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#####
##### FAO UNDP rapid environmental assessment (aggregate LC classes) #####
#####                               NFI                               #####
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```
rm(list=ls())
rootdir <- "Z:/4_GIS_Data/5_GIS_Data/All_GIS_DATA/351_UNDP_FAO_Rohingya/BUTM2010/"
setwd(rootdir)
```

```
library(xlsx)
library(foreign)
```

```
options(stringsAsFactors = FALSE)
```

```
#### read and aggregate the LC classes ####
df1 <- read.dbf("V1/4_Result/Results_V1.dbf", as.is = T)
names(df1)
unique(df1$CLASS_R)
```

```
non_veg_water <- c("Brackish Water Aquaculture", "Fresh Water Aquaculture", "Mud Flats or Intertidal
                  "Ponds", "Rivers and Khals", "Lake", "Salt Pans", "Brickfield", "Sand" ) # Non ve
crop <- c("Multiple Crop", "Single Crop", "Shifting Cultivation") # Crop
shrubs_forest <- c("Hill Forest", "Shrub Dominated Forest Area", "Shrub Dominated Area") # Shrubs an
plant_orchards <- c("Forest Plantation", "Rubber Plantation", "Orchards and Other Plantations (Trees
mangrove <- c("Mangrove Plantation") # Mangrove
barren <- c() # Barren (disturbed) lands
resident <- c("Built-Up Non-Linear", "Rural Settlement") # Residential (host communities)
camps <- c() # Rohingya camps
```

```
df1$CLASS_Agg <- ifelse(df1$CLASS_R %in% non_veg_water, "Non vegetated or water",
                        ifelse(df1$CLASS_R %in% crop, "Crop",
                                ifelse(df1$CLASS_R %in% shrubs_forest, "Shrubs and Forest",
                                        ifelse(df1$CLASS_R %in% plant_orchards, "Plantations and Orcha
                                                ifelse(df1$CLASS_R %in% mangrove, "Mangrove",
                                                        ifelse(df1$CLASS_R %in% barren, "Barren (disturb
                                                                ifelse(df1$CLASS_R %in% resident, "Residential
                                                                        ifelse(df1$CLASS_R %in% camps, "Rohingya
```

```
#### For V2 (shrubs_forest splitted into original three classes) ####
df1$CLASS_Agg <- ifelse(df1$CLASS_R %in% non_veg_water, "Non vegetated or water",
                        ifelse(df1$CLASS_R %in% crop, "Crop",
                                ifelse(df1$CLASS_R %in% plant_orchards, "Plantations and Orchards",
                                        ifelse(df1$CLASS_R %in% mangrove, "Mangrove",
                                                ifelse(df1$CLASS_R %in% barren, "Barren (disturbed) lan
                                                        ifelse(df1$CLASS_R %in% resident, "Residential
                                                                ifelse(df1$CLASS_R %in% camps, "Rohingya
```

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####
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```
all(!is.na(df1$CLASS_Agg)) # Check
```

```
#### Create aggregation table ####
lc_class_agg <- aggregate(Area_ha ~ CLASS_R + CLASS_Agg, data = df1 ,FUN = sum)
names(lc_class_agg) <- c("Land_cover_class", "Aggregated_class", "Area_ha")
```

```
#### Prepare results ####
df2 <- df1[,c("AOI", "PIA_5km", "PIA_10km", "Camp", "Area_ha", "CLASS_Agg")]
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```
baseline <- aggregate(Area_ha ~ CLASS_Agg, data = df2[df2$AOI == 1,], FUN = sum)
names(baseline)[2] <- "Baseline, ha"
```

```
current <- aggregate(Area_ha ~ CLASS_Agg, data = df2[df2$Camp == 1,], FUN = sum)
names(current)[2] <- "Current, ha"
```

```
pia_10km <- aggregate(Area_ha ~ CLASS_Agg, data = df2[df2$PIA_10km == 1,], FUN = sum)
names(pia_10km)[2] <- "Projected_10km, ha"

pia_5km <- aggregate(Area_ha ~ CLASS_Agg, data = df2[df2$PIA_5km == 1,], FUN = sum)
names(pia_5km)[2] <- "Projected_5km, ha"

f_table <- Reduce(function(x, y) merge(x, y, all=TRUE), list(baseline, current, pia_5km, pia_10km))
f_table[is.na(f_table)] <- 0

#### Write the results ####
agg_data <- aggregate(Area_ha ~ AOI + PIA_5km + PIA_10km + Camp + CLASS_Agg, data = df2, FUN = sum)

write.xlsx(agg_data, "V1/4_Result/V1_Results_V2.xlsx", sheetName = "Data", row.names = F)
write.xlsx(f_table, "V1/4_Result/V1_Results_V2.xlsx", append = T, sheetName = "Final_table", row.names = F)
write.xlsx(lc_class_agg[,c("Land_cover_class", "Aggregated_class")], "V1/4_Result/V1_Results_V2.xlsx", sheetName = "Land_cover_class", row.names = F)
```