PROJECTDEVELOPMENTOFSPRINT-1

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protectionSPRINTfundscollaborativeprojectswithmanycompaniesacrosstheUK,theoutcomesofmany of these projects, and the missions of companies leading them, help to contribute to the UN'sSustainableDevelopmentGoals(SDGs).Thiswassummarisedinapreviousreport,thatidentifiedandsummarisedthemostfrequentGoals,directlyandindirectlylinkedtoSPRINTprojects.Thetop3mostfrequentGoalswere:

• SDG#9Industry,Innovation,andInfrastructure

• SDG#12 Responsible Consumption and Production • SDG#13 Climate Action This report willsummarisetheSDG#13andprovidessomeexamplesofhowSPRINTprojectsaresupportingthisGoal.SustainableDevelopmentGoalSDG#13:ClimateActionThereisnocountrythatisnotexperiencingthedrastic effects of climate change. Its impacts upon the globe are ruthless and the recovery costs arecountless. Due to changing weather patterns, sea levels are rising, weather events are becoming moreextremeandgreenhousegasemissionsareattheirhighestlevelsinhistory.Asaresult,floodingacrossIndia, Bangladesh and Nepal has affected 9.6 million people and 550 people died in 2020. Moreover,deforestationoccurssimultaneouslybyanthropogenicactivitiesandnaturalevents,whichreleasehugeamounts of carbon dioxide that accelerates global warming. According to the United NationsDevelopment Plan (UNDP), the annual average economic losses from climate-related disasters are inthe hundreds of billions of dollars. This is not to mention the human impact of geo-physical disasters,which are 91 per cent climate-related, and which between 1998 and 2017 killed 1.3 million people andleft 4.4 billion injured. Immediate action is required with efforts to integrate disaster risk measures,sustainable natural resource management and human security into national development strategies.Hence, these actions are possible through harnessing existing technologies, investments andcollaborationsofbusinesses.SPRINTCaseStudiesInthepreviousreportaboutSPRINTandtheSDGs,SDG#13:ClimateActionappearedasthethirdmostfrequentGoalfromtheprojectlistscontributingtostrengthen resilience and adaptive capacity to climate related hazards and natural disasters, andmitigate the cost of climate action through sustainable management based on the Global IndicatorFramework (GIF). Of the 87 projects investigated, a total of 21 projects were assessed to contributedirectly or indirectly to SDG#13. Due to the space sector focus of the SPRINT programme, many of thefundedcollaborativeprojectsarecloselylinkedwithharnessinginnovativespacetechnologiessuchasEarth Observation (EO), Sentinel 1 (Radar) and Sentinel 2 (Optical) which uses satellite imagery for awidevarietyofapplicationssuchasforestchangeandlandcovermapping.Thesetechnologiesplaya

central role in climate change monitoring, weather forecasting, disaster management, and search andrescue operations. Ecometrica Ecometrica is the global leader in downstream space informationsolutions.Thecompanysigneduptothenational SPRINTprogrammetohaveaccesstoexpertisefro mthe University of Surrey, one of Britain's top space research institutions. Ecometrica worked out toanalysesatellitedataformonitoringsustainabledevelopmentgoalsandclimateresilience.Thisprojectdevelop s scalable methods to bring together Earth Observation data from different sources (bothavailableSentineldataandcommercialproducts)tomonitorvulnerabilityto,andrecoveryfromnaturaldisast ers,specificallyusingthecaseoffloodinginMexico,andnaturalandman-madeeventsinBrazil.Through this project, assessment on the risk of forest fires can be warned in advance to mitigate theimpact of forest fire which is one of the main factors in forest degradation, and improve firemanagement regimes which is likely to be an essential component of climate changeresiliencestrategies. Moreover, tropical forests store large amounts of carbon dioxide which when mapping thedetails about the carbon storage capacity of tropical forest regeneration, will help tropical forestpartners to locate the areas where forest and planting will be most effective at sequestering carbon,thereby acting to reduce climate change. Figure 1 Data analysis based on Earth Observation byEcometricaAccordingtotheGlobalIndicatorFramework,Ecometricacoversthefollowingindicators: 13.1Strengthenresilienceandadaptivecapacitytoclimate-relatedhazardsandnaturaldisastersinallcountries 13.1.3 Proportion of local governments that adopt and implement local disaster riskreduction strategies in line with national disaster risk reduction strategies 13.2 Integrate climatechange measures into national policies, strategies and planning The outcomes of the EcometricaprojectcouldalsomakedirectandindirectcontributionstoachievingotherSDGs,including:

- Goal1:NoPoverty
- Goal3:GoodHealthandWell-being
- Goal4:QualityEducation
- Goal5:GenderEquality
- Goal8:DecentWorkandEconomicGrowth
- Goal10:ReducedInequality
- Goal11:SustainableCitiesandCommunities
- Goal12:ResponsibleConsumptionandProduction

- Goal 15: Life on Land Previsico Flooding is the one of the extreme events caused by climate crisis.Theimportanceofmitigationofitsimpactsandpreparationforfloodingisrequiredforfutureresilienceagai nst natural disaster. The challenge with existing forecasting technologies is that because everystorm is different, hourly changes in weather patterns can cause floods which are not detected usingtraditional forecasting approaches. However, Previsico has made a difference with a research projectwith SPRINT partner, the University of Leicester. Figure 2 Example of Previsico's flood forecastingprogramme Previsico is a global flooding forecasting company, which spun out of LoughboroughUniversity in 2019. The majority of its work is aimed at reducing the impact of flooding globally bydelivering the absolute best flood forecasting technology to those who need it. Previsico signed up tothenationalSPRINTbusinesssupportprogrammetofurtherincreasetheaccuracyofitsflood

modelling techniques and commercialise its comprehensive flood management solution. Thecollaboration with the University of Leicester has resulted in more accurate and validated floodforecasts to its international customers, enabling them to respond to flood events in a targeted andefficient manner. According to the Global Indicator Framework, Previsico covers the followingindicators: 13.1 Strengthen resilience and adaptive capacity to climate-related hazards and naturaldisasters in all countries 13.1.3 Proportion of local governments that adopt and implement localdisaster risk reduction strategies in line with national disaster risk reduction strategies 13.2 IntegrateclimatechangemeasuresintonationalpoliciesstrategiesandplanningTheoutcomesofthePrevisicoprojectcouldalsomakedirectandindirectcontributionstoachievingotherSDGsincluding:

• Goal1:NoPoverty
• Goal3:GoodHealthandWell-being
• Goal8:DecentWorkandEconomicGrowth
• Goal9:Industry,Innovation,andInfrastructure
• Goal10:ReducedInequality
• Goal11:SustainableCitiesandCommunities

• Goal15:LifeonLandConclusionTheUnitedNations'SustainableDevelopmentGoalsarecontainingvarious issuesaroundtheworld.Inparticular,SDG#13wasestablishedtotackleglobalissuesrelatingto the climate crisis. As extreme weather events and natural disasters cause enormous costs ineconomic, social and environmental terms, the efforts to mitigate the impacts through innovativetechnology become critical. Therefore, the technological approach should be more emphasised andpartnerships should be encouraged between businesses and Higher Education Institutions toacceleratetheinventionofinnovativetechnologies.SuchtechnologicalsupportfromSPRINTprojectscould allowsustainablesolutionstobecomeadaptedfromimaginationtoreality.Thus,peoplecanbepreparedforthe disastersandlivinginmoresecurehomeenvironments