

Technical Report No. 25
IBP GRASSLANDS BIOME BUDGET PROGRAM

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GRASSLANDS BIOME
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GENERAL PURPOSE

The organizational structure for the Grasslands Biome includes five hierarchical levels which are called: (1) the total program level, (2) the phase level, (3) the area level, (4) the project level, and (5) the subproject level (Fig. 1). Each department of each level contains a budget with 29 budget items and each item has three different fund sources. Each department is referenced by an organization number and each item on the budget is referenced by a four-digit budget item code. The budgets are also assigned by a two-digit institutional billing code which corresponds to the location of the department. Listings of the code numbers and their definitions are on pages 5, 6, 7, and 10.

The program computes the benefits, indirect costs, subtotals and totals for each budget. The benefits are calculated at a given rate of all salaries except graduate students, pre-baccalaureate students and professional school students. The rate used depends on the institutional code number. The indirect funds for each budget are calculated at a given rate of one of three different bases. The three bases used are: (1) total salaries and wages, (2) total salaries, wages and benefits, and (3) total direct costs less capital. The rates and the base used for each institution are listed on pages 6 and 7.

METHOD OF OPERATION

The execution of the program follows seven general steps.

Step 1.

The data is read in and initial budgets are set up. The format for the input of the data is described on pages 8 and 9. As each card is read in,

the function IFIND is used to locate the organizational number in the code list and the budget item number is KODES. These values are then used as indices for the array that the funds are stored in. IFIND is likewise used to locate the institutional code in KODEI so that the funds can also be added into the correct institutional budget. The arrays used for storing the budgets are called TOTSUM, PHSESUM, AREASUM, PROJSUM, DATA, and INTSUM for program level, phase level, area level, project level, subproject level, and institutions respectively. These arrays must all be initialized to zero by the systems declaration *RUN, CLEAR before they are used. As each card is read in, the lists M and NAME are also used to retain the institutional number and the principal investigator for each budget.

Step 2.

After all budgetary data cards have been read in, all calculations are made to correct the budgets. This is handled by the subroutine ADDCHEK for each of the six arrays.

Step 3.

When all budgets have been corrected the program, phase, area, and project level budgets are stored onto tape for later use and are also printed with seven budgets per page.

Step 4.

The inclusive budgets are then calculated by adding the funds of the subprojects into the corresponding funds of the projects; it then adds the project funds into the area funds, the areas into the phases, and the phases into the total budget. When completed, each budget includes the funds of all

the budgets below it in the organizational structure. For example, the inclusive budget for the area department 2570 contains its own initial budget plus the budgets from projects 2571 and 2572, and the budgets from subprojects 25721, 25722, and 25723.

Step 5.

The inclusive budgets are listed for each department displaying that budget along with the inclusive budgets that are immediately below it in the organizational structure. For example, the area 2570 is listed on one page with the projects 2571 and 2572. Later on the project 2572 is listed with the budgets for 25721, 25722, and 25723. The budget for departments such as 2571 are not listed in this step because there are no departments immediately below it and consequently the inclusive budget is the same as its initial budget.

Step 6.

The initial budgets for the top four levels are read back from the tape and the correction factor is calculated. The total of the inclusive budget at the program level contains the amount of NSF funds for the entire biome. If this amount is not equal to \$1.8 million, the budget must be adjusted. All items on each budget are adjusted by the same amount except for the salaries of the principal investigator and faculty associates. Since these two items are held constant, there will be a portion of the benefits and indirect costs which must also be protected from the adjustment. The total amount of benefits to be protected is accumulated in the subroutine ADDCHEK, and the amount for indirect costs are accumulated in the function OVERHED.

The amount available for reduction is calculated by subtracting the four accumulated totals from the total NSF funds of the entire biome. The amount to be reduced is calculated by subtracting \$1.8 million from the grand total. This amount is then divided by the amount available for reduction and that result is subtracted from one to determine the correction factor needed for adjustment.

Step 7.

Once the correction factor is obtained, all items, excluding the salaries of principal investigators and faculty associates, of each budget are multiplied by the correction factor to obtain the adjusted budgets. Steps 2, 3, 4, and 5 are then repeated for the adjusted budget.

CODE LIST FOR BUDGET ITEMS

<u>MNEMONIC</u>	<u>CODE</u>	<u>DESCRIPTION</u>
SALARY-PI	0111	principal investigators
SALARY-FA	0112	faculty associates
SALARY-RA	0121	resident associates--post-doc.
SALARY-NFPD	0122	non-faculty professionals--doc.
SALARY-NFPO	0123	non-faculty professionals--other
SALARY-GRA	0124	graduate students
SALARY-PSS	0125	professional school students
SALARY-PBS	0126	pre-baccalaureate students
SALARY-S-C	0127	secretarial-clerical
SALARY-TECH	0128	technical
SALARY-OTHER	0129	others
* SALARY-TOT	0100	total salaries and wages
* BENEFITS	0200	fringe benefits
* SAL + BEN	0210	total salaries, wages, and fringe benefits
EQUIPMENT	0300	permanent equipment
SUPPLIES	0400	expendable supplies and equipment
TRAVEL-DOM	0510	domestic travel
TRAVEL-INT	0520	international travel
* TRAVEL-TOT	0500	total travel
PUBLICATION	0600	publication costs
OTHER-CONST	0710	other construction costs
OTHER-COMP	0720	other computer costs
OTHER-CONT	0730	other contractual services
OTHER-COMM	0740	other communication costs
OTHER-MISC	0750	other miscellaneous costs
* OTHER-TOT	0700	total of other costs
* DIRECT	0800	total direct costs
* INDIRECT	0900	indirect costs
* TOTAL	1000	grand total

* These items are calculated by the program and are not necessary in the input deck.

INSTITUTIONAL BILLING CODES

BASIS FOR OVERHEAD**	CODE	BENEFIT RATE	OVERHEAD RATE	DESCRIPTION
SWB	00	.07	.45	CSU Animal Science
SWB	01	.07	.45	CSU Atmospheric Science
SWB	02	.07	.45	CSU Botany and Plant Pathology
SWB	03	.07	.45	CSU Entomology
SWB	04	.07	.45	CSU Fisheries and Wildlife Biology
SWB	05	.07	.45	CSU Microbiology
SWB	06	.07	.45	CSU Range Science
SWB	07	.07	.45	CSU Recreation and Watershed Management
SWB	08	.07	.45	CSU Zoology
SWB	09	.07	.45	CSU Cooperative Wildlife Research Unit
SWB	10	.07	.45	CSU Agronomy
SWB	11	.07	.45	CSU Engineering Research Lab
SWB	12	.07	.45	CSU Radiation Biology
SWB	51	.07	.45	Colorado College
DC-C	52	.075	.1945	Colorado State College
DC-C	53	.10	.223	Fort Hays Kansas State College
SWB	54	.098	.511	Kansas State University
SWB	55	.085	.420	Montana State University
SW	56	.05	.31	New Mexico State University
DC-C	57	.12	.1934	North Dakota State University
SWB	58	.033	.3205	South Dakota State University
SWB	59	.07	.20	Southern Colorado State College

INSTITUTIONAL BILLING CODES (Continued)

<u>BASIS FOR OVERHEAD**</u>	<u>CODE</u>	<u>BENEFIT RATE</u>	<u>OVERHEAD RATE</u>	<u>DESCRIPTION</u>
SW	60	.07	.4173	Texas A&M University
SW	61	.07	.45	University of Colorado
SW	62	.07	.3812	University of Nebraska
SWB	63	.07	.4500	University of Denver
SW	64	.07	.598	University of Oklahoma
SW	65	.098	.4575	University of Wyoming
SW	66	.048	.3457	Texas Tech University
SW	67	.07	.3849	Oregon State University
SW	68	.07	.4500	University of California at Davis
SW	69	.10	.45	University of California at Berkeley
SW	70	.07	.5854	University of Missouri
SW	71	.07	.5201	University of Kansas
SWB	72	.07	.278	University of Montana
SWB	99	.07	.45	CSU Natural Resource Ecology Lab

** SWB - total salaries wages and benefits

SW - total salaries and wages

DC-C - direct costs less capital

Input data for both programs are the same:

Card 1

col 1 - 2 number of departments at the phase level.
3 - 4 number of departments at the area level.
5 - 6 number of departments at the project level.
7 - 8 number of departments at the subproject level.
9 - 10 number of budget items.
11 - 12 number of institutions.

Card 2

col 1 2 if a budget for the total program level is included;
1 if not.
2 2 if a budget for the phase level is included;
1 if not.
3 2 if a budget for the area level is included;
1 if not.
4 2 if a budget for the project level is included;
1 if not.
5 2 if a budget for the subproject level is included;
1 if not.

Cards 3-N (N = 2 plus the number of budget items)

List of mnemonics for the budget items to be used in report.

(1 per card with a maximum of 15 characters in col. 1-15.)

Budgetary Data Cards

All budgetary data must be divided into five groups: (1) data for the total program level, (2) phase level data, (3) area level data, (4) project level data, and (5) subproject level data. The data within each group does

not have to be sorted, but each group must be in the order one through five in the deck, and each group must be followed by a blank card.

Each budgetary data card is punched in the following manner:

- col 1 - 5 5-digit code for organization level.
(See page 10 for code numbers.)
- 6 - 9 4-digit code for the budget item.
(See page 5 for listing of codes.)
- 10 - 60 any identifying description.
- 61 - 62 2-digit code for the institution.
(See pages 6 and 7 for listing of codes.)
- 63 - 68 Value of funds from NSF.
- 69 - 74 Value of funds from cost-share.
- 75 - 80 Value of funds from other sources.

Copies of the program with sample input and output are available from the Biometrical Services Section at the Natural Resource Ecology Laboratory, Colorado State University.

ORGANIZATIONAL CHART OF THE GRASSLAND BIOME PROGRAM

