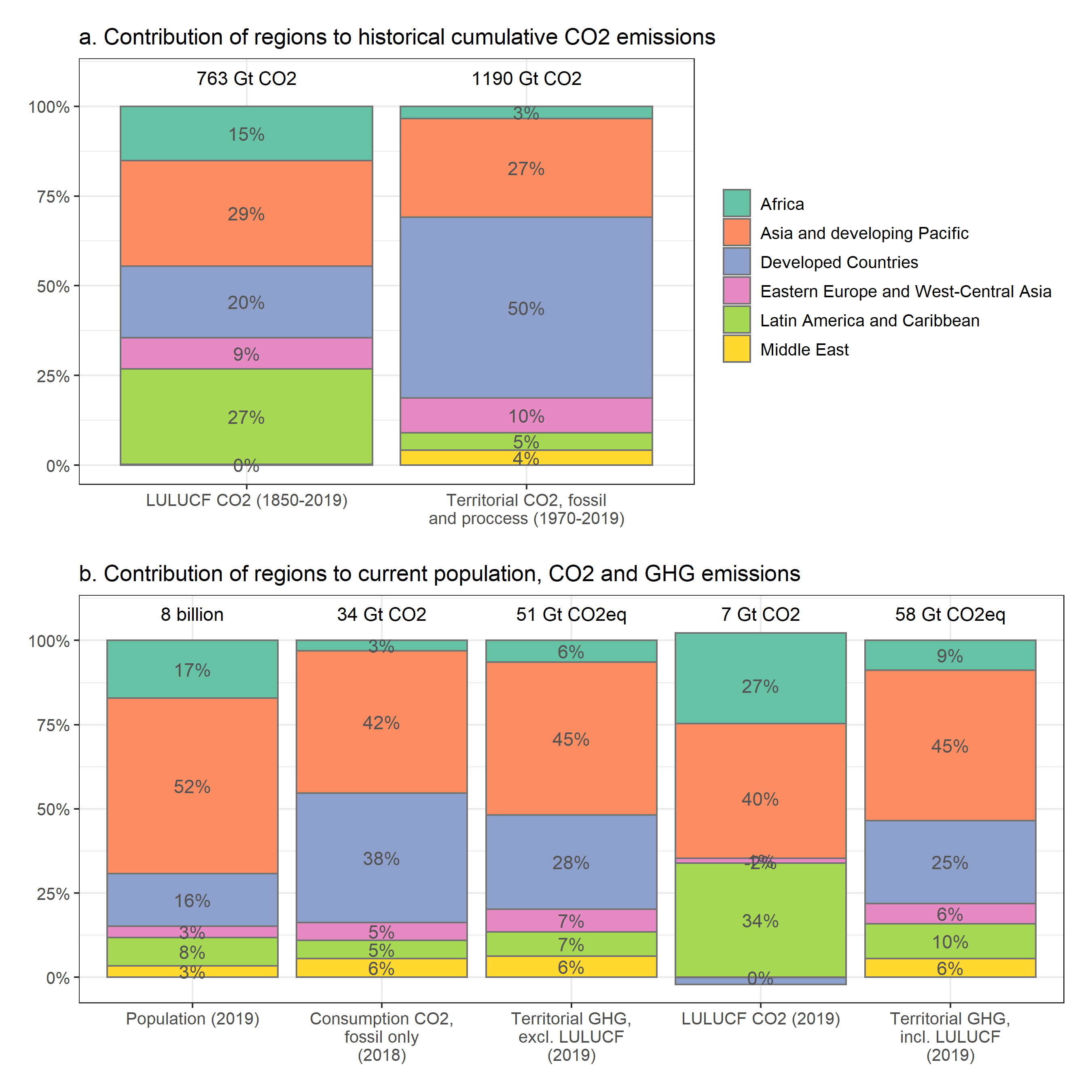
equity\_perspectives

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data <- gather\_data("region\_ar6\_6",ipcc\_regions,edgar\_ghg,land,wdi\_data\_gdp\_pop)  
  
  
##### find positions for each region and % value  
  
data <- data %>%   
 arrange(desc(region\_select)) %>%   
 group\_by(var) %>%   
 mutate(cumsum=cumsum(fraction)) %>%  
 ungroup() %>%   
 mutate(position=fraction/2)  
  
  
for (i in 1:length(unique(data$var))) {  
   
 handle = unique(data$var)[i]  
   
 for (j in 2:(length(data$region\_select[data$var==handle]))) {  
   
 data$position[data$var==handle][j] <- data$position[data$var==handle][j] + data$cumsum[data$var==handle][j-1]  
   
 }  
}  
  
  
  
p1 <- data %>%  
 filter(category=="Current population and emissions") %>%  
 filter(var!="Territorial CO2, fossil and proccess (2019)") %>%  
 ggplot(.,aes(x=var,y=fraction,fill=region\_select)) +  
 geom\_bar(stat='identity',color="#737373") +  
 geom\_text(data=data %>%  
 filter(var!="Territorial CO2, fossil and proccess (2019)") %>%  
 filter(category=="Current population and emissions") %>%  
 filter(region\_select=="Africa"),aes(x=var,y=1.08,label=label)) +  
 geom\_text(data=data %>%  
 filter(var!="Territorial CO2, fossil and proccess (2019)") %>%  
 filter(category=="Current population and emissions"),  
 aes(x=var,y=position,label=paste0(round(fraction,2)\*100,"%")),color="#525252") +  
 scale\_fill\_brewer(palette="Set2") +  
 scale\_x\_discrete(labels=label\_wrap\_gen(width=18,multi\_line = TRUE)) +  
 scale\_y\_continuous(labels = percent,breaks=c(0,0.25,0.50,0.75,1)) +  
 #facet\_wrap(.~category,scales="free",nrow=2) +  
 ggtitle("b. Contribution of regions to current population, CO2 and GHG emissions") +  
 theme(legend.title=element\_blank(),  
 axis.title = element\_blank(),  
 title = element\_text(face="plain"),  
 axis.text = element\_text(size=10),  
 legend.text = element\_text(size=10),  
 legend.position="none")  
  
p2 <- data %>%  
 filter(category=="Historical cumulative emissions") %>%  
 filter(!grepl("life",var)) %>%   
 ggplot(.,aes(x=var,y=fraction,fill=region\_select)) +  
 geom\_bar(stat='identity',color="#737373") +  
 geom\_text(data=data %>%  
 filter(category=="Historical cumulative emissions") %>%  
 filter(!grepl("life",var)) %>%   
 filter(region\_select=="Africa"),aes(x=var,y=1.08,label=label)) +  
 geom\_text(data=data %>%  
 filter(category=="Historical cumulative emissions") %>%  
 filter(!grepl("life",var)),  
 aes(x=var,y=position,label=paste0(round(fraction,2)\*100,"%")),color="#525252") +  
 scale\_fill\_brewer(palette="Set2") +  
 scale\_x\_discrete(labels=label\_wrap\_gen(width=25,multi\_line = TRUE)) +  
 scale\_y\_continuous(labels = percent,breaks=c(0,0.25,0.50,0.75,1)) +  
 #facet\_wrap(.~category,scales="free",nrow=2) +  
 ggtitle("a. Contribution of regions to historical cumulative CO2 emissions") +  
 theme(legend.title=element\_blank(),  
 axis.title = element\_blank(),  
 title = element\_text(face="plain"),  
 axis.text = element\_text(size=10),  
 legend.text = element\_text(size=10))  
  
wrap\_elements(p2) / wrap\_elements(p1)



# p1 <- data %>%  
# filter(category=="Current population and emissions") %>%   
# filter(var!="Territorial CO2, fossil and proccess (2019)") %>%   
# ggplot(.,aes(x=var,y=fraction,fill=region\_select)) +  
# geom\_bar(stat='identity',color="#737373") +  
# geom\_text(data=data %>%   
# filter(var!="Territorial CO2, fossil and proccess (2019)") %>%   
# filter(category=="Current population and emissions") %>%   
# filter(region\_select=="Africa"),aes(x=var,y=1.08,label=label)) +  
# scale\_fill\_brewer(palette="Set2") +  
# scale\_x\_discrete(labels=label\_wrap\_gen(width=18,multi\_line = TRUE)) +  
# scale\_y\_continuous(labels = percent,breaks=c(0,0.25,0.50,0.75,1)) +  
# #facet\_wrap(.~category,scales="free",nrow=2) +  
# ggtitle("a. Current population, CO2 and GHG emissions") +  
# theme(legend.title=element\_blank(),  
# axis.title = element\_blank(),  
# title = element\_text(face="plain"),  
# axis.text = element\_text(size=10),  
# legend.text = element\_text(size=10))  
#   
# p2 <- data %>%   
# filter(var=="Territorial CO2, fossil and proccess (1970-2018)") %>%   
# ggplot(.,aes(x=var,y=fraction,fill=region\_select)) +  
# geom\_bar(stat='identity',color="#737373") +  
# geom\_text(data=data %>%   
# filter(category=="Historical cumulative emissions") %>%   
# filter(var=="Territorial CO2, fossil and proccess (1970-2018)") %>%   
# filter(region\_select=="Africa"),aes(x=var,y=1.08,label=label)) +  
# scale\_fill\_brewer(palette="Set2") +  
# scale\_x\_discrete(labels=label\_wrap\_gen(width=25,multi\_line = TRUE)) +  
# scale\_y\_continuous(labels = percent,breaks=c(0,0.25,0.50,0.75,1)) +  
# #facet\_wrap(.~category,scales="free",nrow=2) +  
# ggtitle("b. The contributions of countries to historical cumulative CO2 emissions, split by development stage") +  
# theme(legend.position="none",  
# axis.title = element\_blank(),  
# title = element\_text(face="plain"),  
# axis.text = element\_text(size=10),  
# legend.text = element\_text(size=10))  
#   
# p3 <- data %>%   
# filter(category=="Historical cumulative emissions") %>%   
# filter(var!="Territorial CO2, fossil and proccess (1970-2018)") %>%   
# filter(var!="LULUCF CO2 (1850-2019)") %>%   
# ggplot(.,aes(x=reorder(var,desc(var)),y=value,fill=region\_select)) +  
# geom\_bar(stat='identity',color="#737373") +  
# geom\_text(data=data %>%   
# filter(category=="Historical cumulative emissions") %>%   
# filter(var!="Territorial CO2, fossil and proccess (1970-2018)") %>%   
# filter(var!="LULUCF CO2 (1850-2019)") %>%   
# filter(region\_select=="Africa"),aes(x=var,y=6.2e11,label=label),hjust=0) +  
# scale\_fill\_brewer(palette="Set2") +  
# coord\_flip() +  
# scale\_x\_discrete(labels=label\_wrap\_gen(width=18,multi\_line = TRUE),position="top",) +  
# expand\_limits(y=c(0,7e11)) +  
# ylab("GHG emissions (GtCO2eq)") +  
# theme(legend.position="none",  
# axis.title.y = element\_blank(),  
# title = element\_text(face="plain"),  
# axis.text = element\_text(size=10),  
# legend.text = element\_text(size=10),  
# plot.background = element\_blank())  
#   
#   
# wrap\_elements(p1) / wrap\_elements((p2 + p3 + plot\_layout(widths=c(1,4))))

wb <- openxlsx::createWorkbook(title = "ipcc\_ar6\_figure\_equity\_perspectives")  
  
addWorksheet(wb,"info")  
addWorksheet(wb,"data")  
  
data <- data %>%   
 filter(!grepl("life",var))  
  
info = data.frame(x=c("Author","Last update","Code"),y=c("William F. Lamb",as.character(Sys.time()),"https://github.com/mcc-apsis/AR6-Emissions-trends-and-drivers/blob/master/R/Analysis%20and%20figures/equity\_perspectives.Rmd"))  
  
writeData(wb, sheet="info",info,colNames=F,rowNames=F)  
writeData(wb, sheet = "data", data, colNames = T, rowNames = F)  
  
saveWorkbook(wb,"../../Results/Plot data/ipcc\_ar6\_figure\_equity\_perspectives.xlsx",overwrite=T)

Note that the echo = FALSE parameter was added to the code chunk to prevent printing of the R code that generated the plot.