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# A PLANNING, MONITORING, AND EVALUATION SYSTEM FOR FOOD FOR WORK PROGRAMS IN INDIA: PROGRESS DURING THE FIRST STAGE OF IMPLEMENTATION

April 1985

Submitted to
United States Agency for International Development
Under Contract No. ASB-0219-0-00-5046-00

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## EXECUTIVE SUMMARY

Catholic Relief Services (CRS) has been conducting Food For Work programs in India for over twenty years. As part of its continuing efforts to upgrade its programs, two years ago the organization decided to attempt the development of a planning, monitoring and evaluation system (PM&E) that would provide timely information to program managers about the development impact of its FFW projects.

After a year of development and pilot testing, CRS committed itself to the implementation of the system for a two-year period commencing in October 1984. Since then the PM&E system has continued to evolve based upon feedback from further field tests and the first stages of implementation. While changes and "mid-course corrections" will undoubtedly continue into the future, the system is now past the pilot stage and into sufficiently wide use within CRS to be affecting program activities. Initial feedback from the field indicates that the system is having a marked impact on the way Food For Work project implementors are carrying out their work. As a consequence, CRS has decided both to continue the effort and to expand its domain to include linkages with some of its other endeavors.

This report provides a brief summary of the activities carried out during a two-week mid-year assessment in March of 1985 by a team of system designers and implementors. The team consisted primarily of CRS staff aided by Community Systems Foundation (CSF) and a representation from USAID/India.

- Perhaps the most exciting conclusion of this mid-year assessment is that the PM&E system appears to be promoting constructive dialogue about how to improve the developmental impact of FFW projects. This seems to be happening at all levels of program activity: central, zonal, consignee, and project holder. The fact that change is already occurring, even during the first six months of implementation, is a tribute to the motivation of the CRS staff and project holders.

- The integration of FFW with TMCHEP, described in section 1.1.3, is a powerful change in CRS programming. Food For Work will become more nutritionally targeted. As such, it will be used to address a basic

cause of child nutritional deficiency which can-not be dealt with under a maternal and child care program alone. CRS should be encouraged to pursue its current plans in this area.

- The plan to have a year-end all-India meeting is sound. This time for communication also assists in the motivation which is so necessary for successful PM&E implementation. Perhaps consideration should be given to the inclusion of TMCHEP personnel for at least some part of the meeting in order to facilitate integration between programs.

- A strong case can be made for computerizing the PM&E system, especially if the endeavor is limited in scope and rapidly implemented so that the benefits can begin to be realized within the next year. Ensuring data compatibility with the larger CRS system soon to be implemented and utilizing battery operated portable hardware will enhance the overall usefulness of the system. (See Sections 2.1.1 and 2.1.2.)

- Based upon careful analysis of alternatives by CRS staff, the method for implementing the FFW project development training has been improved upon. Rather than provide training to consignees in the hope they will in turn train project holders, it is recommended that training be provided directly to project holders, as described in Section 2.2.

- The approach to implementing case studies also has been improved upon. It is recommended that the Delhi FFW evaluator devote more time in the field during the next six months and that he participate in the case study/situation analyses described in Section 2.3.

- CRS would like to have the <u>option</u> of using the results from the PM&E system for a future impact evaluation. It is therefore suggested that some technical time be devoted now to formulating a possible research design and sample frame.

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## 1.0 INTRODUCTION

Catholic Relief Services (CRS) has been conducting Food For Work programs in India for over twenty years. As part of its continuing efforts to upgrade its programs, two years ago the organization decided to attempt the development of a planning, monitoring and evaluation system (PM&E) which would provide timely information to program managers about the development impact of its FFW projects.

After a year of development and pilot testing, CRS committed itself to the implementation of the system for a two-year period commencing in October 1984. Since then the PM&E system has continued to evolve based upon feedback from further field tests and the first stages of implementation. While changes and "mid-course corrections" will undoubtedly continue into the future, the system is now past the pilot stage and into sufficiently wide use within CRS to be affecting program activities. Initial feedback from the field indicates that the system is having a marked impact on the way Food For Work project implementors are carrying out their work. As a consequence, CRS has decided both to continue the effort and to expand its domain to include linkages with some of its other endeavors.

This report provides a brief summary of the activities carried out during a two-week, mid-year assessment in March of 1985 by a team of system designers and implementors. The team consisted primarily of CRS staff aided by Community Systems Foundation (CSF) and a representation from USAID/India.

### 1.1 Activities Undertaken during the Two-week Mid-year Assessment

The mid-year assessment consisted of several distinct but related activities. After an overall review of progress to date in New Delhi, a team including representatives from all four CRS zonal offices met at Bombay in a workshop to review the findings from the first five months of implementation. Bombay was selected because of its diversity of field settings and activities and because it would be possible for the entire team to visit sites different from those seen in previous years.

### 1.1.2 Improving Analysis Procedures

The first two days were spent in a workshop reviewing the field experiences during early implementation. Annex I provides a list of workshop participants. Approximately forty analyses that had been completed were reviewed for both accuracy and for how they might be interpreted under different field conditions. One of the most promising aspects of this review was the reaffirmation that the analysis as completed on the forms was a useful beginning of the dialogue between project holders and CRS staff, and that in order for the interaction to be truly effective the dialogue must extend well beyond the content of the forms themselves. (Section 2.3 discusses this topic in more detail.)

In order to improve interpretation skills and to allow the expertise of staff from different zones to be shared an exercise in estimating the useful life of a completed project was conducted. Workshop participants were divided into two groups, each comprised of members from different zones, and asked to estimate the useful life of each of the major asset categories (i.e., wells, small dams, bunds, roads, houses, etc.). Of course these estimates varied considerably depending upon the type of construction and the environment in which they were constructed. Differences between the two groups and even within each group were discussed and in some cases led to adjustments in estimates of life. Most important, all participants obtained a better understanding of the factors which could lead to increases in the useful life of the development project.

Table I-1 presents the initial estimate of asset life by category as received from each workshop group at the onset of the discussion. Estimates were subsequently changed as a result of discussions, and a reiteration of this exercise is planned during the end-of-year meeting when more reliable information and insight is available.

Another important area of discussion involved the treatment and interpretation of a development project whose benefit was to be realized at some time in the future. One example of this situation is in agroforestry, where the plantings must grow several years before they yield a crop or can be harvested for their wood value. In order to

TABLE I-1 - STUDY GROUP'S FIRST MID-YEAR MEETING - MARCH 1985

| Zone | Bombay | | Cochin | | Madras | | Calcutta | |
|---|---|---|---|---|---|---|---|---|
| Group | A | B | A | B | A | B | A | B |
| A 1 New Irrigation Wells | 10-30[a] | 20 | - | 20 | 20 | - | - | 25-50 |
| A 2 Irrigation Wells/Deepening/Clearing | 5-8 | 20 | - | 20 | 5 | - | - | - |
| A 3 Tanks/Dams/Reservoirs | 20 | 10 | - | 20 | 2[c] | - | - | 15 |
| A 4 Irrigation Canals | 5 | 20 | - | 20 | 7 | - | - | 10 |
| A 5 Bund Construction/Repairs | 15 | 5 | - | 20 | - | - | - | 10 |
| A 6 Land Clearing/Levelling | 25 | 20 | - | 20 | 30 | - | - | 25 |
| A 7 Bench Terracing, Slope Land Reclamation | - | - | - | 20 | - | - | - | 15 |
| A 8 Reforestation | - | 20 | - | - | - | - | - | - |
| A 9 Pasture & Forage Development | 25 | - | - | - | - | - | - | - |
| A 10 Fisheries Development | - | - | - | - | - | - | - | - |
| B 1 Road Construction/Repairs | 10 | 20 | - | 20 | 4 | 0 | 0 | 5 |
| B 2 Bridge Construction | - | - | - | - | - | - | - | - |
| B 3 Drinking Water Wells | 50[b] | 20 | - | 2 | 40 | - | - | 20-50 |
| B 4 School/Community Centre/Health Centre/Godown | 50 | 20 | - | 20 | 50 | - | - | 50 |
| B 5 Low-Cost Houses | 30 | 5-15 | - | 20 | 5-40[d] | - | - | 10 |

- = No estimate, either because no zonal representation in study group or no activity in the zone

[a] = Low estimate for unsteened, high for steened

[b] = Steened only

[c] = Repairs only

[d] = Low estimate for thatch roof, high for tile

determine the average yearly yield for this type of asset, the approximation procedure decided upon was to determine the total yield over the crop-bearing life and divide this value by the sum of the growth to maturity period and the useful crop-bearing period. For instance, if the annual estimated yield was Rs.1,200 over a twenty-year life and the forest took eight years to mature, the annual estimated yield would be Rs857. [(1,200 x 20) ÷ (20 + 8)].

A second and more commonly occurring example is when an asset is created in the first year but not utilized in the immediately following years. For instance, a well might be constructed in one year but no pumpset is available until two, three or even five years later. In this case the analysis would exhibit an unfavorable result without making appropriate adjustments. Poor weather conditions could also affect the analysis result unfavorably. These examples reflecting delayed project impact raise two important points. First is the importance of the project holder's striving to time the arrival <u>and</u> integration of all of the elements necessary for enhanced production or asset usefulness. When conducting the follow-up dialogue with project holders, this topic should be high priority. Second, while the analysis is a good approximation of program impact under many conditions, it can be misleading in others, especially if only the years immediately before and after the improvement are considered. Once again, the trade-off between manageability of analysis procedure and accuracy is apparent. An obvious improvement to the PM&E system, but one which requires considerably more energy to implement, is to "track" project results over successive years, that is, to revisit specific sites in future years to assess long-term project impact. It appeared to be the feeling of the workshop participants that it is now appropriate to add this longitudinal dimension to the analysis procedure, especially if the task can be kept manageable. (Section 2.1 of this report recommends the computerization of the PM&E system, which would make this additional task much more manageable when implemented on a sample basis.)

It is perhaps important to note that both here in India and elsewhere there have been attempts made to document long-term impacts for large-scale development projects, but to our knowledge no effort to

measure the long-term development impact of small- to moderate-sized projects quantitatively has ever been successfully undertaken. CRS is breaking new ground in this area.

### 1.1.2 Further Field Testing and FFW Evaluator Training

Another activity conducted during the mid-year assessment was further field testing to which three intensive days were devoted. A team comprised of the Food For Work evaluators from each zone, the Bombay director, the Delhi FFW evaluator, a USAID representative and CSF staff visited a consignee nearby Aurangabad in order to carry out additional analysis jointly. During the first day in field four two-person teams conducted separate analyses on different projects. The teams completed seven studies in the day, and in the evening each team presented their results to the rest of the group. On the second day the entire group visited three sites together to conduct joint analyses. Again results were discussed in the evening. Thus, the entire group had both individual as well as common experiences which could be reflected upon. Each member was provided with a copy of the three analyses undertaken by the entire group.

Analysis procedures, such as asset life and crop production estimates and methods for interacting with project holders and consignees were discussed and refined. It was recognized that this process of refinement and improvement in procedures should continue into the future both as the Delhi FFW evaluator visits each zone in the coming months and at the year-end all-India meeting.

The final two days of the mid-year workshop were devoted to further debriefing of field experiences, discussion on the implementation of case studies/situation analyses, discussion of alternative training approaches and perhaps most importantly the integration of FFW with other CRS programs--especially maternal and child care programs.

### 1.1.3 Integration of FFW with Other CRS Programs

Integration among programs has always been a goal of CRS and consequently there is already considerable integration. However, this integration is often informal and as in any real program can always

benefit by further improvement. Fortunately, the last sessions of the workshop had the participation of the India CRS director, Mr. Terrence M. Kirch, who led a discussion on this topic. Six questions regarding FFW integration were presented to the participants:

1. Is integration desirable and necessary?
2. Is integration occurring in the zones at this time and if so, to what degree?
3. Can we reasonably target FFW projects to communities or regions with high-risk MCH characteristics? If so, how?
4. Can we reasonably target FFW projects to families with high-risk MCH characteristics? If so, how?
5. How can zones encourage further integration?
6. What changes to existing forms and/or procedures would reflect and help monitor such integration?

The lively discussion which ensued concluded that not only was some integration already occurring informally in each zone but that additional steps could be taken almost immediately to foster further integration. Targeting of FFW to communities (groups) and regions with high-risk MCH characteristics happens now because CRS selects regions for implementing both kinds of programs based on perceived need. As the emerging Targeted Maternal Child Health Education Program (TMCHEP) expands its coverage, better data upon which targeting and integration decisions can be based will be available. One of the elements of the TMCHEP implementation procedure is to conduct a community nutritional status survey of children under five years of age. The results of this survey could be one factor in establishing priorities for FFW project holders and consignees.

The same concept can be applied at the individual family level. Beneficiaries are already selected, in part, based upon their personal need relative to the rest of the community. Applying a family-level targeting strategy which incorporates the TMCHEP-determined nutritional status of children would both sharpen the strategy and promote integration.

During the workshop changes in forms and procedures that could reflect such integration and targeting were reviewed. It was concluded that the new commodity accounting system now under implementation could be enhanced by the addition of one question regarding the number of MCH/TMCHEP participants. Specific suggestions will be provided to the accounting consultants, Price Waterhouse, so that they are sure to incorporate this factor in their procedures.

It was further concluded that minor changes in the PM&E system would capture the degree and nature of integration between FFW and TMCHEP. Annexes III and IV present the necessary changes in the PM&E forms.

## 2.0 ADDITIONAL IMPLEMENTATION RECOMMENDATIONS

The further integration of FFW with TMCHEP described in the previous section is a powerful change in CRS programming. As integration proceeds, Food For Work will become more nutritionally targeted. As such, FFW will be addressing a basic cause of child nutritional deficiency which cannot be dealt with by MCH or TMCHEP alone. Because of this multi-pronged approach, there is every reason to expect attainment of considerably higher impact than could be expected from FFW or TMCHEP alone.

In addition to this important decision there were several other recommendations arising from the mid-year assessment which are presented below.

### 2.1 Facilitating Data Handling and Analysis with a Computer

The Food For Work PM&E system in India was designed to be capable of utilization without a computer. In our view, most, if not, all field level systems are best initiated manually so that a very clear understanding of the steps involved is available to all. Nevertheless, it would have been shortsighted not to consider the possibility of computerization. Thus, when the initial system was proposed in 1983, such a contingency was recognized. Since then, several interesting developments have occurred both within the FFW program and in a much broader context. First and foremost, the PM&E system does seem to be promoting useful dialogue between CRS and project holders/consignees. Second, CRS/India has decided to place heavier emphasis upon integration between FFW and its other programs, especially TMCHEP. Third, CRS/New York has embarked upon a worldwide endeavor to computerize much of its information processing system, and CRS/India is scheduled to begin that process in the near future. Finally, computer hardware and associated software currently available for use, especially those which might be helpful in the field, have become considerably more powerful and less

expensive.

Therefore, it was perhaps inevitable that the question of computerization would arise in a meaningful context for FFW in India. Most important, however, based upon the mid-year workshop and subsequent discussions held in New Delhi, is the emergence of a clearly defined short-term advantage to computerization. As the number of FFW development impact analyses accumulates, summarization becomes more cumbersome especially if samples of the same projects are to be visited in successive years. Furthermore, additional information handling demands are made if the FFW program is tied to other CRS programs, especially TMCHEP. Consequently, the near-term gains from such computerization have increased at the same time that hardware costs for implementing such a system have decreased.

### 2.1.1 General Characteristics of a Computer-Based FFW PM&E System

We begin the technical consideration of this matter by attempting to specify the objectives of such a system and the performance characteristics that would fulfill those objectives.

1. Since the PM&E system is intended to facilitate thoughtful decision making at all CRS/India levels, but especially at the consignee/project holder level, at least some zonal accessibility to computer capability is highly desirable.

2. Preparation of FFW summary statistics useful to CRS for both internal and external purposes should be as accurate and timely as possible--especially over the next two years.

3. Because the PM&E system will continue to aggregate project results over several years, the FFW information system must be capable of readily dealing with at least five years of accumulated project analyses including those projects which have been revisited several times.

4. Because CRS is currently in the process of computerizing some of its other operations, the system must be capable of complete data compatibility with the new CRS system when it becomes operational. Thus, if CRS decides at any time in the future to

"integrate" the FFW PM&E system into the CRS worldwide system, this can be accomplished easily.[1]

5. In addition to the above performance characteristics which emanate from PM&E objectives, we add three others which, in our judgment, are highly desirable.

   a. The FFW PM&E system should require no special purpose room or climate control and preferably should operate on rechargeable batteries. The reason for this suggestion is two-fold. First, the soon-to-be-implemented CRS computer system should determine the space, climate control and power supply needs of the organization. Second, in order to provide some accessibility at the zonal level, the computer should be portable. Fortunately, hardware now exists which has sufficient capacity to carry out most of the required functions of the PM&E system under these conditions. (Supplementation of some functions by a larger compatible computer should be provided for.)

   b. The basic system should be of modest cost and capable of continuation without external support after the initial stages of software development.

   c. If the decision is made to proceed with such an endeavor, the relative payoff of rapid implementation is considerable. Given that data compatibility with any new CRS worldwide system is provided for, the computerized PM&E system should be operational by the end of this calendar year. Such timing will allow the results of the system to be utilized during the period in which there will be many critical decisions made about Food For Work.

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[1] CRS plans to utilize either IBM/PC or IBM compatible computers for its field operations. Therefore, within cost and hardware availability constraints, software compatible with MS DOS 2.0 or later should be utilized.

### 2.1.2 Specific Characteristics of the Hardware and Software

One possible way of fulfilling these criteria would be to utilize a portable battery-operated computer, of which there are several now on the market. Special purpose software could be developed or adapted and provided which would (1) check and detect input errors, (2) arrange data in alternative file configurations and (3) present both detailed and summary statistics in several alternative forms. The Delhi FFW evaluator, with some training and support assistance, could be charged with the task of implementing this system after the software has been developed. Annex V provides a picture and some specifications for lap computers which are now becoming available in India.

We believe it is important to emphasize that the computerization effort should be (1) limited in scope, (2) implemented as rapidly as possible, and (3) entirely data compatible with the computer-based system CRS provides to India for its other activities.

As a first step, both the PM&E analysis formats have been coded for data entry and are shown as Annex III and Annex IV.

## 2.2 Implementing the Training Component of the PM&E System

In our earlier report we proposed a training program "to provide zonal staff and consignees with the existing technical resources available in the country." While training consignees in the hope that they will impart their knowledge to project holders is still viable, we now believe that an alternative approach would be even more effective--namely utilizing already existing programs to provide training directly to project holders themselves. While the number of project holders is very large, approximately 3400, only a relatively small percentage will have the inclination and time to participate in such training during any given time period. It is therefore felt that this approach would be manageable and considerably more effective because those directly responsible for project implementation would be receiving the training firsthand. Since different zones have different needs and priorities the training programs can be adjusted accordingly. In order to best utilize the training resources available regionally and to tailor these resources in the most useful way,

flexibility in approach should be encouraged. Perhaps the only common element of the training programs would be an orientation to the PM&E system.

### 2.3 Implementing Case Studies/Situation Analyses

The original implementation plan called for undertaking two case studies per year in each zone. Based upon discussions held at the mid-year workshop, we now feel that it would be better to limit time spent on case studies in favor of a more thorough implementation of the BI and AE analyses. In order to ensure that the analyses are being carried out in an accurate and consistent manner, it is suggested that the Delhi FFW evaluator spend more time than originally planned in the field. We suggest that the number of days be increased from approximately 40 to 80. This increase in field time can be devoted to improving analyses and to helping to undertake the first set of case study/situation analysis.

The notion of a situation analysis is an outgrowth of both the first phase of implementing the PM&E system and the mid-year workshop. A situation analysis attempts to portray the situation facing both the beneficiary and project holder. It includes information as follows:

1. How the beneficiary was selected?

2. Why the beneficiary was selected?

   When high-risk MCH conditions are introduced as a FFW targeting strategy, a description of the specific procedures used in this case can be provided.

3. How was the project carried out?

   Did the project holder visit the site during implementation and did he follow up after completion to see that the asset was being well utilized?

4. Did the project have the intended impact in relation to the expectations provided on the planning document (Form 10)?

5. Were there any unanticipated problems <u>or</u> benefits which occurred as a result of the project?

6. Are there lessons that the project holder/consignee learned

from implementing this project which can make future projects more effective?

## 2.4 A Possible Future Dimension

The FFW PM&E system described in this report is designed to promote useful dialogue between CRS and those who are implementing development projects. The focus of the system is community and institutional learning based upon past experiences. It is implemented at the individual project level and it is hoped that the most useful results occur at that level. Of course, individual results are to be aggregated and patterns looked for which can be helpful in "fine tuning" the overall FFW program. And in the future as more experience is gained and more analyses become available, CRS will be able to draw upon results with more confidence. However, the PM&E system alone is not intended to provide "scientific" evidence of overall program development impact. The system is not primarily for the purposes of research--especially research which leads to results that are transferable elsewhere. As mentioned before it is our belief that CRS is best served by a system which focuses on community level learning as this one does.

On the other hand, at some future time CRS may wish to make some more generalized statements about its overall FFW program in India. It may wish to characterize its entire program, perhaps by type of development project. It may wish to show program-wide changes over time. In short it may wish to conduct an overall FFW impact evaluation.[2] Implementing such an overall impact evaluation for the CRS FFW program could be a relatively straightforward task at some time in the future. The analysis forms of the PM&E system gather the necessary impact data, especially if a sample of sites is revisited in successive years. Assuming that a limited computerization of the system is implemented, the data from current years representing "before" conditions will be well organized and in machine-readable form. All

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If such an exercise is ever contemplated, it can not be emphasized strongly enough that the team undertaking the effort should include persons within CRS who have the wealth of context-specific knowledge necessary to make proper interpretation of quantitative results.

that will be necessary to add is an appropriate strategy for selecting the sites to be analyzed. This strategy would vary depending upon the type of finding which is deemed to be highest priority and would probably include some form of random selection of projects to be analyzed. The important point is that the additional implementation effort would be minimal relative to other such impact evaluations and could be performed, in large part, by the staff of CRS.

There is perhaps one additional point concerning the use of findings from the PM&E system for an impact evaluation. Experience elsewhere suggests that when data is gathered and used by local managers to improve program performance, it is generally far more accurate than data gathered solely for the purposes of research. In time, local usage reduces error rates. Thus, one could expect both considerably lower cost and far more reliable data.

In case CRS decides to consider implementing a FFW or a FFW/TMCHEP impact evaluation it would be highly desirable to take some time now to construct a research design and sampling frame for that purpose.

## 3.0 SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

• Perhaps the most exciting conclusion of this mid-year assessment is that the PM&E system appears to be promoting constructive dialogue about how to improve developmental impact of FFW projects. This seems to be happening at all levels of program activity: central, zonal, consignee, and project holder. The fact that change is already occurring, even during the first six months of implementation, is a tribute to the motivation of the CRS staff and project holders.

• The integration of FFW with TMCHEP described in section 1.1.3, is a powerful change in CRS programming. Food For Work will become more nutritionally targeted. As such, it will be used to address a basic cause of child nutritional deficiency which can not be dealt with under a maternal and child care program alone. CRS should be encouraged to pursue its current plans in this area.

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## ANNEX I

### CRS MID-YEAR FFW EVALUATORS' WORKSHOP
### (MARCH 13 TO 18, 1985: LIST OF PARTICIPANTS)

Bombay Zone

| | | |
|---|---|---|
| Mr. Michael E. McDonald | - | Director |
| Mr. Victor Bansiwar | - | FFW Evaluator |
| Mr. M. Estibeiro | - | Field Reviewer |
| Mr. Kisan Warwale | - | Field Reviewer |
| Mr. Babu Mathew | - | Field Reviewer |
| Mr. T.G. Ekande | - | Field Reviewer |

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| | | |
|---|---|---|
| Mr. Abraham E. | - | FFW Evaluator |

Cochin Zone

| | | |
|---|---|---|
| Mr. K.J. Joseph | - | FFW Evaluator |

Madras Zone

| | | |
|---|---|---|
| Mr. D. Theophilua | - | Field Reviewer |

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| | | |
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| Mr. Terrence M. Kirch | - | Director - India Program |
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## ANNEX II

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Bidkin Village
Dt. Aurangabad
Maharashtra

Rev. Fr. Valerian Fernandez - Project Holder
Catholic Church
Bidkin Village
Dt. Aurangabad
Maharashtra

| | | |
|---|---|---|
| Rev. Fr. Abraham Gomez<br>Catholic Church<br>Malligigan Gaon<br>Dt. Aurangabad<br>Maharashtra | - | Project Holder |

**USAID/New Delhi**

| | | |
|---|---|---|
| Mr. Owen Cylke | - | Director |
| Dr. Richard M. Brown | - | Deputy Director |
| Mr. Harry H. Houck | - | Chief, Food for Development |
| Mr. David R. Nelson | - | Food For Development |
| Mr. Christopher D. Crowley | - | Chief, Program Officer |
| Mr. Douglas P. Broome | - | Deputy, Program Officer |

ANNEX III

No. BA- 5

# FOOD FOR WORK PROJECT

## BENEFICIARY INCOME IMPROVEMENT ANALYSIS

### A. PROJECT BACKGROUND INFORMATION

Name of Consignee _____ Code No. _____

Name of Project Holder _____

Type of Project _____

Project Identification No. _____

Date Project Began _____ Completed _____

Number of Mandays utilized for this overall project _____

Number of Beneficiaries in Overall Project _____

How many families in this overall project Participate in CRS-Tincher programme

### B. BENEFICIARY BACKGROUND INFORMATION

Name of Beneficiary _____

Name of village _____

NAME OF STATE

Approx. Annual Family Income before the Project Rs. _____ (1)

Number of family members _____

Acreage Owned _____ Acreage Cultivated _____ Acreage uncultivated _____

Brief Description of the project and its specific objectives for this beneficiary :

_____

_____

_____

Location of the project for this beneficiary _____

Number of mandays spent on this project beneficiary _____ (2)

Number of acres improved for this beneficiary _____ (3)

Local market value of a FFW Manday

Grain Rs. _____ – Oil Rs. _____ = Rs. _____ Per FFW Manday (4)

APRIL 1985

**Value of all inputs associated with total FFW project cost for this beneficiary**

| | INPUT DESCRIPTION | | VALUE (Rs) |
|---|---|---|---|
| | Type of Input | Units.Quantity | Total Value |
| i) | FFW Value | (Item 2) × (Item 4) = | |
| ii) | | | |
| iii) | | | |
| iv) | | | |
| v) | | | |
| vi) | | | |
| vii) | | | |

Total Project Cost Rs. _____ (5)

Percentage of contribution by beneficiary _____ %

Percentage of contribution by FFW _____ %

Percentage of contribution by other sources _____ %

Total percentage _____ %

## C. YEARLY CHANGE IN AGRICULTURAL OUTPUT DERIVED FROM THE PROJECT

**Output for this year before the project for this beneficiary**

| | Season | Crop | Output Unit | × | Market Value Per Unit | = | Sub Total Value |
|---|---|---|---|---|---|---|---|
| i) | | | | | | | |
| ii) | | | | | | | |
| iii) | | | | | | | |
| iv) | | | | | | | |
| v) | | | | | | | |

Total output value before the project Rs. _____ (6)

April 1985
~~Mar 1984~~

**Output for the year following the project for this beneficiary**

| | Season | Crop | Output Units | Market Value Per Unit | = | Sub Total Value |
|---|---|---|---|---|---|---|
| i) | | | | | | |
| ii) | | | | | | |
| iii) | | | | | | |
| iv) | | | | | | |
| v) | | | | | | |
| vi) | | | | | | |

Total output value after the project Rs. _____ (7)

| | | | | | |
|---|---|---|---|---|---|
| 99 | 100 | 101 | 102 | 103 | 104 |

{Total output value after the project} − {Total output value before the project} = {Annual change in output value after the project}

Rs. _____ (Item 7) − Rs. _____ (Item 6) = Rs. _____ per year (8)

## D. YEARLY CHANGE IN COST OF PRODUCTION

**Valuation of inputs in the year preceding the project**

| Type of Input | Market Value of Input Rs. | P |
|---|---|---|
| i) | | |
| ii) | | |
| iii) | | |
| iv) | | |
| v) | | |
| vi) | | |

Total market value of inputs before the project Rs. _____ (9)

| | | | | | |
|---|---|---|---|---|---|
| 95 | 96 | 107 | 108 | 109 | 110 |

[illegible] 1983
[illegible]

**Valuation of inputs year following the project**

| Type of Input | Market Value of Input Rs. | P |
|---|---|---|
| i) | | |
| ii) | | |
| iii) | | |
| iv) | | |
| v) | | |
| vi) | | |

Total market value of inputs after the project Rs. _____ (10)

| Total market value of inputs after the project | − | Total market value of inputs before the project | = | Annual change in production cost after the project |
|---|---|---|---|---|

Rs. _____ (Item 10) − Rs. _____ (Item 9) = Rs. _____ per year (11)

## E. ANALYSIS FOR DETERMINING BENEFICIARY INCOME IMPROVEMENT

**Calculating the annual cost of the project improvement**

Estimate of the life of the improvement = _____ Years (12)

Please describe the basis used for the estimate _____

_____

_____

_____

Annual cost of the project improvement Rs. _____ (Item 5) − Rs. _____ (Item 12) = Rs. _____ (13)

[redacted]

**Comparison of the benefits and costs of the project**

[Change in Agricultural output value after the project] − [Change in production cost after the project] = [Net improvement in beneficiary income per year after the project]

Rs. _____ (Item 8) − Rs. _____ (Item 11) = Rs. _____ per year (14)

Benefit Cost ratio = Rs. _____ (Item 14) − Rs. _____ (Item 13) = _____ (15)

Pay back period = Rs. _____ (Item 5) − Rs. _____ (Item 14) = _____ years (16)

Percentage of income improved after the project implementation

Rs. _____ (Item 14) − _____ (Item 1) × 100 = _____ (17)

Net improvement in beneficiary income per acre :

Rs. _____ (Item 14) − _____ (Item 3) = Rs _____ per acre (18)

Based upon discussion with beneficiary and others, how would you interpret the results, taking into account agricultural variations before and after the project : Please be as specific as possible.

_____

_____

_____

_____

## F. NON-ECONOMIC IMPACT

List out one or two major Non-economic changes which may have occurred in the life of the beneficiary as a result of this project other than the economic benefits stated above ?

April 1985
~~May 1984~~

No. BA- 5

| Change that have occured | Indicators of this change | How these indicators are being verified |
|---|---|---|
| | | |

Overall assessment of project impact (Scale 0-9) ——

G. (i) Was this project pre-evaluated ? Yes ☐ No ☐

(ii) If yes, is the FPU base line data available ? Yes ☐ No ☐

Name of Analyst

NAME OF CHECKER

Date of [redacted] Analysis

Signature of the Analyst

April 1985

28

No. AA. 3

# FOOD FOR WORK PROJECT

## ASSET EFFECTIVENESS ANALYSIS

### A. PROJECT BACKGROUND INFORMATION

Name of Consignee _____ Code No. _____

Name of Project Holder _____

Type of Project _____

Project Identification No _____

Location of Project _____
Name of State

Date Project Began _____ Completed _____

Number of Mandays Utilized for this Project _____ (1)

Number of Mandays Utilized for this Asset beneficiary _____ (1a)

Number of families benefiting from overall Project _____ (2)
How many beneficiaries in the overall project participate in cas. Tracker Program

Name of Community Beneficiary _____

Approx. Annual Family Income of the Community Beneficiary _____

Brief Description of the project :

_____

_____

_____

_____

_____

### B. VALUE OF ALL INPUTS ASSOCIATED WITH TOTAL FFW PROJECT COST

Local Market Value of a FFW Manday

Grain Rs. _____ ÷ Oil Rs. _____ = Rs. _____ Per FFW Manday (3)

No. AA- 3

| S. No. | INPUT DESCRIPTION: Type of Input | INPUT DESCRIPTION: Quantity in Units | VALUE: Total Value in Rs. |
|---|---|---|---|
| i) | FFW Value _____ (Item 1 or 1a) × _____ (Item 3) = | | |
| ii) | | | |
| iii) | | | |
| iv) | | | |
| v) | | | |
| vi) | | | |
| vii) | | | |
| viii) | | | |
| ix) | | | |
| x) | | | |

Total Project Cost Rs. _____ (4)

**Input Source**

i) Input by Beneficiary Community _____ (5)

ii) Input from Voluntary Donor Agency _____ (6)

iii) FFW Inputs _____ (7)

iv) Input from Loan _____ (8)

v) Input by Government _____ (9)

vi) Input from other sources _____ (10)

**Percentage of Contribution by each source**

Beneficiary, Community Contribution (Item 5 — Item 4 × 100) = _____ %

Voluntary Donor Agency Contribution (Item 6 — Item 4 × 100) = _____ %

FFW Contribution (Item 7 — Item 4 × 100) = _____ %

Loan Contribution (Item 8 — Item 4 × 100) = _____ %

Government Contribution (Item 9 — Item 4 × 100) = _____ %

Contribution from other sources (Item 10 — Item 4 × 100) = _____ %

April 1985

No. AA- 3

## C. COMPARISION OF COST AND UTILIZATION

[ONLY DO WHERE THERE ARE MORE THAN ONE ASSET BEING USED BUT DO FILL IN USE OF THE ASSET FOR EVERY ASSETS]

$\frac{\text{Cost}}{\text{(Item 4)}} \div \frac{\text{Beneficiaries}}{\text{(Item 2)}} =$ _____ Rs./per beneficiary/family (11)

Estimated Life of the Asset _____ years (12)

Annual Cost = $\frac{\text{Cost}}{\text{(Item 4)}} \div \frac{\text{Life}}{\text{(Item 12)}}$ = Rs. _____ per year (13)

Annual Cost Beneficiary Ratio : (Item 13) ÷ (Item 2) = Rs. _____ year beneficiary

## D. PROJECT IMPACT

| Primary Purpose of the Project | Indicators which show that the purpose has been achieved | How these indicators are being verified |
|---|---|---|
| | | |

Apr. 1985

| Secondary purpose of project, if any? | Indicators which show that the purpose has been achieved | How these indicators are being verified |
|---|---|---|
| | | |

Overall assessment of Project impact (Scale 0-9) _____

What is the value of the asset in open market Rs. _____

If the FFW contribution weren't available what difference would it have made ?

_____

_____

_____

_____

E. (i) Was this project pre-evaluated ? Yes ☐ No ☐

(ii) If yes, is the base line data available ? Yes ☐ No ☐

_____
Name of Analyst

_____
Date of Interview and Analysis

_____
Signature of the Analyst

April 1985

HEWLETT-PACKARD

Neat, isn't it?

It's as powerful as any personal computer that ever sat on a desk.

Except that this personal computer sits on your lap.

At just a tad under nine pounds, it's light enough to be taken anywhere.

But that doesn't mean it should be taken lightly.

Because we give you about nine hundred dollars worth of serious business software. Not just thrown in. Actually *built in*.

Popular 1-2-3™ from Lotus™ for file management, spreadsheets, and graphics. MemoMaker for quick and simple word processing. Plus communications software—even a modem—when you want to transfer information.

The unique Personal Applications Manager eliminates the need to learn complicated commands and makes computer operation as simple as choosing from a menu. And the MS™-DOS (2.11) operating system provides industry-standard compatibility for access to dozens of optional application programs. Just add our battery-powered disc drive.

To make things even easier, help messages—on-screen sets of instructions—can guide you through a program. So you won't have to lug 10 pounds of manuals around with a nine-pound computer.

Which is impressive. But try this on for size:

With its true 16-bit microprocessor, The PORTABLE from Hewlett-Packard runs software up to twice as fast as an IBM PC.

Twice.

You may want to let all that sink in for a minute, so continue when you're ready. But by all means, continue. It gets better.

It also has more standard memory—272 Kbytes—than most desktop computers. So you'll have plenty of room to spread out a spreadsheet, or give your data due processing.

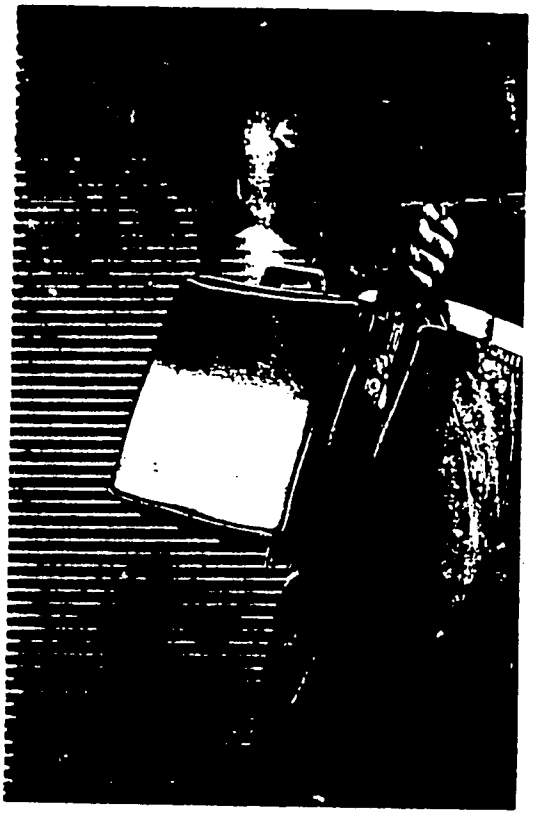
The PORTABLE's peripherals are just as amazing. And just as easy to carry. So you can add a 3½-inch, high-capacity microfloppy disc drive and the whisper-quiet ThinkJet Printer. Each 5½-pounds light. Each battery operated. The *entire system* weighs less than most so-called "portables" that don't include printers.

Some day most personal computers will be designed this way.

But for now, the *only* personal computer that's designed this way is this one.

The PORTABLE from Hewlett-Packard.

The powerful, all-around personal computer. It just happens to be portable.



# It comes alive the moment you touch it.

Try it. Flip up the screen and touch a key.

The PORTABLE comes alive. Instantly. The built-in software ready to run.

Fast.

Now load a program and get to work in just five seconds—ten times faster than with conventional personal computers.

Besides, why not get what you want—*now*?

But instant gratification is only half the story.

The other half is software.

And what software!

We've got the only battery-powered portable that comes standard with 1-2-3 from Lotus.

Does it ever.

The graphics fly. The recalculation time makes you blink with surprise. There's even the interactive 1-2-3™ Electronic Tutor that makes it easy for you to get up to speed.

The same goes for The PORTABLE's word processing program, MemoMaker. It's so simple! No complicated commands to remember. Reformat a paragraph or center a line just by pressing a key.

Because the software is built into permanent memory, virtually all user memory is available for doing a spreadsheet or editing text. You've got about twice as much work space as conventional PCs that run programs from a disc drive.

The built-in communications software combined with the modem, and the RS-232C interface make it easy to access other computers.

Should you want to exchange information with an HP 150 Touchscreen Personal Computer—or an IBM PC—The Portable-Desktop Link option makes it easy. Even exchange 3½-inch microfloppies using an HP 9114A disc drive. You can work on your 1-2-3 files in the field, and edit them at your leisure on your desktop computer back at the office.

Or perhaps you'd like to link up with and transfer files to an HP mini-computer, an IBM mainframe computer, or data bases such as The Source™ and

Dow Jones News Retrieval™. Or for that matter, link up with another PORTABLE owner.

You can do all of the above and more, because The PORTABLE's built-in terminal works with either the direct serial interface or the modem.

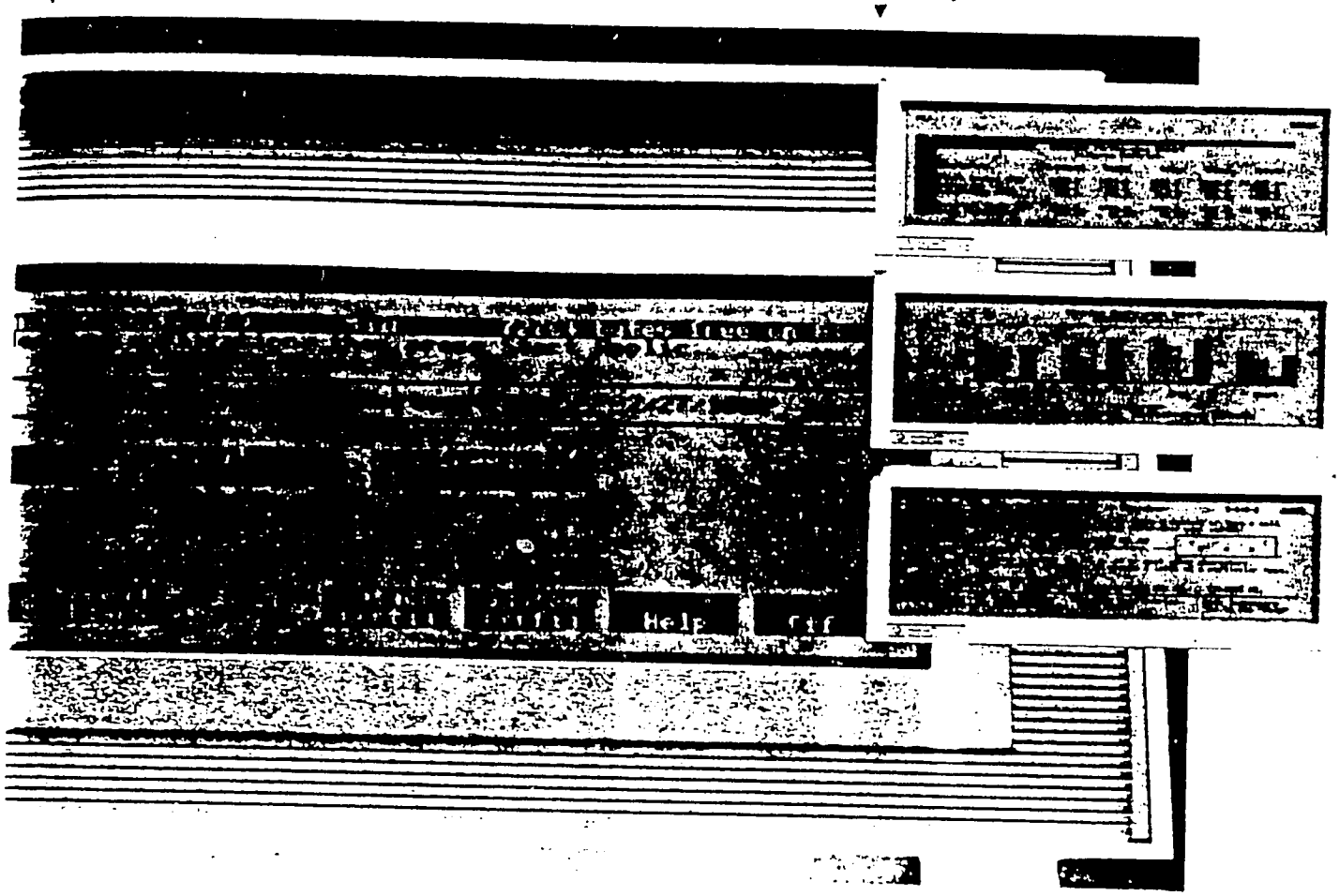
Then there's the Personal Application Manager (P.A.M. for short). Like P.A.M. on the HP Touchscreen Personal Computer, P.A.M. on The PORTABLE makes routine housekeeping chores like copying files, formatting discs, and reading directories a breeze. P.A.M. does it all with special function keys that eliminate the need to memorize commands. And P.A.M. provides the date, time, and remaining memory and battery life to boot.

So there you have it. The software that comes with The PORTABLE. You may never need any more. But just in case...

34

*The Personal Applications Manager makes it easy to tell The PORTABLE what to do.*

*Give your competition the old 1, 2, 3 with 1-2-3™ from Lotus™—with data management, spreadsheets (inset screen, top), graphics (middle), and help (bottom) should you need it.*



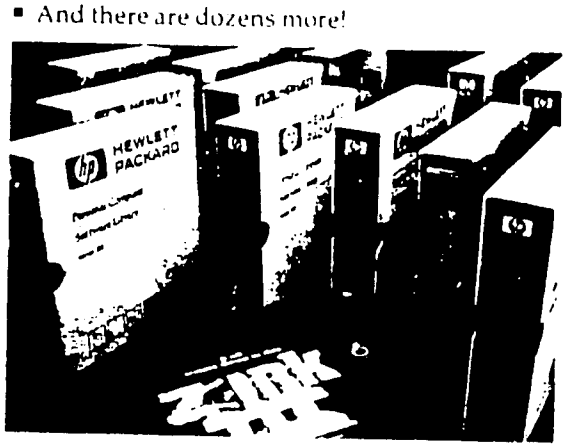

## Check out all the programs in the HP software library

Since The PORTABLE system is as powerful as a desktop computer, it makes sense that it should run software that's just as powerful.

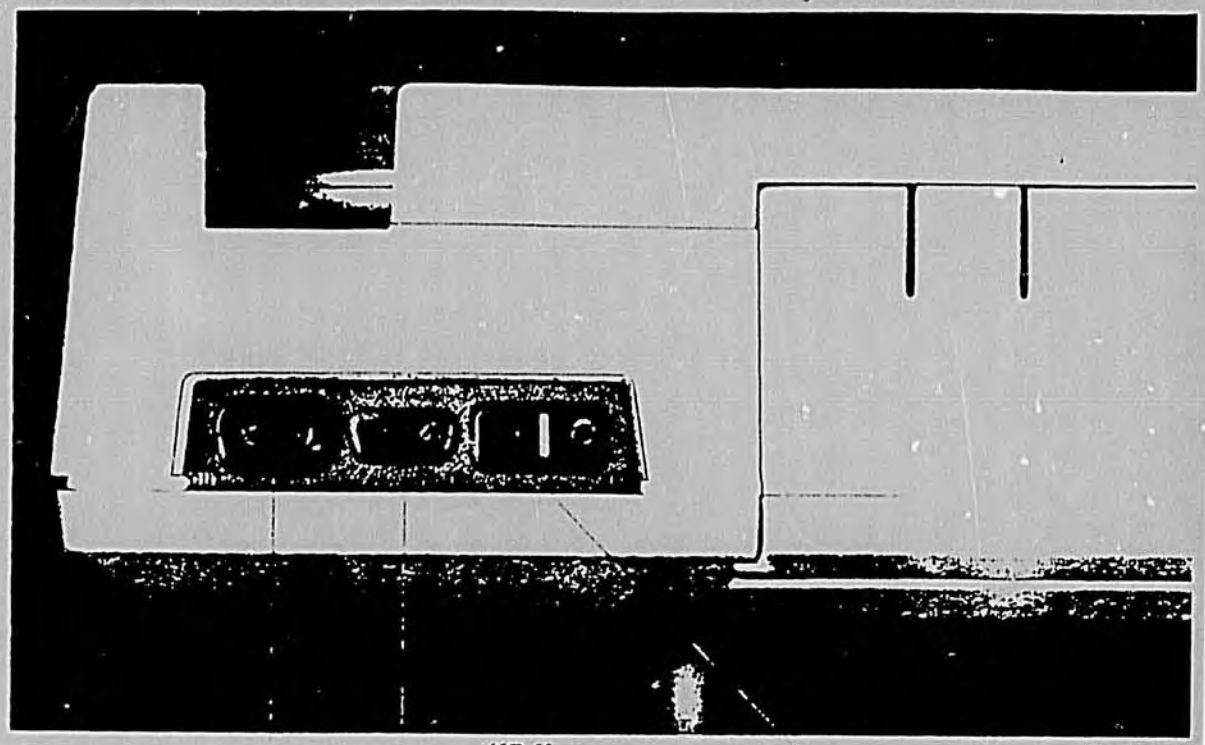
And it does.

So you can pick up industry-standard, bona fide, application software for The PORTABLE with the assurance that what you're getting is the real thing. Here are some of the applications currently or soon available:

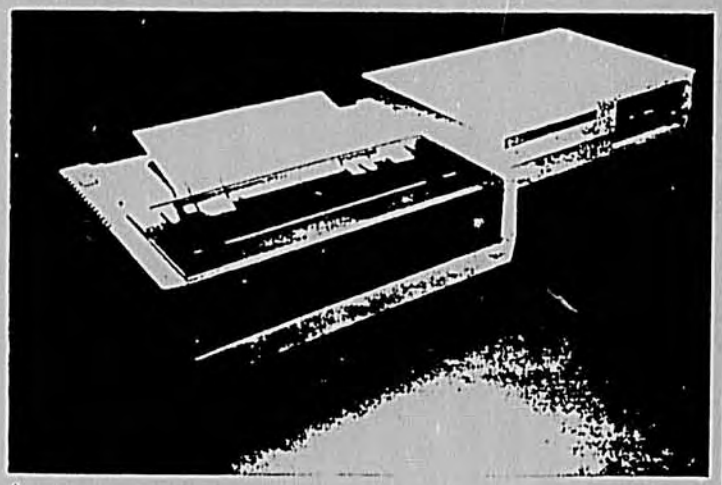
- **Multiplan**™ helps you make informed financial decisions.
- **WordStar,**® **MailMerge,**™ and **CorrectStar**™ provide total text control.
- **dBASE II**™ offers powerful data base management.
- **BASIC, GW**™**-BASIC, and Pascal** by Microsoft® give you programming power.
- **Dow Jones Market Analyzer Plus**™ and **Dow Jones Spreadsheet Link**™ help you manage your portfolio and get current stock data.
- **Zork**® **I-III**, the popular games, open the door to the Great Underground Empire. Escape—if you can—with your life and the 20 treasures of Zork.
- And there are dozens more!



# How the well connected get that way.



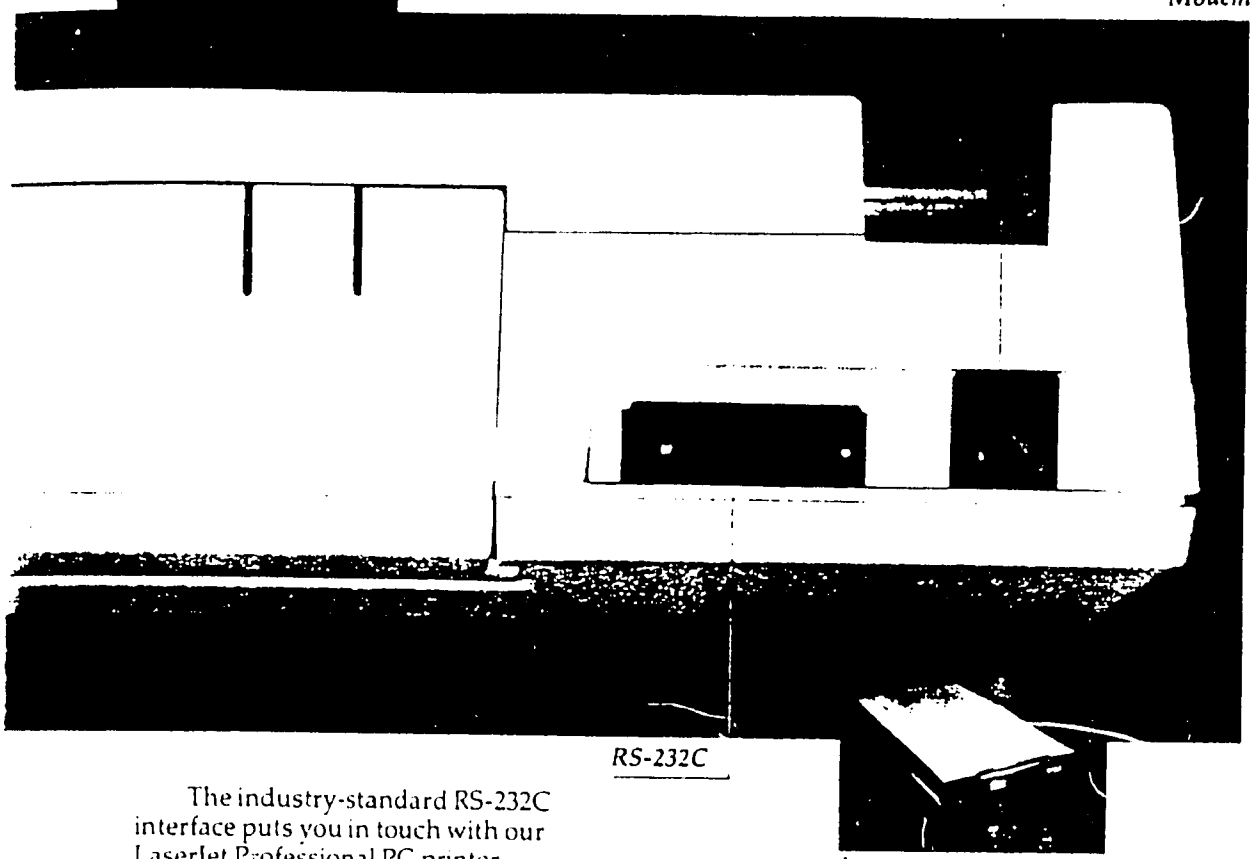

Use HP-IL for a quick and easy connection to battery-powered peripherals such as the HP 9114A microfloppy disc drive or the ThinkJet Printer. HP-IL is highly efficient and can support up to 30 peripherals at once. Even tie in with the HP 150 or IBM PC using the Portable-Desktop Link.



▲ *The ThinkJet Printer and HP 9114A 3½-inch Microfloppy Disc Drive*

Take an ordinary modular phone plug and insert it into the built-in, 300-baud modem. You can then tie into commercial data bases or similarly equipped personal computers. No matter what you link up with, though, the auto-answer/auto-dial feature makes it easy.

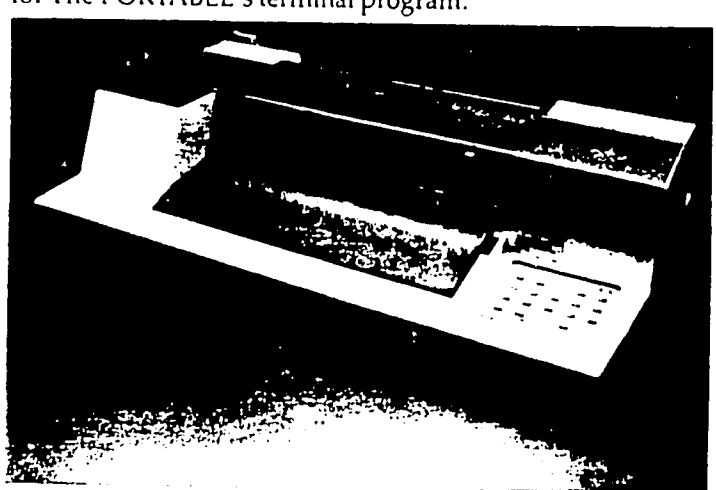
*Modem*



*RS-232C*

The industry-standard RS-232C interface puts you in touch with our LaserJet Professional PC printer, plotters, high-speed modems, or other computers. In fact, along with the built-in modem, it's a perfect match for The PORTABLE's terminal program.

▲ *Hayes Smartmodem 1200*



▲ *HP Graphics Six-pen Plotter*

# The PORTABLE at a glance.

## Microprocessor/CPU

Full 16-bit, CMOS 8086, running at 5.33 MHz clock rate

## Memory

384K bytes of CMOS ROM
272K bytes of CMOS RAM
Up to 256K bytes user memory
Up to 176K bytes electronic disc

## Software Built Into ROM

MS-DOS version 2.11
Personal Applications Manager
1-2-3 from Lotus: spreadsheet, graphics, and file management
MemoMaker: word processor
Terminal Emulation: communications and file transfer

## Display

16 line x 80 column LCD
128 x 480 pixel, bit-mapped graphics
Keyboard contrast control

## Keyboard

Typewriter-style
75 keys, including eight special function keys

## Power Supply/Battery Life

Three permanently installed, lead/acid D-cell batteries
16 hours of continuous use on a charge
Over five years of service life

## Size/Weight

13" x 10" x 2⅞" (32 cm x 25 cm x 7 cm)
8½ pounds (3.85 kg)

## Input/Output

Hewlett-Packard Interface Loop (HP-IL)
Serial Interface (RS 232-C v.24/V.28)

## Modem

300-baud direct connect
Auto answer/auto dial
Pulse and tone dial

## System Clock/Calendar

January 1, 1980 to December 31, 2039
0.1 second resolution
Alarm and appointment-keeping functions

## Temperature Constraints

32°–130°F (0°–55°C) while in storage
32°–115°F (0°–45°C) while in operation

## Safety/EMI Approvals

UL Listed, CSA Certified
FCC Class B parts 15 and 68
Passes proposed RTCA standards for use on commercial aircraft

## HP Peripherals and Accessories

### Disc Drive

The HP 9114A double-sided, 3½-inch, battery-powered microfloppy disc drive, 710-Kbyte capacity

### Printers

ThinkJet, The Personal Printer, ink-jet technology, HP-IL interface (HP 2225B)
HP 82905B dot-matrix printer, option 448 with HP-IL interface
HP 2932A dot-matrix printer with RS-232C interface
HP 2934A dot-matrix printer, with RS-232C interface
HP 2601A daisywheel printer, option 242 with RS-232C interface

### Plotters

HP 7470A two-pen graphics plotter, option 003 with HP-IL interface
HP 7470A two-pen graphics plotter, option 001 with RS-232C interface
HP 7475A six-pen graphics plotter, option 001 with RS-232C interface

### Interface Converters

HP 82164A HP-IL to RS-232C
HP 82169A HP-IL to HP-IB

### Communications

HP 45643A Extended I/O Accessory (HP-IL and Centronics) to tie-in The PORTABLE with your HP 150
HP 82973A HP-IL interface card to tie in The PORTABLE with your IBM PC.
Hayes Smartmodem 1200-baud, high-speed modem

### Accessories

HP 13269L leather carrying case (Vinyl carrying case included.)
HP 13269K system carrying case to hold computer, printer, and disc drive

Complies with RTCA docket 160A section 21—radiated emission levels for computing devices. Category B: 150 KHz—30 MHz. Category A/Z: 30 MHz—1.215 GHz. The PORTABLE passes these proposed RTCA standards for use on commercial aircraft.

Word™, Chart™ and MS™-DOS are U.S. trademarks of Microsoft®, Inc.
Microsoft® is a U.S. registered trademark of Microsoft, Inc.
1-2-3™ and Lotus™ are U.S. trademarks of Lotus Development Corporation.
The Source℠ is a service mark of Source TeleComputing Corporation, a subsidiary of The Reader's Digest Association, Inc.
Dow Jones News/Retrieval™ is a trademark of Dow Jones & Company, Inc.
dBASE II™ is a U.S. trademark of Ashton-Tate.
WordStar® is a U.S. registered trademark of MicroPro International Corp.
Zork® is a U.S. registered trademark of Infocom, Inc.
Microplan™ is a U.S. trademark of Chang Laboratories, Inc.

# The incredible Epson Geneva PX-8 Portable Computer System.

The edge you need to succeed today is information . . . what you want, when you want it, how you want it and where you need it . . . on the road, at home or in your office.

**Here's how to get it.**

For under $1000, you can carry an Epson Geneva PX-8 Portable Computer in your briefcase.

With Geneva, ROM-based software capsules come as standard equipment, including MicroPro® Portable WordStar,™ Portable Calc Spreadsheet and Portable Scheduler; an extended version of Microsoft® BASIC; and CP/M® utility programs for use with CP/M software. So you can do word processing, expense reports or schedule meetings and appointments, wherever you happen to be.

But there's more.

With Geneva, all the data stored in computers at your home office is instantly available by phone. All the latest prices, actuarials, production schedules or delivery dates are at your fingertips.

So while your competition is still saying "I'll find out," you have the answers.

That's power. And that's only part of it.

**A portable system.**

The Geneva is a powerful portable *computer system*.

Geneva features options such as a battery-powered 3½" micro-floppy disk drive which is capable of storing up to 320K of programs and data, and an 80-column battery-powered printer for instantaneous hardcopies on regular 8½ by 11-inch paper, no matter where you are. And optional RAM Disk memory expansion modules allow you to save your programs and data to RAM. And optional direct-connect or acoustic modems give you instant telecommunications.

That's a lot of personal power at your command.

**What true portability means to you.**

It means you'll save time and be more productive. Because you can keep on working no matter where you happen to be.

Geneva's ultra-low power CMOS circuitry is powered by a pack of advanced nickel-cadmium batteries. Which means it will run for up to 20 hours without recharging; work with an AC outlet or without; and completely recharge in eight hours. And if you're called away, Geneva automatically shuts down after ten minutes to save power while back-up batteries preserve data so you can resume exactly

where you left off hours — or even days — later.

Geneva comes with a built-in, pop-up, high-resolution LCD screen showing eight lines by 80 columns of its 24-line "virtual" page at any given time. The resolution allows you to see charts and graphs with unsurpassed clarity. And for extra versatility, Geneva's screen will display graphics and text on the same screen or split into two separate halves — left and right — for simple cross-referencing and comparisons.

Geneva's built-in microcassette drive has the capacity to handle a business report all by itself, so external data storage may not be necessary.

**Speed equals power.**

The Epson Geneva PX-8 is extraordinarily fast. The reason is because it has three microprocessors.

A Z80 handles the main CP/M functions; a 7508 controls input/output from the keyboard; a 6301 controls an ultra-high resolution (64 x 480 dots) display on the screen, the microcassette and the serial port. Geneva's LCD speed to read, process and display data approximates that of a CRT. But in a portable package.

Which means Geneva is a logical choice to be your *only* computer, whether its working on the desk in your office or going with you on the road. Because for under $2000, you can add options to build a complete system comparable in every way to a standard CP/M desktop.

**The software connection.**

Geneva's CP/M operating system provides access to many of the CP/M titles available today. But more important is the library of ROM capsule software that is available.

In addition to the MicroPro titles that come standard, Epson offers customized versions of dBASE II,® SuperCalc,® The Traveler's Pak™ and many others which provide the ease of use that only ROM-based software can give you.

**Personal power.**

The Epson Geneva PX-8 is the most incredible marriage of power, portability and price yet devised in a personal computer.

If you're looking for a truly portable computer, small enough to take anywhere but with plenty of power, the choice is Geneva.

If you want it at a price that's far less than systems far less versatile, what are you waiting for?

The Epson Geneva PX-8.

Concentrated power.

| | |
|---|---|
| **CPU and Memory** | |
| **CPU** | |
| Main CPU | Z80 2.45MHz<br>CMOS |
| Slave CPU | 6301, 614kHz<br>CMOS |
| KB CPU | 200kHz for KB<br>32kHz for clock |
| **Memory** | |
| Main RAM | 64KB |
| Video RAM | 6KB |
| OS ROM | 32KB |
| **ROM capsule** | 8 ~ 32KB per capsule<br>Two 28-pin capsule sockets<br>Mask ROM or EPROM<br>CMOS or NMOS<br>Read only disk |
| **Built-in Peripherals** | |
| Keyboard | 72 keys<br>Keyboard types (ASCII, German, French, British, Swedish Norwegian, Danish)<br>shift mode indication by LED |
| LCD | 480 × 64 dots, uniform matrix<br>80 × 8 characters<br>View angle control |
| Clock (KB CPU) | Time, date<br>Alarm function |
| Microcassette | Software control<br>Sequential store (no random access)<br>Directory |
| Speaker | Volume control<br>Sound source — software, Microcassette |
| Analog input | Two channels |
| DIP switches | Four bits for country selection |
| Reset switch | |
| Power switch | Software-controlled switch |

| | |
|---|---|
| **Interfaces** | |
| RS-232C | 8-pin mini DIN connector 75 to 19,200 baud rate<br>Half/full duplex<br>Software-controlled power (±8V) |
| Serial | 8-pin mini DIN connector 150, 600, 4800, 38.4k baud rate<br>Software-controlled power (±8V) |
| Barcode I/F | HX-20 compatible<br>A simple bit input/analog in<br>Software-controlled power |
| Analog input | Analog in,<br>Software-controlled power |
| Speaker output | Sound source . . . software, microcassette |
| System bus | Address bus<br>16 bits<br>Data bus<br>8 bits<br>Control<br>timing signals<br>R/W<br>internal memory disable<br>external interrupt<br>Power<br>direct battery power<br>switched power |
| **Keyboards** | |
| No. of keys | 72 |
| Auto repeat keys | All keys except for keys corresponding to NUM/GRPH, SHIFT, CTRL, CAPS LOCK, ESC, PAUSE, HELP PF1, PF2, PF3, PF4 and PF5 of ASCII keyboard. |
| Buffer | 7 characters |
| **Power Supply** | |
| Main power | Rechargeable NiCd batteries, 1100mAH, removable |
| Backup power | Rechargeable NiCd batteries, 90mAH, built-in |
| Charge | AC adapter<br>Continuous/controlled charge selectable by jumper |

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LAP-SIZE COMPUTERS

# Kaypro Launches Lap-top

## SECOND MS DOS PRODUCT FROM CP/M KING; WILL IBM'S 'CLAMSHELL' BE KAYPRO COMPATIBLE?

After a tumultuous 1984 in which its revenues soared while profits evaporated, Kaypro has introduced its second major product in as many months — an IBM-PC-compatible lap-top computer.

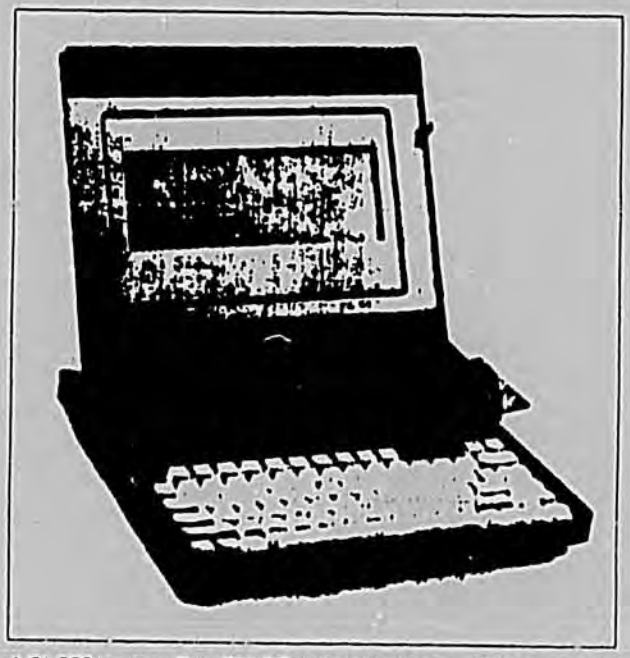
The Kaypro 2000, a $1,995 lap-top computer with 256K of memory, was released at the firm's annual shareholders meeting in April. The computer is based on an 8088 processor, weighs 11 pounds, and is similar to the Data General One portable, which was introduced last fall. The main difference between the two machines is that the $2,895 Data General One has a modem, which the Kaypro 2000 lacks.

In March, Kaypro introduced the Kaypro 286i, a clone of the IBM PC AT. (See *InfoWorld*, March 4, 1985.) In the fall, the firm introduced its first PC-compatible computer, the Kaypro 16, aimed at the IBM PC XT market. These product introductions mark a significant change of direction for Kaypro, which has grown from a small maker of specialty instrumentation to the fourth-largest producer of personal computers in the United States.

The new Kaypro lap-top comes with a 3½-inch, 720K floppy disk drive, a detachable keyboard, and an adjustable 80-column-by-25-line liquid crystal display with a resolution of 640-by-200 pixels. The memory can be expanded to 640K, and an 8087 coprocessor can be added. MS-DOS 2.11, Wordstar, Infostar, Calcstar, and GW Basic are bundled with the machine.

David Kay, Kaypro's vice president of marketing and sales, says the company is developing an optional second disk drive and 300/1,200-baud modem for the 2000 that could be on the market in 60 days. Kay says other modems can be connected to the Kaypro 2000 via the lap top's serial port.

The Kaypro 2000 is powered by standard household current or by self-contained lead acid batteries that need to be recharged after about four hours of operation. A battery charger is included with the system. A low-power indicator has been included to warn users when the power pack will support less than one hour of use.



*A $1,995 lap-top: The IBM-PC-compatible Kaypro 2000 has a 25-line display, a built-in 3½-inch disk drive, and lots of free software*

Accessories such as the external drive can be plugged into an expansion port on the bottom of the machine. Kay hints that the expansion port will be used in a future product — a "base station" that will enable the addition of floppy or hard disk add-ons and other peripherals.

The Kaypro 2000 has a detachable 75-key keyboard that lifts out of the portable's carrying case and is attached by a coiled cable. The machine's liquid crystal display is adjustable to accommodate different lighting and viewer requirements. Screen brightness can be adjusted with function keys.

In the effort to reduce the size and power requirements of its lap-top, Kaypro considered and rejected the idea of incorporating 5¼-inch drives. The company then focused its attention on an ultracompact (less than 1-inch tall) Citizen Electronics 3½-inch disk drive that turns itself off when not in use. Other power reduction features include the extensive use of CMOS semiconductors and firmware that puts the system into a standby mode if the keyboard is not used for more than 60 seconds.

The new lap-top will be assembled at Kaypro's plant in Solana Beach, California, and the company plans to begin shipping a limited number of 2000s this month. Full-scale production is planned for May.

Kay says his company started work on a lap-top portable about 15 months ago, when it entered into negotiations with the Japanese trading company Mitsui Electronics. "The earlier product became obsolete before the project was complete," Kay says. "If we had been successful with our initial project, we would have been able to introduce a portable at the same time as Hewlett-Packard," referring to the HP Portable released in the summer of 1984.

After Kaypro opted to go its own way, Mitsui is believed to have tried to peddle its portable to Zenith Electronics of Chicago. However, like Kaypro, Zenith pulled the plug on Mitsui's lap-top at the last minute.

Kenneth Lim of Dataquest, a market analysis firm in San Jose, California, says that Dataquest has revised downward its sales predictions for portable lap-top computers (mainly because of IBM's failure to introduce a machine of this type). Lim thinks Kaypro could sell between 10,000 and 15,000 units in the balance of this year, providing the machine has no bugs. He says that once IBM "blesses and legitimizes" the market with its lap-top offering, Kaypro could sell as many as 35,000 units per year.

But how will Kaypro react if, as is rumored, IBM releases a lap-top in 1985?

"I guess it means the IBM portable will be Kaypro/Microsoft/Data General/HP compatible," Kay says.

— *Jim Forbes*



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