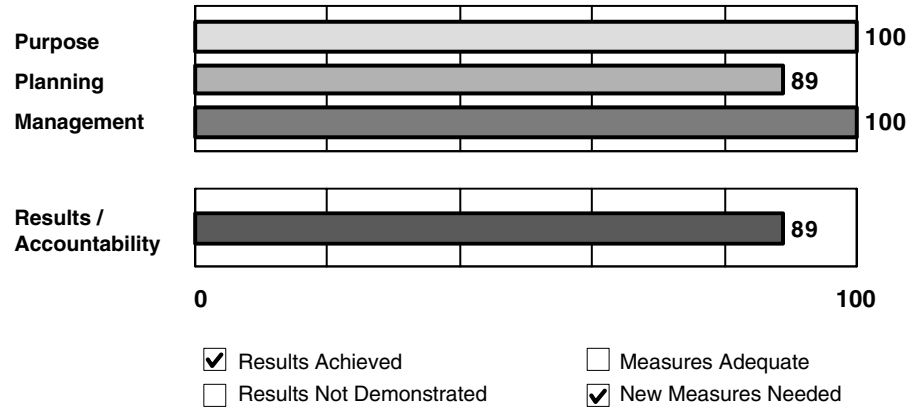


Program: Mars Exploration

Agency: National Aeronautics and Space Administration

Bureau: National Aeronautics and Space Administration



Key Performance Measures

Year Target Actual

Long-term Measure: Determine if life exists or has ever existed on Mars by: 1) exploring a high priority site on the Martian surface for definitive signs of organic molecules, and 2) mapping potential biosignatures from Mars orbit and the Martian surface (New measure)	2011	2 milestone	
Annual Measure: Percentage cost overrun on spacecraft missions	2002	<+10%	-1% to +14%
	2003	<+10%	
	2004	<+10%	
Annual Measure: Percentage of budget allocated through open, peer-reviewed competition	2002	>75%	70%
	2003	>75%	
	2004	>75%	

Rating: Effective

Program Type: Research and Development

Program Summary:

The Mars Exploration Program (MEP) conducts scientific exploration of the planet Mars, focusing on the search for water and evidence of life. MEP develops technologies, builds, launches, and operates robotic spacecraft, and performs research to better understand Mars and its past and present potential for life.

This assessment indicates that the MEP is a very well-defined and focused program that ties directly to NASA's mission. In the late 1990s, the MEP lost two spacecraft to mission failures. This assessment indicates that the MEP has recovered well since that time and is yielding quality science results today.

Additional findings include:

1. The success of the next mission to Mars, the Mars Exploration Rovers (MERs), is important to validating NASA's revamped Mars program strategy.
2. Scientific and educational returns could be increased many-fold if new communications technologies, such as optical communications, were used by the MEP.
3. Advance planning for the next decade of Mars missions is important to understanding what technologies the MEP should be investing in this decade.
4. Large Mars missions must be planned carefully as they can cost two to five times as much as smaller Mars missions.
5. Although annual MEP performance measures quantify program inputs and outputs, long-term MEP performance lacks quantifiable measures of program outputs and outcomes. R&D programs like MEP have historically experienced difficulty quantifying long-term outcomes because scientific discoveries are hard to predict.

In response to these findings, the Administration will:

1. Demonstrate new optical communications technology critical to future, high data rate, deep space communications. This demonstration will focus on the 2009 Mars Mobile Laboratory mission.
2. Develop options for the next decade of Mars missions, including both large and small missions, to help guide MEP technology investments in future budgets.
3. Develop long-term, quantitative, outcome oriented performance measures.

[For more information on this program, please see the National Aeronautics and Space Administration chapter in the Budget volume. 2004 estimate reflects NASA's change to full cost budgeting and is not directly comparable with prior years.]

Program Funding Level (in millions of dollars)

<u>2002 Actual</u>	<u>2003 Estimate</u>	<u>2004 Estimate</u>
457	496	570