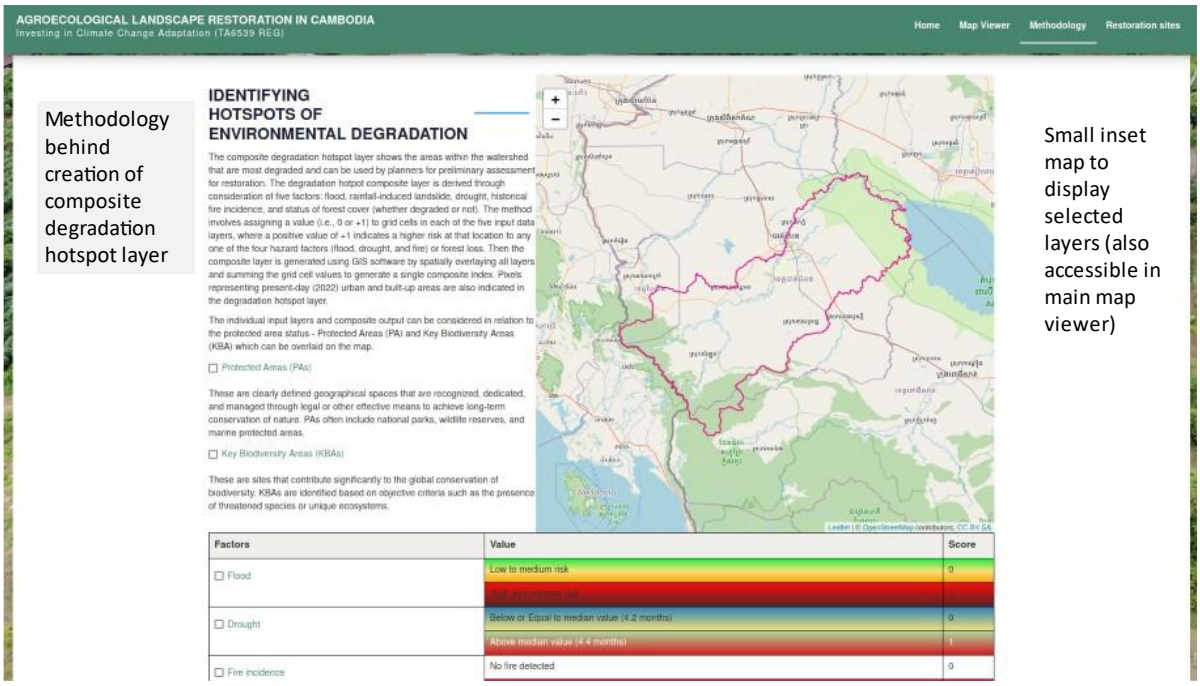
The method to generating the hotspot layer involves assigning a value of 0 or 1 to grid cells in each of the input data layers, where a positive value of 1 indicates a higher risk at that location to any one of the hazard factors (flood, drought, and fire) or forest loss. The assignment of 0 or 1 to each input layer is shown in Figure 7. The composite layer is generated using GIS software by spatially overlaying all of the four input layers and summing the grid cell values to generate a single composite index.

With regard to flood risk, areas classified as high and extreme risk were assigned a value of '1' and other areas '0'. Drought is presented as the number of drought months projected for the 2050s, and areas identified as being above the median value of 4.2 months were given a value of '1' and fewer drought months were assigned '0'. In the case of fire incidence, those areas detected with fire in 2022 were given a value of '1' (i.e., recently degraded) and other areas were given a '0'.

Pixels representing present-day (2022) urban and built-up areas are also indicated in the degradation hotspot layer to assist restoration site assessment.

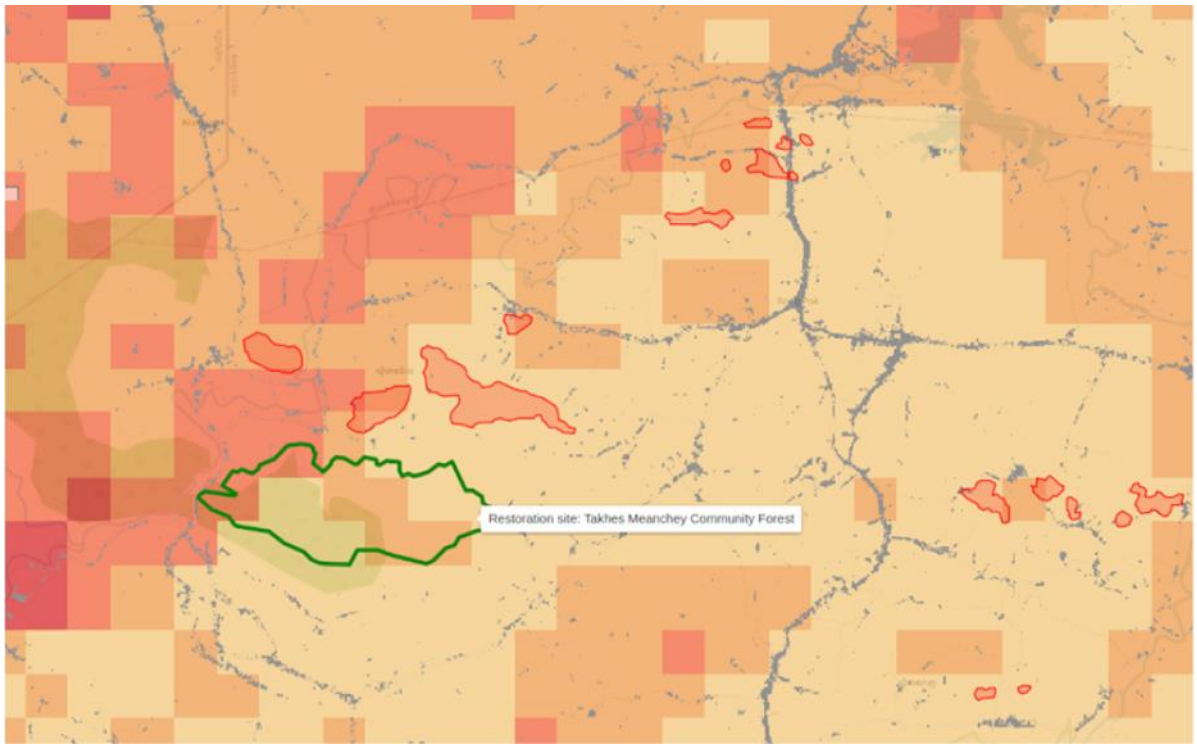
Details on the adopted methodology, including a small inset map, are available under the methodology tab of the DSS (Figure 8). The individual input layers and composite output can be considered in relation to the current protected area status - Protected Areas (PA) and Key Biodiversity Areas (KBA) which can be overlaid on the map.

Figure 8: Methodology Tab of DSS Detailing the Creation of the Hotspot Degradation Layer



The degradation hotpot layer and associated input layers can be further explored in the larger map viewer to help identify sites of highest potential degradation in need of restoration. The darker red color of the degradation layer indicates those areas that have potential for being the most degraded (Figure 9).

Figure 9: Restoration Site Located in an Area with Potential for High Degradation



Hazard and forest input layers used to generate the composite degradation hotspot layer can be displayed in the map viewer to better understand how these inputs contribute to the hotspot layer output (e.g., Figure 10, Figure 11, Figure 12, Figure 13).

Figure 10: Flood Risk in the Sangker River Basin

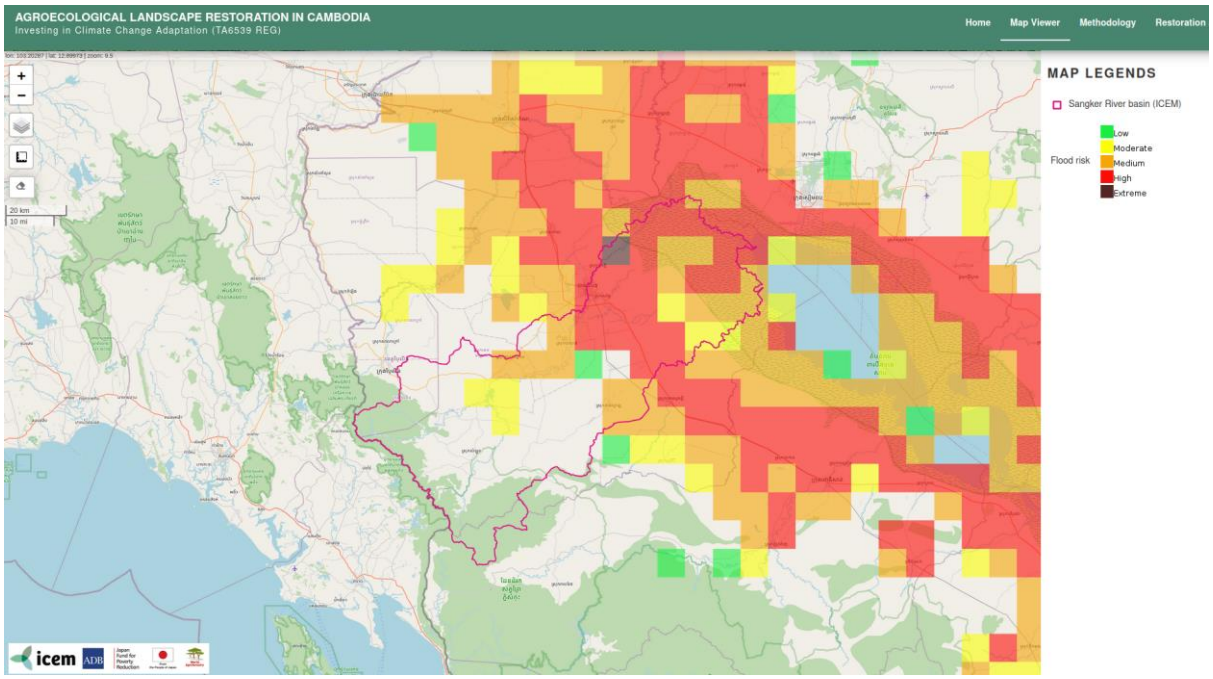


Figure 11: Number of Drought Months in the 2050s

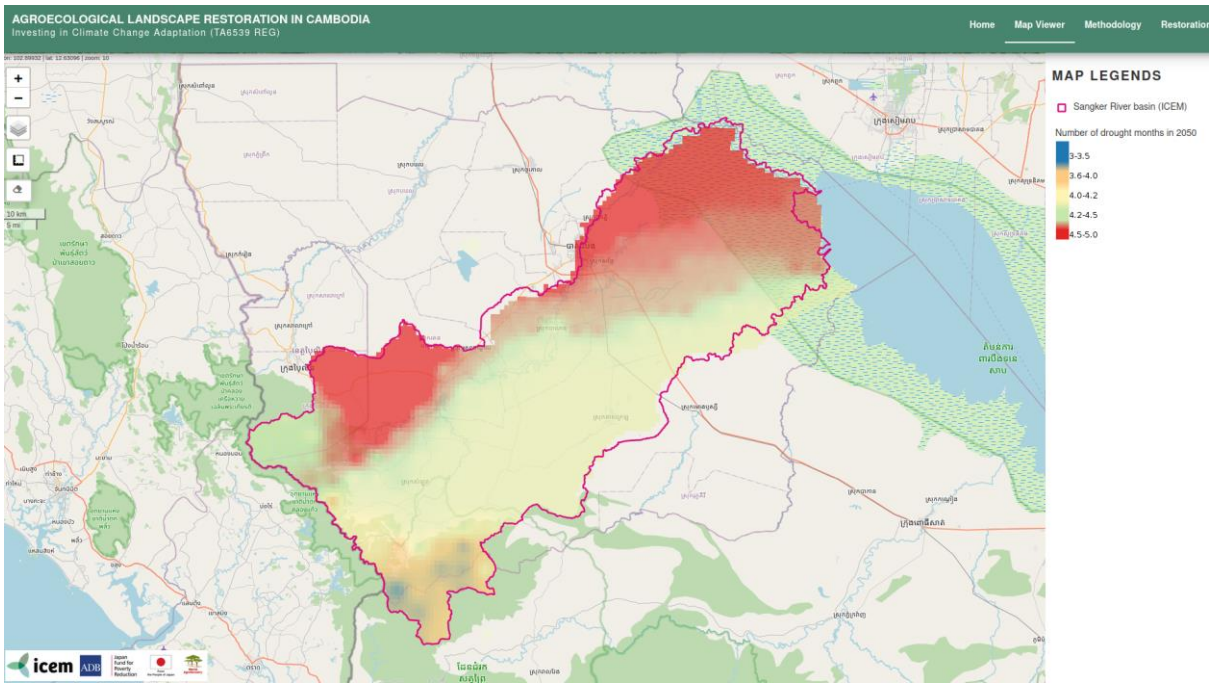
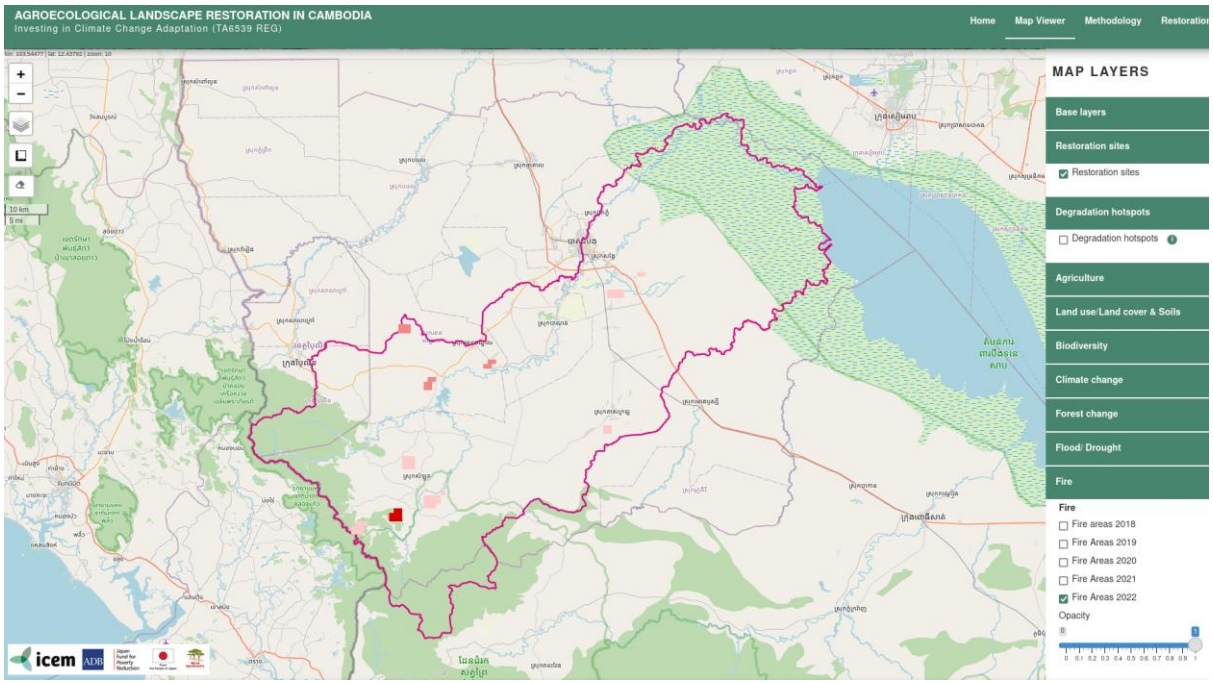


Figure 12: Fire Incidence in 2022



Overlaying of forest loss data can identify those areas where forest has been lost between 2001 and 2022 (Figure 13, Figure 14).

Figure 13: Historical Forest Loss from 2001 and 2022

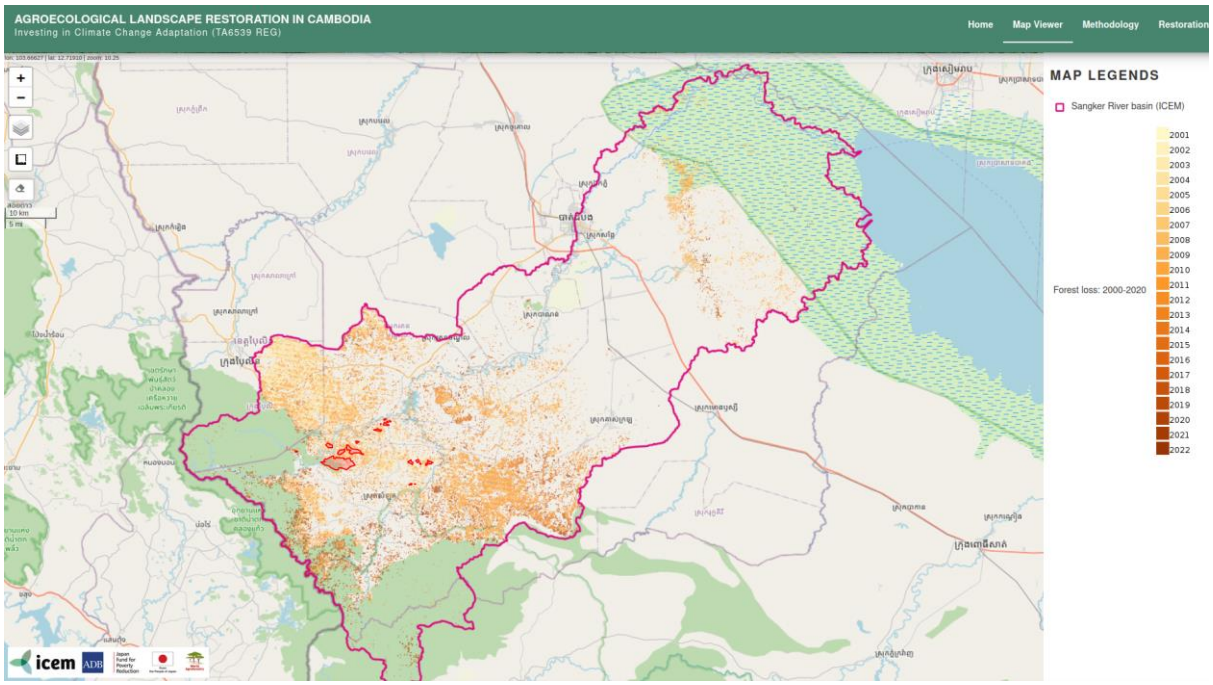
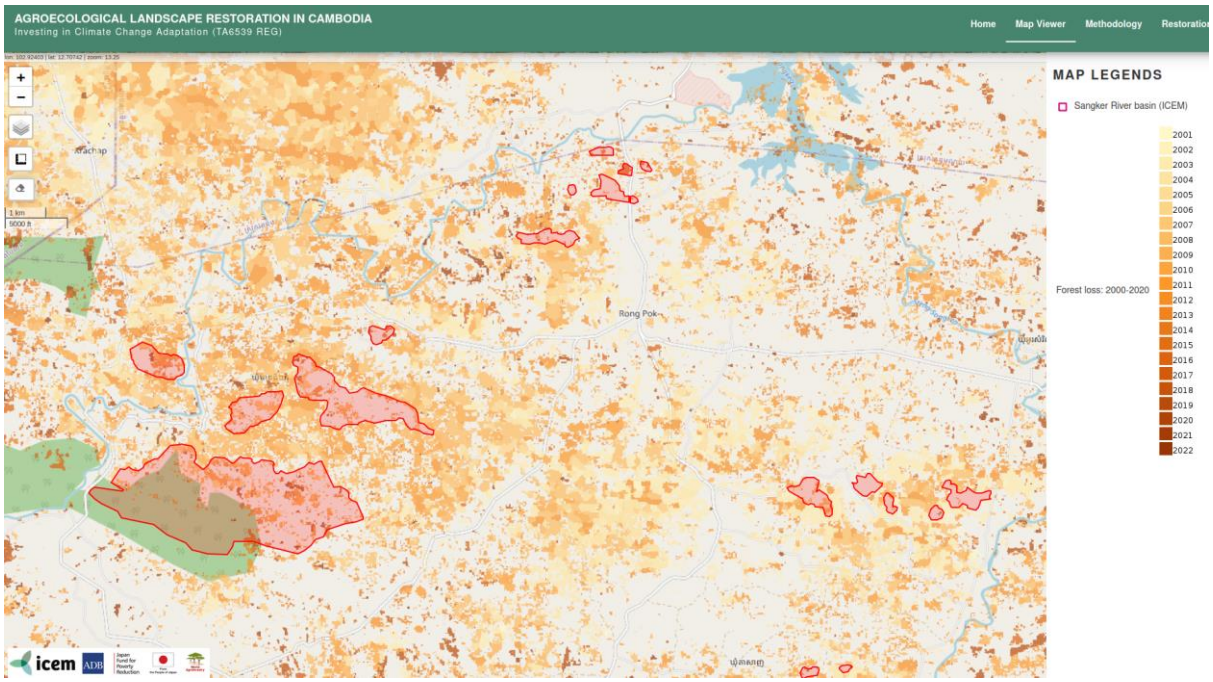
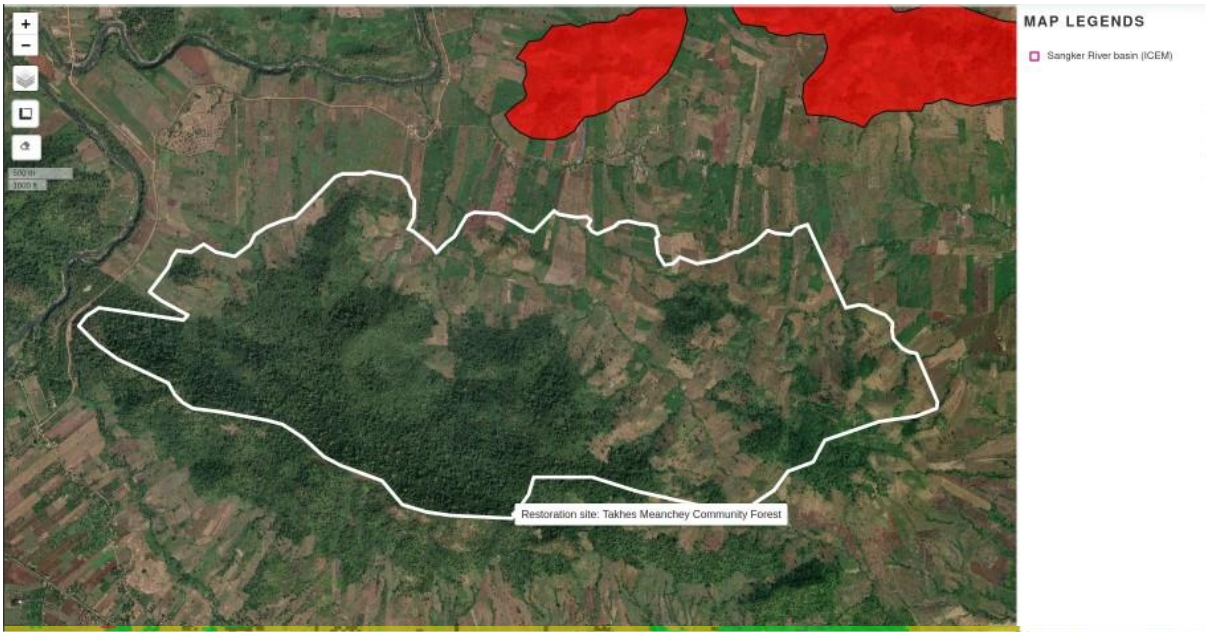


Figure 14: Historical Forest Loss Near the Restoration Sites



Other data layers accessible in the map viewer enable any site of interest to be further examined, for example, by overlaying the area of interest on satellite imagery (Figure 15).

Figure 15: Takhes Meanchey Community Forest Overlaid on Satellite Imagery



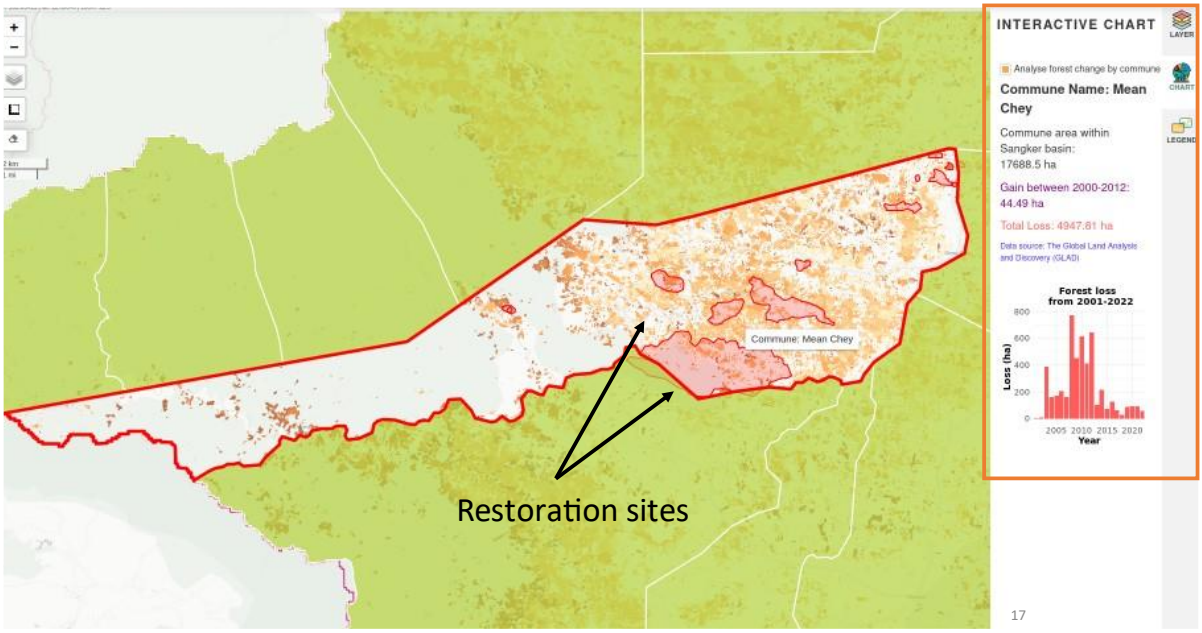
2.2 Supporting River Basin Planning

In addition to supporting the preliminary identification of sites for restoration, the map viewer provides access to other useful datasets that can more widely support basin planning and the mandates of government.

2.2.1 Measuring Forest Loss (and Gain) by Administrative Division

Forest loss (2001-2022) and gain (2000-2012) by district are accessible from the *chart* icon on the right side menu (top right of map viewer).[8] A graph of forest loss over time is displayed on selecting the district of interest (Figure 16).

Figure 16: Annual Forest Loss by Commune



[8] Note that forest loss and gain data do not distinguish between natural forest and plantations. The term forest relevant to these data refer to vegetation more than 5 m in height.

2.2.2 Detecting Forest Loss in Protected Areas

By overlaying the extent of protected areas, the DSS enables the identification of forest loss (and gain) within these areas (Figure 17). Figure 18 shows forest loss superimposed on a satellite image and a protected area, which illustrates how the DSS can identify annual forest loss at high resolution (30 x 30 m spatial resolution) in protected areas or indeed any place in the river basin.

Figure 17: Forest Loss Indicated in Protected Areas/Key Biodiversity Areas (Colored Areas)

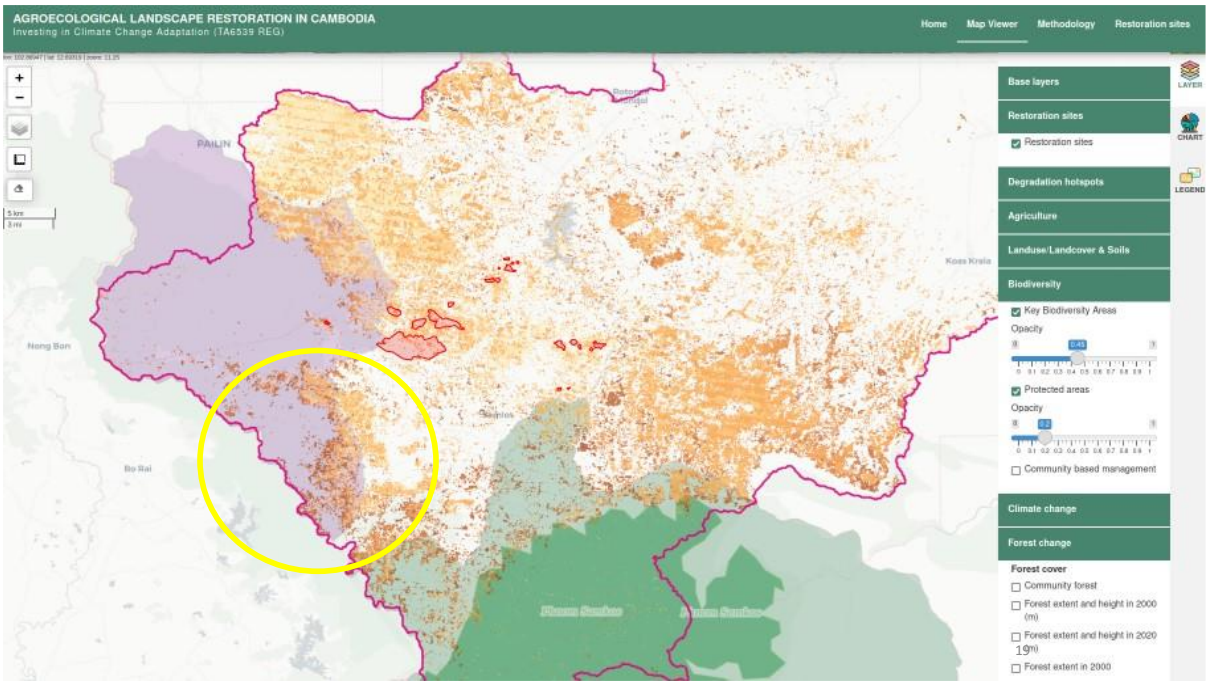
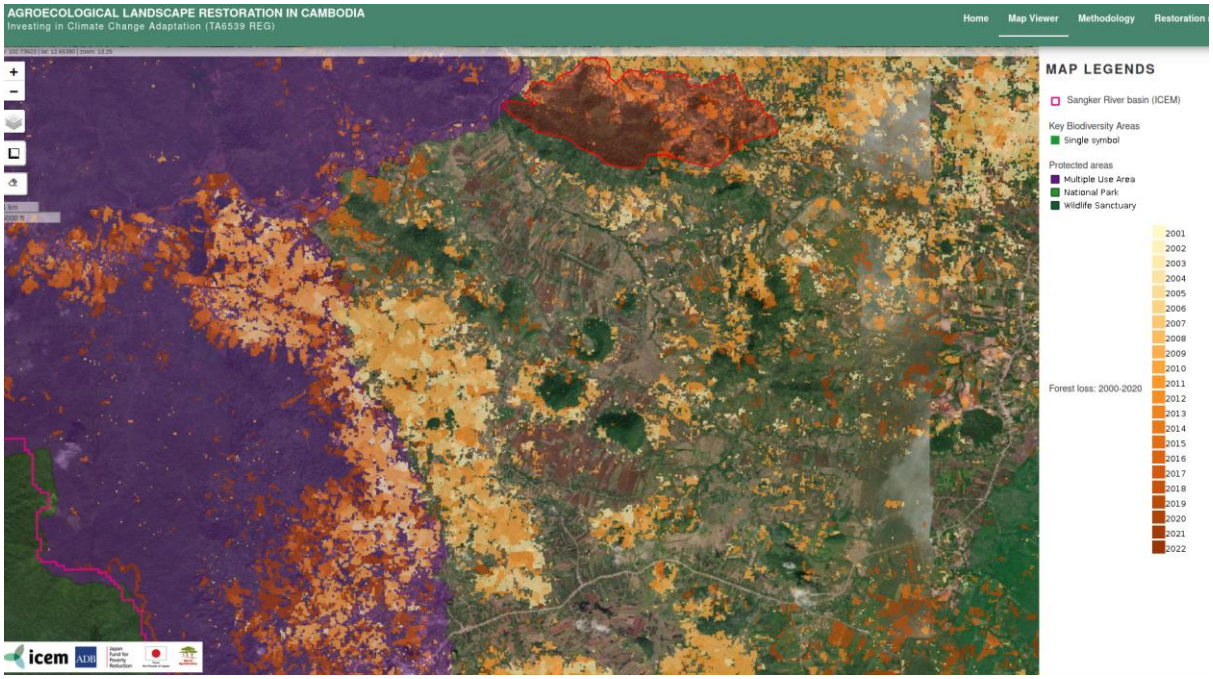


Figure 18: Forest Loss Superimposed on Satellite Imagery and A Protected Area (Purple Shading)

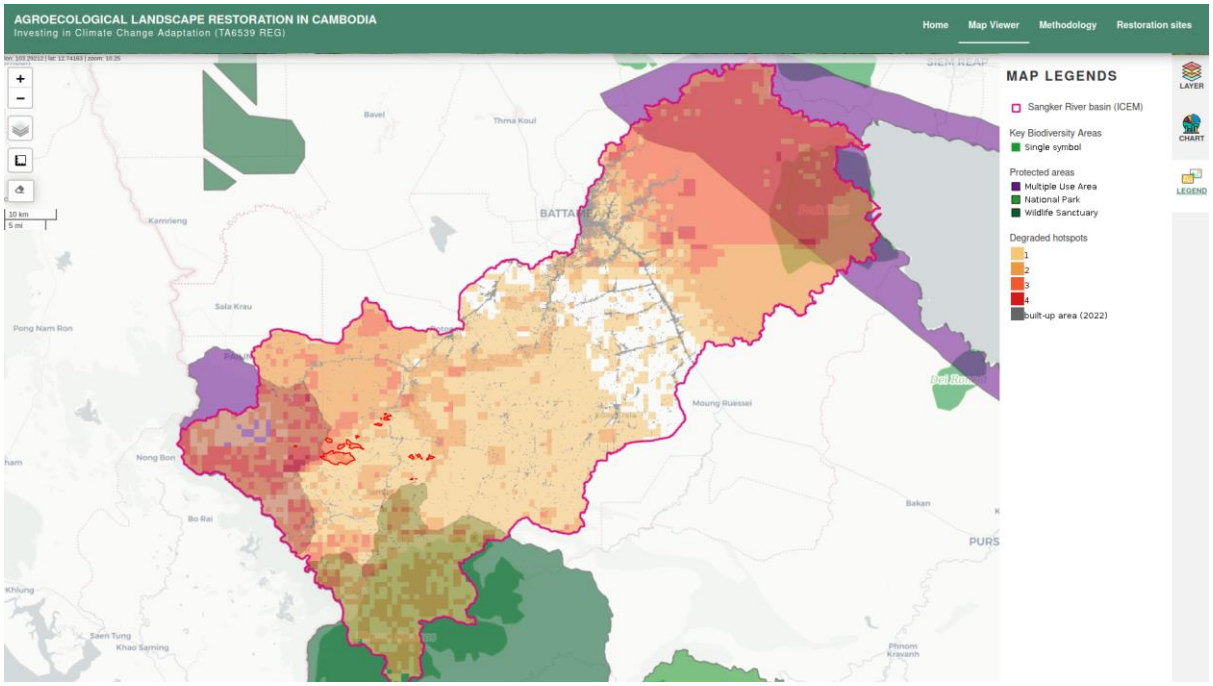


In addition to supporting the identification of sites for restoration, the map viewer provides access to other useful datasets that can more widely support basin planning and the mandates of government.

2.2.3 Conservation Area Planning

DSS users can view degradation hotspots in relation to protected areas to help assess the risk to future biodiversity (Figure 19). The user can identify potential sites for restoration using the degradation hotspot layer and can then explore the individual factors (hazards and forest loss) that were used to generate the hotspot layer. As per Figure 19, the protected and key biodiversity areas are at risk to potential degradation given that at least one factor contributes to their categorization in the degradation hotspots layer.

Figure 19: Superimposing Degradation Hotspots on the Sangker River Basin



The DSS can help explore the consequences of climate change on biodiversity conservation. For example, the future projection of annual change in maximum temperature in the 2060s (dry season, IPSL-CM5A-MR, and RCP 8.5) is shown in Figure 20. Note that the projected temperature increase across the basin is ~0.7-0.8°C. The future projection of precipitation change in the 2060s (wet season, IPSL-CM5A-MR, and RCP 8.5) is given in Figure 21, which shows a projected decrease in precipitation in the southwestern part of the basin of approximately -5%

Note however, that it is also important to consider more than one future climate condition, and to that end three global climate models (GCMs) are included (IPSL-CM5A-MR, GFDL-CM3 and GISS-E2-R-CC) to help better assess the potential range of future temperature and precipitation changes. These GCMs were identified by the Mekong River Commission as representing the future plausible range of climate variability for the Lower Mekong Basin.

Figure 20: Future Projection of Annual Change in Maximum Temperature in the 2060s (Dry Season, IPSL-CM5A-MR, and RCP 8.5)

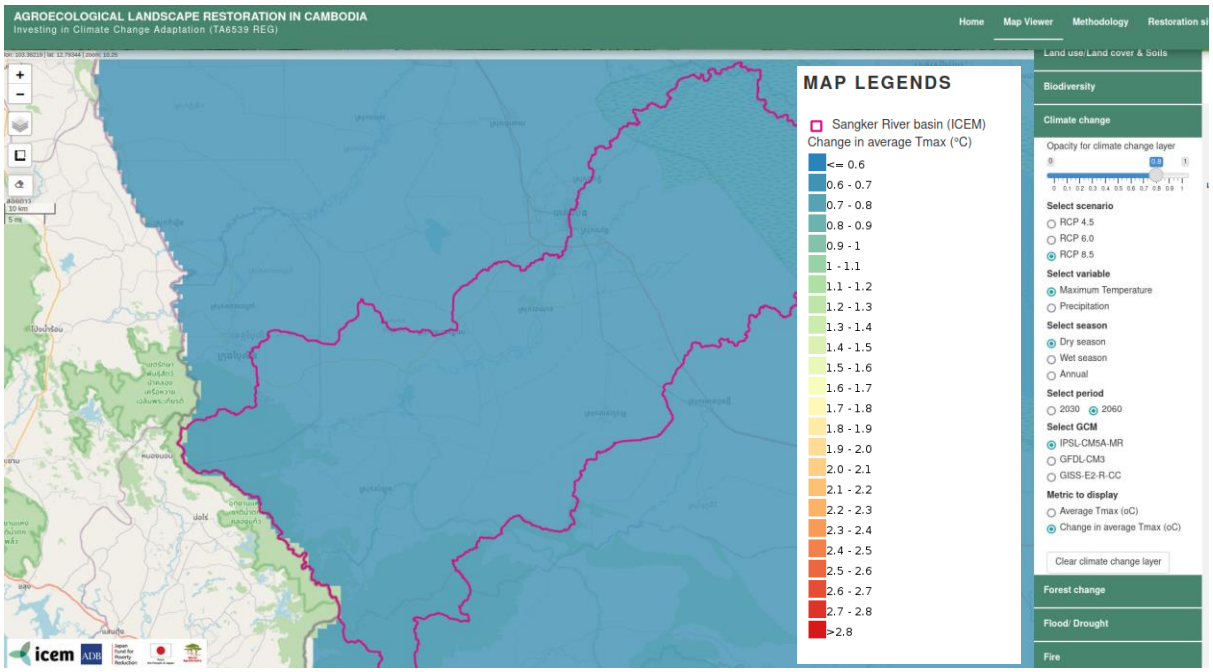
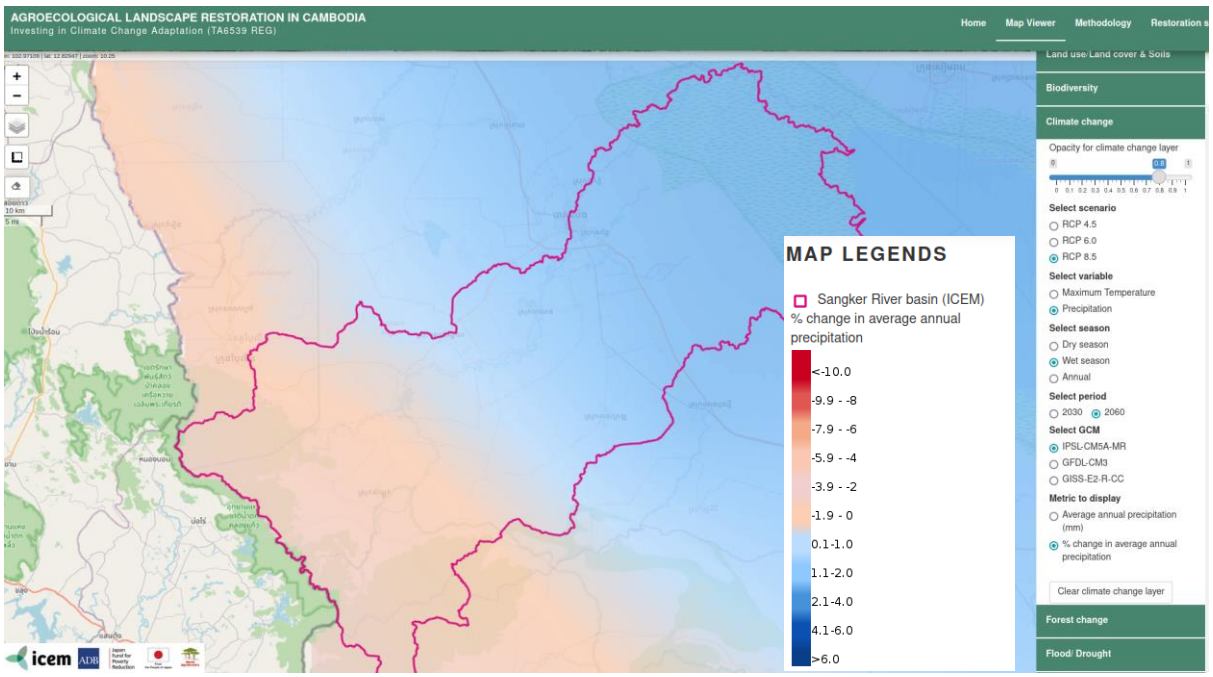


Figure 21: Future Projection of Total Precipitation Change in the 2060s (Wet Season, IPSL-CM5A-MR and RCP 8.5)



2.2.4 Climate Resilient Crop Planning

There is extensive cropland cutting across the river basin (Figure 22-23) and the above climate projections would be informative for guiding agricultural planning. For instance, what would be the consequences for agriculture given projected future changes in precipitation and temperature? Potential adaptation options may include growing more temperature or drought-resilient crops, other types of crops, or further developing and extending irrigation infrastructure.

Figure 22: Satellite Image and Agriculture Overlay Showing Rice Cultivation in the Central Region of the Basin

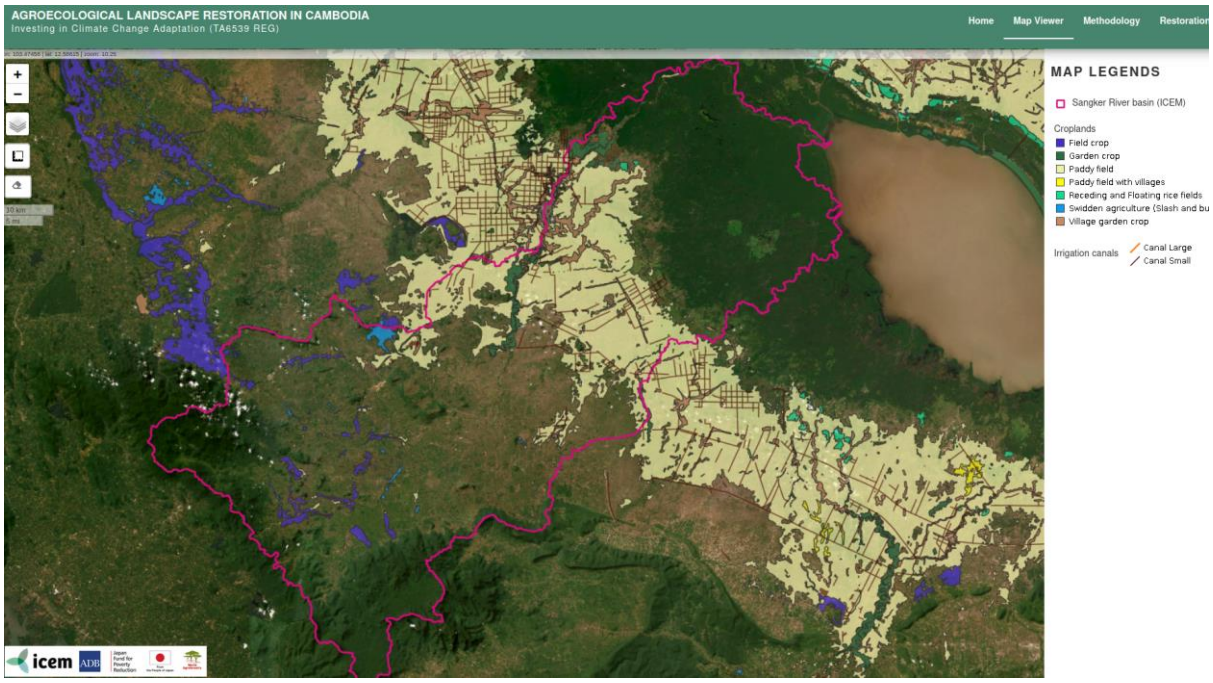
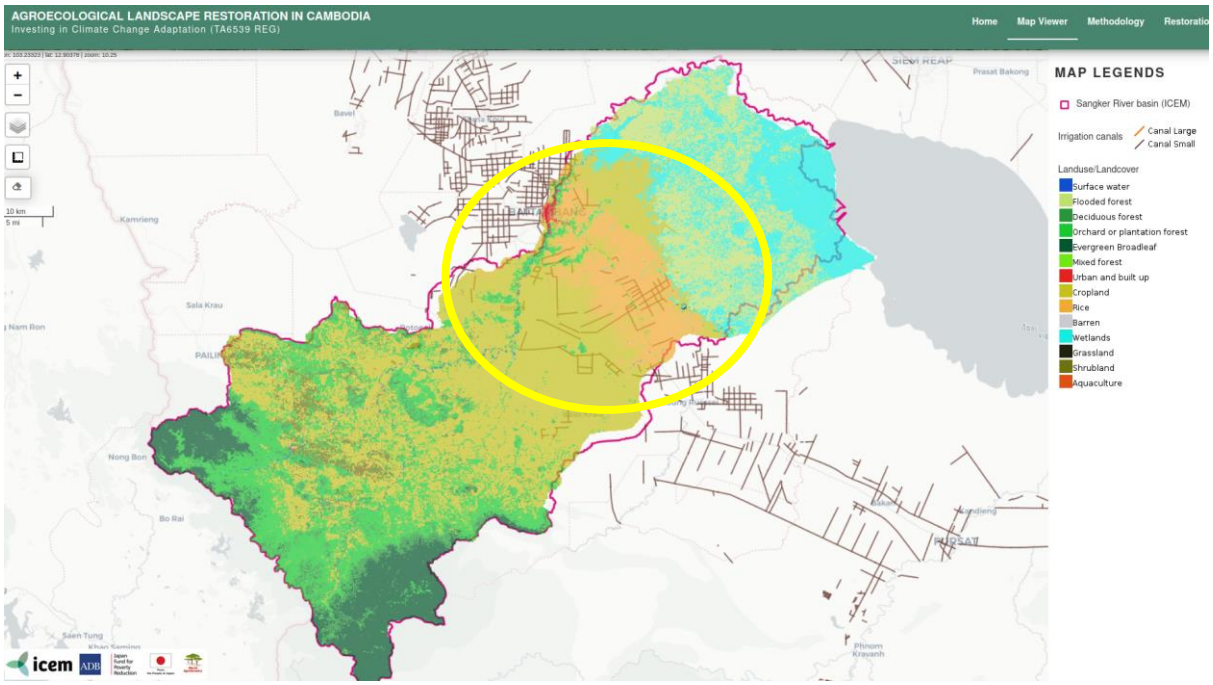


Figure 23: Land Use/Land Cover Map of the Sangker River Basin (Showing Rice Cultivation Band Across the Basin)



2.2.5 Other Datasets to Support Basin Planning

Various other datasets have been integrated into the DSS to further support basin planning, and the following highlight some forestry datasets that might prove informative. As indicated above, in addition to forest loss, there are data on forest gain (2000-2012). For instance, in Figure 24 and Figure 25, forest gain is evident near the western edge of the Sangker River basin; note that forest loss and gain data do not distinguish between natural and cultivated forests. There are also forest height layers which can give insight into canopy height in an area of interest (Figure 26).

Figure 24: Forest Gain Near the Western Edge of the Sangker River Basin in a Protected Area

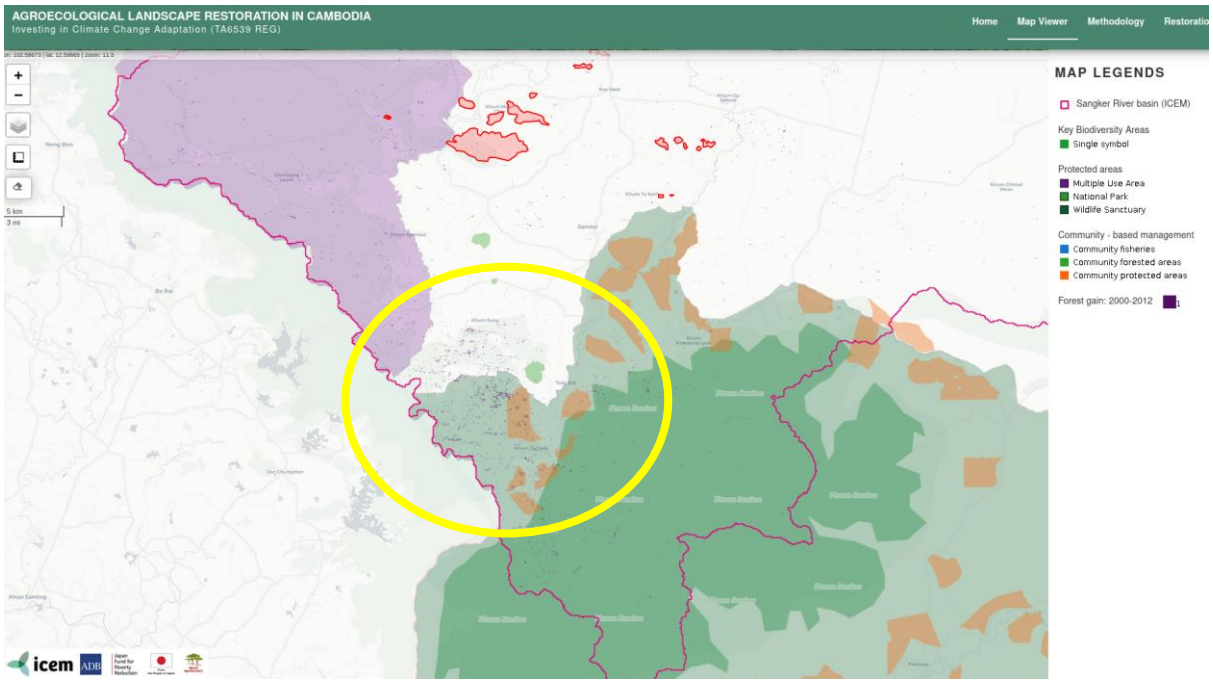


Figure 25: Forest Gain Basin (in Centre of Area as Shown in Previous Figure)

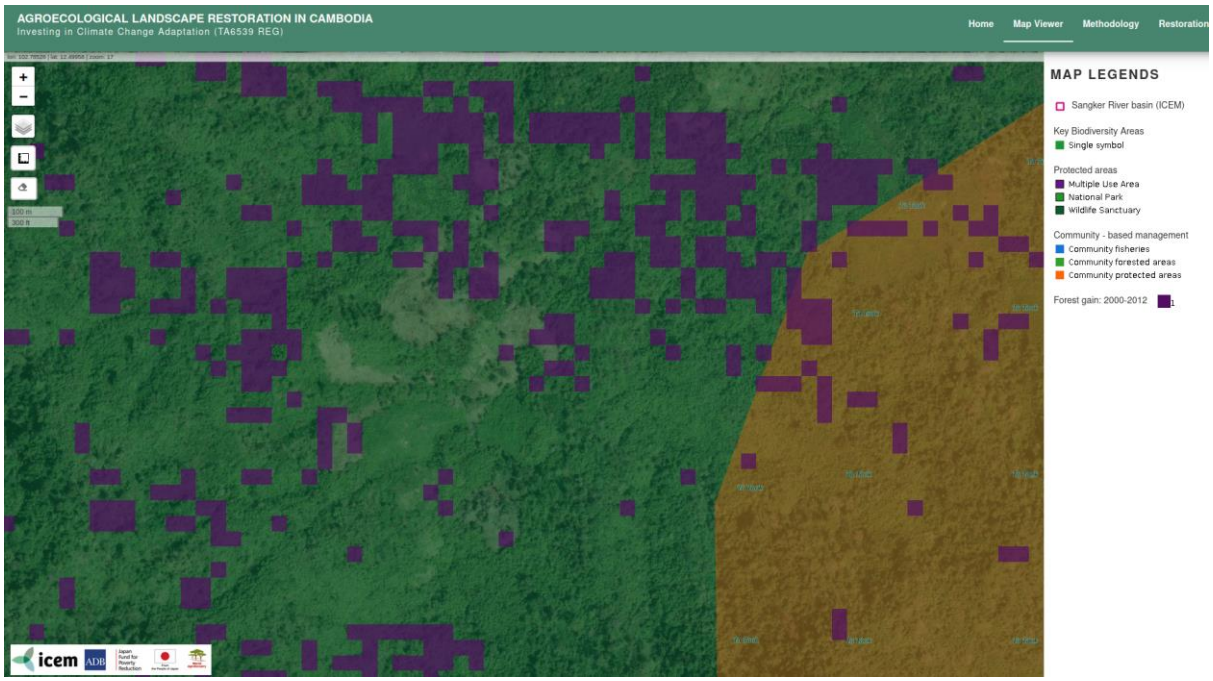
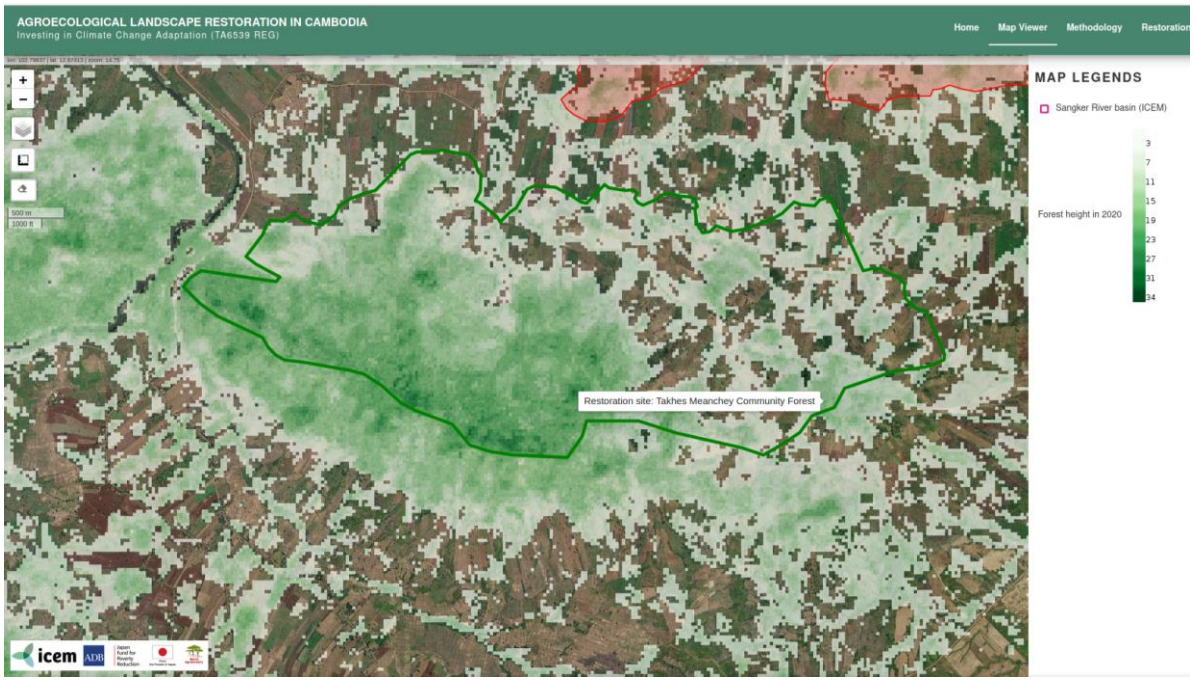


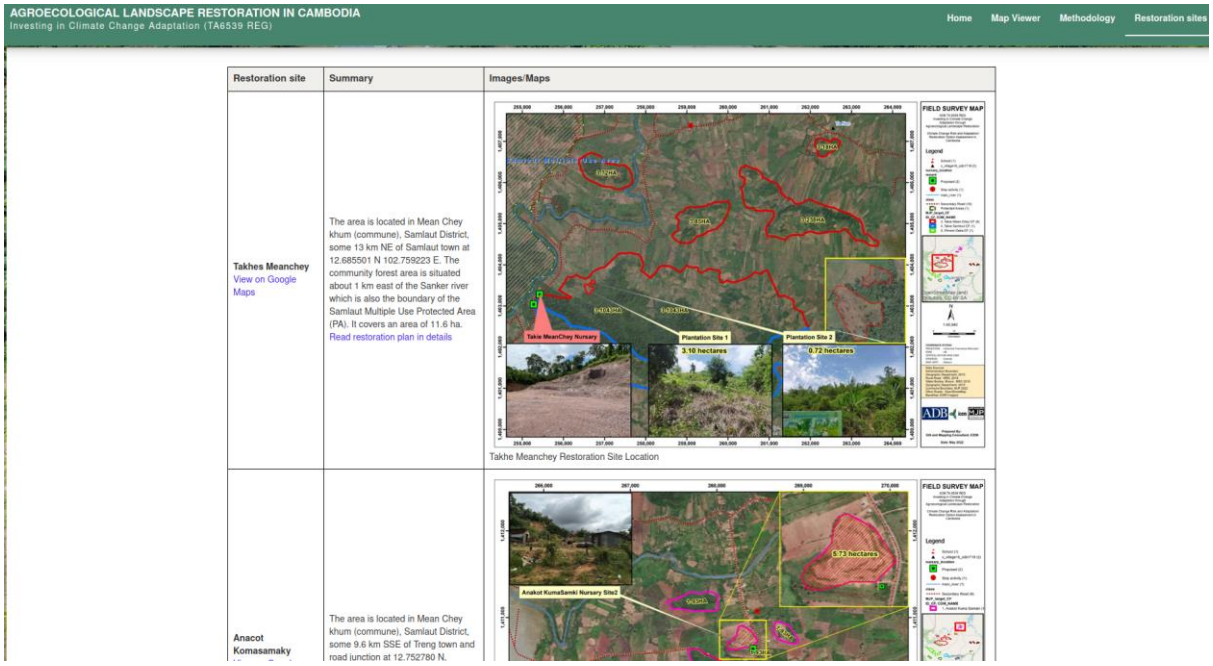
Figure 26: Forest Height (2020) at Restoration Site



2.3 Restoration Sites

Details about the four restoration sites in the basin can be found under the *Restoration sites* tab (Figure 27). A link to the location of each site on Google Maps is included, as well as a link to the project restoration report of each site.

Figure 27: Screenshot of Restoration Site Details on DSS



Annex 1. Government Data Integrated into the DSS

Table 1: Data from MoE Integrated into the DSS

No.	Group	Data name	Data type
1	**Agriculture**	Croplands	Polygon
2		Rice ecosystems	Polygon
3		Irrigation canals	Polygon
4		Soil type	Polygon
5		Soil fertility	Polygon
6	**Biodiversity**	Protected areas	Polygon

Annex 2. List of all data Integrated into the DSS

Table 2: List of All Data Integrated into the DSS

Layer group	Layer title	Data source	Description	Data type	CRS
Base layer	Sangker River basin (ICEM)	ICEM	Boundary of the Sangker River basin	Polygon	EPSG:3857
	Sangker River basin (MRC)	MRC – Mekong River Commission	Boundary of the Sangker River basin	Polygon	EPSG:3857
	Subcatchments	ICEM	Boundary of subcatchments in the Sangker River basin	Polygon	EPSG:3857
	Main Rivers	MRC – Mekong River Commission	ICEM - derived from MRC database	Polyline	EPSG:3858
	Stream network	MoWRAM 2020	This dataset was provided by Department of Hydrology and River Work, MoWRAM on 28 April 2020	Polyline	EPSG:3857
	National boundary	MLMUPC 2008, 2014	ICEM - derived from ODC, Department of Geography of Ministry of Land Management, Urban Planning and Construction (MLMUPC) in 2008 and then unofficially updated in 2014 with new province (Tbong Khmum)	Polygon	EPSG:3857
	Provincial boundaries	MoWRAM 2020	This dataset was provided by Department of Hydrology and River Work, MoWRAM on 28 April 2020.	Raster	EPSG:3857
	District boundaries	MoWRAM 2020	This dataset was provided by Department of Hydrology and River Work, MoWRAM on 28 April 2020	Polygon	EPSG:3857
	Commune boundaries	MLMUPC 2008, 2014	ICEM - derived from ODC, Department of Geography of Ministry of Land Management, Urban Planning and Construction (MLMUPC) in 2008 and then unofficially updated in 2014 with new province (Tbong Khmum)	Polygon	EPSG:3857
Restoration sites	Restoration sites	ICEM	Restoration sites within the project	Polygon	EPSG:3857
Degradation hotspots	Degradation hotspots	ICEM	Degradation hotspots was calculated by ICEM for identifying degradation hotspots within the Sangker River basin	Raster	EPSG:3857
Agriculture	Croplands	MoE 2015	This dataset was extracted from land cover data of 2015 which was provided by MoE.	Polygon	EPSG:3857
	Rice ecosystems	IRRI, SCWA 2013	ICEM - derived from International Rice Research Institute's (IRRI) Cambodia-IRRI Rice Project/Save Cambodia's Wildlife's Atlas Working Group	Polygon	EPSG:3857

Layer group	Layer title	Data source	Description	Data type	CRS
	Irrigation canals	MLMUPC, °CHA 2008	ICEM - derived from ODC (Department of Geography Ministry of Land Management, Urban Planning & Construction - (°CHA) (HDX))	Polyline	EPSG:3857
Land use/ Land cover And Soils	Soil type	MAFF, FAO 2015	This dataset provided by MAFF on 11 March 2020	Polygon	EPSG:3857
	Soil fertility	SCWA 2003	ICEM - derived from ODC (Save Cambodia's Wildlife's Atlas Working Group). The layer provides soil fertility levels of different areas in Cambodia	Polygon	EPSG:3857
	Soil erosion	ICEM	This dataset is calculated by ICEM	Raster	EPSG:3857
	Landuse/Landcover	MoE	Land use / land cover	Raster	EPSG:3857
Biodiversity	Key Biodiversity Areas	BirdLife 2019	Key Biodiversity Areas	Polygon	EPSG:3857
	Protected areas	MoE 2018	Protected areas	Polygon	EPSG:3857
	Community - based management	World Bank 2020	Community - based management	Polygon	EPSG:3857
Forest change	Community forest	World Bank 2020	Community forest	Polygon	EPSG:3857
	Forest height in 2000	GLAD – Global Land Analysis & Discovery	Forest height in 2000	Raster	EPSG:3857
	Forest height in 2020	GLAD – Global Land Analysis & Discovery	Forest height in 2020	Raster	EPSG:3857
	Forest extent in 2000	GLAD – Global Land Analysis & Discovery	Forest extent in 2000	Raster	EPSG:3857
	Forest extent in 2020	GLAD – Global Land Analysis & Discovery	Forest extent in 2020	Raster	EPSG:3857
	Forest loss, 2000-2022	GLAD – Global Land Analysis & Discovery	Forest loss, 2000-2022	Raster	EPSG:3857
	Forest gain, 2000-2012	GLAD – Global Land Analysis & Discovery	Forest gain, 2000-2012	Raster	EPSG:3857
Flood and Drought	Baseline flood	JBA, MRC 2017	Change in annual maximum temperature under RCP 4.5 with hottest future climate condition_2036-2065	Raster	EPSG:3857
	Flood exposure	UNEP, DEWA, GRID-Europe 2009	This dataset includes an estimate of the annual physical exposure to flood. It is based on the following sources: 1) A GIS modeling using a statistical estimation of peak-flow magnitude and a hydrological model using HydroSHEDS dataset and the Manning equation to estimate river stage for the calculated discharge value. 2) Observed flood from 1999 to	Raster	EPSG:3857

Layer group	Layer title	Data source	Description	Data type	CRS
			2007, obtained from the Dartmouth Flood Observatory (DFO). 3) The frequency was set from the UNEP/GRID-Europe PREVIEW flood dataset. In areas with no information available, it was set to 50 years return period. 4) A population grid for the year 2010, provided by LandScanTM Global Population Database (Oak Ridge, TN: Oak Ridge National Laboratory). Units are expressed as expected average annual population (2007 as the year of reference) of exposed (inhabitants) . This product was designed by UNEP/GRID-Europe for the Global Assessment Report on Risk Reduction (GAR). It was modeled using global data. Credit: GIS processing UNEP/GRID-Europe, with key support from USGS EROS Data Center, Dartmouth Flood Observatory 2008.		
	Flood frequency	UNEP, DEWA, GRID-Europe 2010	This dataset includes an estimate of flood frequency. It is based on three sources: 1) GIS modeling using a statistical estimation of peak-flow magnitude and a hydrological model using HydroSHEDS dataset and the Manning equation to estimate river stage for the calculated discharge value. 2) Observed flood from 1999 to 2007, obtained from the Dartmouth Flood Observatory (DFO). 3) The frequency was set from the UNEP/GRID-Europe PREVIEW flood dataset. In areas with no information available, it was set to 50 years return period. Units are expressed as expected average number of events per 100 years. This product was designed by UNEP/GRID-Europe for the Global Assessment Report on Risk Reduction (GAR). It was modeled using global data. Credit: GIS processing UNEP/GRID-Europe, with key support from USGS EROS Data Center, Dartmouth Flood Observatory 2008	Raster	EPSG:3857
	Flood risk	UNEP, DEWA, GRID-Europe 2010	This dataset is extracted from Global estimated risk index for flood hazard. Unit is estimated risk index from 1 (low) to 5 (extreme). This product was designed by UNEP/GRID-Europe for the Global Assessment Report on Risk Reduction (GAR). It was modeled using global data	Raster	EPSG:3857
	Flood 2013	SERVIR 2013	The data was downloaded from SERVIR-Mekong Surface Water Tool with the temporal range from 03/01/2013 - 11/30/2013 Permanent water is water that was present for most of the time within the chosen period, and as such is often represented by reservoirs, lakes and rivers. Temporary water is water that was only present for a	Raster	EPSG:3857

Layer group	Layer title	Data source	Description	Data type	CRS
			part of the period, and as such is often represented by floods or (seasonally) inundated land; wetlands, rice fields, fish ponds, etc.		
	Flood in 2060	JBA, MRC 2017	Climate change scenarios - GFDL RCP 8.5	Raster	EPSG:3857
	Change in flood depth 2060	JBA, MRC 2017	Change in flood depth 2060. Climate change scenarios - GFDL RCP 8.5	Raster	EPSG:3857
	Number of drought months - Baseline	USAID, MRC 2014	ICEM - derived from MEKONG ARCC 2012-2014 (USAID/MRC) project	Raster	EPSG:3857
	Drought exposure	UNEP, DEWA, GRID-Europe 2011	This dataset includes an estimation of the annual physical exposition to drought based on Standardized Precipitation Index. It is based on three sources: 1) A global monthly gridded precipitation dataset obtained from the Climatic Research Unit (University of East Anglia). 2) GIS modelling of global Standardized Precipitation Index based on Brad Lyon (IRI, Columbia University) methodology. 3) A population grid for the year 2010, provided by LandScanTM Global Population Database (Oak Ridge, TN: Oak Ridge National Laboratory). Units are expressed as the expected average annual population (2010 as the year of reference) of exposed (inhabitants). This product was designed by UNEP/GRID-Europe for the Global Assessment Report on Risk Reduction (GAR). It was modelled using global data. Credit: GIS processing UNEP/GRID-Europe.	Raster	EPSG:3857
	Drought SMDI index	MRC	Soil Moisture Deficit Index (SMDI)	Polygon	EPSG:3857
	Number of drought months in 2050	GLAD – Global Land Analysis & Discovery	ICEM - derived from MEKONG ARCC 2012-2014 (USAID/MRC) project	Raster	EPSG:3857
	Change in number of drought months (2050)	GLAD – Global Land Analysis & Discovery	ICEM - derived from MEKONG ARCC 2012-2014 (USAID/MRC) project	Raster	EPSG:3857
Fire	Fire Areas 2018	FIRMS - Fire Information for Resource Management System	The FIRMS fire dataset contains the LANCE fire detection product in rasterized form in 2018. The near real-time (NRT) active fire locations are processed by LANCE using the standard MODIS MOD14/MYD14 Fire and Thermal Anomalies product.	Raster	EPSG:3857
	Fire Areas 2019	FIRMS - Fire Information for Resource Management System	The FIRMS fire dataset contains the LANCE fire detection product in rasterized form in 2019. The near real-time (NRT) active fire locations are processed by LANCE using the standard MODIS MOD14/MYD14 Fire and Thermal Anomalies product.	Raster	EPSG:3857

Layer group	Layer title	Data source	Description	Data type	CRS
	Fire Areas 2020	FIRMS - Fire Information for Resource Management System	The FIRMS fire dataset contains the LANCE fire detection product in rasterized form in 2020. The near real-time (NRT) active fire locations are processed by LANCE using the standard MODIS MOD14/MYD14 Fire and Thermal Anomalies product.	Raster	EPSG:3857
	Fire Areas 2021	FIRMS - Fire Information for Resource Management System	The FIRMS fire dataset contains the LANCE fire detection product in rasterized form in 2021. The near real-time (NRT) active fire locations are processed by LANCE using the standard MODIS MOD14/MYD14 Fire and Thermal Anomalies product.	Raster	EPSG:3857
	Fire Areas 2022	FIRMS - Fire Information for Resource Management System	The FIRMS fire dataset contains the LANCE fire detection product in rasterized form in 2022. The near real-time (NRT) active fire locations are processed by LANCE using the standard MODIS MOD14/MYD14 Fire and Thermal Anomalies product.	Raster	EPSG:3857
Mekong River Commission- (MRC) Climate Change Data	Baseline Precipitation - Dry Season	Mekong River Commission- (MRC)	Baseline Precipitation - Dry Season	Raster	EPSG:3857
	Baseline Precipitation - Wet Seaon	Mekong River Commission- (MRC)	Baseline Precipitation - Wet Seaon	Raster	EPSG:3857
	Baseline Precipitation - Annual	Mekong River Commission- (MRC)	Baseline Precipitation - Annual	Raster	EPSG:3857
	Average Precipitation - Dry Season- RCP 4.5- 2030- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Precipitation - Dry Season- RCP 4.5- 2030- GFDL-CM3 GCM	Raster	EPSG:3857
	Average Precipitation - Dry Season- RCP 6.0- 2030- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Precipitation - Dry Season- RCP 6.0- 2030- GFDL-CM3 GCM	Raster	EPSG:3857
	Average Precipitation - Dry Season- RCP 8.5- 2030- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Precipitation - Dry Season- RCP 8.5- 2030- GFDL-CM3 GCM	Raster	EPSG:3857
	Average Precipitation – Wet Season- RCP 4.5-2030- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Precipitation – Wet Season- RCP 4.5-2030- GFDL-CM3 GCM	Raster	EPSG:3857
	Average Precipitation - Wet Season- RCP 6.0-2030- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Precipitation - Wet Season- RCP 6.0-2030- GFDL-CM3 GCM	Raster	EPSG:3857

Layer group	Layer title	Data source	Description	Data type	CRS
	Average Precipitation - Wet Season- RCP 8.5-2030- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Precipitation - Wet Season- RCP 8.5-2030- GFDL-CM3 GCM	Raster	EPSG:3857
	Average Precipitation – Annual- RCP 4.5-2030-GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Precipitation – Annual- RCP 4.5-2030-GFDL-CM3 GCM	Raster	EPSG:3857
	Average Precipitation – Annual- RCP 6.0-2030-GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Precipitation – Annual- RCP 6.0 -2030-GFDL-CM3 GCM	Raster	EPSG:3857
	Average Precipitation - Annual- RCP 8.5- 2030- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Precipitation - Annual- RCP 8.5- 2030- GFDL-CM3 GCM	Raster	EPSG:3857
	Average Precipitation - Dry Season- RCP 4.5- 2030- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Average Precipitation - Dry Season- RCP 4.5- 2030- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Average Precipitation - Dry Season- RCP 6.0- 2030- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Average Precipitation - Dry Season- RCP 6.0- 2030- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Average Precipitation - Dry Season- RCP 8.5- 2030- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Average Precipitation - Dry Season- RCP 8.5- 2030- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Average Precipitation – Wet Season- RCP 4.5- 2030- GISS-E2-R-CCGCM	Mekong River Commission- (MRC)	Average Precipitation – Wet Season- RCP 4.5- 2030- GISS-E2-R-CCGCM	Raster	EPSG:3857
	Average Precipitation - Wet Season- RCP 6.0- 2030- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Average Precipitation - Wet Season- RCP 6.0- 2030- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Average Precipitation - Wet Season- RCP 8.5- 2030- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Average Precipitation - Wet Season- RCP 8.5- 2030- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Average Precipitation – Wet Season- Annual- RCP 4.5- 2030 -GISS-E2-R-CCGCM	Mekong River Commission- (MRC)	Average Precipitation – Wet Season- Annual- RCP 4.5- 2030 -GISS-E2-R-CCGCM	Raster	EPSG:3857
	Average Precipitation - Annual- RCP 6.0-2030 GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Average Precipitation - Annual- RCP 6.0-2030 GISS-E2-R-CC GCM	Raster	EPSG:3857

Layer group	Layer title	Data source	Description	Data type	CRS
	Average Precipitation - Annual- RCP 8.5-2030 GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Average Precipitation - Annual- RCP 8.5-2030 GISS-E2-R-CC GCM	Raster	EPSG:3857
	Average Precipitation - Dry Season- RCP 4.5-2030 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Precipitation - Dry Season- RCP 4.5-2030 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Precipitation - Dry Season- RCP 6.0-2030 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Precipitation - Dry Season- RCP 6.0-2030 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Precipitation - Dry Season- RCP 8.5-2030 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Precipitation - Dry Season- RCP 8.5-2030 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Precipitation – Wet Season- RCP 4.5-IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Precipitation – Wet Season- RCP 4.5-IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Precipitation - Wet Season- RCP 6.0- 2023- IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Precipitation - Wet Season- RCP 6.0- 2023- IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Precipitation - Wet Season- RCP 8.5- 2023- IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Precipitation - Wet Season- RCP 8.5- 2023- IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Precipitation – Annual- RCP 4.5- 2030- IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Precipitation – Annual- RCP 4.5- 2030- IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Precipitation - Annual- RCP 6.0-2030 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Precipitation - Annual- RCP 6.0-2030 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Precipitation - Annual- RCP 8.5-2030 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Precipitation - Annual- RCP 8.5-2030 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Precipitation - Dry Season- RCP 4.5- 2060- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Precipitation - Dry Season- RCP 4.5- 2060- GFDL-CM3 GCM	Raster	EPSG:3857

Layer group	Layer title	Data source	Description	Data type	CRS
	Average Precipitation - Dry Season- RCP 6.0- 2060- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Precipitation - Dry Season- RCP 6.0- 2060- GFDL-CM3 GCM	Raster	EPSG:3857
	Average Precipitation - Dry Season- RCP 8.5- 2060- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Precipitation - Dry Season- RCP 8.5- 2060- GFDL-CM3 GCM	Raster	EPSG:3857
	Average Precipitation – Wet Season- RCP 4.5-2060- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Precipitation – Wet Season- RCP 4.5-2060- GFDL-CM3 GCM	Raster	EPSG:3857
	Average Precipitation - Wet Season- RCP 6.0-2060- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Precipitation - Wet Season- RCP 6.0-2060- GFDL-CM3 GCM	Raster	EPSG:3857
	Average Precipitation - Wet Season- RCP 8.5-2060- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Precipitation - Wet Season- RCP 8.5-2060- GFDL-CM3 GCM	Raster	EPSG:3857
	Average Precipitation – Annual- RCP 4.5-2060-GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Precipitation – Annual- RCP 4.5-2060-GFDL-CM3 GCM	Raster	EPSG:3857
	Average Precipitation - Annual- RCP 6.0- 2060- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Precipitation - Annual- RCP 6.0- 2060- GFDL-CM3 GCM	Raster	EPSG:3857
	Average Precipitation - Annual- RCP 8.5- 2060- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Precipitation - Annual- RCP 8.5- 2060- GFDL-CM3 GCM	Raster	EPSG:3857
	Average Precipitation - Dry Season- RCP 4.5- 2060- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Average Precipitation - Dry Season- RCP 4.5- 2060- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Average Precipitation - Dry Season- RCP 6.0- 2060- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Average Precipitation - Dry Season- RCP 6.0- 2060- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Average Precipitation - Dry Season- RCP 8.5- 2060- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Average Precipitation - Dry Season- RCP 8.5- 2060- GISS-E2-R-CC GCM	Raster	EPSG:3857

Layer group	Layer title	Data source	Description	Data type	CRS
	Average Precipitation – Wet Season- RCP 4.5- 2060- GISS-E2-R-CCGCM	Mekong River Commission- (MRC)	Average Precipitation – Wet Season- RCP 4.5- 2060- GISS-E2-R-CCGCM	Raster	EPSG:3857
	Average Precipitation - Wet Season- RCP 6.0- 2060- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Average Precipitation - Wet Season- RCP 6.0- 2060- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Average Precipitation - Wet Season- RCP 8.5- 2060- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Average Precipitation - Wet Season- RCP 8.5- 2060- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Average Precipitation – Annual- RCP 4.5- 2060 -GISS-E2-R-CCGCM	Mekong River Commission- (MRC)	Average Precipitation – Annual- RCP 4.5- 2060 -GISS-E2-R-CCGCM	Raster	EPSG:3857
	Average Precipitation - Annual- RCP 6.0-2060 GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Average Precipitation - Annual- RCP 6.0-2060 GISS-E2-R-CC GCM	Raster	EPSG:3857
	Average Precipitation - Annual- RCP 8.5-2060 GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Average Precipitation - Annual- RCP 8.5-2060 GISS-E2-R-CC GCM	Raster	EPSG:3857
	Average Precipitation - Dry Season- RCP 4.5-2060 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Precipitation - Dry Season- RCP 4.5-2060 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Precipitation - Dry Season- RCP 6.0-2060 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Precipitation - Dry Season- RCP 6.0-2060 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Precipitation - Dry Season- RCP 8.5-2060 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Precipitation - Dry Season- RCP 8.5-2060 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Precipitation – Wet Season- RCP 4.5-IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Precipitation – Wet Season- RCP 4.5-IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Precipitation - Wet Season- RCP 6.0- 2023- IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Precipitation - Wet Season- RCP 6.0- 2023- IPSL-CM5A-MR GCM	Raster	EPSG:3857

Layer group	Layer title	Data source	Description	Data type	CRS
	Average Precipitation - Wet Season- RCP 8.5- 2023- IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Precipitation - Wet Season- RCP 8.5- 2023- IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Precipitation – Annual- RCP 4.5- 2060- IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Precipitation – Annual- RCP 4.5- 2060- IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Precipitation - Annual- RCP 6.0-2060 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Precipitation - Annual- RCP 6.0-2060 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Precipitation - Annual- RCP 8.5-2060 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Precipitation - Annual- RCP 8.5-2060 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Dry Season- RCP 4.5- 2030- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Dry Season- RCP 4.5- 2030- GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Dry Season- RCP 6.0- 2030- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Dry Season- RCP 6.0- 2030- GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Dry Season- RCP 8.5- 2030- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Dry Season- RCP 8.5- 2030- GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average precipitation (%) – Wet Season- RCP 4.5-2030- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) – Wet Season- RCP 4.5-2030- GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Wet Season- RCP 6.0-2030- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Wet Season- RCP 6.0-2030- GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Wet Season- RCP 8.5-2030- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Wet Season- RCP 8.5-2030- GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average precipitation (%) – Annual- RCP 4.5-2030-GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) – Annual- RCP 4.5-2030-GFDL-CM3 GCM	Raster	EPSG:3857

Layer group	Layer title	Data source	Description	Data type	CRS
	Change in average precipitation (%) – Annual- RCP 6.0-2030-GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) – Annual- RCP 6.0 -2030-GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Annual- RCP 8.5-2030- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Annual- RCP 8.5-2030- GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Dry Season- RCP 4.5-2030- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Dry Season- RCP 4.5-2030- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Dry Season- RCP 6.0-2030- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Dry Season- RCP 6.0-2030- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Dry Season- RCP 8.5-2030- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Dry Season- RCP 8.5-2030- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Change in average precipitation (%) – Wet Season- RCP 4.5- 2030-GISS-E2-R-CCGCM	Mekong River Commission- (MRC)	Change in average precipitation (%) – Wet Season- RCP 4.5- 2030-GISS-E2-R-CCGCM	Raster	EPSG:3857
	Change in average precipitation (%) - Wet Season- RCP 6.0- 2030-GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Wet Season- RCP 6.0- 2030- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Wet Season- RCP 8.5- 2030-GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Wet Season- RCP 8.5- 2030- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Change in average precipitation (%) – Wet Season- Annual- RCP 4.5- 2030 -GISS-E2-R-CCGCM	Mekong River Commission- (MRC)	Change in average precipitation (%) – Wet Season- Annual- RCP 4.5-2030 -GISS-E2-R-CCGCM	Raster	EPSG:3857
	Change in average precipitation (%) - Annual- RCP 6.0-2030 GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Annual- RCP 6.0-2030 GISS-E2-R-CC GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Annual- RCP 8.5-2030 GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Annual- RCP 8.5-2030 GISS-E2-R-CC GCM	Raster	EPSG:3857

Layer group	Layer title	Data source	Description	Data type	CRS
	Change in average precipitation (%) - Dry Season- RCP 4.5-2030 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Dry Season- RCP 4.5-2030 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Dry Season- RCP 6.0-2030 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Dry Season- RCP 6.0-2030 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Dry Season- RCP 8.5-2030 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Dry Season- RCP 8.5-2030 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average precipitation (%) – Wet Season- RCP 4.5-IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) – Wet Season- RCP 4.5-IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Wet Season- RCP 6.0- 2023- IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Wet Season- RCP 6.0- 2023- IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Wet Season- RCP 8.5- 2023- IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Wet Season- RCP 8.5- 2023- IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average precipitation (%) – Annual- RCP 4.5- 2030- IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) – Annual- RCP 4.5- 2030- IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Annual- RCP 6.0-2030 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Annual- RCP 6.0-2030 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Annual- RCP 8.5-2030 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Annual- RCP 8.5-2030 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Dry Season- RCP 4.5-2060- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Dry Season- RCP 4.5-2060- GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Dry Season- RCP 6.0-2060- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Dry Season- RCP 6.0-2060- GFDL-CM3 GCM	Raster	EPSG:3857

Layer group	Layer title	Data source	Description	Data type	CRS
	Change in average precipitation (%) - Dry Season- RCP 8.5-2060- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Dry Season- RCP 8.5-2060- GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average precipitation (%) – Wet Season- RCP 4.5-2060-GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) – Wet Season- RCP 4.5-2060-GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Wet Season- RCP 6.0-2060-GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Wet Season- RCP 6.0-2060- GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Wet Season- RCP 8.5-2060-GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Wet Season- RCP 8.5-2060- GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average precipitation (%) – Annual- RCP 4.5-2060-GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) – Annual- RCP 4.5-2060-GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Annual- RCP 6.0-2060- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Annual- RCP 6.0-2060- GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Annual- RCP 8.5-2060- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Annual- RCP 8.5-2060- GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Dry Season- RCP 4.5-2060- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Dry Season- RCP 4.5-2060- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Dry Season- RCP 6.0-2060- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Dry Season- RCP 6.0-2060- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Dry Season- RCP 8.5-2060- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Dry Season- RCP 8.5-2060- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Change in average precipitation (%) – Wet Season- RCP 4.5- 2060-GISS-E2-R-CCGCM	Mekong River Commission- (MRC)	Change in average precipitation (%) – Wet Season- RCP 4.5- 2060-GISS-E2-R-CCGCM	Raster	EPSG:3857

Layer group	Layer title	Data source	Description	Data type	CRS
	Change in average precipitation (%) - Wet Season- RCP 6.0- 2060- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Wet Season- RCP 6.0- 2060- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Wet Season- RCP 8.5- 2060- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Wet Season- RCP 8.5- 2060- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Change in average precipitation (%) – Annual- RCP 4.5- 2060 -GISS-E2-R-CCGCM	Mekong River Commission- (MRC)	Change in average precipitation (%) – Annual- RCP 4.5- 2060 -GISS-E2-R-CCGCM	Raster	EPSG:3857
	Change in average precipitation (%) - Annual- RCP 6.0-2060 GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Annual- RCP 6.0-2060 GISS-E2-R-CC GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Annual- RCP 8.5-2060 GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Annual- RCP 8.5-2060 GISS-E2-R-CC GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Dry Season- RCP 4.5-2060 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Dry Season- RCP 4.5-2060 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Dry Season- RCP 6.0-2060 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Dry Season- RCP 6.0-2060 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Dry Season- RCP 8.5-2060 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Dry Season- RCP 8.5-2060 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average precipitation (%) – Wet Season- RCP 4.5-IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) – Wet Season- RCP 4.5-IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Wet Season- RCP 6.0- 2023- IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Wet Season- RCP 6.0- 2023- IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Wet Season- RCP 8.5- 2023- IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Wet Season- RCP 8.5- 2023- IPSL-CM5A-MR GCM	Raster	EPSG:3857

Layer group	Layer title	Data source	Description	Data type	CRS
	Change in average precipitation (%) – Annual- RCP 4.5- 2060- IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) – Annual- RCP 4.5- 2060- IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Annual- RCP 6.0-2060 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Annual- RCP 6.0-2060 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average precipitation (%) - Annual- RCP 8.5-2060 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average precipitation (%) - Annual- RCP 8.5-2060 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Maximum temperature - Dry Season- RCP 4.5- 2030- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Dry Season- RCP 4.5- 2030- GFDL-CM3 GCM	Raster	EPSG:3857
	Average Maximum temperature - Dry Season- RCP 6.0- 2030- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Dry Season- RCP 6.0- 2030- GFDL-CM3 GCM	Raster	EPSG:3857
	Average Maximum temperature - Dry Season- RCP 8.5- 2030- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Dry Season- RCP 8.5- 2030- GFDL-CM3 GCM	Raster	EPSG:3857
	Average Maximum temperature – Wet Season- RCP 4.5-2030- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Maximum temperature – Wet Season- RCP 4.5-2030- GFDL-CM3 GCM	Raster	EPSG:3857
	Average Maximum temperature - Wet Season- RCP 6.0-2030- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Wet Season- RCP 6.0-2030- GFDL-CM3 GCM	Raster	EPSG:3857
	Average Maximum temperature - Wet Season- RCP 8.5-2030- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Wet Season- RCP 8.5-2030- GFDL-CM3 GCM	Raster	EPSG:3857
	Average Maximum temperature – Annual- RCP 4.5-2030-GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Maximum temperature – Annual- RCP 4.5-2030-GFDL-CM3 GCM	Raster	EPSG:3857
	Average Maximum temperature – Annual- RCP 6.0-2030-GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Maximum temperature – Annual- RCP 6.0 -2030-GFDL-CM3 GCM	Raster	EPSG:3857

Layer group	Layer title	Data source	Description	Data type	CRS
	Average Maximum temperature - Annual- RCP 8.5- 2030- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Annual- RCP 8.5- 2030- GFDL-CM3 GCM	Raster	EPSG:3857
	Average Maximum temperature - Dry Season- RCP 4.5- 2030- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Dry Season- RCP 4.5- 2030- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Average Maximum temperature - Dry Season- RCP 6.0- 2030- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Dry Season- RCP 6.0- 2030- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Average Maximum temperature - Dry Season- RCP 8.5- 2030- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Dry Season- RCP 8.5- 2030- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Average Maximum temperature – Wet Season- RCP 4.5- 2030- GISS-E2-R-CCGCM	Mekong River Commission- (MRC)	Average Maximum temperature – Wet Season- RCP 4.5- 2030- GISS-E2-R-CCGCM	Raster	EPSG:3857
	Average Maximum temperature - Wet Season- RCP 6.0- 2030- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Wet Season- RCP 6.0- 2030- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Average Maximum temperature - Wet Season- RCP 8.5- 2030- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Wet Season- RCP 8.5- 2030- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Average Maximum temperature – Wet Season- Annual- RCP 4.5- 2030 -GISS-E2-R-CCGCM	Mekong River Commission- (MRC)	Average Maximum temperature – Wet Season- Annual- RCP 4.5- 2030 - GISS-E2-R-CCGCM	Raster	EPSG:3857
	Average Maximum temperature - Annual- RCP 6.0-2030 GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Annual- RCP 6.0-2030 GISS-E2-R-CC GCM	Raster	EPSG:3857
	Average Maximum temperature - Annual- RCP 8.5-2030 GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Annual- RCP 8.5-2030 GISS-E2-R-CC GCM	Raster	EPSG:3857
	Average Maximum temperature - Dry Season- RCP 4.5-2030 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Dry Season- RCP 4.5-2030 IPSL-CM5A-MR GCM	Raster	EPSG:3857

Layer group	Layer title	Data source	Description	Data type	CRS
	Average Maximum temperature - Dry Season- RCP 6.0-2030 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Dry Season- RCP 6.0-2030 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Maximum temperature - Dry Season- RCP 8.5-2030 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Dry Season- RCP 8.5-2030 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Maximum temperature – Wet Season- RCP 4.5-IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Maximum temperature – Wet Season- RCP 4.5-IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Maximum temperature - Wet Season- RCP 6.0- 2023- IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Wet Season- RCP 6.0- 2023- IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Maximum temperature - Wet Season- RCP 8.5- 2023- IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Wet Season- RCP 8.5- 2023- IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Maximum temperature – Annual- RCP 4.5- 2030- IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Maximum temperature – Annual- RCP 4.5- 2030- IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Maximum temperature - Annual- RCP 6.0-2030 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Annual- RCP 6.0-2030 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Maximum temperature - Annual- RCP 8.5-2030 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Annual- RCP 8.5-2030 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Maximum temperature - Dry Season- RCP 4.5-2060- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Dry Season- RCP 4.5-2060- GFDL-CM3 GCM	Raster	EPSG:3857
	Average Maximum temperature - Dry Season- RCP 6.0-2060- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Dry Season- RCP 6.0-2060- GFDL-CM3 GCM	Raster	EPSG:3857
	Average Maximum temperature - Dry Season- RCP 8.5-2060- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Dry Season- RCP 8.5-2060- GFDL-CM3 GCM	Raster	EPSG:3857

Layer group	Layer title	Data source	Description	Data type	CRS
	Average Maximum temperature – Wet Season- RCP 4.5-2060- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Maximum temperature – Wet Season- RCP 4.5-2060- GFDL-CM3 GCM	Raster	EPSG:3857
	Average Maximum temperature - Wet Season- RCP 6.0-2060- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Wet Season- RCP 6.0-2060- GFDL-CM3 GCM	Raster	EPSG:3857
	Average Maximum temperature - Wet Season- RCP 8.5-2060- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Wet Season- RCP 8.5-2060- GFDL-CM3 GCM	Raster	EPSG:3857
	Average Maximum temperature – Annual- RCP 4.5-2060-GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Maximum temperature – Annual- RCP 4.5-2060-GFDL-CM3 GCM	Raster	EPSG:3857
	Average Maximum temperature - Annual- RCP 6.0- 2060- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Annual- RCP 6.0- 2060- GFDL-CM3 GCM	Raster	EPSG:3857
	Average Maximum temperature - Annual- RCP 8.5- 2060- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Annual- RCP 8.5- 2060- GFDL-CM3 GCM	Raster	EPSG:3857
	Average Maximum temperature - Dry Season- RCP 4.5- 2060- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Dry Season- RCP 4.5- 2060- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Average Maximum temperature - Dry Season- RCP 6.0- 2060- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Dry Season- RCP 6.0- 2060- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Average Maximum temperature - Dry Season- RCP 8.5- 2060- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Dry Season- RCP 8.5- 2060- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Average Maximum temperature – Wet Season- RCP 4.5- 2060- GISS-E2-R-CCGCM	Mekong River Commission- (MRC)	Average Maximum temperature – Wet Season- RCP 4.5- 2060- GISS-E2-R-CCGCM	Raster	EPSG:3857
	Average Maximum temperature - Wet Season- RCP 6.0- 2060- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Wet Season- RCP 6.0- 2060- GISS-E2-R-CC GCM	Raster	EPSG:3857

Layer group	Layer title	Data source	Description	Data type	CRS
	Average Maximum temperature - Wet Season- RCP 8.5- 2060- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Wet Season- RCP 8.5- 2060- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Average Maximum temperature – Annual- RCP 4.5- 2060 -GISS-E2-R-CCGCM	Mekong River Commission- (MRC)	Average Maximum temperature – Annual- RCP 4.5- 2060 -GISS-E2-R-CCGCM	Raster	EPSG:3857
	Average Maximum temperature - Annual- RCP 6.0-2060 GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Annual- RCP 6.0-2060 GISS-E2-R-CC GCM	Raster	EPSG:3857
	Average Maximum temperature - Annual- RCP 8.5-2060 GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Annual- RCP 8.5-2060 GISS-E2-R-CC GCM	Raster	EPSG:3857
	Average Maximum temperature - Dry Season- RCP 4.5-2060 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Dry Season- RCP 4.5-2060 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Maximum temperature - Dry Season- RCP 6.0-2060 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Dry Season- RCP 6.0-2060 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Maximum temperature - Dry Season- RCP 8.5-2060 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Dry Season- RCP 8.5-2060 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Maximum temperature – Wet Season- RCP 4.5-IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Maximum temperature – Wet Season- RCP 4.5-IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Maximum temperature - Wet Season- RCP 6.0- 2023- IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Wet Season- RCP 6.0- 2023- IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Maximum temperature - Wet Season- RCP 8.5- 2023- IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Wet Season- RCP 8.5- 2023- IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Maximum temperature – Annual- RCP 4.5- 2060- IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Maximum temperature – Annual- RCP 4.5- 2060- IPSL-CM5A-MR GCM	Raster	EPSG:3857

Layer group	Layer title	Data source	Description	Data type	CRS
	Average Maximum temperature - Annual- RCP 6.0-2060 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Annual- RCP 6.0-2060 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Average Maximum temperature - Annual- RCP 8.5-2060 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Average Maximum temperature - Annual- RCP 8.5-2060 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Dry Season- RCP 4.5- 2030- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Dry Season- RCP 4.5- 2030- GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Dry Season- RCP 6.0- 2030- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Dry Season- RCP 6.0- 2030- GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Dry Season- RCP 8.5- 2030- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Dry Season- RCP 8.5- 2030- GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) – Wet Season- RCP 4.5-2030- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) – Wet Season- RCP 4.5- 2030- GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Wet Season- RCP 6.0-2030- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Wet Season- RCP 6.0- 2030- GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Wet Season- RCP 8.5-2030- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Wet Season- RCP 8.5- 2030- GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) – Annual- RCP 4.5-2030-GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) – Annual- RCP 4.5-2030- GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) – Annual- RCP 6.0-2030-GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) – Annual- RCP 6.0 - 2030-GFDL-CM3 GCM	Raster	EPSG:3857

Layer group	Layer title	Data source	Description	Data type	CRS
	Change in average maximum temperature (°C) - Annual- RCP 8.5- 2030- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Annual- RCP 8.5-2030- GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Dry Season-RCP 4.5- 2030- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Dry Season- RCP 4.5-2030- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Dry Season-RCP 6.0- 2030- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Dry Season- RCP 6.0-2030- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Dry Season-RCP 8.5- 2030- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Dry Season- RCP 8.5-2030- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) – Wet Season-RCP 4.5- 2030- GISS-E2-R-CCGCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) – Wet Season- RCP 4.5-2030- GISS-E2-R-CCGCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Wet Season-RCP 6.0- 2030- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Wet Season- RCP 6.0-2030- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Wet Season-RCP 8.5- 2030- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Wet Season- RCP 8.5-2030- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) – Wet Season-Annual- RCP 4.5- 2030 -GISS-E2-R-CCGCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) – Wet Season- Annual-RCP 4.5- 2030 -GISS-E2-R-CCGCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Annual- RCP 6.0-2030 GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Annual- RCP 6.0-2030 GISS-E2-R-CC GCM	Raster	EPSG:3857

Layer group	Layer title	Data source	Description	Data type	CRS
	Change in average maximum temperature (°C) - Annual- RCP 8.5-2030 GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Annual- RCP 8.5-2030 GISS-E2-R-CC GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Dry Season- RCP 4.5-2030 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Dry Season- RCP 4.5-2030 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Dry Season- RCP 6.0-2030 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Dry Season- RCP 6.0-2030 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Dry Season- RCP 8.5-2030 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Dry Season- RCP 8.5-2030 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) – Wet Season- RCP 4.5-IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) – Wet Season- RCP 4.5-IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Wet Season- RCP 6.0- 2023- IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Wet Season- RCP 6.0-2023- IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Wet Season- RCP 8.5- 2023- IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Wet Season- RCP 8.5-2023- IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) – Annual- RCP 4.5- 2030- IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) – Annual- RCP 4.5-2030- IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Annual- RCP 6.0-2030 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Annual- RCP 6.0-2030 IPSL-CM5A-MR GCM	Raster	EPSG:3857

Layer group	Layer title	Data source	Description	Data type	CRS
	Change in average maximum temperature (°C) - Annual- RCP 8.5-2030 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Annual- RCP 8.5-2030 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Dry Season- RCP 4.5- 2060- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Dry Season- RCP 4.5- 2060- GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Dry Season- RCP 6.0- 2060- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Dry Season- RCP 6.0- 2060- GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Dry Season- RCP 8.5- 2060- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Dry Season- RCP 8.5- 2060- GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) – Wet Season- RCP 4.5-2060- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) – Wet Season- RCP 4.5- 2060- GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Wet Season- RCP 6.0-2060- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Wet Season- RCP 6.0- 2060- GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Wet Season- RCP 8.5-2060- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Wet Season- RCP 8.5- 2060- GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) – Annual- RCP 4.5-2060-GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) – Annual- RCP 4.5-2060- GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Annual- RCP 6.0- 2060- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Annual- RCP 6.0- 2060- GFDL-CM3 GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Annual- RCP 8.5- 2060- GFDL-CM3 GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Annual- RCP 8.5- 2060- GFDL-CM3 GCM	Raster	EPSG:3857

Layer group	Layer title	Data source	Description	Data type	CRS
	Change in average maximum temperature (°C) - Dry Season- RCP 4.5- 2060- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Dry Season- RCP 4.5- 2060- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Dry Season- RCP 6.0- 2060- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Dry Season- RCP 6.0- 2060- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Dry Season- RCP 8.5- 2060- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Dry Season- RCP 8.5- 2060- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) – Wet Season- RCP 4.5- 2060- GISS-E2-R-CCGCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) – Wet Season- RCP 4.5- 2060- GISS-E2-R-CCGCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Wet Season- RCP 6.0- 2060- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Wet Season- RCP 6.0- 2060- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Wet Season- RCP 8.5- 2060- GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Wet Season- RCP 8.5- 2060- GISS-E2-R-CC GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) – Annual- RCP 4.5- 2060 -GISS-E2-R-CCGCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) – Annual- RCP 4.5- 2060 -GISS-E2-R-CCGCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Annual- RCP 6.0-2060 GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Annual- RCP 6.0-2060 GISS-E2-R-CC GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Annual- RCP 8.5-2060 GISS-E2-R-CC GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Annual- RCP 8.5-2060 GISS-E2-R-CC GCM	Raster	EPSG:3857

Layer group	Layer title	Data source	Description	Data type	CRS
	Change in average maximum temperature (°C) - Dry Season- RCP 4.5-2060 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Dry Season- RCP 4.5-2060 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Dry Season- RCP 6.0-2060 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Dry Season- RCP 6.0-2060 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Dry Season- RCP 8.5-2060 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Dry Season- RCP 8.5-2060 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) – Wet Season- RCP 4.5-IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) – Wet Season- RCP 4.5- IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Wet Season- RCP 6.0- 2023- IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Wet Season- RCP 6.0-2023- IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Wet Season- RCP 8.5- 2023- IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Wet Season- RCP 8.5-2023- IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) – Annual- RCP 4.5- 2060- IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) – Annual- RCP 4.5-2060- IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Annual- RCP 6.0-2060 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Annual- RCP 6.0-2060 IPSL-CM5A-MR GCM	Raster	EPSG:3857
	Change in average maximum temperature (°C) - Annual- RCP 8.5-2060 IPSL-CM5A-MR GCM	Mekong River Commission- (MRC)	Change in average maximum temperature (°C) - Annual- RCP 8.5-2060 IPSL-CM5A-MR GCM	Raster	EPSG:3857

Aerial view of agricultural farms in Dontret, Cambodia (photo by ICEM)

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