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14. ABSTRACT The purpose of this report is to summarize briefly the history of the Surface Water Research project since its inception in 1952, the work accomplished, and the problems encountered. In general, each topic is discussed under two periods of time: 1952-1963, when projects were confined to the Helmand River Valley and was entitled "Helmand Surface Water Investigations (306-12-021, 306-M-12-AD and 306-AC-12-AD5)," and 1963-1969 when activities were expanded to cover most of Afghanistan and title was changed to "Surface Water Research (306-11-190-002)". Prepared by the United States Geological Survey in cooperation with the Water and Soil Survey Department, Ministry of Agriculture and Irrigation, Royal Government of Afghanistan under the auspices of the United States Agency for International Development. 18 appendices.					
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Attached is an end of tour report by Mr. Westfall, Hydrologic Advisor, Surface Water Research, Agricultural Development Project, 301-11-190-002, March 1964-May 1966. Please supply copies, as required, to the U.S. Geological Survey and specifically to Mr. George Taylor of USGS.

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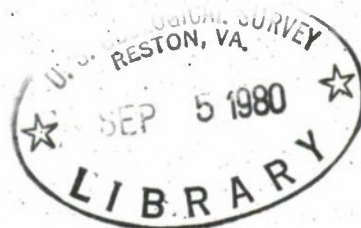
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END OF TOUR REPORT

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Arthur C. Westfall, Hydrologic Advisor
Surface Water Research, 306-11-190-002

March 1964 to May 1966

1. General Objectives. This project is a continuation of the previous Helmand Surface Water Investigations but with activities expanded to include technical assistance to the Water and Soil Survey Department in Kabul as well as to the Helmand Valley Authority.

The general objectives as outlined in the 1964 Project Agreement were to: (1) develop a plan for the proper location and kind of collection stations needed, (2) assist in standardizing and improving the procedures of field and office practices and to train Afghan personnel in these functions, and (3) analyze present records of streamflow for accuracy and consistency. The 1965 and 1966 Pro/Agos had essentially these same general objectives but the 1966 Pro/Ag later was revised to provide more assistance in the development of agriculture by (1) increasing the capabilities of the organization so that it can effectively collect and interpret water data, (2) building a river gaging network to furnish needed data for irrigation development, (3) training Afghan personnel in the techniques required to operate the organization and network, and (4) acquiring the necessary scientific instruments and accessories for obtaining the data.

2. Activities. During the period covered by this report the following activities were carried out:

1. The continuation of the project work in the Helmand Valley, but with the project now headquartered in Kabul (under the National Agricultural Development Project) and with the addition of a second specialist (Hydrologist) to have overall project responsibilities.
2. Advice on the establishment of USGS standards and methods and attendance at numerous conferences with WSSA officials and representatives of other technical aid missions concerning these standards.
3. Preparation of a comprehensive surface water resources investigation plan that will give recommendations for a basic gaging station network, procedures and standards for field and office work, organization of the surface water hydrology section, staffing pattern, participant training, equipment, publication of data, and a technical library.

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4. Preparation of a formal training manual for use both in lecture series and for on-the-job training, and conducted lectures for all personnel in both offices.
5. Continuation of the computation of daily records for the stations operated under the HVA; and in addition review, reworking, and analyzing the data from 9 additional streamgaging stations which were established by the WMSF in 1961-63.
6. Analysis of long-term gaging station records for duration of frequency of flows.
7. Reconnaissance studies of proposed gaging station sites, diversion tunnel sites, and seepage investigation sites, and preparation of estimates of flow at many of these.
8. Presentation of a course on hydrology at the University of Kabul Engineering Faculty during the Fall of 1964.
9. Assistance to many contract teams with information pertinent to their projects and in many cases, field studies to obtain needed data.

3. Favorable and Unfavorable Factors. On the favorable side, the operation at Kandahar has improved to such an extent that the need for a full-time advisor no longer exists. There are several reasons for this: first, the project has been underway since 1952 in that area and after 14 years of training some of the Afghan technicians have become quite adept in the basic work; second, the excellent working relation that Mr. Latkovich has established with the Afghan counterparts has created a favorable atmosphere not only in our own organization, but also in the provinces where he and the rest of the staff must deal with the local government and village leaders; third, the transfer to Kabul of Mr. Chulam Sham who, although a U. S. graduate engineer (at AID expense), has no interest in the work and shows it by doing nothing except continually asking to be sent back to the U. S. for a Master's degree; fourth, the change of office location from Rest to Kandahar which has had the two-fold effect of getting some of the men closer to their families and away from an area where they were discriminated against in pay and housing; and fifth, the Kandahar facilities are much better in that all activities including storage, transportation, workshop and office are in one compound.

As far as the Kabul operation is concerned, nothing favorable can be said for it. The physical facilities are small, dirty, and inadequately heated and lighted in the wintertime, and the rooms are poorly arranged for an engineering office where constant contact between supervisor and employee must be maintained.

Transportation for field parties is very poor both in the quantity and quality of vehicles and in the constant struggle to get enough funds for gasoline and per diem.

Personnel troubles have been many. Most of the better and more experienced men have been transferred to Kabul over the last year and a half, leaving the Kabul office with a minimum of qualified technicians. Only two of the Kabul technicians are experienced enough to do acceptable field work. The graduate engineers have all been taken into the army.

With this constant shifting of personnel, no continuing program of training has been possible. All training has had to be kept at "kindergarten" level. Organized classes of instruction were tried for a while, but with a constant outflow of experienced men, it soon became impossible to carry on training as a group.

Decision making, even on relatively minor matters, has never been at the working level. Even though the head of the section carries the title of Director General, all matters must be referred to the top level. Up until late 1965, this was the President of the Authority, H. E. Mir Akbar Reza, who was then also Deputy Minister of Agriculture. Late in 1965, Mr. Reza was appointed Minister of Agriculture and Irrigation and the WSSA was incorporated into that Ministry. In early 1966, Mr. Juma Mohammadi was appointed Vice-President of the WSSA and he is quite intelligent and capable although lacking in experience and "push." Mr. Mohammadi has been delegated some powers formerly reserved by the President, such as authority to sign receiving reports; but problems concerning personnel, transportation, commodity procurement, and work plans still must be taken to the Minister, by-passing (in Mr. Mohammadi's own words) the Deputy Minister as a useless step.

There have also been unfavorable factors on the part of USAID and USGS. The voluminous amount of paperwork required by USAID has taken about 25 percent of working time. It is realized that the preparation of E-1s, Pro/Ag, and PIO's is a necessary part of the operations, but for a specialist to have to handle even the smallest details of their preparation is unrealistic. The recent addition of a Program Assistant to the Division should help alleviate this problem.

The back-stopping services supplied by other Divisions have at times been inadequate. Emergency purchases of items to repair essential equipment generally take a month in preparation before the Purchase Order even leaves the USAID Mission. Locally procured items generally take a month to acquire after the initial request. Little cooperation is given in getting urgently needed commodities cleared through customs. Vehicle repairs are loosely handled with generally only about half the requested repairs being done, and some of those are questionable.

The USGS has been inadequate in furnishing needed commodities and a consultant in sedimentology. Project commodities for which the USGS was named as the procuring agency in 1966 still have not arrived on post. A sedimentologist who was to be on

post in March 1966 did not arrive but has been named, and it is to be hoped that he can be scheduled to be here during the next rainy season.

The above complaints are not directed at individuals in the Divisions or Agencies concerned--there has been nothing but the finest working relation with all. Rather, these are complaints against the establishment of systems of control that are inflexible, against the compounding instead of streamlining of paperwork, and against a system that makes the administrative and service divisions all-powerful, with but little heed being given to the needs and desires of the people who must push the projects to a successful conclusion.

4. Evaluation of Results. Toward meeting the first objective of the 1964 Pro/Ag both specialists spent considerable time on field reconnaissance of river gaging sites during 1965 and early 1966. Over 10 sites were field inspected and reconnaissance reports written. On the basis of hydrologic knowledge gained from this work, an additional 35 sites were picked to be inspected at a later date. This work was culminated by the preparation of a report entitled, "A Surface Water Resources Investigation Plan for Afghanistan." This report now is in rough draft.

To meet the second objective of the 1964 Pro/Ag, a training manual was prepared in 1964 to present basic streamgaging techniques and equipment. This manual was enlarged and updated in 1965 and printed in booklet form by the Communications Media Division of the USAID. It contains 135 pages, 37 illustrations, and 4 tables and is being used as the standard training manual in surface water hydrology. A second training manual concerning office procedures is about 50 percent complete. It is hoped to continue the preparation of these training manuals as fast as the competency of the Afghan technicians allows.

In addition to preparation of the training manuals, on-the-job training has been conducted on a continuing basis both in the field and office, and a hydrology course was conducted at Kabul University in 1965.

The third objective of the 1964 Pro/Ag was met in its entirety. All past and current records of streamflow that were not computed to U. S. Geological Survey standards were reworked, and revised figures of discharge were furnished to the recipients of the earlier erroneous figures.

5. Recommendations for the Future. Recommendations for future action are quite simply stated: Carry out the program as outlined in the revised FY 1966 E-1. With the USA putting so much emphasis on the development of agriculture, it has become quite evident during the past two years that the present gaging station network cannot furnish the necessary data for the design of new irrigation works or the improvement of the existing ones. The present network of gaging stations is inadequate in two ways: areal coverage is not great enough, and some stations are not up to standard in either location or equipment.

It also is recommended that the RGA put all hydrologic services under technical advisorship of one aid mission, or hire a third country expert to correlate the activities of all aid groups and to adopt standards of procedure and methods. The present method of operation, where each aid group introduces its own methods and systems, has resulted in non-standardization in almost every facet of the work.

Detailed recommendations on all phases of the project are contained in the report, "A Surface Water Resources Investigation Program for Afghanistan." These recommendations are too lengthy for incorporation in this report, but should be read in connection with it. The report is now being reviewed by the U. S. Geological Survey in Washington.