

Call - $\frac{642}{FAP-18}$

2

BANGLADESH FLOOD ACTION PLAN

(3)

BN - 516
A - 642(1)

FAP 18: TOPOGRAPHIC SURVEY REPORT ON SURVEY AND MAPPING ACTIVITIES



FLOOD PLAN CO-ORDINATION ORGANIZATION
January, 1994

BANGLADESH FLOOD ACTION PLAN

FAP 18: TOPOGRAPHIC SURVEY REPORT ON SURVEY AND MAPPING ACTIVITIES



A-6

148 2141
23-2
C-2

FLOOD PLAN CO-ORDINATION ORGANIZATION
January, 1994

The status on the requirements and supply of Topographic data for Bangladesh Flood Action Plan as on 20.01.94 includes topographic data not only as mentioned in the TAPP for FAP-18, but also those found helpful to the consultants in their studies as well as those, which serve as substitutes of certain topo-data mentioned in the above TAPP, procurement of which involved additional fund and time, as also those which are of significant importance for study, Planning and in certain cases technical design works. The list provides information also on requirements/supply of data for other FAPs e.g. FAPs 3.1, 8A, 8B, 9A, 12, 16, 17, 19, 20, 21/22, 24, 25, SWMC and Director of Hydrology BWDB etc. to facilitate various studies for which data requirements were not specifically mentioned in the revised TAPP for FAP-18. Mention has also been made on the total requirement of new aerial photography, GPS, precision level data and up-to-date large scale contour maps and mosaics so that execution of Flood Action Plan can be done efficiently in future.

Survey of Bangladesh completed checking of geometrical level crossing between the West and the East bank of the Jamuna river and the result is that level crossing over the Jamuna done by FINNMAP has been found correct by SOB; but the level crossing over the Ganges has not been found to remain within permissible limit. This is to be revised by FINNMAP. However heights of all Bench Marks established by FINNMAP on both sides of the Jamuna has been adjusted by FINNMAP using the West bank as datum base. Future levelling works in FAP-5 are to be linked with this single datum to facilitate modelling activities.

Survey of Bangladesh has since completed about 2250 kms of 2nd order levelling with connections to water level stations in North Eastern Region (FAP-6) and Construction of all level monuments have also been completed. In extension of this work SOB will complete more 80 kms of 2nd order levelling including connections to FINNMAP's 2nd order levelling works on the east side of the Jamuna during the field season starting from January, 1994. Draft Completion report of 2250 kms of levelling has been submitted by SOB to water board for scrutiny. 2nd order levelling work for the coastal area has also been completed by FINNMAP, but its checking by SOB is under negotiation between BIWTA and SOB.

The most important matter at this stage is to plan for early availability of essential large scale topographic maps which will be needed in the near future for feasibility studies, planning and design works.

With the completion and/or progress of studies in different FAPs several projects will be identified for feasibility study and implementation. At that stage large scale contour maps and photo mosaics will be necessary. Such a need will crop up towards the beginning of 1995 if not earlier. And for the preparation of these



6
maps and mosaics, large scale aerial photography for the FAP areas except for the coastal belt and the middle portion of NCR is to be taken during this photography season. Establishment of necessary GPS points in the areas of FAP-4, 5 & 6 and 2nd order levelling in the areas of FAP-2, (W. side), FAP-4 and 5 are to be started from the this field season, if fund could be arranged. A proposal for taking 1:30,000 scale aerial photography for FAP-4, and southern portion of FAP-2 including GPS survey and 2nd order levelling works as mentioned above has been submitted to the Government for execution with undisbursed IDA credit allotted to water board. The ministry referred the matter to its joint chief, Planning Cell. With great endeavour the Planning Cell was convinced of the necessity and urgency of the above work for FAP use. Again the ministry was considering if the matter should be referred to ERD or not as it involves IDA loan. However the ministry wrote to ERD for approaching IDA for allotment of credit Fund. ERD was hesitant to request IDA straightway without taking concurrence of the Planning Commission as it is a loan case. ERD referred the matter to the Planning Commission. If the Planning Commission agrees then ERD will write to IDA and on the agreement with IDA, the jobs may be taken up in hand after taking clearance from the security agencies.

In the meantime, Ministry of Irrigation, Water Development and Flood Control has been requested to obtain clearance from the security agencies including permission from the Ministry of Defence. The Irrigation ministry again referred the matter to its Planning Cell. The ministry is now of the opinion that requests for security clearances can be initiated only after getting sanction of Fund from IDA. However the matter has been moved upwards of the ministry for a decision. These are continuously being pursued. Flying season for taking aerial photography is passing away. If the sanction from IDA and the security clearances are finally obtained, then aerial photography can be taken only if weather permits, otherwise only GPS Survey and Second order levelling for remaining FAP areas can be taken up during the balance period of this field season.

In the absence of any further commitment from donors for mapping, this was a plan to make available at least the basic topo-data available for completion of FAP studies within the period of duration of FPCO.

For mapping on 1:10,000 scale of the entire FAP area SOB has been asked by the Ministry of Irrigation, Water Development and Flood Control to prepare a project for completion of the job by the end of 1997. They have submitted the project to FPCO for examination. The project makes provision of Technical assistance from donors to the tune of 10.17 million US\$. The TAPP has been examined in FPCO and corrections have been pointed out to SOB. Approval of this project may take time and the execution of the project for the first series of maps on 1:10,000 scale will depend on the availability of donations from the donors.

7

The chances of getting donor's assistance is not easy even for the 1st series of mapping on 1:10,000 scale. Implementation of Flood Action Plan will necessitate revision of these maps at every 6/8 years time in future. In any case therefore, waterboard will have to depend on its own resources for availability of up-to-date large scale maps.

Keeping these in view, FAP-18 has been revised making provision for requisite number of necessary survey and mapping instruments with German Commodity Grant. The project has been recast fourtimes as wanted by the Planning Commission from time to time and has been finally approved by the Government (SPEC). The Ministry of Irrigation, Water Development and Flood Control has been requested to make available counterpart fund and CDVAT necessary for import of these machines.

For installation of these machines in the cartographic wing of the water board and reorganization of the Board's Survey part into a productive unit, hectic and full time engagement of consultant as per the revised TAPP will be necessary.

As for the spot imageries, those for 1989 were distributed to the consultants. All the demands of spot imageries of 1990, both for dry and wet seasons so far placed with the FPCO, have been supplied to the consultants. Further demands when given can be immediately met. Imageries for the dry season of 91, 92 and 93 have been supplied to the consultants.

Further arrangements for availability of spot imageries of October, 1992, October, 1993 and for both dry and wet season of 1994 for the main rivers and for the complete coverage of the entire FAP area in the case of a probable big flood in 1995 like that of 1988 have been made with SPOT IMAGE, France. One full set each of spot imageries of 1989, 90, 91, 92 and 93 (all for dry season) have been supplied to SOB as decided by the Government.

Topo Maps on scales 4" = 1 mile, 8" = 1 mile, 1:50,000, 1:250,000 and aerial photographs on various scales/years are continuously being supplied as per demands of the consultants.

Adjusted heights of BMs of all 2nd order level lines run by Finnmap in the NCR and precision level BM data falling in different FAP study areas as available with SOB have been supplied to the Consultants.

Co-ordinates of all GPS points established by Finnmap in the NCR and NW region have been received and supplied to FAP-24 as demanded.

Photo contour maps on scale 1:20,000 for Jamalpur and on 1:10,000 scale for Sirajganj and Tangail with contour intervals respectively of 0.5m and 0.25m have been supplied to Consultants.

6

Six additional sets of these maps have been printed off by FINNMAP and received in FPCO with the printing charges to be financed by CFD, France as agreed by them. Some of these sets have been supplied to the Consultants.

FAP-wise details of data needs and supply

FAP-1

A. Data Supplied so far:

- (a) Landsat (B&W) on 1:250,000 of the Jamuna River for 1973, 1976, 1977, 1987, 1980, 1981, 1984, 1985, 1987 & 1988;
- (b) Landsat (B&W) on 1:50,000 from Kamarjani to confluence with the Ganges-1987;
- (c) Spot (Multi-spectral) from France (1:50,000 scale) for entire Jamuna River-1989 (March); - 22 sheets.
- (d) Landsat (B&W) - 1:25,000 scale from Fulcharighat to confluence with the Ganges - 1990 (March);
- (e) Aerial Photos-1:50,000 scale (Jamuna) from Kaunia to confluence with Hurasagar (Part)-1990 (December); 43 Photos.
- (f) Aerial Photos-1:20,000 scale 1990 (December); 102+23=125 photos.
- (g) Topo Maps Latest editions as available: 1:50,000 scale - 79E/9, 10, 13, 14, 16, 78G/9, 10, 11, 12, 13, 14, 15, 16; 78H/9, 10, 11, 12, 13, 14, 15, 16, (21 Nos.).
- (h) 1:50,000 scale revised and newly printed sheets: 78G/9 to 16, 78H/9 to 16, 79E/9, 13, 78F/12, 16 = 20 Nos. Additional 5 Nos. of topo maps on scale 1:50,000 have been supplied to FAP-1.
- (i) Spot Multispectral from France (1:50,000 scale), 1990 - 32 Nos. supplied on 20.10.92.
- (j) 2nd order level data from Finmap - 169 sheets supplied on 18.10.92.
- (k) Preliminary adjusted heights of 2nd order levelling - 84 sheets supplied on 20.1.1992.

- 9
- B. Data available/can be supplied if required in future works to register changes through time.
- (a) 1:50,000 scale aerial photos of 1983, 1:30,000 scale photo of 1974
 - (b) 4"=1 mile scale BWDB Maps with 1' contour interval.
- C. Data can be made available soon:
- (a) G.P.S. data (Finmap) - These are now available in FPCO.
- D. Further data for future
- (a) Spot Image - 1:50,000 - (Multi-spectral for 1992 through 1995 for monitoring changes in the bank due to erosion. Spot image for March & October 1990 and those for March 1991, 1992 and 1993 are available in FPCO.
- E. Specific data: Large scale map (1:10,000) with 0.25m contour interval with fresh aerial photography will be required before design works are undertaken. Arrangement for this has been explained in the beginning of this report.

FAP-2

A. Data Supplied so far:

- (a) 1:50,000 scale aerial photos of 1983 from SOB - 718 photos.
- (b) 1:50,000 scale Topo Maps - from SOB. - 74 sheets + 5 sheets in duplicate. Additional 17 sheets of maps on this scale were supplied on 10-2-92, while 19 Nos. of such maps each in two copies supplied on 25.2.92.
- (c) Spot (Multi-spectral)-1989 from France - 72 sheets.
- (d) 1:125,000 Planning Maps-M.P.O.
- (e) 1:125,000 Soil Association Maps.
- (f) 4" & 8"= 1 mile BWDB Maps with 1' C.I. - 583 sheets.
4" - (124+84); 8" - (249+126).
- (g) 1:50,000 aerial photos of 1990 (Jamuna) - R. Bank - 162 Nos. + 4 Nos.= 166 Nos.
- (h) 1:20,000 scale aerial photos of 1990 (Finnmap) - 24 Nos.
- (i) Existing Level B.M. data covering 6 Nos. of 1/50,000 scale sheets as available with SOB.

- 8
- (j) 1:50,000 scale revised and newly printed topo sheets 30 Nos. each in duplicate. Additional 10 Nos. of sheets were supplied in January, 1992.
 - (k) 1:250,000 sheets from SOB = 9 Nos. of Maps. Additional 2 Nos. of sheets each in two copies were supplied in February, 1992.
 - (l) Additional 1:250,000 sheets from SOB = 5 copies of 78G and 2 copies of 78H have been supplied to FAP-2 on 8-6-92.
 - (m) Additional 1:50,000 scale Topo maps from SOB = 2 sets of 41 maps were supplied to FAP-2 on 15/4/92.
 - (n) 3 sets of 5 Nos. of Topo maps on scale 1:50,000 were supplied on 8-6-92
 - (o) Preliminary adjusted BM heights of 2nd order level lines as demanded have been supplied - 16 sheets.

B. Data available

- (a) 1:50,000 scale spot (multispectral) - 1990, 1991, 1992 & 1993. These are available in FPCO.

C. Data Surveyed

- (a) About 42 Nos. GPS-Finnmap. These are now available in FPCO.

D. Specific data:

- (a) Final printing of 1:50,000 revised sheets covering rest of FAP-2 area if needed in future is possible only if the printing charges are arranged.
- (b) Further 2nd order level data and 1:10,000 scale maps:
- (c) Arrangement for this has been explained before.

FAP-3

(A) Data Supplied so far:

- (a) 1:50,000 scale aerial photos of 1983 (SOB)
- (b) 1:50,000 scale aerial photos of 1990 (Finnmap) - 236 photos.
- (c) 1:20,000 scale aerial photos of 1990 (Finnmap) - 546 photos.
- (d) 1:50,000 scale spot (multi-spectral) - 1989 (France) - 44 sheets.
- (e) 1:50,000 scale topo maps of latest editions - 20 sheets as available.
- (f) 2nd order level data including river crossing data has been supplied.
- (g) 1:50,000 scale revised and newly printed maps: (30+11) = 41 Nos. Additional 11 copies of 11 Nos. of sheets were supplied on 05-01-92.
- (h) 4" & 8" = 1 mile scale BWDR maps with 1' contour interval. 4" (144 sheets), 8" (50 sheets) Total 194 sheets.
- (i) Preliminary adjusted heights of 2nd order level B.Ms - (80 sheets) have been supplied.

B. Data now available in FPCO

- (a) 1:20,000 scale photo maps for Jamalpur pilot project area with 0.50m C.I. (Finnmap).
- (b) 1:10,000 scale photo mosaics with 0.25m. C.I. for Tangail and Sirajgonj pilot project areas (Finnmap).
- (c) 99 GPS-Finnmap. These are available in FPCO.
- (d) 1:50,000 scale spot (multispectral) 1990, 1991, 1992 and 1993 for Jamuna river area are available in FPCO.

C. Specific data for future:

- (a) 1:50,000 scale spot (multi-spectral) from France for October 1993 through 1995 for monitoring changes along the Jamuna river bank due to erosion will be available in due course.



- 22
- (b) 1:10,000 scale line maps with 0.25m contour interval. Arrangement for this has been explained before.

FAP 3.1

A. Data Supplied so far:

- (a) 1:50,000 topo maps = 2 new + 4 recent edition from SOB = 6 Nos.
- (b) 1:50,000 spot (Multi-spectral), 1989 from France = 8 Nos.
- (c) 1:50,000 scale aerial photo-1990-Finnmap - 35 Nos.
- (d) 1:20,000 scale aerial photos - 1990 - Finnmap - 140 Nos.
- (e) 2nd order level data for line Nos. 51, 52, 53 including location index map has been supplied on 7.5.92.
- (f) 1:50,000 scale spot Imagery of 1990 - 16 sheets.
- (g) Preliminary adjusted heights of 2nd order B.Ms have also been supplied.

B. Data which are now available in FPCO

- (a) Photo-maps on 1:20,000 scale with 0.50 C.I. for Jamalpur area.

FAP-4

A. Data already supplied:

- (a) 1:50,000 scale topo sheets from SOB - 73 Nos.
- (b) 4" = 1 mile scale BWDB maps with 1" C.I. = 486 Nos.
- (c) 8" = 1 mile scale BWDB maps with 1" C.I. = 33 Nos.
- (d) 1:50,000 scale aerial photos (B&W) of 1983 - 610 Nos.
- (e) Spot image on 1:50,000 scale of 1989 from France - 62 Nos.
- (f) 1:250,000 scale topo maps from SOB - 10 Nos.

- 22
- (g) 1:50,000 scale aerial photos (B&W) of 1983 - 388 Nos. supplied on 23.4.92.
 - (h) 2nd order level data for line Nos. 64, 81, 82 with location index has been supplied on 13.5.92
 - (i) 1:50,000 scale spot Imagery of 1990 - 30 sheets.
 - (j) Preliminary adjusted B.M. heights of 2nd order level lines have been supplied - 37 sheets.
 - (k) 1:30,000 aerial photos of 1987 - 66 Nos. supplied on 19-01-93.
 - (l) 4" - 1 mile land use map of BWDB - 30 NBos. also supplied on 19-01-93

Data can be supplied on demand

- (a) 1:30,000 scale aerial photos of 1974-75 SOB.
- (b) 1:50,000 scale spot images for 1991, 1992, 1993 are available in FPCO.

B. Provision for future data:

- (a) GPS, 2nd order levelling for rest of the areas of FAP-4 and 1:10,000 scale development maps. Arrangement for these have been explained before.

C. Specific data:

- (a) Revised 1:50,000 scale maps may be made available if payments of printing charges can be made.
- (b) 1:50,000 scale spot (multi-spectral) from October 1993 through 1995 for Monitoring changes in the Padma river banks has been made with spot Image, France.

FAP-5

A. Data supplied so far:

- (a) 1:50,000 scale aerial photos of 1983-SOB - 314 photos.
- (b) 1:50,000 scale spot (Multi-spectral) images, 1989 (from France) - 31 sheets.

- ✓
- (c) 1:50,000 scale revised topo-map from SOB supplied before - 4 Nos.
 - (d) 4" = 1 mile scale BWDB maps with 1' C.I.
 - (e) 1:30,000 scale aerial photos (B&W), 1990-Finnmap/SOB-681 photos.
 - (f) Existing B.M. data covering 5 Nos. of 1:50,000 sheets from SOB.
 - (g) 1:250,000 scale topomap (Transfrontier) - 1 No.
 - (h) 1:50,000 scale spot imagery of 1990 - 6 sheets.
 - (i) 1:50,000 scale Topo maps (8 sheets) supplied on 16.11.92
 - (j) Another batch of 1:50,000 scale topo maps (revised) - 3 sheets supplied on 25.11.92
 - (k) Existing BM data from SOB -
Descriptions and height - 67 pages.
 - (l) 1:5,000 scale photo enlargements from 1:30,000 scale 1990 photographs have been supplied - 3 Nos. enlargements on 24.10.92 and 2 Nos. on 15.11.1992.

B. Data available/Can be supplied on demand:

- (a) FCD/1 maps of BWDB - Gumti Area

C. Specific data for future requirement:

- (a) Rest of final prints of 1:50,000 scale revised sheets can be arranged with SOB if printing charges can be arranged.
- (b) Provision of 2nd order level data and 1:10,000 scale maps with 0.25 m. - Arrangements explained before.
- (c) 1:10,000 scale rectified photo mosaics of North Noakhali Area. These are now available with SOB.

FAP-6

A. Data supplied so far:

- (a) 1:50,000 scale aerial photos (B&W) of 1983 from SOB -
- (b) 1:50,000 scale spot (multi-spectral), 1989 from France - 50 Nos.
- (c) 1:50,000 scale topo-maps of editions (1965-1978) 54 maps.
- (d) 4" = 1 mile scale BWDB maps with 1' C.I. 383 sheets.
- (e) 1:40,000 scale irrigation maps with 5' C.I. 50 sheets.
- (f) 1:50,000 spot image of 1990 have been supplied: 29 Nos. on 25.11.1992, 5 Nos. on 3.12.1992, 1 No. on 3.12.92 (of 1989).
- (g) 1st order BM heights with locations from Mymensing to Sylhet supplied on 23.11.1993 - 84 sheets.

B. Specific data requirements:

- (a) 2nd order level data-2250 kms. The work has been completed by SOB and draft completion report submitted to water board. All the level monuments have since been constructed. An additional length of 80 kms. of 2nd order levelling is being undertaken by SOB during this field season with connections to nearest water level gauge stations and FINNMAP BMs established on the eastern side of the Jamuna.
- (b) Provision of 1:10,000 scale line map with 0.25m C.I. and necessary GPS etc. Arrangement explained before.
- (c) 1:50,000 scale spot Imagery. This may be necessary. Negotiation with CCCE France will be necessary in this respect.

FAP-7 Data Supplied so far:

- A. (a) 1:50,000 scale spot (Multi-spectral), 1989, (France) 45 sheets.
- (b) 1:30,000 scale aerial photos of 1990 (coastal area) Finnmap - 162 photos.
- (c) 1:50,00 scale topo sheets - 12 Nos. from (SOB).
- (d) 1:30,000 scale aerial photos of 1974-75 - 41 Nos.

- (e) 1:50,000 scale aerial photos of 1983-84 - 37 Nos.
- (f) 1:30,000 scale aerial photos of 1974-75 were supplied to Cyclone Protection Project of FAP-7: 41 Nos. on 12.10.92, 3 Nos. on 21.11.92.
- (g) 1:50,000 scale photos of 1983 for Cyclone Protection Project supplied: 37 Nos. on 12.10.92, 25 Nos. on 21.11.92 and 7 Nos. on 23.12.92.

B. Specific data requirements:

- (a) GPS and 2nd order level data-coastal area completed by Finnmap, and awaits checking by SOB.
- (b) 1:10,000 scale coastal development maps: under preparation by Finnmap.
- (c) Prints of revised topo sheets on scale 1:50,000 if needed can be arranged if payment can be arranged.

FAP-8(a)

A. Data so far supplied:

- (a) 1:10,000 scale topo maps with 1' contour interval prepared in SOB with ground verification in 1989: 18 sheets x 2 = 36 copies.
- (b) All recent level data for the greater Dhaka Area-SOB.
- (c) The group Consulted aerial photo of 1983 on 1:50,000 scale and prepared their own map.
- (d) Some levelling works were done by their own topographers.
- (e) 1:50,000 scale spot (multi-spectral), 1989, France - 10 sheets.
- (f) 8" = 1 mile maps with 1' C/I - 36 maps.
- (g) 4" = 1 mile scale BWDB maps with 1' C.I. 40 maps.

The Consultant completed the study work and submitted final report and returned the data.

20

FAP-8(b):

A. Data so far supplied:

- (a) 1:10,000 scale topo maps with 1' contour interval revised in 1989 by SOB - 18 sheets.
- (b) 8" - 1 mile BWDB maps with 1' contour interval - 20 sheets.
- (c) 1:50,000 spot (multi-spectral) imagery, 1989, France.
- (d) 1:50,000 scale satellite imagery from SPARRSO.
- (e) Borrowed large scale map prepared by Japanese in FAP-8(a).

FAP-9A:

A. Data so far supplied:

- (a) 1:50,000 scale topo maps (latest editions as available) covering different towns = SOB. 28 sheets.
- (b) 1:50,000 scale spot (multi-spectral), 1989, France - 2
- (c) 4" & 8" = 1 mile scale BWDB maps with - 1' C.I. - 2
- (d) 1:50,000 scale aerial photos of 1983-SOB-24 photos.
- (e) (Level) B.M. data - 20 pages.

FAP-9B: This is a Meghna river bank protection Project of BWDB. The consultant did not demand any topo data from FPCO. They have consulted data available with BWDB.

FAP-10: 4" and 8" = 1 mile scale BWDB/FCD maps with 1' C.I. may be helpful.

FAP-11: Disasters of enormous magnitudes use to happen due to Floods, Cyclone and tidal surge over almost the whole of deltaic Bangladesh. For a study on disaster preparedness, the data enumerated for study of regional areas will be helpful.

27

FAP-12: A. Data so far Procured by the Consultant:

- (a) 1:50,000 scale topo maps from SOB: 28 sheets x 4 = 112 copies
- (b) 8" = 1 mile scale BWDB maps with 1' C.I. = 123 maps.
- (c) 4" = 1 mile scale BWDB maps with 1" C.I. = 189 maps.

FAP-13: No Topo data is necessary. Rapid reprisal report submitted.

FAP-14 & 15: No topographic data is necessary.

FAP-16: Every regional study group has an environmentalist on their strength. Topographical data enumerated for these FAPs may be consulted if necessary.

Specifically the following photographs have been supplied to FAP-16 as per their demand:

1:50,000 scale 1983-84 photos - 11 Nos.
1:30,000 scale 1974-75 photos - 17 Nos.

FAP-17: Data supplied so far:

- (a) 1:50,000 scale revised and newly printed topo maps SOB - 30 sheets.
- (b) 1:50,000 scale spot, 1989 (multi-spectral) from France.
- (c) A 2nd batch of 5 Nos. of 1:50,000 scale topomaps were supplied.
- (d) A 3rd batch (23 Nos.) of 1:50,000 scale topo maps were supplied on 26.7.92.
- (e) A fourth batch of 5 Nos. of 1:50,000 scale topo maps were supplied on 27.7.92
- (f) A fifth batch of 6 Nos. of 1:50,000 scale topo maps were supplied on 5.10.1992.
- (g) 1:50,000 scale spot images of 1989 - 16 Nos.
- (h) 4" = 1 mile BWDB maps - 8 Nos. supplied on 26.8.92
- (i) 8" = 1 mile BWDB maps - 35 Nos. supplied on 26.8.92

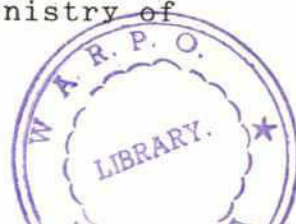
- 29
- (j) 4" - 1 mile scale BWDB Maps - 75 Nos. were supplied on 4.10.92.
 - (k) A sixth batch of 1:50,000 scale topo maps 14 Nos. were supplied on 31.10.92.
 - (l) A seventh batch of 5 Nos. of 1:50,000 scale topo maps were supplied on 11.11.92.
 - (m) An eighth batch of 1:50,000 scale revised topo maps 3 Nos. supplied on 21.11.92.
 - (n) 1:50,000 scale spot (multi-spectral) image of 1990 - (11 Nos.) supplied on 31.10.92.

Specific Data:

- (a) 1:50,000 scale aerial photos of 1990 for NCRS.

FAP-18

- A. The document for the Mapping cell has been prepared. The TAPP has been revised and approved by the Government for procurement of Instruments/machineries for the data base of the Mapping cell under German commodity aid. For mapping and printing of maps on scale 1:10,000 for FAP the deficiency of essential instruments in Bangladesh can be met from this Commodity Aid.
- B. Items of works allotted to Finnmap under this FAP:
 - i) B&W aerial photography at the scale of 1:50,000 for an area of 22,000 sq. kms. along Jamuna river -- completed. and supplied to consultants.
 - ii) B&W aerial photography at the scale of 1:20,000 for an area of 10,000 sq. kms. in the same region for pilot project areas -- completed and supplied.
 - iii) Infra red colour photography at the scale of 1:50,000 for an area of 1000 sq. kms. in the same region and at a scale of 1:20,000 for an area of 300 sq. kms. -- completed.
 - iv) B/W and infra red colour photography at the scale of 1:30,000 for an area of 2600 sq. kms. in the Comilla District -- completed. Indexing and classification has been completed. Ministry of Irrigation, Water Development and Flood Control has requested Ministry of



Defence to regularise this photography. Special meeting on this matter was held in the Ministry of Defence. The photographs can now be released by SOB if demanded by FAP-5.

- v) Rectified photo-mosaics at the scale of 1:10,000 with C.I. of 0.25m for Tangail and Sirajganj Pilot Project areas of about 200 sq. kms. are now available in FPCO. The requirement of FAP-20 has been supplied. Additional six sets of these photo-maps have been printed off with CFD's financial assistance. Some has been supplied to the Consultants.
- vi) Rectified photo-mosaics at the scale of 1:20,000 with C.I. of 0.5m for Jamalpur Pilot Project areas of about 800 sq. kms. are also available in FPCO now. Materials have been supplied to the Consultant. Additional six sets of these mosaics have been printed off.
- vii) Carrying out of ground control surveys immediately required for photo mapping and other activities consisting of:
 - (a) 146 GPS - These are now available with FPCO.
 - (b) 2300 kms of 2nd order levelling - 2286 kms have been completed. These have been checked by SOB. The river crossing work over the Jamuna has been found correct, while that over the Ganges is not found to remain within permissible limits.

Position of supply of 1:50,000 scale multispectral spot images (France) and 1:50,000 scale topo maps has been shown against individual FAP.

FAP-19:

A. Data supplied so far:

- (a) 1:50,000 scale topo maps as available (46 Nos.) + 9 Nos. = 55 Nos. (SOB)
- (b) 1:10,000 scale Dhaka area maps with 1' C.I. = 18 Nos.
- (c) 1:8,000 scale BWDB maps with 1' C.I. - 46 sheets.
- (d) 1:16,000 scale BWDB map with 1' contour interval - 62 maps
- (e) 1:50,000 scale spot, 1989 (multispectral) 10 sheets

- 72
- (f) 1:50,000 scale aerial photos taken during 1990 - Finnmap - 17 Nos.
 - (g) 1:50,000 scale spot multispectral image (France) of 1989 - 209 Nos. (2nd spell)
 - (h) 1:20,000 scale aerial photos taken during 1990 - Finnmap - 347+159 = 506 Nos.
 - (i) 1:30,000 scale aerial photos taken during 1975 - 60 Nos.
 - (j) The consultant has collected all the 4" & 8" = 1 mile BWDB maps from FAP-3.
 - (k) 1:30,000 scale coloured photos of 1990 (Finnmap) - 22 Nos. have been supplied from SPARRSO on 29.10.92.
 - (l) 8"=1 mile BWDB maps - 37 Nos. supplied on 4-02-93.

B. Next possible requirements may be:

- (a) 1:50,000 scale spot imagery for March 1990 through 1995. Spot Imagery for 1990, 1991, 1992 and 1993 are available in FPCO.
- (b) 1:50,000 scale revised topo maps.
- (c) Large scale photo maps on scales 1:20,000 and 1:10,000 respectively with C.I. 0.5m and 0.25m for pilot project areas of the North Central Region which are now available in FPCO.
- (d) Soil Association Maps from Soil Survey of Bangladesh if needed.
- (e) 16" - 1 mile cadastral maps from DGLR and S (Tejgaon).
- (f) IWTA Hydrographic maps.
- (g) Large scale Indo-Bangladesh joint survey maps of the Ganges/Padma-1974 SOB.
- (h) Finally adjusted BM heights of all 2nd order level lines in the NCR.
- (i) GPS Data (Finnmap) north central region and right bank of Jamuna). These are now available in FPCO.
- (j) All 1st order geodetic stations' Coordinates (SOB).
- (k) All precision level B.Ms. heights/Descriptions maintained in SOB.

- 2.0
- (l) 1:50,000 spot (B&W) 1989 (Danida)
 - (m) CCTs - land sat. (SPARSSO)
 - (n) Rest of aerial photos on 1:50,000 of 1983 and 1:20,000 (B&W) - 1990 (Finnmap).
 - (o) Hydrological data - BWDB
 - (p) Forest Development Maps - Dept. of Forest
 - (q) Agri-maps -- BARRI/BARC
 - (r) Statistical Maps/BBS.
 - (s) Various MPO maps (small scale) as available and as required.

FAP-20:

Data supplied so far:

- (a) 2nd Order Level data of line Nos. 67, 69, 71, 72 and 80 have been supplied on 5.5.92. Adjusted heights of 2nd order level data (14 sheets) have been supplied on 22.10.92.
- (b) Provisional 2nd order level data of 3 lines as desired have been supplied before.
- (c) 4 Nos. of Topo maps on scale 1:50,000 were supplied on 5/5/92.
- (d) Another batch of 4 Nos. of topomaps on scale 1:50,000 were supplied on 18.7.92.
- (e) 1:20,000 scale photo of 1990 (Finnmap) - 18 Nos. supplied on 24.11.92.
- (f) 1:20,000 scale photo of 1990 (Finnmap) - 42 Nos. supplied on 21.12.92.

Specific data:

1:50,000 scale revised topo maps may be necessary and 4", 8" = 1 mile scale BWDB maps may also be supplied.

- (g) 1:20,000 scale photo of 1990 (Finnmap) - 56 Nos. supplied on 29.4.93

- (h) Photo-contour maps on 1:10,000 scale for Tangail and Sirajganj (Finnmap) - 20 Nos. supplied on 25.5.93

FAP-21 & 22:

A. Data supplied so far:

- (a) 18 Nos. of maps each in 4 copies on scale 1:50,000 have been supplied. Additional 2 Nos. of sheet on 1:50,000 supplied later on.
- (b) 1:50,000 scale spot multispectral 1989 - 18 spot images each in duplicate.
- (c) 1:20,000 scale aerial photos of 1990 - 106 photos.
- (d) 1:50,000 scale spot imagery of 1990 - 79 sheets.
- (e) 1:50,000 scale photos of NCR of 1990 - 45 photos.
- (f) 1:50,000 scale spot images of 1991 (France) - 21 Nos. supplied on 01-11-92.
- (g) GPS data of 15 stations fixed by FINNMAP supplied on 8.6.93. Description cards of the GPS supplied on 10.7.93.
- (h) Adjusted heights of 2nd order level data - 28 sheets supplied on 11.10.92
- (i) 1:50,000 scale spot image of dry season of 1992 supplied on 30.8.93 - 33 sheets
- (j) 1:50,000 scale spot image of dry season of 1993 supplied on 29.11.93 - 33 sheets.

FAP-23: No demand of photo and maps have been placed as yet.

FAP-24: Data supplied so far precision level control heights (1st and 2nd order B.M.

- (a) Adjusted BM heights of all 2nd order level lines in the North Central Region has been supplied on 21.11.92 - 1016 sheets.
- (b) Aerial photos covering the main rivers (various scale and years as relevant) - SOB.
- (c) 1:50,000 scale revised topo maps - SOB - 47 Nos. supplied on 20-02-93
- (d) Spot Imagery on 1:50,000 of 1990 (France) - 79 Nos. have been supplied on 12.10.92.

- 2
- (e) All B.M. data of BWDB (hydrology Directorate) have been supplied.
 - (f) Co-ordinates of GPS Stations (Finnmap) - 33 stations supplied on 2-5-93.
 - (g) Parameters of Everest ellipsoid and those for WGS-84 have been supplied.
 - (h) 1:50,000 scale spot image, France of dry season of 1991 and 1992 supplied on 25.9.93 - 33X2=66 sheets.
 - (ii) 1:50,000 scale spot image of dry season of 1993 supplied on 23.11.93 - 33 sheets.
 - (j) 1:50,000 scale spot image of dry season of 1989 supplied on 12.12.93 - 59 sheets.

FAP-25: Data supplied

- (a) 1:50,000 scale Topo maps (revised and recent edition) - 43 Maps have been supplied on 14.12.92.
- (b) 1:50,000 scale aerial photos of 1990 - 236 Nos.
- (c) 1:20,000 scale photo contour maps of Jamalpur area supplied on 22.12.93 - 21 sheets.

Possible Requirements

- (a) Hydrological data - Director, Hydrology, BWDB.
- (b) 2nd order level data. 2nd order level data for both banks of the Jamuna and beyond are available in FPCO. Some have been collected by the Consultant along with the location index. Adjusted heights of all BMs of 2nd order level lines in the NCR are available in FPCO. SOR's checking report of levelling works over the Jamuna and the Ganges done by Finnmap has also been supplied.

Surface Water Modelling Centre (WARFO)

2nd order level data for line Nos. 17,51,52,53 to 83 along with BM location index has been supplied on 14.5.92.

Adjusted heights of all BMs of 2nd order level lines in the NCR are available in FPCO.

Directorate of Hydrology, BWDB

Location cards of BMs of 2nd order level lines in the NCR have been supplied along with height differences of successive

26

Bench Marks.

Adjusted heights of the above BMs can be supplied.

CFD Delegation France: 8 Nos. of Topographic maps on scale 1:50,000 have been supplied on 4-5-93.

Survey of Bangladesh, Tejgaon:

1. One full set of 1:50,000 scale spot multispectral images of 1989 (France) has been supplied to SOR as per decision of the GOB.
2. Photo contour mosaics on scale of 1:10,000 of Sirajganj and Tangail area supplied on 26.12.93 - 20 sheets.
3. Photo contour mosaics (maps) on scale 1:20,000 of Jamalpur area supplied on 26.12.93 - 21 sheets.
4. 1:50,000 scale spot image of dry season of 1991 and 1992 33 X 2 = 66 sheets supplied on 13.9.93 and spot image of dry season of 1993 supplied on 26.12.93 - 33 sheets.

Thana Afforestation Development Project: 1:50,000 scale spot image of dry season of 1989 supplied on 23.11.93 on special request and received back on 26.12.93 - 44 sheets.

Central Zone of BWDB: 1:50,000 scale spot image of dry season of 1993 supplied on 2.12.93 on special request for showing to the Prime Minister and received back on 23.12.93 - 7 sheets.

A:CRUZE\HAKIM:13/1/94



