

SUB-INITIATIVE 1.2.3

Determine the TITLE: Climate Change Caused by Man and Nature

Sub-Initiative Goal

Assess current and future impact of natural climatic changes, provide alerts to potential catastrophic trends and gain new environmental insight and understanding as a basis for wise strategies.

Relationship to Initiative

Achievement of these goals will assist in the taking of protective measures against potential natural disasters such as large-scale inundation of low-lying coastal regions, broad extensions of ice sheets and severe health hazards.

Relationship to other initiatives

This initiative relates to all others to varying degrees. For example transportation on land or in the air exerts a deleterious effect upon the atmosphere and is in turn affected by it. Similar relationships exist with the other initiatives.

Sub-Initiative Benefits

A. Economic

(a) Balance of trade impact

Is low

(b) Employment impact

Is low

(c) Other

B. Social

This sub-initiative relates to man's very survival.

Revision 1 2 3 4 5 6 7 8 9 10

SUB-INITIATIVE 1-2.3

Sensitivity of Sub-initiative goal to funding levels

Element	-20%	-10%	+10%	+20%
X.X.X.X.	*	*	*	*
1.2.3.1	R	R	N	N
1.2.3.2	N	N	E	E

*Indicate:
 E=expand
 R=reduce
 D=discard
 N=no change

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PROGRAM ELEMENT 1.2.3.1

TITLE: Establish 6 global and 10 regional baseline stations to measure gaseous & particulate levels.

A. Work Statement

Establish 6 global and 10 regional baseline stations and equip with appropriate monitoring sensors. The global stations will be in areas remote from man's influence in order to monitor long-term global trends. The regional stations will be in settled areas to monitor the general state of contamination.

B. End Product

Baseline measurements of atmosphere turbidity, carbon dioxide, solar radiation, vertical distribution and size distribution of aerosols, ozone, water vapor, trace gases and hazardous substances will provide observations needed in the assessment of climatic change and in the long-range planning for control activities.

C. Relationship(s) to Sub-initiative(s)

Derives basic observational data essential for assessment of global climatic trends

D. Supporting Data

(a) Current Work Status (Value & Adequacy)

1. Federal Government Only 1 global baseline station now operating at Mauna Loa, Hawaii. Additional instrumentation is needed. A network is needed including 5 more stations with additional instrumentation. Selected weather stations have been designated as regional monitoring stations. additional technology is needed for environmental monitoring purposes.

2. Private Sector

None. This monitoring activity is a government responsibility. Some instrument development will be contracted to the private sector.

(b) Technical Evaluation of Submission

Technology is available. Technological risk is low.

(c) Institutional Problems

None, nationally. On the international level appropriate institutional roles may be addressed at the 1972 UN Conference on the Environment.

(d) Significance of Element

The two elements are closely linked in feedback mode. This one provides stable source of information needed as input to parts of other elements. Also, latter supports this element with promising technology and monitoring the information base.

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PROGRAM ELEMENT 1.2.3.1

TITLE:

Establish 6 global & 10 regional baseline stations to measure gaseous & particulate levels

E. Resources and Schedules

(a) Federal Costs by Agency (Millions to the nearest 100K)

1	2	3	4	5	6	7	8	9	10
Agency	Baseline	Budget Request	Add-On NTO Only	Total Baseline + NTO	Total Program	Total Program	Total Program	Total Program	Total Run-Out
AEC	72	73	73	73	74	75	76	77	
EPA	0.0	0.1	2.0	2.1	3.0	2.0	2.0	2.0	2.0
NOAA	0.8	1.9	1.2	3.9	3.9	3.0	3.0	3.0	3.0
NSF	0.2	0.5	0.5	1.2	1.2	1.2	1.2	0.2	0.2
	1.0	2.7	4.4	8.1	9.5	7.2	7.2	6.2	6.2

(b) Major Milestone Schedule

FY 73 establish 2 global & 4 regional stations
 FY 74 " " " " " "
 FY 75 establish 1 global and 2 regional stations
 FY 76 complete implementation & operate network

(c) Financing

Direct Appropriations 100%	Other Federal (trust funds, etc.) None	Private Sector None
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(d) Expenditure of Government Funds

In-house	FY 73	FY 74	FY 75	FY 76	FY 77
In-house	2.4	3.1	3.4	3.4	3.4
Contract	5.7	6.4	3.8	3.8	3.8

(e) Manpower

In-house	FY 73	FY 74	FY 75	FY 76	FY 77
In-house	180	180	190	200	200
Contract	210	220	180	170	160
TOTAL	390	400	370	370	360

(f) Facilities

None

F. Cost/Benefit Analysis

(a) Results

No analysis is feasible. Benefits are immense but not quantifiable since this element contributes to ensuring man's...

(b) Documentation

References

UN Conference on Human...

as an aid to modeling research using laser and other technologies

PROGRAM ELEMENT 1.2.3.2

TITLE: for automated remote sensing.

A. Work Statement

Test impacts of individual factors on climate. Test for long-period climatic fluctuation using numerical simulation models. Conduct field studies and develop basis for monitoring high atmospheric constituents. Collect aerosols by aircraft and balloons. Develop new capabilities in instrumentation and automated remote sensing.

B. End Product

Certain conclusions can be reached on the basis of these investigations on the state and future course of climatic change affecting all mankind. Modeling and technological developments will, with time, improve conclusions now lacking firm basis.

C. Relationship(s) to Sub-initiative(s)

Develops technology & conducts field studies to improve the data base required for assessment of climate trends; develops numerical models that will predict global climatic fluctuations and thus provide alerts to potential national disasters.

D. Supporting Data

(a) Current Work Status (Value & Adequacy)

1. Federal Government

These research studies & instrument development programs and projects relate primarily to monitoring programs for which the Federal government bears primary responsibility.

2. Private Sector

Some studies & instrument development projects will be contracted out to the private sector.

(b) Technical Evaluation of Submission

Technology is available. Technological risk is low.

(c) Institutional Problems

None

(d) Significance of Element

Both elements interrelate closely. One supports the other. One is essentially the information source and the other is the analysis phase combining to produce desired results.

PROGRAM ELEMENT 1.2.3.2

TITLE:

E. Resources and Schedules

(a) Federal Costs by Agency (Millions to the nearest 100K)

1	2	3	4	5	6	7	8	9	10
Agency	Baseline	Budget	Add-On	Total	Total	Total	Total	Total	Total
	72	73	73	73	74	75	76	77	
		Request	NTO	Baseline	Program	Pro-	Program	Program	Run-
			Only	+ NTO		gram			Out
AEC	0.0	0.1	0.4	0.5	0.5	0.6	0.6	0.6	0.6
DOD	3.0	1.8	0.5	5.3	4.8	4.8	4.8	4.8	4.8
EPA	0.0	1.1	1.0	2.1	3.1	3.1	3.1	3.0	3.0
SMITH	0.0	0.0	1.2	1.2	0.8	0.4	0.4	0.4	0.4
NOAA	0.0	2.8	1.0	3.8	3.9	3.2	3.0	3.0	3.0
	3.0	5.8	4.1	12.9	13.1	12.1	11.9	11.8	11.8

(b) Major Milestone Schedule

FY-73 Initiate stratospheric investigations modelling studies & other field projects
 FY-74 Develop prototype lidar & microwave instrumentation for determining vertical profile of particulates & continue field projects.
 FY 76-77 Develop automated remote sensing & continue field projects

(c) Financing

Direct Appropriations	Other Federal (trust funds, etc.)	Private Sector
100%	None	None

(d) Expenditure of Government Funds

	FY 73	FY 74	FY 75	FY 76	FY 77
In-house	6.0	6.1	6.2	6.5	6.5
Contract	6.9	7.0	5.9	5.4	5.3

(e) Manpower

	FY 73	FY 74	FY 75	FY 76	FY 77
In-house	180	185	190	200	200
Contract	210	210	180	160	160
	390	395	370	360	360

(f) Facilities

None

F. Cost/Benefit Analysis

(a) Results

No analysis is feasible. Benefits are immense but not quantifiable since this element contributes to ensuring man's survival

(b) Documentation References

UN Conf. on Human Env. Many scientific ref.