Introduction to plotting in R

Get data

- Download package with our data in

    ```
    devtools::install_github("n8thangreen/dataPakistan")
    ```

- Load the package with the data in

    ```
    library(dataPakistan)
    ```

- Take a look at what data is available

    ```
    system.file("extdata", package = "dataPakistan")
    ```

- Should look like this:

[1] "Admin-datasheet-year2018.xlsx"   "ICM-datasheet-year2018.xlsx"   "List of AFP Cases 2015-2019.xlsx"

[4] "List of Env Samples 2015-2019.xlsx"   "List of NON POLIO AFP Cases 2015-2019.xlsx"   "LQAS %Pass _ District level_ Sep18-Mar19.xlsx"

[7] "LQAS UC level_ Sep18-Mar19.xlsx"   "MPQA _March SNID.xlsx"   "Population under 15-estimates 2018-19 as 190510.xlsx"
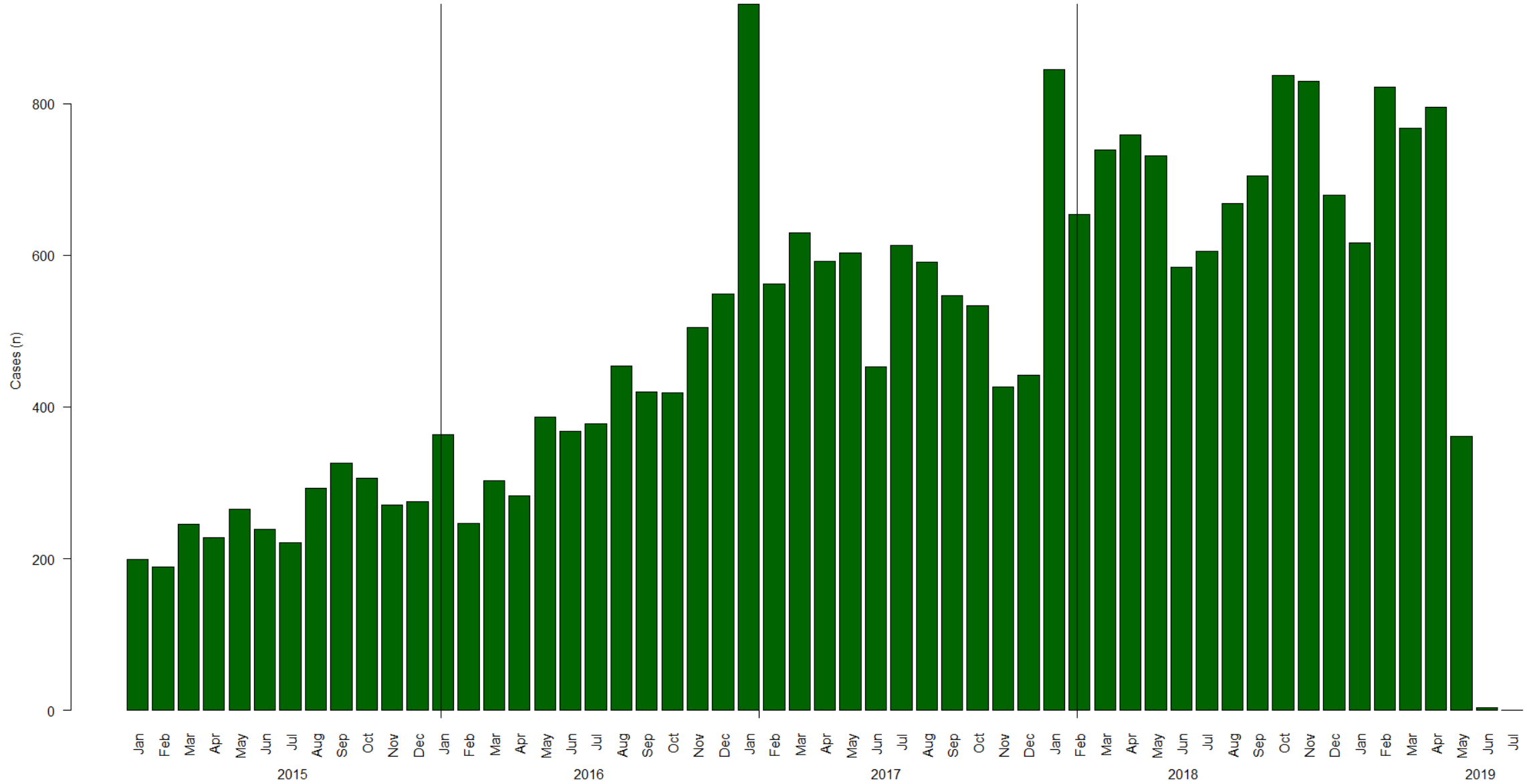
Where we will get to…

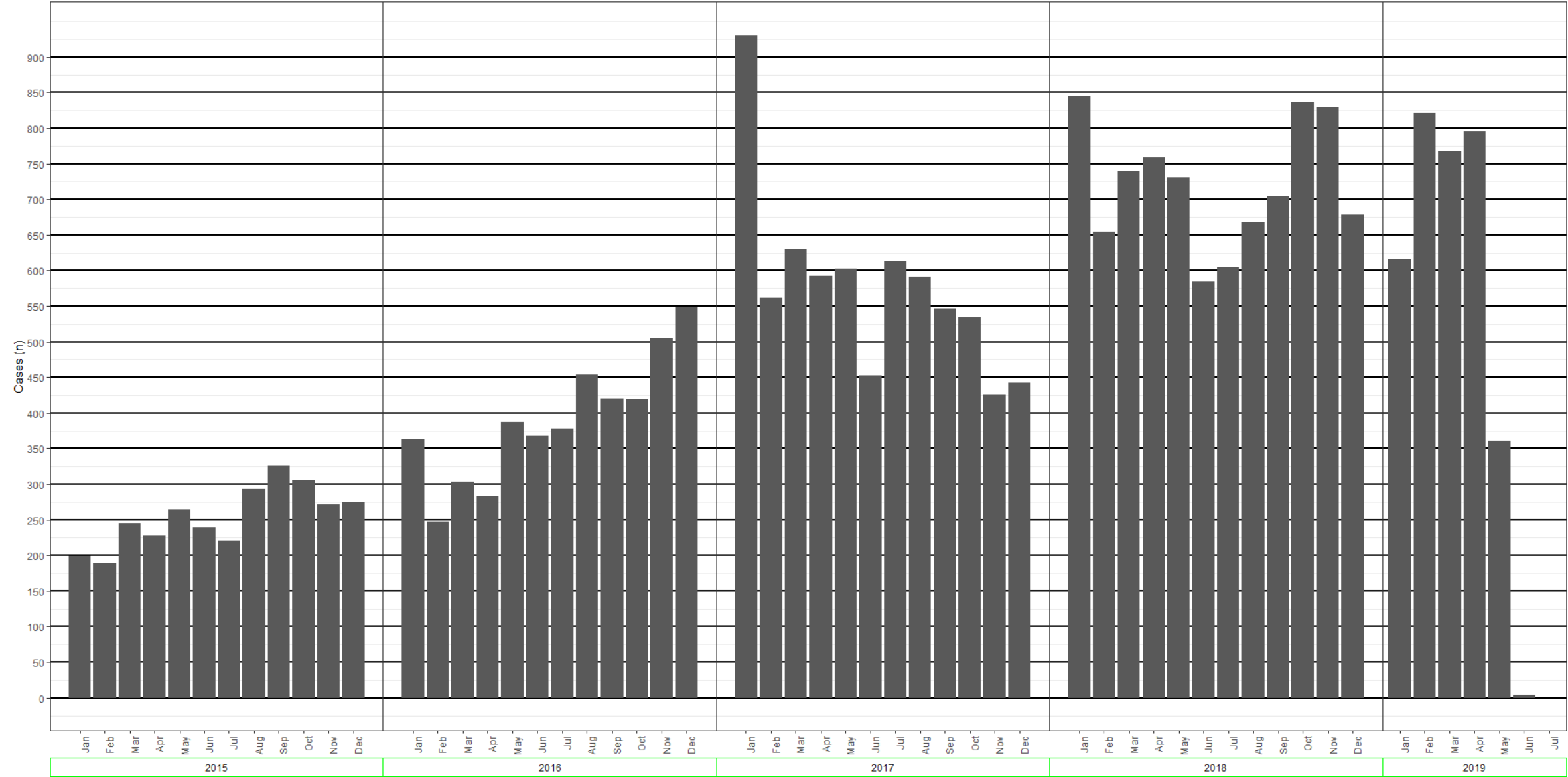Graph 1:Distribution of AFP Cases by Month, Pakistan 2015-2019*
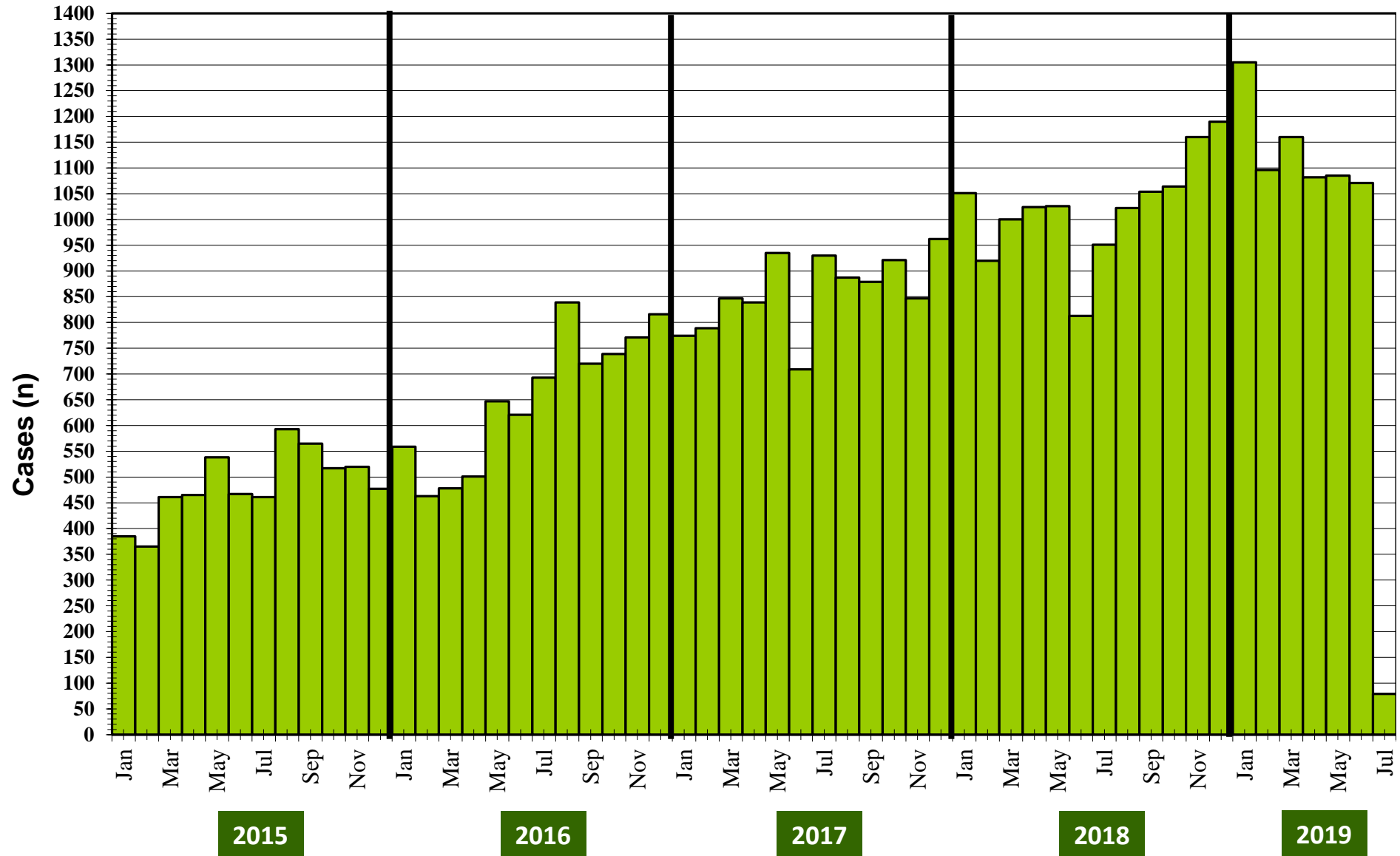
* Afp.rec Data as of 15-07-2019

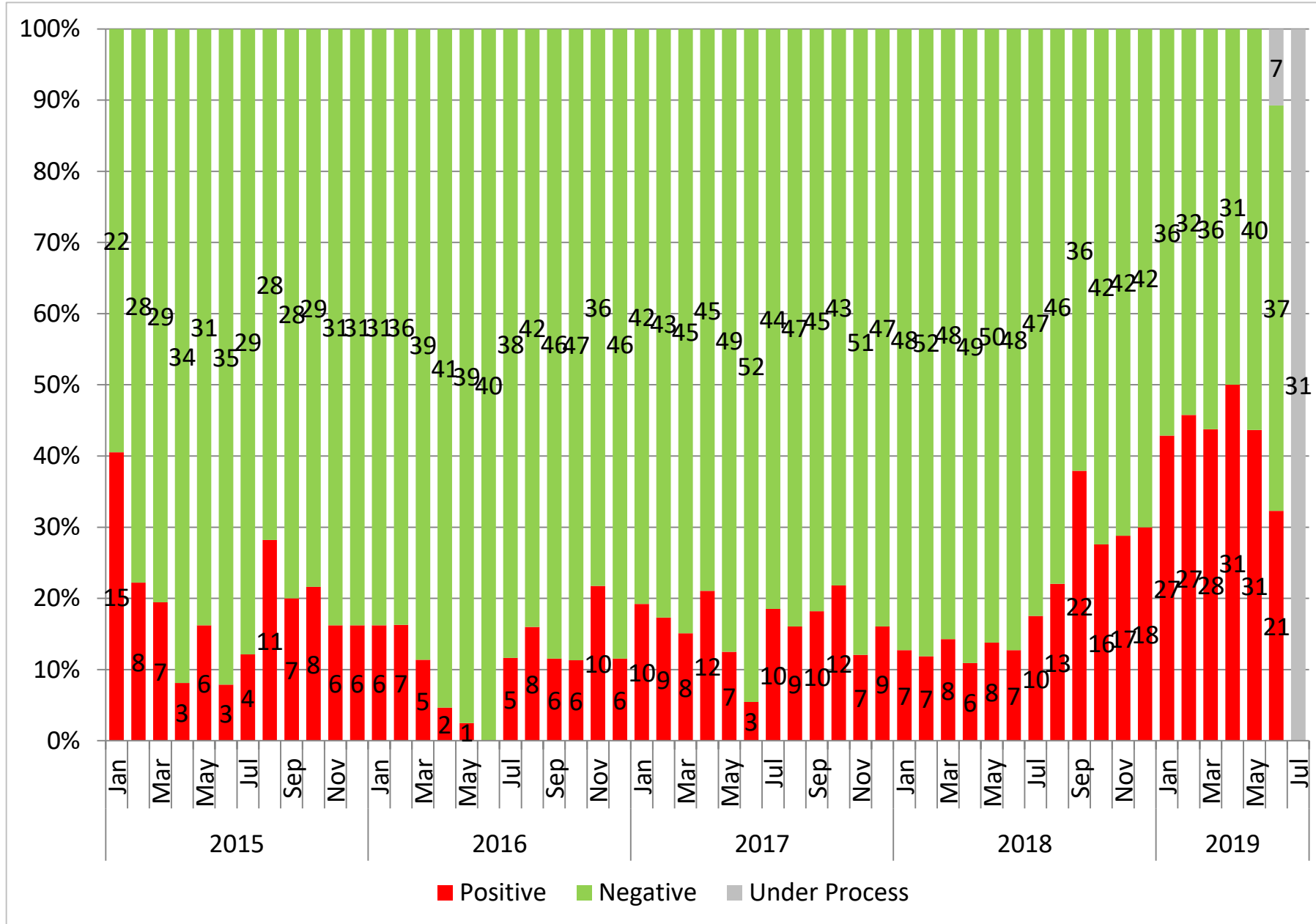Graph 1:Distribution of AFP Cases by Month, Pakistan 2015-2019*

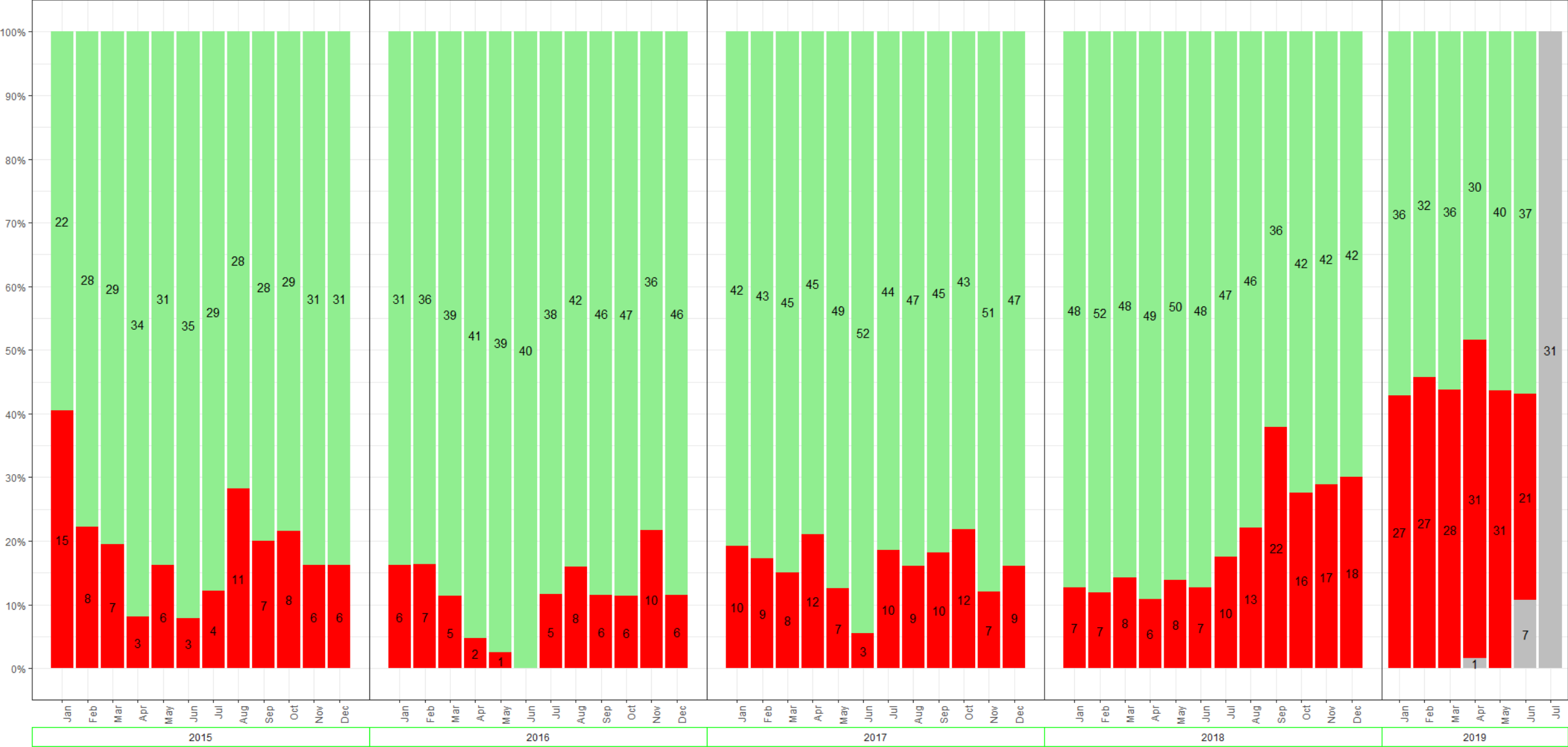Graph 1:Distribution of AFP Cases by Month, Pakistan 2015-2019*

* Afp.rec Data as of 15-07-2019

ENVIRONMENTAL SAMPLING RESULTS 2015-19*
PAKISTAN

Environmental Sampling Results 2015-19*
Pakistan

SUMMARY OF MPQA RESULTS

- Micro Plans of Tier-1 Districts from Karachi town, Quetta Block and Peshawar/Khyber are passed
- Substantial gaps identified primarily in Balochistan and pockets of KP and Sindh

AJK: MIRPUR 90%, MUZAFFARABAD 85%, BHIMBER 72%

GB: ASTORE 94%, GHANCHE 75%, NAGAR 68%

ISLAMABAD 87%, QUETTA 96%, PISHIN 93%

BALOCHISTAN: ZHOB 82%, DUKKI 80%, KOHLU 79%, KABDULAH 78%, KECH 78%, NSIRABAD 65%, ZIARAT 57%, LASBELA 52%

KP: NOWSHERA 86%, PESHAWAR 83%, HARIPUR 80%, CHITRAL 77%, SHANGLA 70%, TANK 67%, MALAKAND 64%, BAJOUR 93%, ORAKZAI 77%, KHYBER 77%, WAZIR-S 30%

PUNJAB: OKARA 94%, CHINIOT 89%, GUJRAT 86%, RAWALPINDI 85%, SAHIWAL 81%, DGKHAN 79%, KASUR 78%, GUJRANWALA 69%, BHAKKAR 68%

SINDH: KHIGIQBAL 89%, MIRPURKHAS 88%, TMKHAN 84%, KHIJAMSHEED 83%, SUJAWAL 81%, KHILAYARI 79%, MATIARI 79%, KHIGADAP 78%, KAMBAR 73%, SANGHAR 70%, KHAIRPUR 64%, HYDERABAD 59%

SUMMARY OF MPQA RESULTS

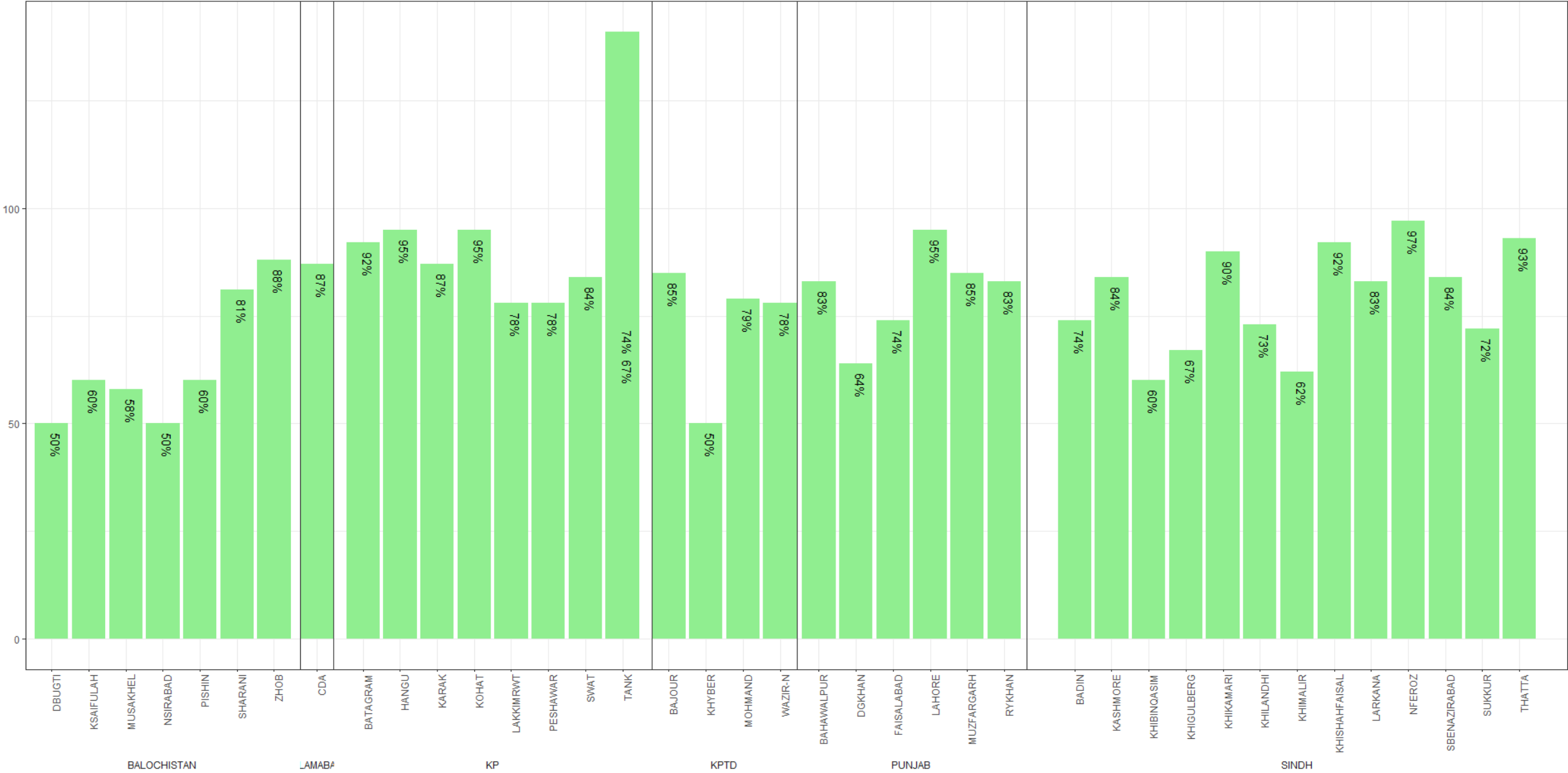- Micro Plans of Tier-1 Districts from Karachi town, Quetta Block and Peshawar/Khyber are passed
- Substantial gaps identified primarily in Balochistan and pockets of KP and Sindh

BALOCHISTAN							
DBUGTI	KSAIFULLAH	MUSAKHEL	NSIRABAD	PISHIN	SHARANI	ZHOB	
50%	60%	58%	50%	60%	81%	88%	

LAMABA — CDA 87%

KP							
BATAGRAM	HANGU	KARAK	KOHAT	LAKKIMRWT	PESHAWAR	SWAT	TANK
92%	95%	87%	95%	78%	78%	84%	74% 67%

KPTD			
BAJOUR	KHYBER	MOHMAND	WAZIR-N
85%	50%	79%	78%

PUNJAB					
BAHAWALPUR	DGKHAN	FAISALABAD	LAHORE	MUZFARGARH	RYKHAN
83%	64%	74%	95%	85%	83%

SINDH												
BADIN	KASHMORE	KHIBINQASIM	KHIGULBERG	KHIKAMARI	KHILANDHI	KHIMALIR	KHISHAHFAISAL	LARKANA	NFEROZ	SBENAZIRABAD	SUKKUR	THATTA
74%	84%	60%	67%	90%	73%	62%	92%	83%	97%	84%	72%	93%

What plot?

	January	February
North	1	2
South	2	2
East	3	3
West	4	3

Exporting (saving) figures in file

- There are two ways in which figures and plots can be output to a file (rather than simply displaying on screen).

1. (easiest) is to export directly from the RStudio 'Plots' panel, by clicking on Export when the image is plotted. This will give you the option of png or pdf and selecting the directory to which you wish to save it to. It will also give you options to dictate the size and resolution of the output image.

2. Use R functions and have the write to file hard-coded in to your script.

This would allow you to run the script from start to finish and automate the process (not requiring human point-and-click actions to save). In R's terminology, output is directed to a particular output device and that dictates the output format that will be produced. A device must be created or "opened" in order to receive graphical output and, for devices that create a file on disk, the device must also be closed in order to complete the output.

- 1. initialize a plot using a function which specifies the graphical format you intend on creating i.e.pdf(), png(), tiff() etc. Within the function you will need to specify a name for your image, and the with and height (optional). This will open up the device that you wish to write to:

```
pdf("figures/scatterplot.pdf")
```

- If you wish to modify the size and resolution of the image you will need to add in the appropriate parameters as arguments to the function when you initialize. Then we plot the image to the device, using the ggplot scatterplot that we just created.

- Eg plot(x,y)

- Finally, close the "device", or file, using the dev.off() function. There are also bmp, tiff, and jpeg functions, though the jpeg function has proven less stable than the others.

```
dev.off()
```