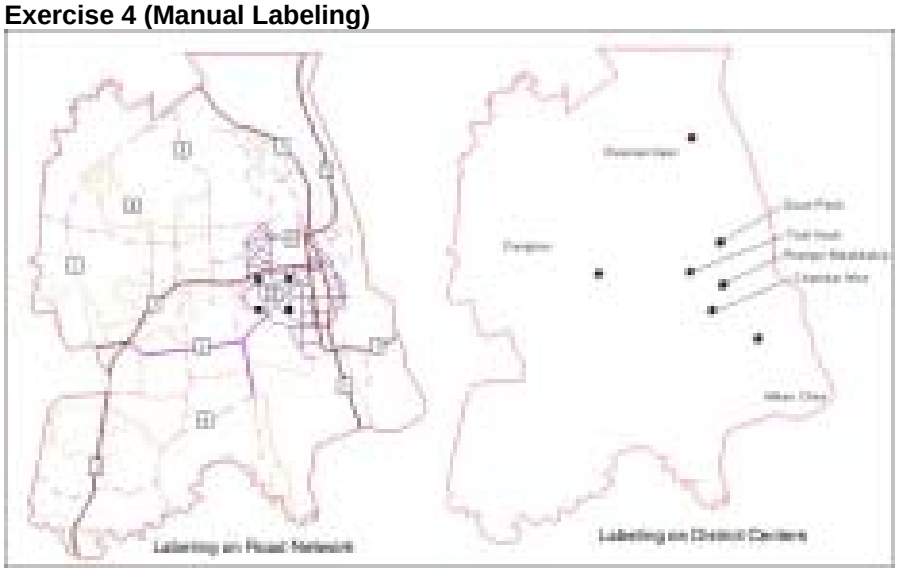
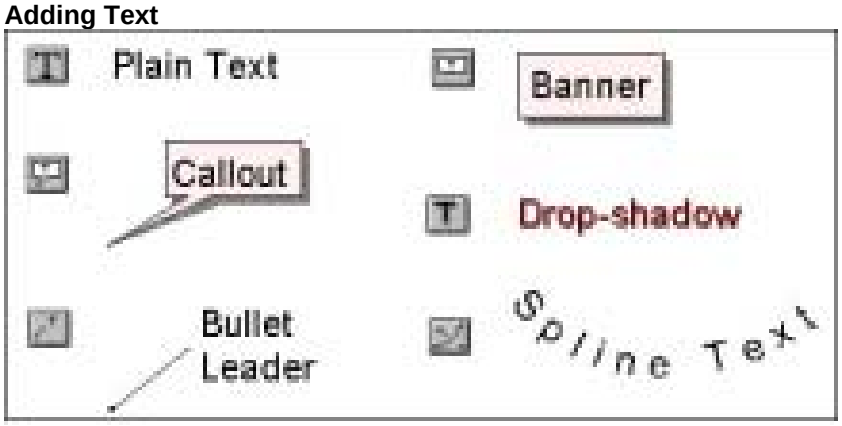
Figure 8-7 **Exercise 4 (Manual Labeling)**



9. Adding Text To Your Theme

ArcView has a variety of ways to place text a view or layout. Text is determined by you typing in the text you want to show. The following diagram shows the tools and examples of the kind of text added to a view:

Figure 9-1 **Adding Text**



We will demonstrate this section using PP District and PP Road Network themes.

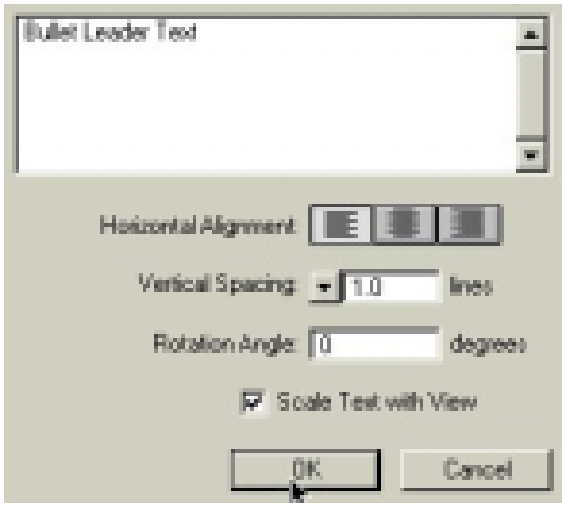
There are three main steps in this section:

1. Adding text to your theme
2. Using font palette
3. Using color palette

9.1. Adding Text to Your Theme

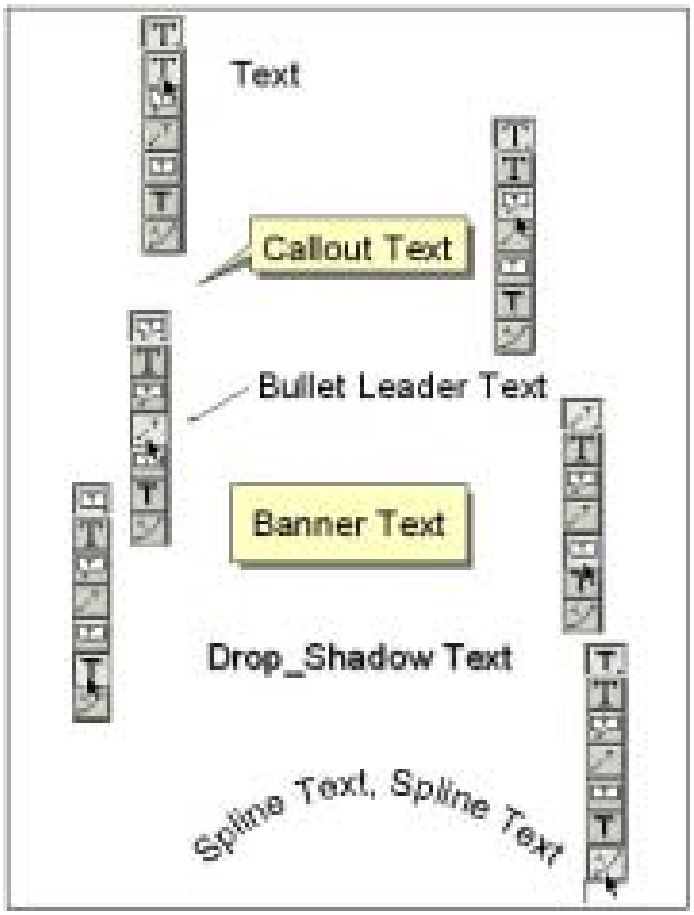
1. Choose a text tool, position and click the cursor on your view where you want your text to begin. The text Property Dialog Box appear as below:

Figure 9-2 **Text Tool**



2. *Type the text into the Text Properties dialog and click OK.*
3. *The picture below is showing the result of that,*
4. *Try out every text button to enter your text into the view as indicated in the picture below*

Figure 9-3 **Various Texts**



9.2. Using Font Palette

With Font Palette, you can change your text name, text size and text style.

1. *From Window menu Choose Show Symbol Window (or Ctrl + P) to bring up Palette Manage.*

Figure 9-4 Choose Show Symbol Window

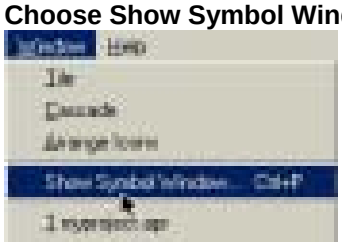
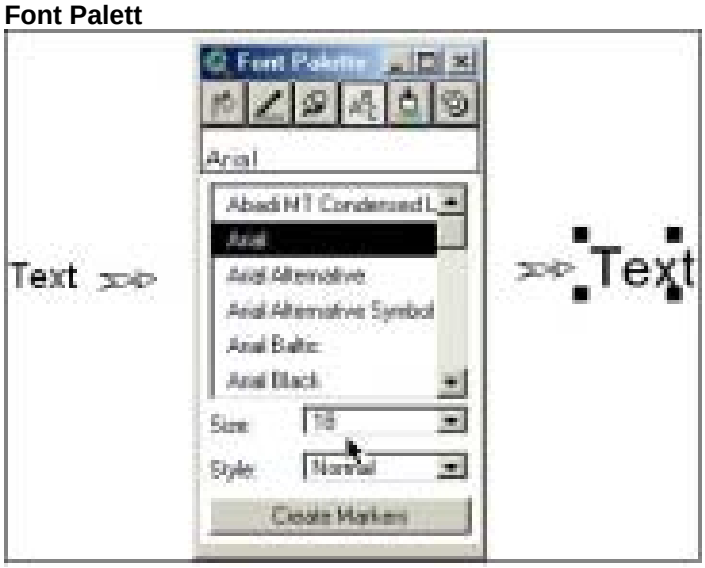


Figure 9-5 Palette Manager

2. *Click on the Text Button (see picture below) to switch to Font Palette,*

Figure 9-6 Font Palett



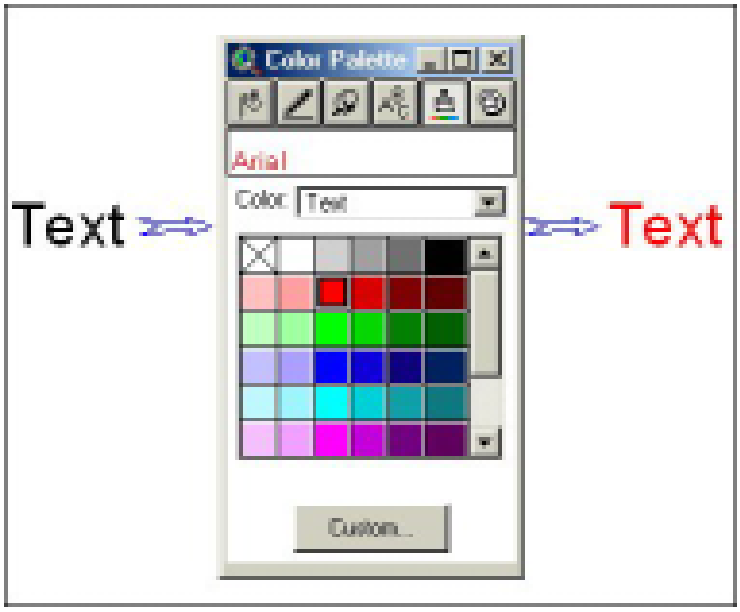
3. *Follow the steps indicated in the picture above to change the text name, text size and text style of "Text".*

9.3. Using Color Palette for Text

With the color palette, you can change color of your text.

1. *From the Palette Manager or Font Palette, Click on Color Button (see picture below) to switch to Color Palette,*

Figure 9-7 **Switch to Color Palette**



2. Follow the steps indicated in the picture above to change the text color of "Text".

9.4. Summary

With this chapter you are able to:

1. Add texts with different modes to your themes,
2. Changing style of your texts using Text Palette,
3. Changing text color using Color Palette.

9.5. Exercise 5

Add texts to the theme as indicated below:

1. Tonle Sap River
2. Mekong River
3. Japanese Bridge
4. Basak River
5. Airport

Figure 9-8 **Adding Texts**

10. Creating Your Layout: Creating Hard Copy Maps

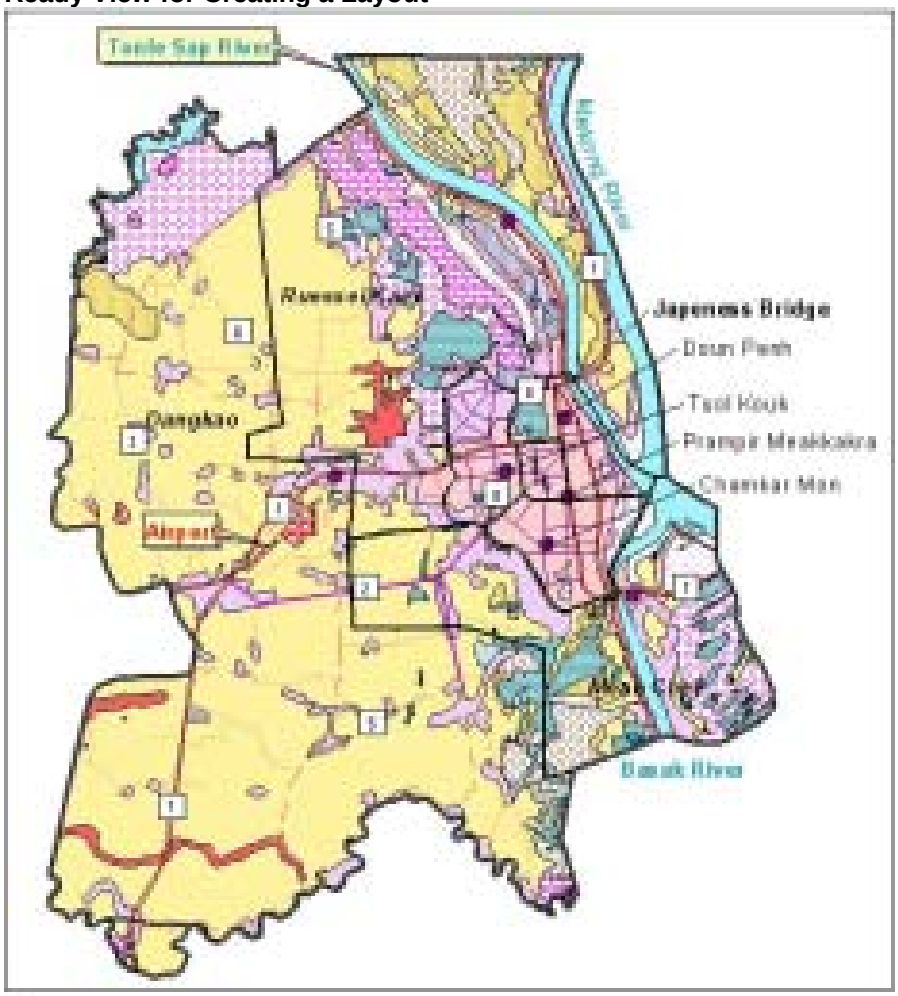
Layout is the document type used to create hard copy maps. Layouts are used as a master document in which views, tables and charts can be combined with map elements (e.g., legend, scale bar, north arrow) to design quality maps for output to plotters of graphic file formats.

We will walk you through 13 steps for this section:

1. Creating a New Layout
2. Setting up Layout Scale
3. Preparing Scale Bar for a Layout
4. Preparing Legend for a Layout
5. Editing Title for a Layout
6. Adding Text to a Layout
7. Using Graticule and Grid Extension
8. Preparing North Arrow for a Layout
9. Adding Picture to a Layout
10. Adding View to a Layout
11. Adding Graphics to a Layout
12. Exporting a Layout to JPEG Image
13. Printing Layout

The quickest way to make a layout is to have your view as the active document. So that you have to turn on all of your themes to make a view look like the one in the picture below.

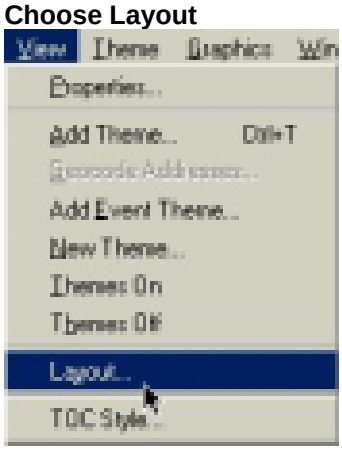
Figure 10-1 Ready View for Creating a Layout



10.1. Creating a New Layout

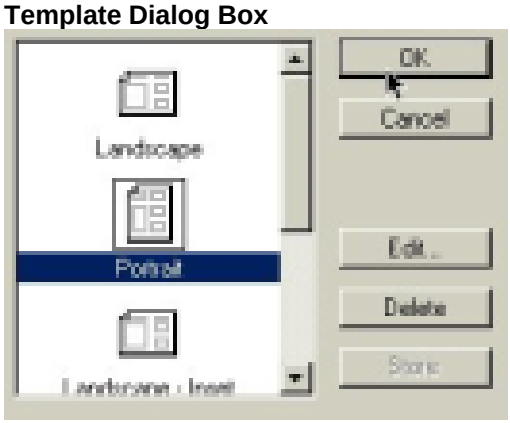
1. Choose Layout from the View Menu (see picture below).

Figure 10-2 Choose Layout



2. The template dialog box appear,

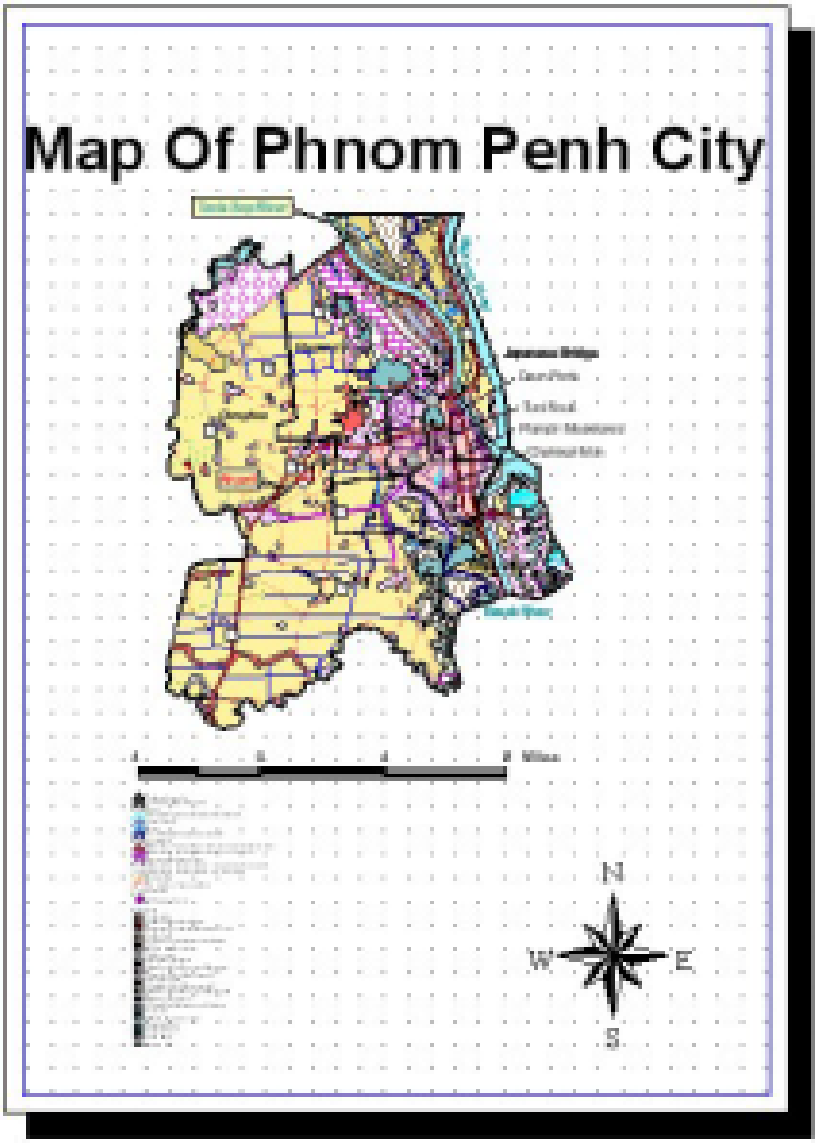
Figure 10-3 Template Dialog Box



3. In this case choose Portrait template,
4. Click OK.

Automatically a layout look like the one below created in the layout environment.

Figure 10-4 Layout Result

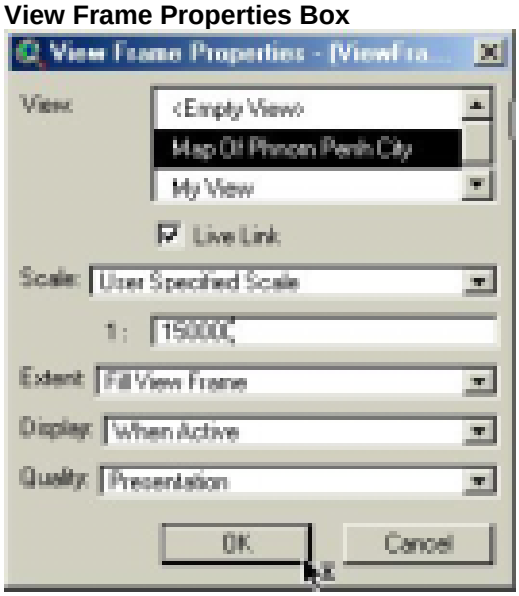


10.2. Setting up Layout Scale

We are going to set up the scale for the layout. In this case we want the scale to be 1: 150,000. To get this follow the steps below:

1. *Double click on the view in the layout to bring up the View Frame Properties box as below,*

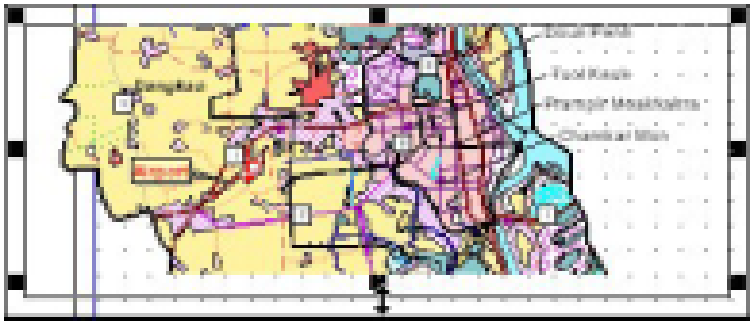
Figure 10-5 View Frame Properties Box



2. *Make sure that your view name is selected in the View box,*
3. *Live link is checked,*
4. *Choose User specified Scale from the Scale box,*
5. *In the box below the scale box type 150000 (without ","),*
6. *Click OK.*

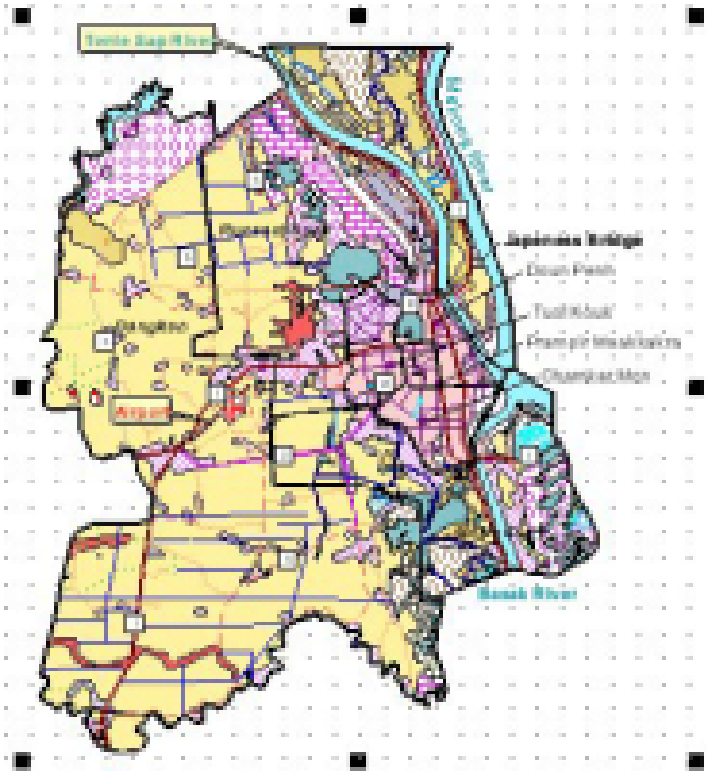
Your layout view become like the one in the picture below. It is surrounded by small 8 black squares enabling you to expand only the extension of the view. It maintains the scale of the view.

Figure 10-6 View Frame



Use mouse pointer to expand the extension until you get the view displayed like the one in the picture below.

Figure 10-7 View Frame Result

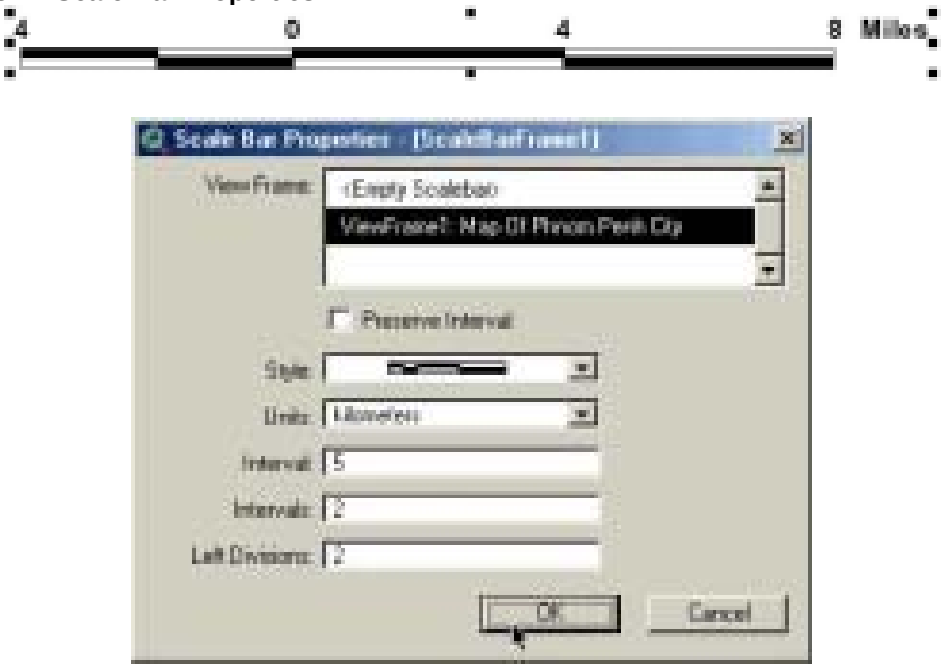


10.3. Preparing Scale Bar for the Layout

By default, scale bar is made by using distance unit (Miles) with random interval value. In this case 4 Miles for an interval. But in this case we would like to have a scale bar with unit of Kilometers and interval value of 5 Kilometers. Follow instruction below to change this:

1. Double click on the scale bar to bring up the Scale Bar Property box,

Figure 10-8 Scale Bar Properties



2. *Fill in the box as shown the picture above,*
3. *Click OK.*

You will get a new scale bar as shown in the picture below.

Figure 10-9 New Scale Bar

10.4. Preparing Legend for the Layout

1. *Adding Legend Extension, File Menu > Extension, the Extension box appears. Check on Legend Tool as shown in the picture below.*
2. *Click OK,*

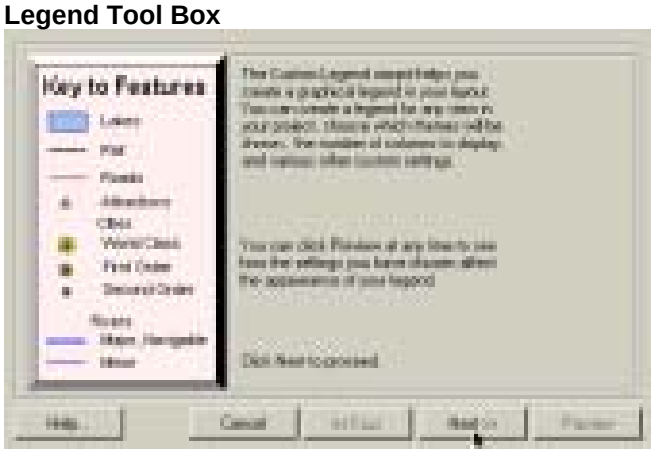
Figure 10-10 Available Extensions

3. *The Custom Legend Tool appears in the layout tool bar as shown below:*

Figure 10-11 Custom Legend Tool Bar

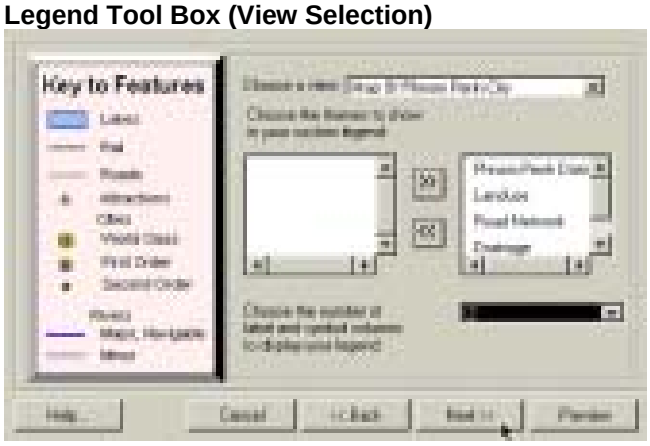
4. *Click the tool and click once on the layout, the first Legend Tool Box appears as below,*

Figure 10-12 Legend Tool Box



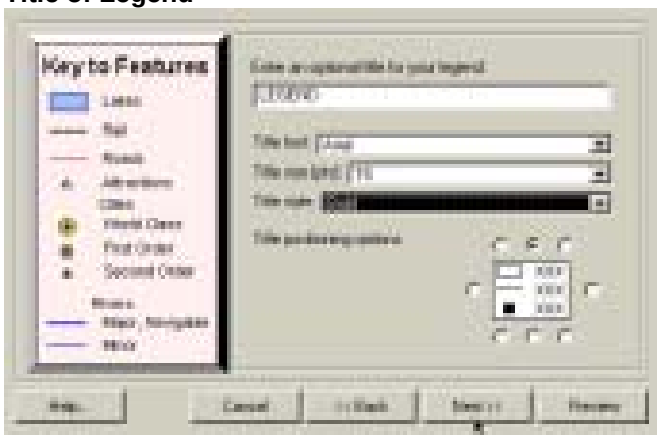
5. *Click Next to bring up the second box as below,*

Figure 10-13 Legend Tool Box (View Selection)



6. *In the Choose a view box, choose your layout view. In this case "Map of Phnom Penh City",*
7. *Move themes in the left box to the right one in the order as shown below using ">>".*
8. *In the next box, choose 2 for two-column legend.*
9. *Click Next to bring the next box as below:*

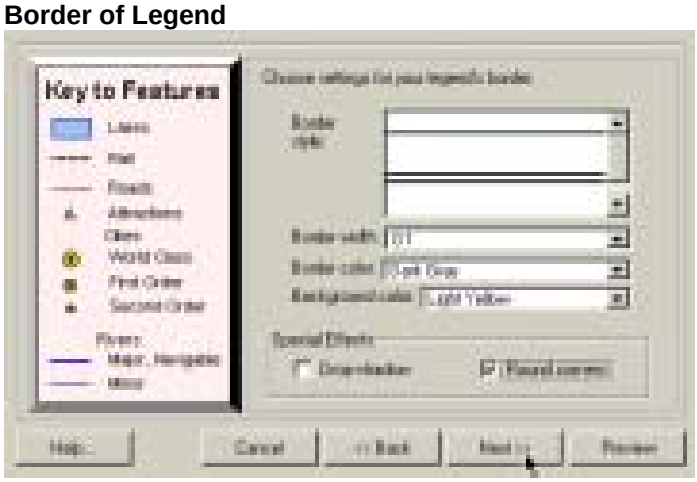
Figure 10-14 Title of Legend



This box will question you about the title of your legend.

10. *Answer the box as indicated in the picture above,*
11. *Click Next to go to the next one,*

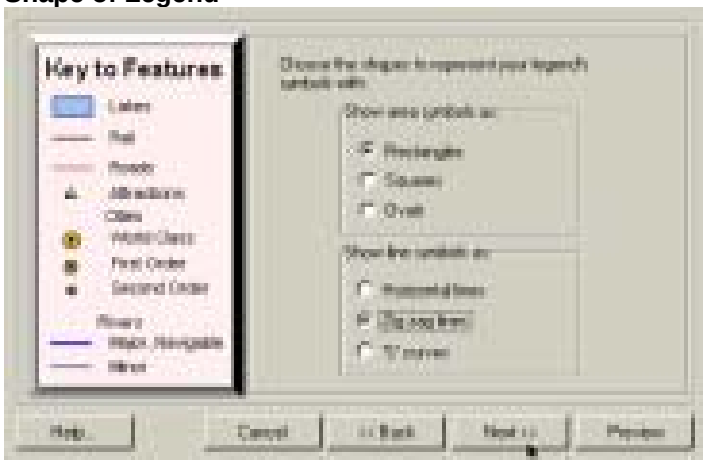
Figure 10-15 Border of Legend



This box consults you about border of your legend.

12. Fill in the box as shown above,
13. Click Next to walk on to the next one,

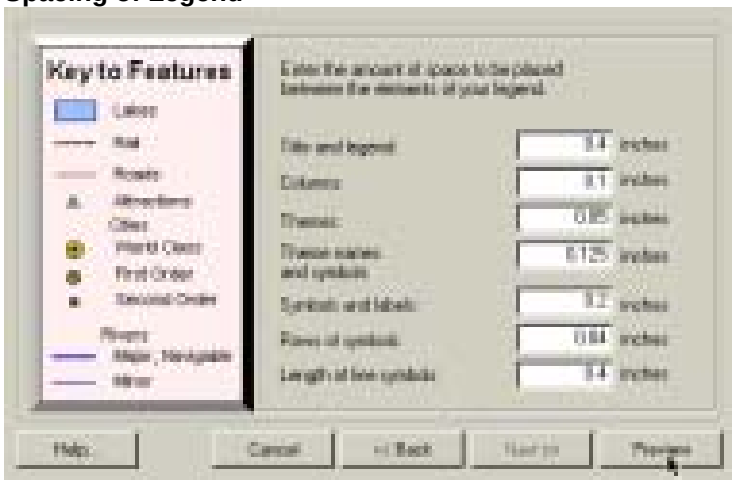
Figure 10-16 Shape of Legend



This is design to provide you different shape of you legend.

14. Choose Rectangular for area symbol and Zig zag line for your line symbol,
15. Click Next to go to the last one as below,

Figure 10-17 Spacing of Legend



16. This box is about the amount of space to be placed between elements of your legend.
17. Choose Preview to view the legend you have just created,
18. ArcView then shows you the legend according to the parameters you provide. If you don't like the one choose Remove button to remove it and go back to change the setting. If it is OK for you just click on the Finish button to accept it.

The result of the setting we have made is as below:

Figure 10-18 Legend for Your Layout

10.5. Editing Title of a Layout

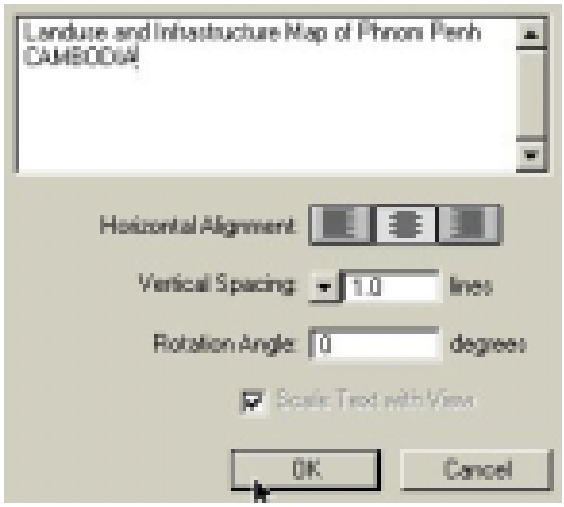
Now we are going to edit the title of your map. We will give the map title: Landuse and Infrastructure Map of Phnom Penh, Cambodia.

By default, the layout will title your map after your view name. In this case "Map Of Phnom Penh City" as in the picture below.

Figure 10-19 Title of Layout

1. Double click on the title to bring its associated text editor as below.

Figure 10-20 Title Text Editor



2. *Delete the current text and type "Landuse and Infrastructure Map of Phnom Penh, Cambodia" as in the picture above.*
3. *Choose middle alignment, 1 for Vetical Spacing and 0 for Rotation Angle.*
4. *Click OK.*

Below is the result of the editing:

Figure 10-21 Edited Title

Landuse and Infrastructure Map of Phnom Penh
CAMBODIA

10.6. Adding Text to a Layout

Always, hard copy map would come with its description to inform the users about the purpose, data source of the map and so on. In this case we want to add description to our map as shown in the pictures below:

Figure 10-22 Adding Text to a Layout

Prepared by Ministry of Public Works and Transport (MPWT)

for

JICA

and

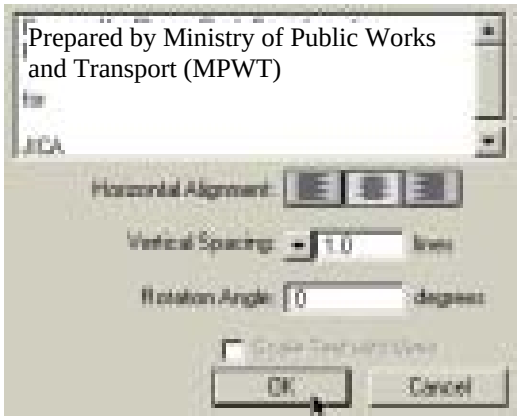
Data Source: Cambodia Reconnaissance Survey Digital Data
Ministry of Public Works and Transportation (MPWT), Kingdom of Cambodia
Japan International Cooperation Agency (JICA), Japan
March 1998

1. *Click on the text tool (see picture below) and then click once on layout where you want the description to be,*

Figure 10-23 Text Tool

The Text Editor Box Appears as below:

Figure 10-24 Text Editor Box



2. *Type in the box as shown in the picture above and choose middle for the alignment.*
3. *Click OK.*

You will see the description appears as shown in the first picture above.

4. *Follow the same to get the next one (as shown in the second picture).*

10.7. Adding Measure Grid to Your Layout View

Measure grid is grid based on coordinate system. In this case we will add grid based on UTM coordinate system to our map layout.

1. *Load Graticules and Measure Grids Extension (see picture below),*

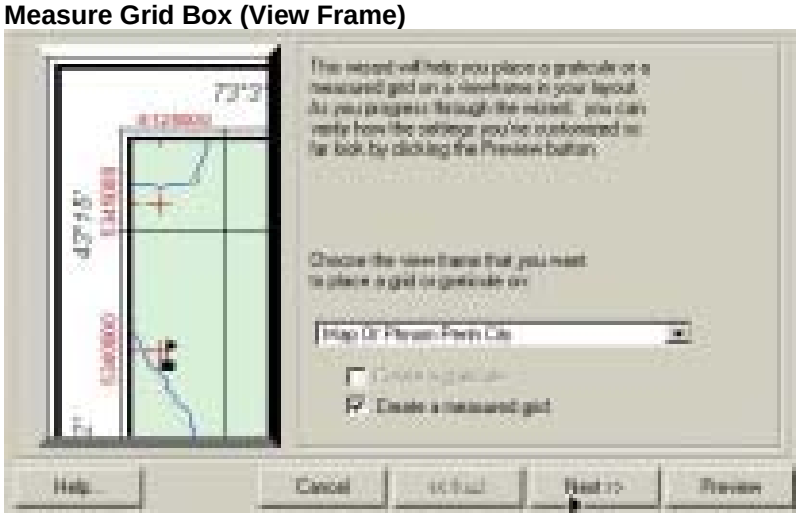
Figure 10-25 Load Graticules and Measure Grids Extension

2. *The Griticules and Grid button appears in the layout button bar, See picture below,*

Figure 10-26 Griticules and Grid Button

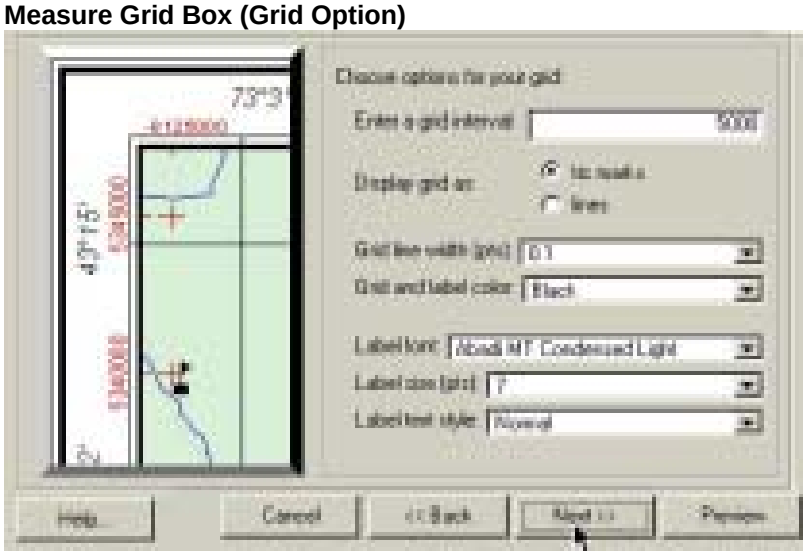
3. *Click on the button to bring up the measure grid box, see picture below.*

Figure 10-27 Measure Grid Box (View Frame)



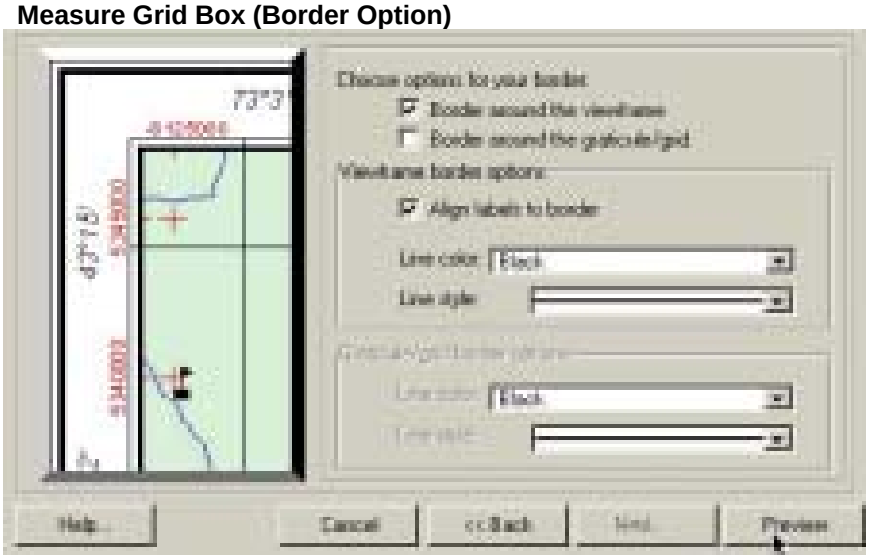
4. *Make sure that your view name is selected and Create a measure grid is checked. In this case "Map of Phnom Penh City"*
5. *Click Next to go the option dialog box,*

Figure 10-28 Measure Grid Box (Grid Option)



6. *Fill in the box as in the picture above,*
7. *Click next again to bring the border dialog. See picture below:*

Figure 10-29 Measure Grid Box (Border Option)

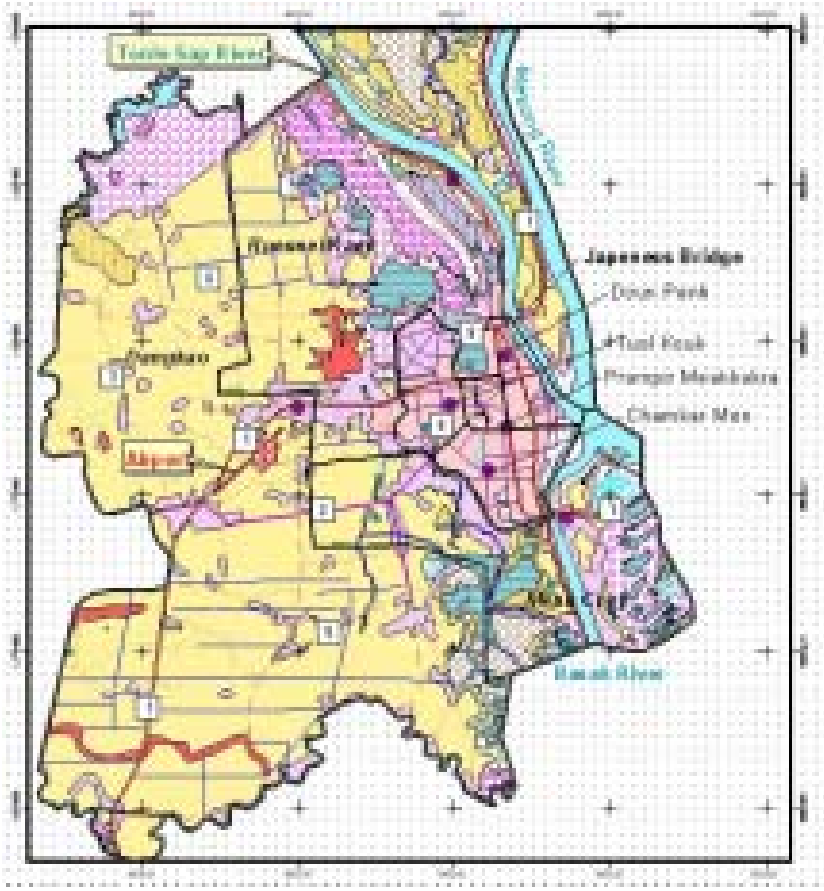


8. Fill in the box as shown in the picture above,

9. ArcView then shows you the grid according to the parameters you provide. If you don't like the one choose Remove button to remove it and go back to change the setting. If it is OK for you just click on the Finish button to accept it.

The result of that look like the one in the picture below:

Figure 10-30 Measure Grid Just Created



10.8. Preparing North Arrow

By default, north arrow shows up like the one in picture below. ArcView allows you to change its attribute: style, size and rotation angle.

1. Double click on the arrow to bring up North Arrow Manager Box,

Figure 10-31 North Arrow

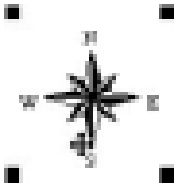
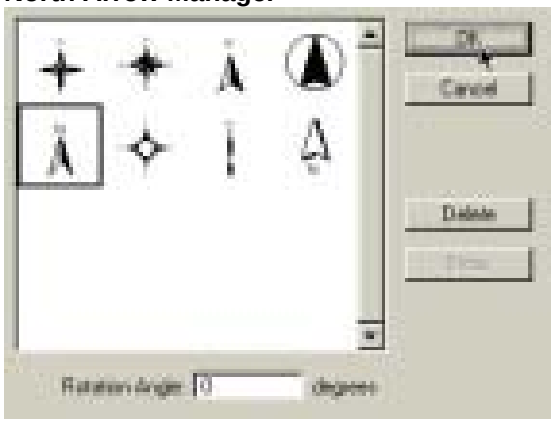
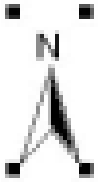


Figure 10-32 North Arrow Manager



2. From the box you can choose your desired one. In this case we choose the arrow indicated in the box above,
3. Accept 0 degree for the rotation angle,
4. Click OK to accept it. The arrow we have chosen appeared as in the picture below,

Figure 10-33 North Arrow (Result)



5. To change size the arrow, position your mouse on a point surrounding the arrow, drag to desired size, then drop it.

10.9. Adding a Picture to a Layout

Now, we will illustrate to add MPWT logo to the layout as an image.

1. Click and hold the View Frame tool to display the hidden tools,
2. Choose Picture Frame tool, see picture below,

Figure 10-34 Picture Frame Tool

3. Drag and Drop the tool on the layout see picture below, Picture Frame Property box appears.

Figure 10-35 Drag and Drop the Tool

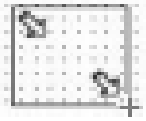
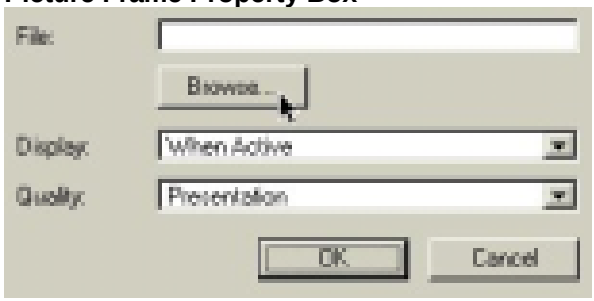
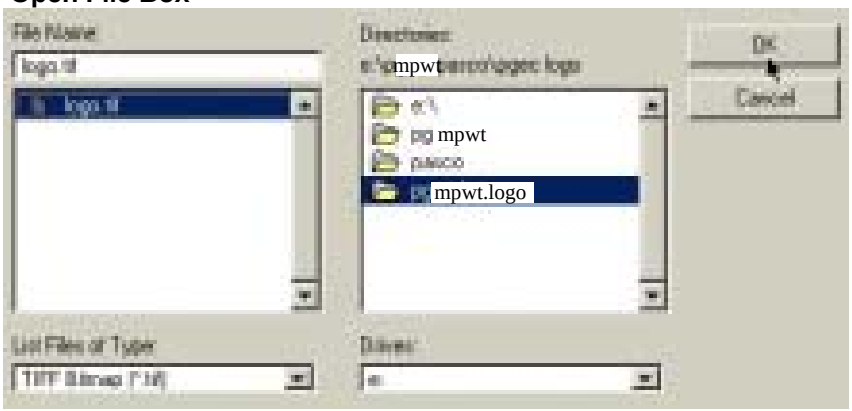


Figure 10-36 Picture Frame Property Box



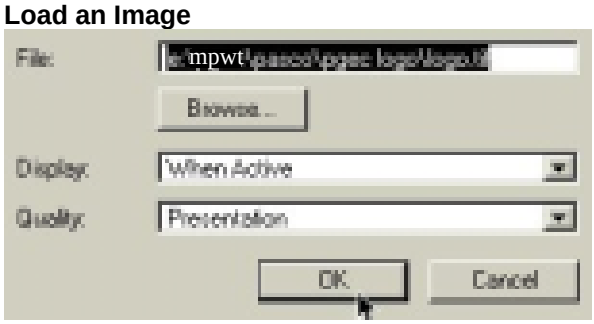
4. Click Browse button to open the Open File box,

Figure 10-37 Open File Box



5. Go to the location shown in the picture above: e:\mpwt\pasco\mpwt.logo,
6. Select image file Logo.tif,
7. Click OK to complete the box below,

Figure 10-38 Load an Image



8. Click OK to load the image into our layout as below.

Figure 10-39 Loaded Image

10.10. Adding View to Layout

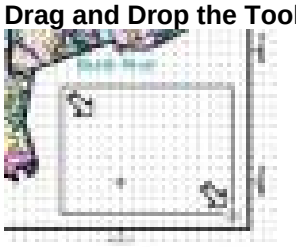
In our map, we need other view to show the location of Phnom Penh area compared to the country. In this case we arc going to add location view into our map. This view has to prepare in advance in the view.

1. Click on the View Frame tool, see picture below,

Figure 10-40 View Frame Tool

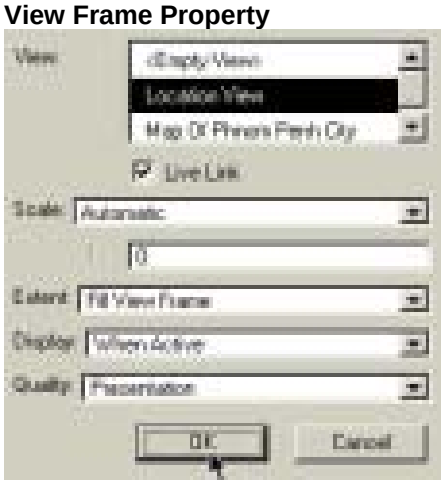
2. Use the tool to drag and drop in the lower right corner of the layout view as in the picture below,

Figure 10-41 Drag and Drop the Tool



The View Frame Property box appeared as below:

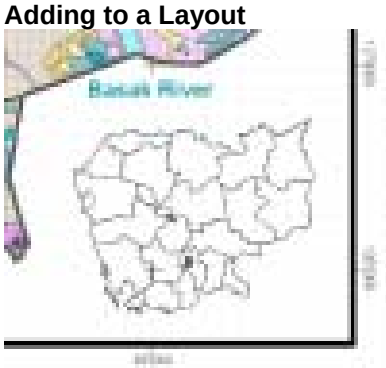
Figure 10-42 View Frame Property



3. Choose the Location View,

4. Click OK, you can see the location view now added to the layout as in the picture below.

Figure 10-43 Adding to a Layout



10.11. Adding Graphic to Layout

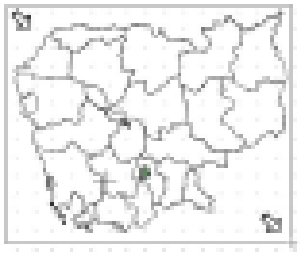
Now we want to add a frame to the location view.

1. Click on Draw Rectangle tool, see picture below,

Figure 10-44 Draw Rectangle Tool Box

2. Drag-drop the tool around the location view as in the picture below,

Figure 10-45 View Location

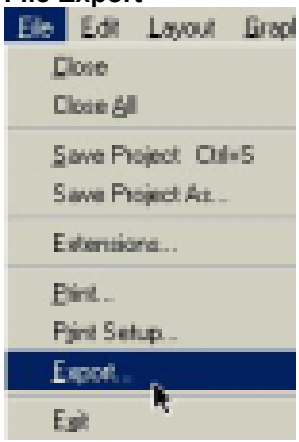


10.12. Exporting a Layout to JPEG Image

Some time we want to use the layout in another program such as MS Word, Excel and so on. Below will demonstrate how to export the layout as an image file (JPEG file).

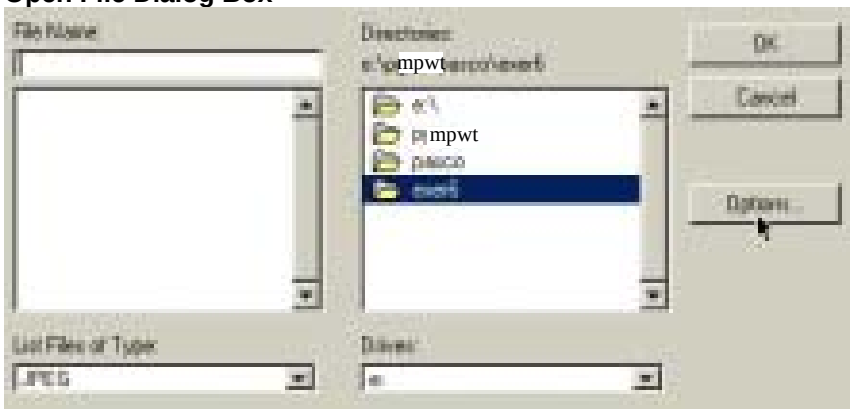
1. Choose Exprt from File Menu, see picture below,

Figure 10-46 File Export



2. The Open File Dialog box appeared:

Figure 10-47 Open File Dialog Box

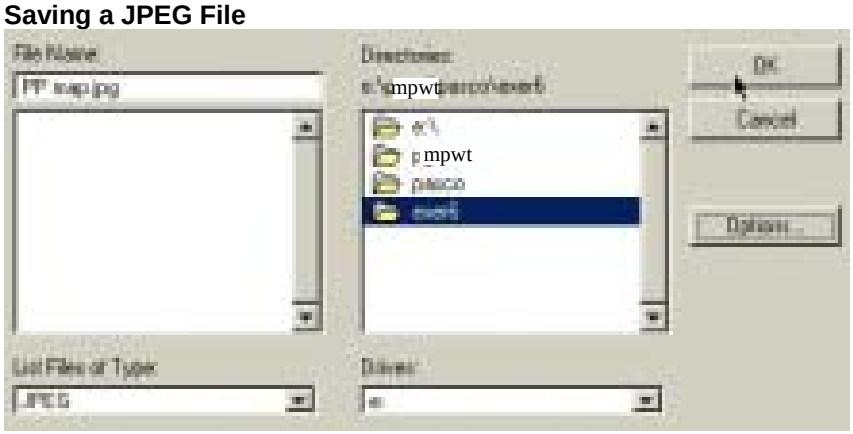


3. Click on the Option button to change the attribute of the exported file.
4. The Property box appeared as below,

Figure 10-48 Setting Options

5. Type 200 for the Resolution and 100 for quality,
6. Click OK,
7. In the Open File box, choose your directory as destination location, and PP-map.jpg as your file name.

Figure 10-49 Saving a JPEG File



8. Click OK to accept the setting,
9. Now, we have already exported the layout to and PP Map.jpg file.

10.13. Printing a Layout

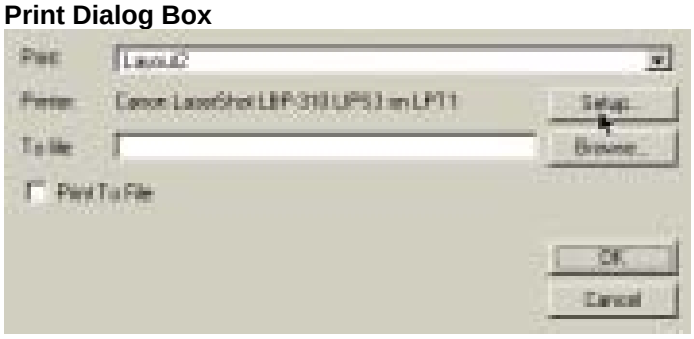
Now it is time to print our layout as a hard copy map. The step below will help us to do that.

1. Click on Print Button to bring up the Print Dialog box,

Figure 10-50 Open Print Dialog Box

2. On the Print Dialog box, click on Setup... button,

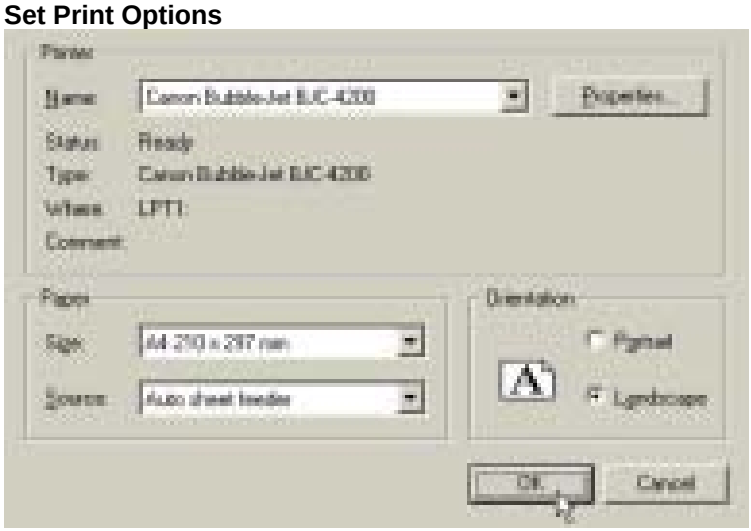
Figure 10-51 Print Dialog Box



3. Here we have to check on:

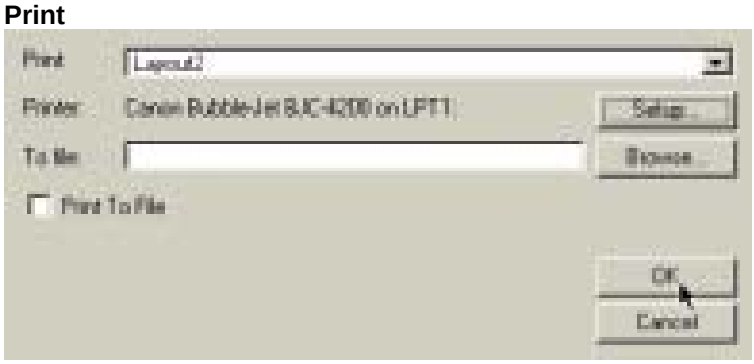
- Printer name, in this case Canon Bubble Jet BJC-4200,
- Paper size, choose A4,
- Orientation, Choose Landcape,
- Click OK to accept the setting,

Figure 10-52 Set Print Options



4. Click OK again to print the layout.

Figure 10-53 Print



10.14. Summary

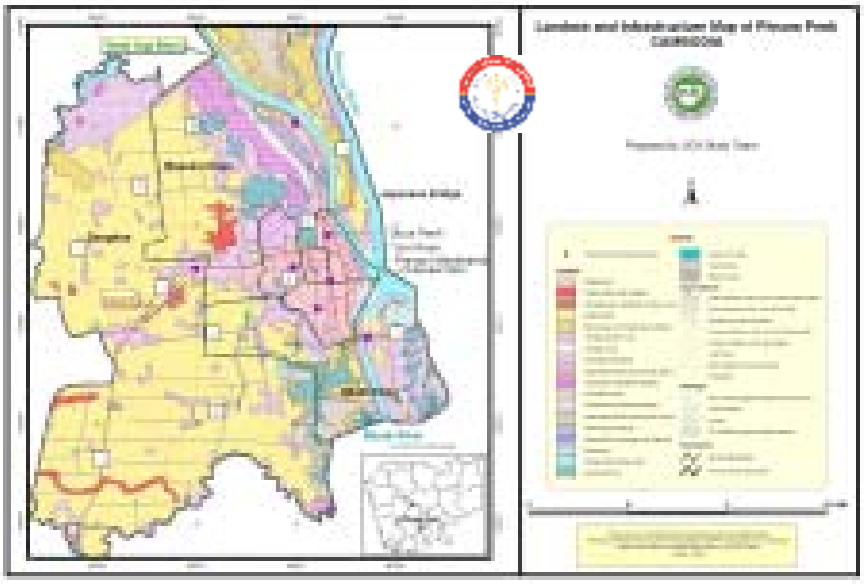
With this chapter you are able to:

1. Create a new layout from a view you are working with,
2. Set up desire scale for you hard copy map,
3. Make up scale bar for your hard copy map,
4. Create legend for your hard copy map,
5. Add title and other text as description for your hard copy map,
6. Create grid to your map extension of your layout,
7. Add a selected north arrow to your layout,
8. Add new views, drawing graphics and images to your layout
9. Print your layout as hard copy map.

10.15. Exercise 6

Prepare your layout to be like the one below:

Figure 10-54 Exercise 6 (Layout)

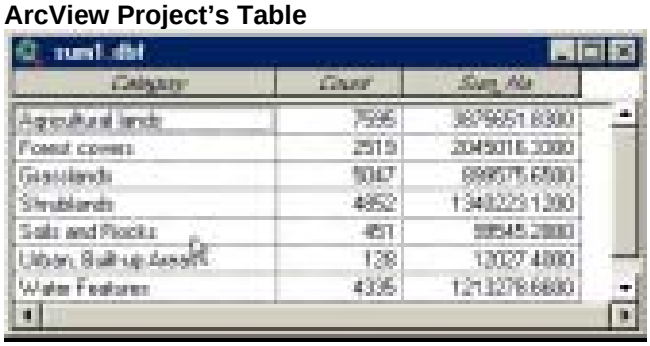


11. Working with Tabular Data

11.1. What is a Table?

A table is tabular data representation environment. Table contains descriptive information about a specific entity. Below is an example of an ArcView Project's table.

Figure 11-1 ArcView Project's Table



We are going to create a ArcView table like the one below.

Table 11-1 Sample Table

X_coor	Y_coor	School	Student
490000	1285200	Ruessei Kaev	257
485000	1277800	Dangkao	578
489900	1277900	Tuol Kouk	341
491600	1279500	Doun Penh	587

There are eight steps in this tutorial:

1. What is a Table?
2. Creating a New Table

3. Adding Fields to Your Table
4. Adding Records to Your Table
5. Typing Data into a Table
6. Loading a bBase files into Arcview tables
7. Making Statistic from a Table
8. Summarizing a Table

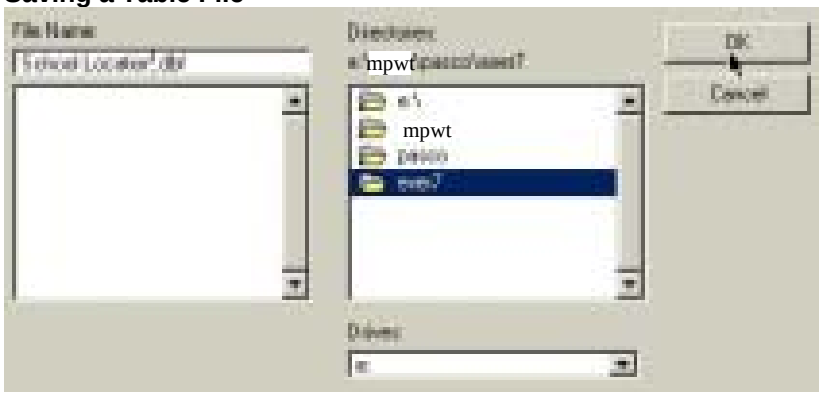
11.2. Creating a New Table

1. Go to project Window,
2. Highlight the table object,
3. Click on the New button to create a new table,

Figure 11-2 Creating a New Table

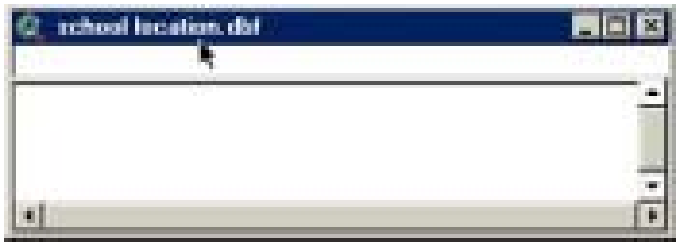
4. The New Table dialog box appears prompting you for the new table file name and its location. See picture below,

Figure 11-3 Saving a Table File



5. Give School Location.dbf for the file name and choose your directory for its location.
6. Click OK, the new empty table created as shown in the picture below.

Figure 11-4 Table



11.3. Adding Fields to Your Table

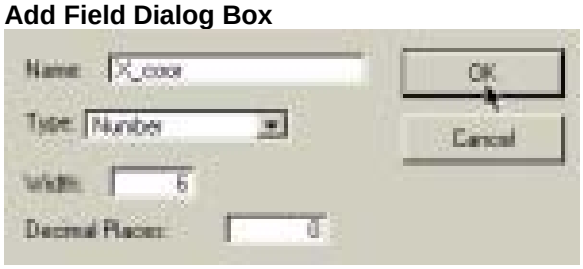
To add its record follows this:

1. *Choose Add Field... from Edit Menu, see picture below,*

Figure 11-5 Adding Fields

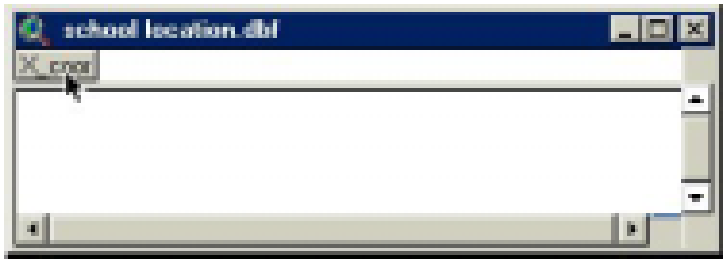
2. *The Add Field Dialog box appears,*

Figure 11-6 Add Field Dialog Box



3. *Type X_coor for the Name,*
4. *Choose Number as Type,*
5. *Type 6 for With,*
6. *Type 0 for Decimal Places,*
7. *Click OK, the field added as shown in the picture below.*

Figure 11-7 Field Added



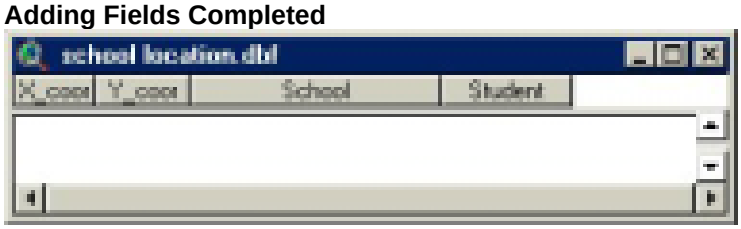
Continue to add three more fields: Y_coor, School and Student

8. *For Y_coor field:*
   Type Y_coor for the Name,
   Choose Number as Type,
   Type 7 for With,
   Type 0 for Decimal Places,
9. *For School field:*
   Type School for the Name,
   Choose String as Type,
   Type 20 for With,
10. *For Student field:*

Type Student for the Name,
Choose Number as Type,
Type 4 for With,
Type 0 for Decimal Places,

The result of that is shown in the picture below.

Figure 11-8 Adding Fields Completed



11.4. Adding Records to Your Table

Now we are going to add four records to the table.

1. Choose Add Record from Edit Menu (or Ctrl+A).

Figure 11-9 Adding Records

2. Repeat four times until we get four records added to the table like the one in the picture below.

Figure 11-10 Add More Records

11.5. Typing Data into a Table

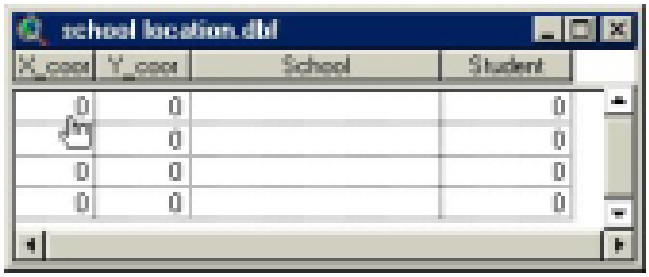
To type data into table, here are the way:

1. Click on the Edit tool, see picture below,

Figure 11-11 Edit Tool

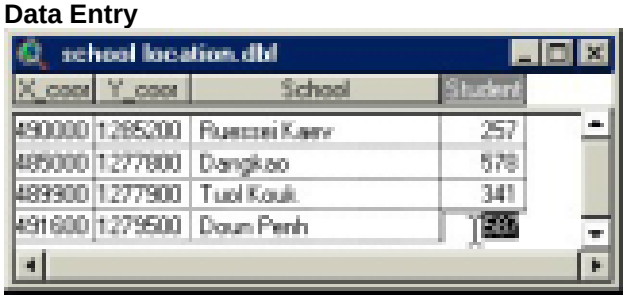
2. *Click on upper-left cell, then the cell become editable,*

Figure 11-12 Editable Table



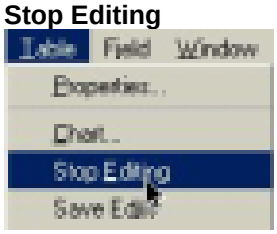
3. *Start to type in the cell, in this case 490000, and then continue until you get a table shown in the picture below.*

Figure 11-13 Data Entry



4. *After you complete entering the text, stop editing the table by Choosing Stop Editing from Table Menu. See picture below.*

Figure 11-14 Stop Editing



5. *ArcView then will prompt you whether you want to save the changes you have made or not. Click Yes to save it. See picture below.*

Figure 11-15 Saving Edited Entry

11.6. Loading a bBase File into Arcview tables

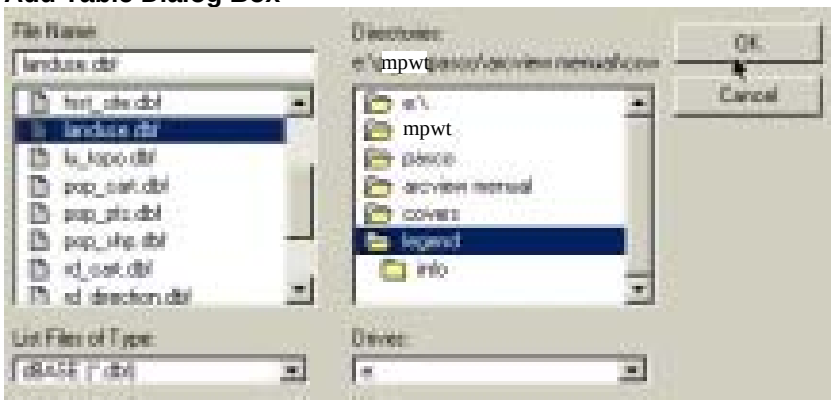
Some time we need to add dBase files created by another program. In order to do this we have to:

1. *From the project window with the Tables object selected, click on Add button. See picture below.*

Figure 11-16 Loading dBase File

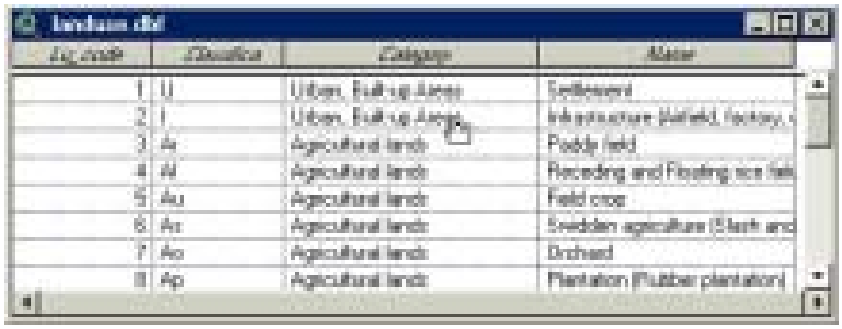
2. *In the Add Table dialog box below, choose Landuse.dbf from ...\covers\legend. See picture below,*
3. *Click OK.*

Figure 11-17 Add Table Dialog Box



The landuse.dbf file appears.

Figure 11-18 Landuse.dbf File



11.7. Making Statistic from a Table

There is a function in ArcView that let you compute statistical parameters form a numerical field. That is Statistical function.

We arc going to calculate statistical parameters from Student field in the table shown in picture below.

Figure 11-19 Selecting a Field

1. *Select the Student field in the table,*
2. *Choose Statistics from Field Menu,*

Figure 11-20 Select Statistics

3. *The parameters is calculated and displayed as can be seen in the picture below.*

Figure 11-21 Statistics Output

11.8. Summarizing a Table

SUM function in ArcView let you summary a numerical field base on its characteristic from another field.

The following, we arc going to sum length of drainage based on their characteristic from Description field.

Select the Description field in the attribute table of Drainage,

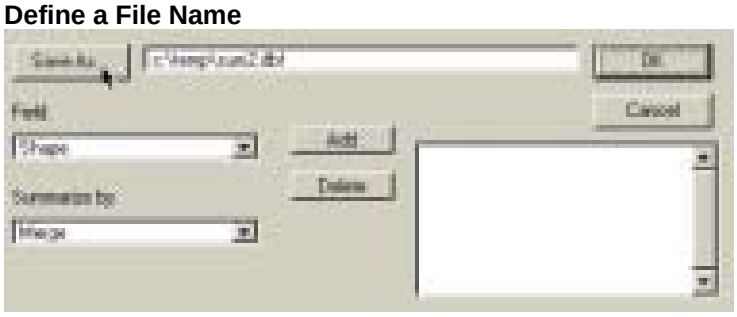
Figure 11-22 Selecting a Description Field

1. *Click on Summarize button, see picture below,*

Figure 11-23 Click on Summarize

2. *In the result of the function ArcView will create another table. So it now prompts you for the name and location of the resulting table. Click Save As button to give the file name and new location,*

Figure 11-24 Define a File Name



Give **CanalLengh.dbf** as file name and your location directory as its location. See picture below.

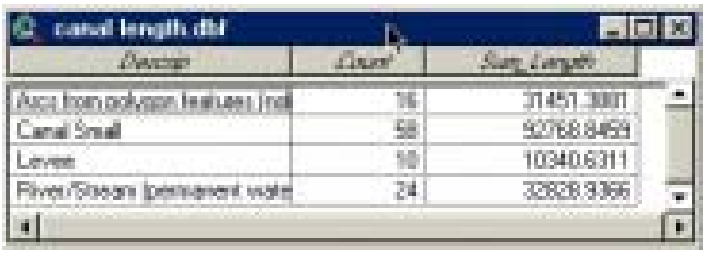
Figure 11-25 CanalLength.dbf

3. *Choose Length from Field option, Sum from Summarize by option,*
4. *Click OK.*

Figure 11-26 Choose Options

This picture shows the result of drainage length by their attribute.

Figure 11-27 Result of "Summarize"



11.9. Summary

With this chapter you are able to:

1. Creating a New Table,
2. Add Fields to Your Table,
3. Add Records to Your Table,
4. Type Data into a Table,
5. Load a bBase files into Arcview table,
6. Make Statistic from a Table,
7. Summarizing a Table by map feature attribute.

11.10. Exercise

1. Create a new ArcView table like the one below:

No.	DISTRICT	VILLAGE	MALES	FEMALES	PERSONS
1	Aoral	Krang Kok	115	134	249
2	Phnum Sru	Thmei	296	320	616
3	Phnum Sru	Chambak	93	97	190
4	Phnum Sru	Krang Kor	306	296	602
5	Chhuk	Srae Leav	71	77	148
6	Chhuk	Trapeang	144	152	296
7	Kien Svay	Srae Ampi	1033	1075	2108
8	Kaoh Thum	Chrouy Sn	458	432	890
9	S'ang	Lekh Buon	606	672	1278
10	Angkor Bo	Preaek Da	405	392	797
11	Angkor Bo	Tuol Putr	442	444	886
12	Angkor Bo	Phnum Bor	522	535	1057
13	Angkor Bo	Ba Tep	151	159	310

   1) District: District Name
   2) Village: Village Name
   3) Males, Females and Persons: Total Number of Male, Female and Person in the village.
2. Summarize number of male, female and person on the 13 districts.
3. Summarize number of male, female and person by district.

APPENDIX

1. INDEX

PROJECTION: UTM, Meters, Zone: 48, Spheroid: Everest 1830, Datum: Indian 1954
FEATURE TYPE: POLYGON
DESCRIPTION: Index Boundary (Topo map 1:100,000)
LOCATION: Sheet Location
SHEET_NUMBER: Number of 1:100,000 topo sheets
SHEET_NAME: Name of 1:100,000 topo sheets

2. POP_SHP

PROJECTION: UTM, Meters, Zone: 48, Spheroid: Everest 1830, Datum: Indian 1954
FEATURE TYPE: POLYGON
DESCRIPTION: Polygons describing the extents of built-up areas, villages, cemeteries, airfields or other special man-made features.
CODE: Code Number

CODE DESCRIPTION:

CODE	(2) DESCRIPTION
0	Holes or complex polygons within this data set (not drawn)
22	Built-up Area
23	Village (with a high density of structures)
24	illage (with a medium density of structures)
25	Village (with a low density of structures)
36	Cemetery
39	Airfield
42	Floating Village (with a high density of structures)
43	Floating Village (with a medium to low density of structures)
45	Dock or Pier
225	Large areas of numerous low density villages

3. RD_LIN

PROJECTION: UTM, Meters, Zone: 48, Spheroid: Everest 1830, Datum: Indian 1954
FEATURE TYPE: LINE
DESCRIPTION: Roads and road related line data
CODE: Code Number for each feature

CODE DESCRIPTION:

CODE	DESCRIPTION
1	All weather, hard surface road, two or more lanes wide
2	All weather, hard surface road, one lane wide
3	All weather, loose surface, two or more lanes wide
4	All weather, loose surface, one lane wide
5	Dry weather, loose surface
6	Cart track

7	Footpath
8	Streets in built-up areas
60	Ferry
61	Ford

4. RD_CART

PROJECTION: UTM, Meters, Zone: 48, Spheroid: Everest 1830, Datum: Indian 1954
FEATURE TYPE: POINT
DESCRIPTION: Road related cartographic point data
CODE: Code Number

CODE DESCRIPTION:

CODE	DESCRIPTION
9	Rout Maker (National)
10	Rout Maker (Other National)
11	Traffic Circle

5. RD_DIRECTION

PROJECTION: UTM, Meters, Zone: 48, Spheroid: Everest 1830, Datum: Indian 1954
FEATURE TYPE: POINT
DESCRIPTION: points for road direction arrows along map sheet boundaries
KHMER_STR: Khmer Text String
ROMAN_STR: Roman Text String
TYPE DESCRIPTION: No unique identifier, not useful as a CODE

6. RD_PTS

PROJECTION: UTM, Meters, Zone: 48, Spheroid: Everest 1830, Datum: Indian 1954
FEATURE TYPE: POINT
DESCRIPTION: Roads and Related Point Data
DATABASE SCHEMA DEFINITION:
CODE: Code Number

CODE DESCRIPTION:

CODE	DESCRIPTION
12	Bridge
13	Footbridge
60	Ferry
61	Ford

7. RR_LIN

PROJECTION: UTM, Meters, Zone: 48, Spheroid: Everest 1830, Datum: Indian 1954
FEATURE TYPE: LINE
DESCRIPTION: Railroads and rail line data
CODE: Code Number for each feature

CODE DESCRIPTION:

CODE	DESCRIPTION
16	Railroad Track

8. RR_PTS

PROJECTION: UTM, Meters, Zone: 48, Spheroid: Everest 1830, Datum: Indian 1954
FEATURE TYPE: POINT
DESCRIPTION: Railroad related point data
CODE: Code Number

CODE DESCRIPTION

CODE	DESCRIPTION
17	Railroad Station
18	Railroad Bridge

9. HIS_SITE

PROJECTION: UTM, Meters, Zone: 48, Spheroid: Everest 1830, Datum: Indian 1954
FEATURE TYPE: POINT
DESCRIPTION: Additional Historical Sites
CODE: Unique Feature ID (concatination with sheet number)
NAME: Name of the site in Roman Characters

TYPE DESCRIPTION:

CODE	DESCRIPTION
NA	Basically a unique identifier, not useful as a CODE

10. TOPO_PTS

PROJECTION: UTM, Meters, Zone: 48, Spheroid: Everest 1830, Datum: Indian 1954
FEATURE TYPE: POINT
DESCRIPTION: Topographic features described as points

CODE DESCRIPTION:

CODE	DESCRIPTION
94	Small Hill

11. POP_CART

PROJECTION: UTM, Meters, Zone: 48, Spheroid: Everest 1830, Datum: Indian 1954
FEATURE TYPE: POINT
DESCRIPTION: Infrastructure cartographic point features

CODE DESCRIPTION:

CODE	DESCRIPTION
44	Grounds/Playgrounds/Stadiums

12. POP_PTS

PROJECTION: UTM, Meters, Zone: 48, Spheroid: Everest 1830, Datum: Indian 1954
FEATURE TYPE: POINT
DESCRIPTION: Infrastructure point features

CODE DESCRIPTION:

CODE	DESCRIPTION
21	Buildings
26	Khet Office and Krong Office
27	Srok Office and Khan Office
28	Khum Office
29	Temple
30	School
31	Church
32	Mosque
33	Stupa
34	Post Office
35	Hospital
37	Historical Site
38	Light House
40	Mine
41	Port

13. CON_LIN

PROJECTION: UTM, Meters, Zone: 48, Spheroid: Everest 1830, Datum: Indian 1954
FEATURE TYPE: LINE
DESCRIPTION: Contour Lines
CODE: Code Number for each feature
SPOT: Contour value in Meter

CODE DESCRIPTION:

CODE	DESCRIPTION
112	Index Contour
113	Intermediate Contour
114	Suppementary Contour
115	Depression Contour

14. CON_PTS

PROJECTION: UTM, Meters, Zone: 48, Spheroid: Everest 1830, Datum: Indian 1954
FEATURE TYPE: POINT
DESCRIPTION: Control Points, Benchmarks, and Spot Elevations
CODE: Code Number

SPOT: Spot Elevation in Meter (20m interval)

CODE DESCRIPTION:

CODE	DESCRIPTION
101	Horizontal Control Point (established after 1990)
102	Horizontal Control Point (established before 1990)
103	Bench Mark (established before 1990)
104	Spot Elevation in Meter
106	Bench Mark (established after 1990)

15. GPS_POINT

PROJECTION: UTM, Meters, Zone: 48, Spheroid: Everest 1830, Datum: Indian 1954
FEATURE TYPE: POINT
DESCRIPTION: additional benchmark related data
CODE: Unique Feature ID
TYPE: Type as Defined by Benchmark Layer
LONG1: Longitude Minutes
LONG2: Longitude Seconds
LAT1: atitude Minutes
LAT2: atitude Seconds
UTM-X: TM Easting
UTM-Y: TM Nothing
HEIGHT: levation (if known) of the point

TYPE DESCRIPTION:

TYPE	DESCRIPTION
102	Horizontal Control Point (established before 1990)
103	Bench Mark (established before 1990)
104	Spot Elevation in Meter
106	Bench Mark (established after 1990)
107	Unknown

16. GEOLOGY

PROJECTION: TM, Meters, Zone: 48, Spheroid: Everest 1830, Datum: Indian 1954
FEATURE TYPE: OLYGON
DESCRIPTION: eology/Landforms
GEO100K: odes for 1:100,000 Scale Data
GEO500K: odes for 1:500,000 Scale Data
RELATED DATA FILE: EOLOGY.LEG
RELATED ITEM: EO500K

GEO500K DESCRIPTION:

GEO50K	LEGEND_CODE	CATEGORY	LEGEND_EG
1	W	Landform	Water
2	Fp	Cenozoic	Floodplains
3	Af	Cenozoic	Alluvial fans
4	Co	Cenozoic	Colluvial (Tallus conces)
5	Pd	Cenozoic	Pediments
6	Lb	Cenozoic	Lakebeds
7	Db	Cenozoic	Deltaic deposits
9	Br	Cenozoic	Levees
10	Sw	Cenozoic	Organic deposits (swamps)
12	Ap	Cenozoic	Alluvial plains
14	Ta	Cenozoic	Terrace allivial
105	Jac	Mesozoic	claystone
106	JCg	Mesozoic	Sandstone
107	JCcg	Mesozoic	Conglomerates
108	J	Mesozoic	Sandstone
109	J1-2	Mesozoic	Red Terrane (reddish brown sandstone, siltstone and marl
111	Tg	Mesozoic	Formation (sandstone and micro-breccias)
112	Tx	Mesozoic	Formation (siltstone, schists and marl)
115	CP	Pareozoic	Limestone
116	DC	Pareozoic	Black shists, phtanites, sandstone
117	DHj	Pareozoic	Phtanites
118	DHx	Pareozoic	Shists and sandstone
123	CS2q	Pareozoic	quartzites
124	Csq	Pareozoic	quartzites
125	CSx	Pareozoic	schists
126	CScg	Pareozoic	metaconglomerates
201	C	Unknown Geologic Era	hornfels
303	p2/p2b	Volcanic Rocks	rhyolites and rhyodacites
305	b	Volcanic Rocks	dacites
306	p1	Volcanic Rocks	rhyolites
307	p	Volcanic Rocks	rhyolites
308	α1	Volcanic Rocks	trachyte, andesites, andestes and tuffs
309	α	Volcanic Rocks	andesites, andesitic breccias and tuffs
310	r2t	Volcanic Rocks	Volucano-sedimentary breccias and acidic tuffs
311	r1t	Volcanic Rocks	acid tuffs
401	g4	Pultonic Rocks	high alumina granite
402	g3	Pultonic Rocks	granite or g3-4 coarse grainded granites
404	g3-2	Pultonic Rocks	fine grained granites

407	g2	Pultonic Rocks	granite
409	gb	Pultonic Rocks	granodiorite
999	NC	No Classified Rocks	No Classified Rocks

17. LANDUSE

PROJECTION: TM, Meters, Zone: 48, Spheroid: Everest 1830, Datum: Indian 1954
FEATURE TYPE: OLYGON
DESCRIPTION: anduse data as interpreted from LandSAT TM imagery
LU_CODE: anduse Code Number
TOPO_CODE: opographic Map Landuse Code Number (see TOPO_LANDUSE entry)
RELATED DATA FILE: ANDUSE_TEXT
RELATED ITEM: U_CODE

LUCODE DESCRIPTION:

LU CODE	CLASSIFICATION	CATEGORY	NAME
1	U	Urban, Built-up Areas	Settlement
2	I	Urban, Built-up Areas	Infrastructure (Airfield, factory, etc.)
3	Ar	Agricultural lands	Paddy field
4	Al	Agricultural lands	Receding and Floating rice fields
5	Au	Agricultural lands	Field crop
6	As	Agricultural lands	Swidden agriculture (Slash and burn)
7	Ao	Agricultural lands	Orchard
8	Ap	Agricultural lands	Plantation (Rubber plantation)
9	Av	Agricultural lands	Village garden crop
10	Ag	Agricultural lands	Garden crop
11	Arv	Agricultural lands	Paddy field with villages
12	G	Grasslands	Grassland (undifferentiated)
13	Ga	Grasslands	Abandoned field covered by grass
14	Gf	Grasslands	Flooded grassland
15	Gs	Grasslands	Grass Savannah
16	Gm	Grasslands	Grass with termite mounds
17	Ms	Grasslands	Marsh and swamp
18	S	Shrublands	Shrubland (undifferentiated)
19	Sa	Shrublands	Abandoned field covered by shrub
20	Sf	Shrublands	Flooded shrub
21	St	Shrublands	Woodland and scattered trees (C < 10%)
22	Fe	Forest covers	Evergreen broad leafed forest

23	Fc	Forest covers	Coniferous forest
24	Fd	Forest covers	Deciduous forest
25	Fdo	Forest covers	Dry Deciduous (Open) forest
26	Fx	Forest covers	Mixed forest from evergreen and deciduous species
27	Fr	Forest covers	Riparian forest
28	Fs	Forest covers	Bamboo and Secondary forests
29	Ff	Forest covers	Flooded forest
30	Fm	Forest covers	Mangrove forest
31	Fmd	Forest covers	Degraded mangove forest
32	Fp	Forest covers	Forest plantation
33	Wl	Water Features	Lakes (>8 ha)
34	Wp	Water Features	Lakes (<8 ha)
35	Wr	Water Features	Reservoir
36	Ws	Water Features	Shrimp/Fish farming and Salt pan
37	Wo	Water Features	Others (Sea, Bay, etc.)
38	B	Soils and Rocks	Barren land
39	Bs	Soils and Rocks	Sand bank
40	Br	Soils and Rocks	Rock outcrop

18. LU_TOPO

PROJECTION: TM, Meters, Zone: 48, Spheroid: Everest 1830, Datum: Indian 1954
FEATURE TYPE: OLYGON
DESCRIPTION: anduse grouped and dissolved for topographic maps
TOPO_CODE: opographic Map Landuse Code Number

TOPO_CODE DESCRIPTION:

TOPO_CODE	DESCRIPTION
53	Lake or Pond
55	Salt Evaporator
51	Open Water (oceans, large lakes and rivers)
91	Rock Outcrops
96	Sand Terrain
98	Barren Land
151	Dense Frest or Jngle
152	Clear Forest
153	Shrubland
155	Plantation
156	Flooded Grassland
157	Flooded Shrub
158	Flooded Forest
159	Marsh or Swamp
160	Rice Field
161	Mangrove
162	Field Crops

163	Swidden Agriculture
164	Grassland
165	Orchards
166	Village Garden Crops
167	Receding Rice Fields and Floating Rice Fields
169	Urban, and Built-up Areas

19. DN_LIN

PROJECTION: TM, Meters, Zone: 48, Spheroid: Everest 1830, Datum: Indian 1954
FEATURE TYPE: INE
DESCRIPTION: ater and water related line features
CODE: ode Number for each feature

CODE DESCRIPTION:

CODE	DESCRIPTION
51	River/Stream (permanent water)
52	Intermint River/Stream (temporal or intermittent water)
53	Arcs from polygon features (not drawn)
54	Arcs from polygon features (not drawn)
55	Arcs from polygon features (not drawn)
56	Canal Small
57	Canal Large
64	Levee
65	Concrete of Stone Revetment
69	Abondoned Canal

20. DN_POL

PROJECTION: TM, Meters, Zone: 48, Spheroid: Everest 1830, Datum.: Indian 1954
FEATURE TYPE: OLYGON
DESCRIPTION: ater and water related polygon features
CODE: ode Number

CODE DESCRIPTION:

0	Holes or Complex Poloygons within this data set (not drawn)
51	River/Stream (perennial or permanent water)
52	Intermittent River/Stream (temporal or intermittent water)
53	Lake or Pond (perennial)
54	Lake or Pond (temporal)
55	Salt Evaporator

21. DN_PTS

PROJECTION: UTM, Meters, Zone: 48, Spheroid: Everest 1830, Datum: Indian 1954
FEATURE TYPE: OINT
DESCRIPTION: Water related point features
CODE: Code Number

CODE DESCRIPTION:

	DESCRIPTION
63	Eastern Dam
67	Water Tower/Tank