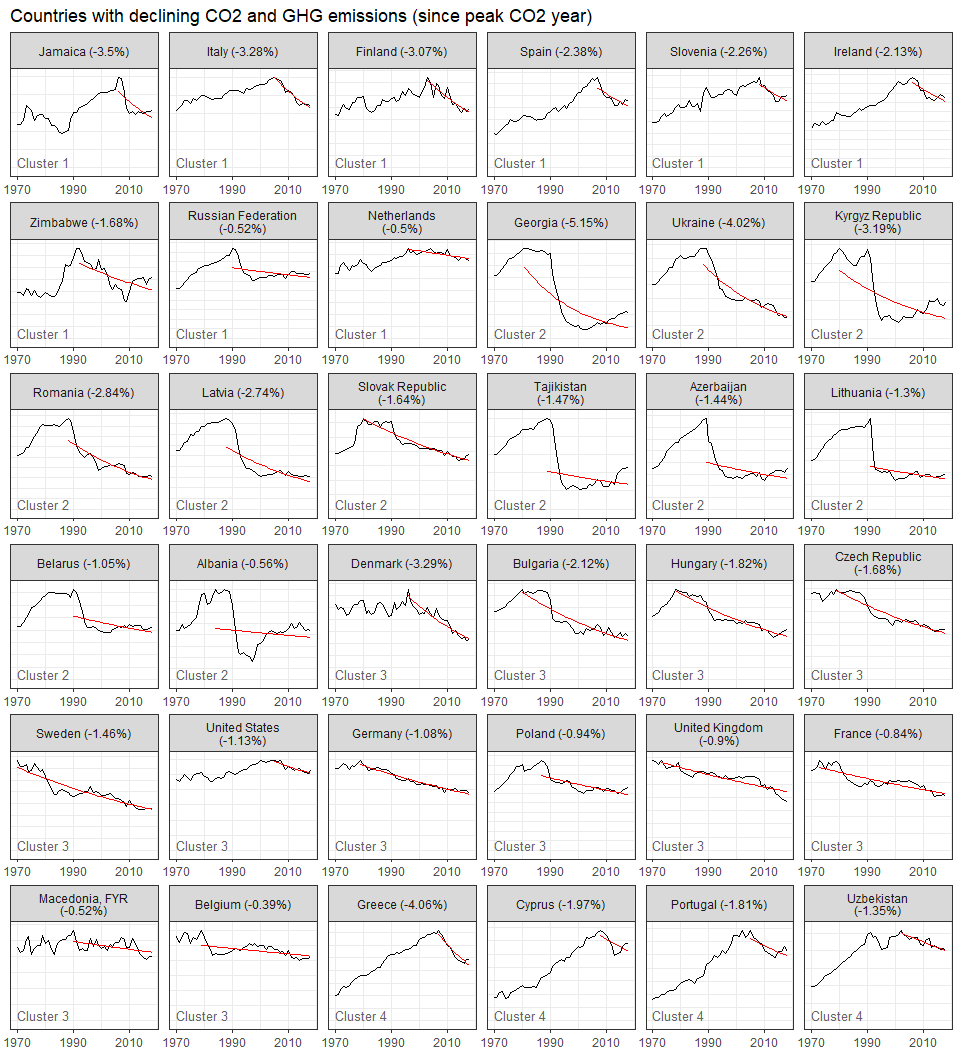
Decarbonising countries

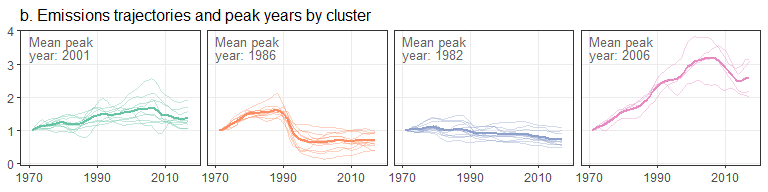
William F. Lamb

27 November, 2020

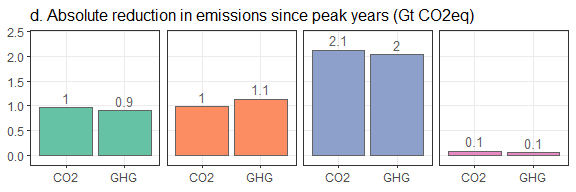
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### Find countries with declining CO2 emissions (1970-2018)

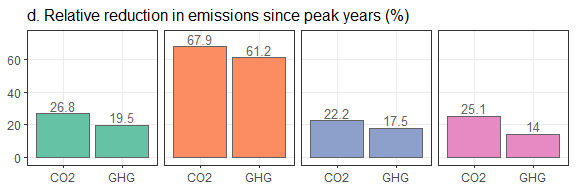


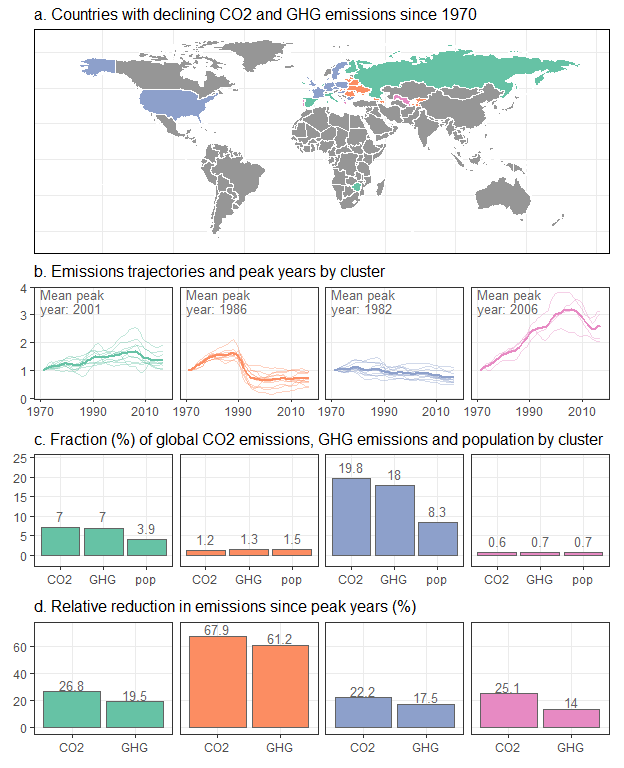


# for each country, for each year, find the emissions difference to the previous year  
  
plot\_data <- gather(cluster\_table,var,value,abs\_reduction\_CO2,abs\_reduction\_GHG) %>%   
 mutate(var=ifelse(var=="abs\_reduction\_CO2","CO2",var)) %>%   
 mutate(var=ifelse(var=="abs\_reduction\_GHG","GHG",var)) %>%   
 filter(!is.na(cluster)) %>%   
 mutate(value=value/1000)  
  
p4 <- plot\_data %>% ggplot(.,aes(x=var,y=value,fill=cluster)) +  
 geom\_bar(stat='identity',color="#636363") +  
 geom\_text(data=plot\_data,inherit.aes=FALSE,aes(x=var,y=value+0.2,label=round(value,1)),size =3.5,color="#636363") +  
 facet\_grid(.~cluster) +  
 scale\_y\_continuous(expand = c(0, 0.2)) +  
 theme(legend.position = "none",  
 legend.title = element\_blank(),  
 axis.title = element\_blank(),  
 panel.grid.minor = element\_blank(),  
 plot.title = element\_text(size=12),  
 strip.background = element\_blank(),  
 strip.text = element\_blank()) +  
 ggtitle("d. Absolute reduction in emissions since peak years (Gt CO2eq)")  
p4

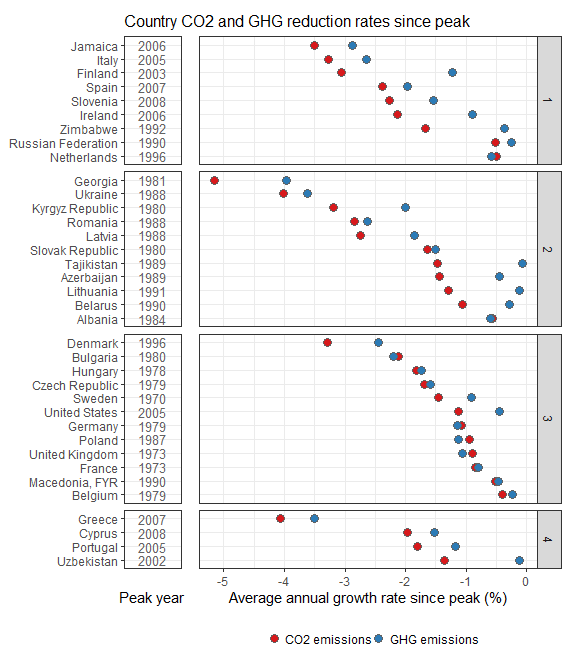


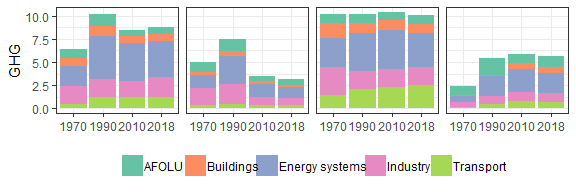
plot\_data <- gather(cluster\_table,var,value,rel\_reduction\_CO2,rel\_reduction\_GHG) %>%   
 mutate(var=ifelse(var=="rel\_reduction\_CO2","CO2",var)) %>%   
 mutate(var=ifelse(var=="rel\_reduction\_GHG","GHG",var)) %>%   
 filter(!is.na(cluster))  
  
p4 <- plot\_data %>% ggplot(.,aes(x=var,y=value,fill=cluster)) +  
 geom\_bar(stat='identity',color="#636363") +  
 geom\_text(data=plot\_data,inherit.aes=FALSE,aes(x=var,y=value+5,label=round(value,1)),size =3.5,color="#636363") +  
 facet\_grid(.~cluster) +  
 scale\_y\_continuous(expand = c(0, 5)) +  
 theme(legend.position = "none",  
 legend.title = element\_blank(),  
 axis.title = element\_blank(),  
 panel.grid.minor = element\_blank(),  
 plot.title = element\_text(size=12),  
 strip.background = element\_blank(),  
 strip.text = element\_blank()) +  
 ggtitle("d. Relative reduction in emissions since peak years (%)")  
p4





## Scale for 'fill' is already present. Adding another scale for 'fill',  
## which will replace the existing scale.





## Note: zip::zip() is deprecated, please use zip::zipr() instead