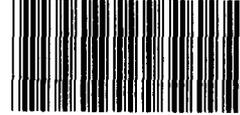# GAO

United States
General Accounting Office
Washington, D.C. 20548

General Government Division

B-249779

March 30, 1993

The Honorable Carol M. Browner
Administrator
Environmental Protection Agency

148874

Dear Ms. Browner:

Total Quality Management (TQM) is a management approach that
strives to achieve continuous improvement of quality through
organizationwide efforts based on facts and data. TQM also
focuses business processes on meeting the needs of customers,
both internal and external. Although TQM traditionally has
been associated with private sector organizations and their
efforts to remain competitive and profitable, in recent years
federal organizations have been attempting to implement TQM to
cope with budget restrictions and better serve the public.

We recently surveyed federal installations to determine the
extent of their use of TQM and learned that 68 percent of the
installations surveyed were implementing TQM.[1] An
installation, as defined by the Office of Personnel
Management, is a unit with a specifically designated head who
is not subject to on-site supervision by a higher level
installation head and who has been delegated some degree of
authority in the performance of personnel management
functions. Our survey covered over 2,800 installations, such
as Internal Revenue Service Centers, Social Security offices,
military depots, and Environmental Protection Agency (EPA)
research laboratories. Twenty EPA installations were included
in this survey, and the purpose of this correspondence is to
provide you a brief summary of the results as they apply to
EPA as well as to compare EPA results with the total results
of all surveyed federal installations. We believe this
information--particularly data on barriers to TQM--can be
useful in your planning and as a baseline for judging future
efforts.

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[1]Quality Management: Survey of Federal Organizations
(GAO/GGD-93-9BR, Oct. 1, 1992).

GAO/GGD-93-22R, TQM Implementation at EPA

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STATUS OF TQM

As figures 1 and 2 show, a significant number of government installations and EPA installations reported implementing TQM. TQM was being implemented at 18 of the 20 EPA installations responding to our survey. Of the remaining two installations reporting they have not implemented TQM, one reported plans to do so within the next year. The level of TQM activity in surveyed EPA installations was higher than the percentage for all federal installations surveyed (see figs. 1 and 2).

Figure 1: Percentage of Government Installations Implementing TQM
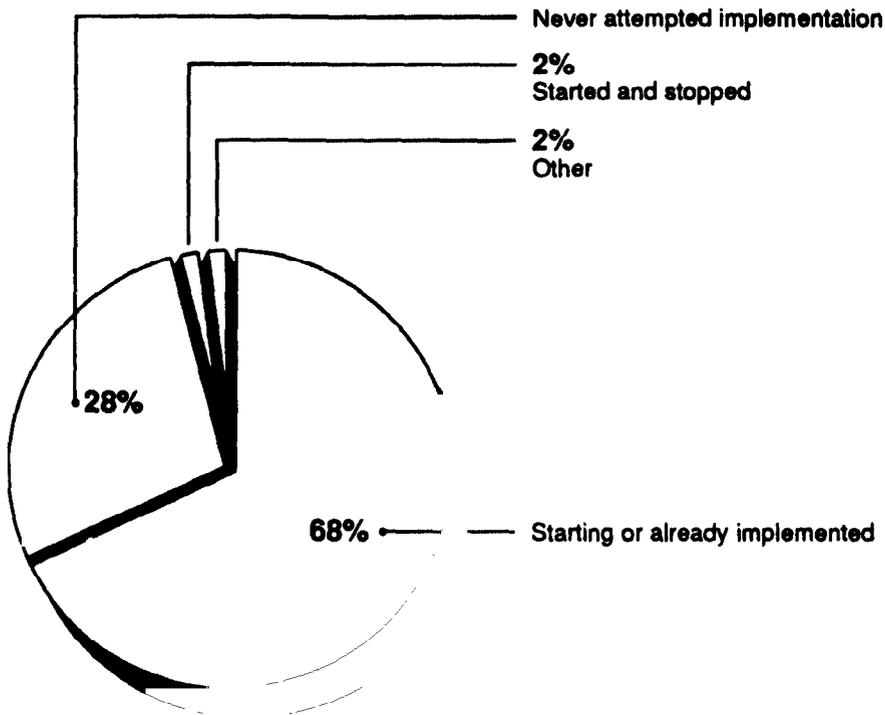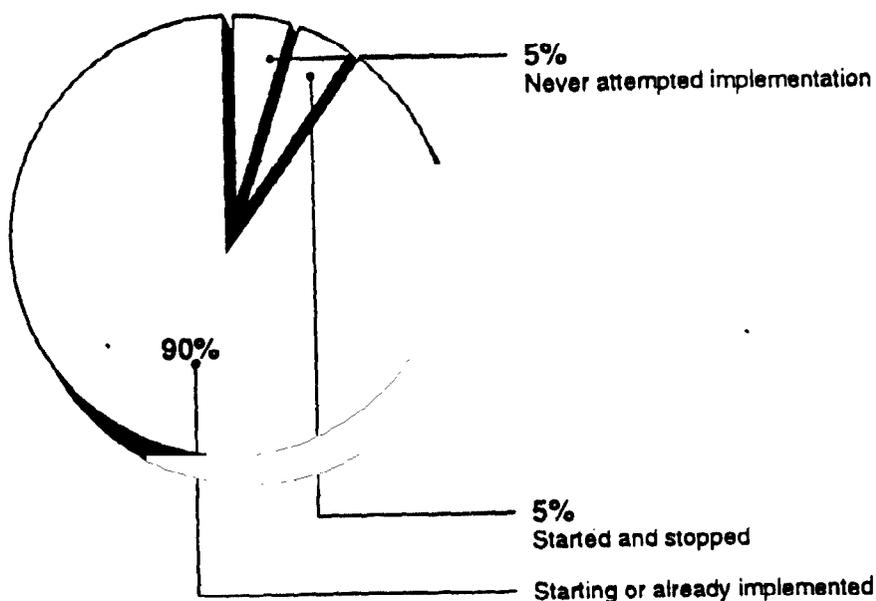
Never attempted implementation

2%
Started and stopped

2%
Other

28%

68% — Starting or already implemented

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**Figure 2: Percentage of EPA Installations
Implementing TQM**

5%
Never attempted implementation

90%

5%
Started and stopped

Starting or already implemented

To obtain a picture of the status of federal TQM efforts, we
asked installations to report their efforts in terms of a five-
phase maturity scale. Maturity definitions ranged from Phase 1,
preliminary TQM efforts, to Phase 5, institutionalized efforts
that are achieving significant benefits (see enc. I for
definitions). As figure 3 shows, 31 percent of the total federal
installations responding to the survey reported being in Phase 3
(Implementation), while over half (10) of the EPA installations
reported being in this phase. None of the EPA installations
reported being at Phase 4 or Phase 5. The maturity level of EPA
installations appears to reflect the relative newness of EPA's
efforts; 17 of.the 18 installations reported they have been
implementing TQM for 3 or fewer years. On average, Phase 4 and

3

Phase 5 installations across all federal respondents have been implementing TQM for more than 3 years.

Figure 3:   Status of TQM

100   Percent of organizations with TQM efforts
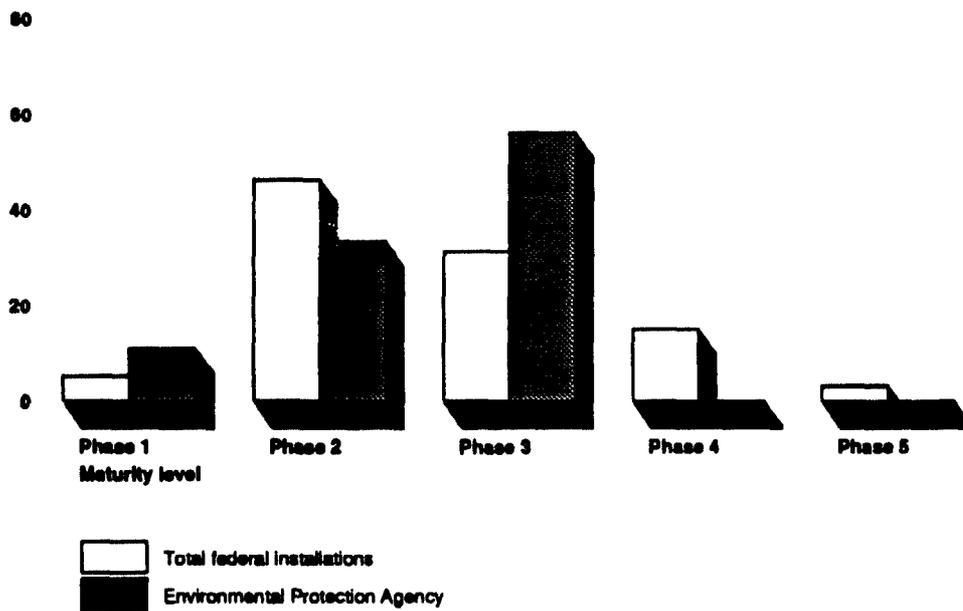
In our survey of federal installations, we asked respondents about the extent of their involvement in 43 activities commonly undertaken by organizations involved in TQM. Such activities include providing training in TQM tools for employees, establishing quality councils or steering groups, and establishing problem-solving teams. Installations reported that their involvement in these activities increased as maturity increased. In other words, installations identifying themselves as more mature in TQM also more frequently said they were doing the 43 activities commonly associated with TQM.
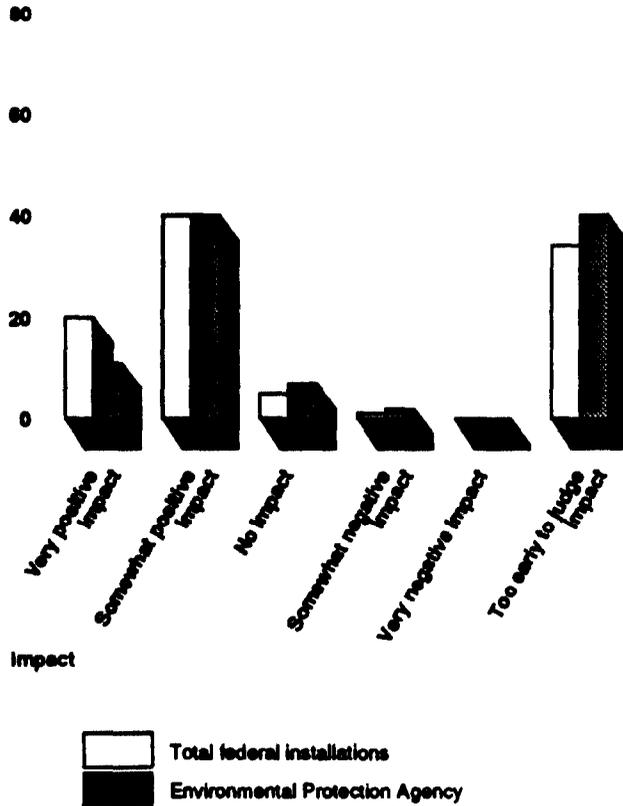
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We considered the information reported by EPA installations, but because of the relative newness of EPA TQM efforts, we could not compare the level of activities with reported maturity levels. We did note that all 16 Phase 2 and Phase 3 installations reported establishing problem-solving teams, and 12 out of 16 reported establishing quality councils or other TQM steering groups. Teams and quality councils are structural elements of TQM that most respondents to the federal survey reported establishing in Phase 1 or 2.

BENEFITS OF TQM

We considered benefits in two ways: (1) effect on external customers as reflected by overall organizational performance and (2) effect on internal customers as reflected by internal operating conditions. We asked respondents to assess TQM's effect on organizational performance in terms of productivity, reductions in costs, quality of products and services, overall service to customers, customer satisfaction, and timeliness. To depict the overall impact, we developed an index that is the average of responses to our questions on the degree of impact. Figure 4 compares the organizational performance index for EPA and total federal responses and shows that over half of the responding EPA installations reported positive benefits, few saw negatives to TQM, and about 40 percent (7 of 18) felt it was too soon to judge benefits. These results were somewhat less positive than the total federal survey results and may have reflected the relative newness of TQM in EPA.

Figure 4: Impact of TQM on Performance

100   Percent of respondents - composite analysis

80

60

40

20

0

Very Positive Impact
Somewhat Positive Impact
No Impact
Somewhat negative Impact
Very negative impact
Too early to judge Impact

Impact

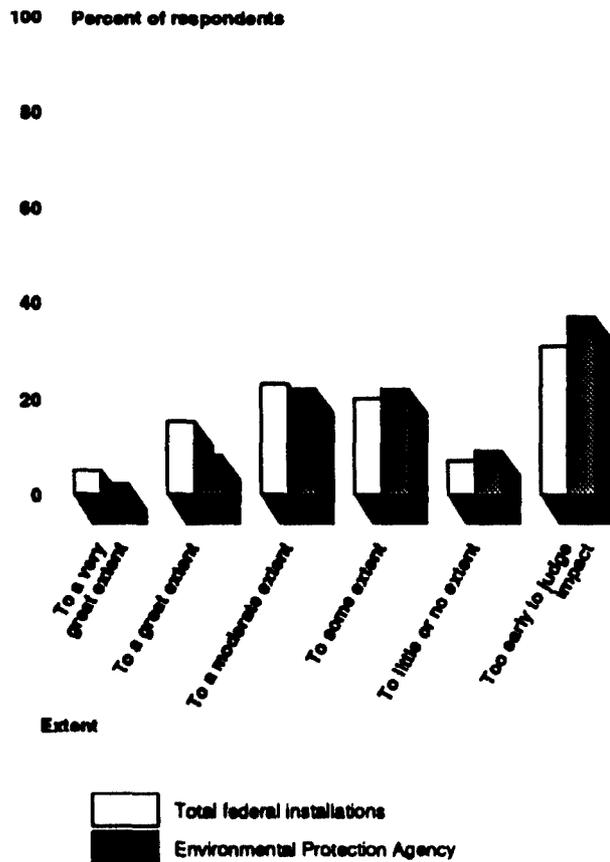☐ Total federal installations

■ Environmental Protection Agency

For internal operating conditions, we asked the installations to
identify the impact of TQM on each of 13 internal operating
conditions, such as communications and labor-management
relations. To illustrate the benefits, we developed an index in
the same manner as for the organizational performance indicators.
Figure 5 compares the EPA and total federal responses and once
again shows that EPA installations generally reported fewer
benefits than the total of all surveyed federal installations.

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For example, using our index, we found that about two (10 percent) of the EPA installations reported a great or very great positive impact on internal conditions, whereas the average for all federal installations was 20 percent. Of EPA installations, about seven (37 percent) reported it was still too early to judge the benefits of TQM on internal conditions; this compares with 31 percent of all federal respondents.

Figure 5:   Extent of Positive Impact on
Internal Operating Conditions

100   Percent of respondents

80

60

40

20

0

To a very great extent

To a great extent

To a moderate extent

To some extent

To little or no extent

Too early to judge impact

Extent

☐ Total federal installations

■ Environmental Protection Agency

BARRIERS TO TQM

We asked all the federal installations we sent our recent survey to about the significance of 21 potential barriers to implementing TQM that had been identified through our research. Nine barriers were said to be moderate to very major problems by 39 percent or more of the total federal respondents.
Figure 6 shows the comparison of EPA responses for the nine barriers reported by the total federal respondents. It should be noted that many of the top nine barriers reported by the total federal respondents are related to employee issues, such as (1) employees do not believe they are empowered to make changes, (2) employees lack sufficient information on how to use TQM tools, and (3) employees lack information and training on TQM concepts and theory.

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Figure 6: Respondents Reporting Barriers Are Moderate to Very Major Problems to Implementing TQM

100   Percent of respondents

Barriers

☐ Total federal installations

■ Environmental Protection Agency

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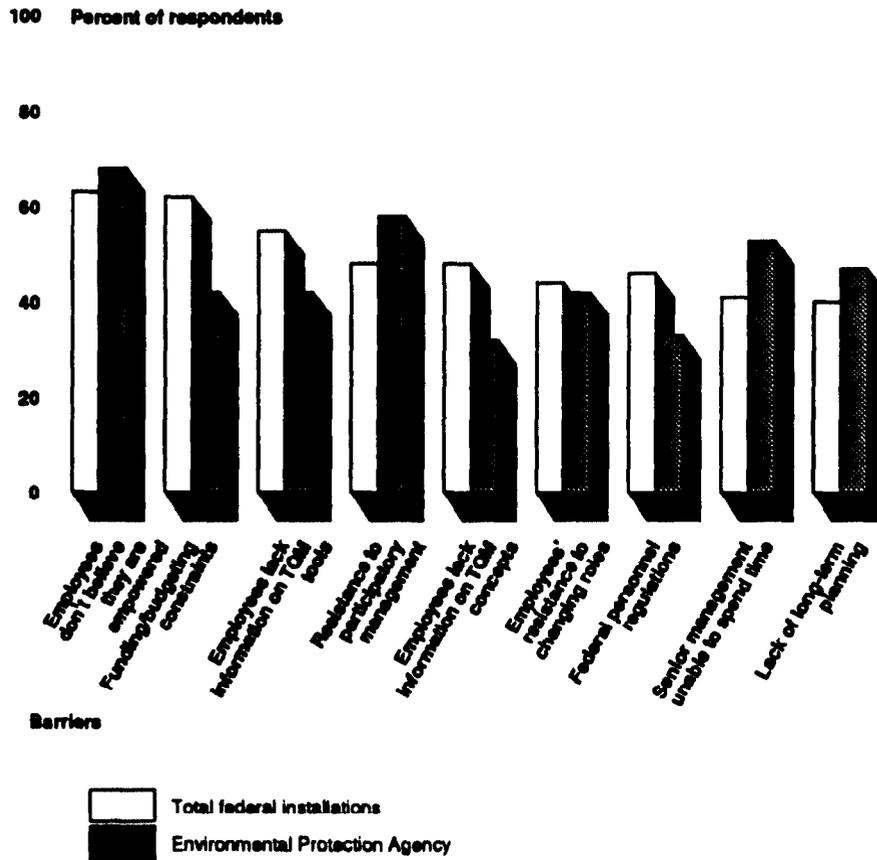
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Seven of the nine major barriers reported by the total federal respondents were also among the top nine barriers reported by EPA. Table 1 lists the major barriers reported by EPA respondents (note that 4 barriers tied for ninth place).

Table 1: Major Barriers Reported by EPA Respondents as Moderate to Very Major Problems

Barriers to implementing TQM	Percent
1. Employees do not believe they are empowered to make changes.	68
2. Resistance to moving toward a participatory style of management.	58
3. Senior management at the installation unable to spend sufficient time on TQM.	53
4. Measures of satisfaction from external customers difficult or impossible to get.	53
5. Commitment to change (to TQM) not effectively communicated by senior management at the installation.	53
6. Insufficient support for TQM among installation managers.	53
7. Resistance to measuring processes.	47
8. Lack of long-term planning approach.	47
9. Disconnect between strategic quality plan goals and the installation's other strategic plans.	42
9. Employee's resistance to changing roles or changing organizational structures.	42
9. Employees have insufficient information on how to implement TQM and use TQM tools.	42
9. Funding/budgeting constraints.	42

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The barriers reported by EPA that were not among the nine major
barriers reported by the total federal respondents were: (1)
measures of satisfaction from external customers difficult or
impossible to get, (2) commitment to change (to TQM) not
effectively communicated by senior management at the
installation, (3) insufficient support for TQM among installation
managers, (4) resistance to measuring processes, and (5)
disconnect between strategic quality plan goals and the
installation's other strategic plans.

SUMMARY

Our survey of federal TQM efforts indicated that as installations
invested more time and effort in TQM activities, they matured in
the implementation of TQM, found that the barriers became less
difficult, and reaped greater benefits. Although EPA is in the
early phases of TQM implementation and there were some
differences between its TQM experiences and those of all federal
respondents surveyed, it generally experienced positive impacts
on its performance.

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We have enclosed a copy of our report Quality Management: Survey
of Federal Organizations (GAO/GGD-93-9BR, Oct. 1, 1992) to
provide information on the background; results; and objective,
scope, and methodology of the total survey.

We hope you will find this information useful in guiding your
quality management initiatives and in improving service to your
customers under today's budget constraints. We will make copies
of this correspondence available to others upon request.

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The major contributors to this correspondence are listed in enclosure II. If you have any questions, please call me on (202) 512-8387.

Sincerely yours,
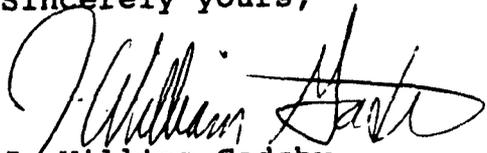
J. William Gadsby
Director, Government Business
  Operations Issues

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PHASES OF TQM IMPLEMENTATION

PHASE 1 - DECIDING WHETHER TO IMPLEMENT TQM

Management is researching or deciding whether to implement TQM, but no formal decisions or activities have been initiated by top management. A few employees may have attended quality conferences or network meetings, but the installation as a whole has yet to be informed or involved in a TQM project.

PHASE 2 - JUST GETTING STARTED

TQM efforts are in the early planning and implementation phase. Management has made a formal decision to start TQM and has communicated this to the organization. The organization's mission and vision have been articulated. A few quality structures, such as quality councils, steering committees, or teams, have been established, and some awareness training has been given. Preliminary quality planning has been done. Pilot programs or newly initiated installationwide efforts to improve quality are included in this phase.

PHASE 3 - IMPLEMENTATION

Specific TQM processes designed to improve quality are in place. TQM training for management and employees is beyond the orientation/awareness stage and focuses on TQM tools and techniques and team-related activities. Measures of quality and productivity have been identified and specific goals have been set.

PHASE 4 - ACHIEVING RESULTS

The installation has a sustained TQM effort and has begun to achieve and document significant results. Systemic, cross-functional, and/or organizational achievements from the TQM effort have been realized.

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PHASE 5 - LONG-TERM INSTITUTIONALIZATION

The installation has incorporated all of the principles and
operating practices of TQM throughout much of the organization.
The installation has documented substantial improvements in
quality and customer satisfaction resulting from these efforts
and is making consistent and continuous improvement throughout.
An installation in this phase may have been recognized as a
Quality Improvement Prototype Award winner or may be a recipient
of the President's Award for Quality.

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