

USGS Geology Headquarters Workforce Plan

*Championing the USGS Science Strategy,
Regional Collaboration, and the Bureau Planning Model*

**Roadmap to an
Efficient, Effective, Evolving, and Energized
Workforce in 2015**



August 2009

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USGS Guiding Principles

Be Respectful

Honor the absent
Treat each other with dignity
Honor roles and responsibilities of each person

Be Accountable

Take personal responsibility
Reward desirable behaviors and results
Be decisive and consistent
Communicate clear expectations for the job
Hold others accountable

Communicate

Be a good listener
Be honest in the message you deliver
Admit when you are wrong
Be flexible

Value Differences

Different backgrounds
Different ways of thinking
Different disciplines, roles

Encourage

Nurture and challenge
Provide a safe and rewarding environment
Provide clear directions

Focus

Strive toward USGS mission/vision
Accept change
Be resilient
Think beyond your own discipline

Collaborate

Work as a team member
Coordinate with others
Keep others informed

EXECUTIVE SUMMARY

Purpose and Drivers — To advance the three main goals of (1) achieving the USGS Science Strategy, (2) preparing for the anticipated the bureau planning model and collaborative decision making, and (3) facilitating regional realignment, Associate Director for Geology Suzette Kimball charged Geology Headquarters staff (GHQ) with developing a Workforce Plan. To implement this charge, Acting Associate Director Timothy Miller chartered (Appendices 1 and 2) a committee of headquarters and regional staff to produce a workforce plan that outlines strategies for achieving a GHQ workforce that is efficient, effective, and evolves toward future responsibilities from 2010 to 2015. Additionally a common theme garnered from employee input, and adopted by the committee, was the desire for a more energized workforce. We refer in this document to these latter workforce strategies as the 4Es: efficient, effective, evolving, and energized.

Facing Tomorrow's Challenges – USGS Science in the Decade 2007 - 2017

“The major objective[of the Science Strategy is] to guide planning over the next decade by identifying opportunities for the USGS to better use its remarkable scientific capabilities in order to serve the Department of the Interior and the Nation. The resulting high-level strategy does not reflect all aspects of USGS work; in fact, it does not directly deal with the details of many things that the USGS does extremely well and that are of critical importance to our mission. The intent is that the Science Strategy will outline areas where natural science can make significant contributions to the well-being of the Nation and the world. This strategy is intended to inform long-term approaches to USGS program planning, technology investment, partnership development, **and workforce and human capital strategies.**”
USGS Circular 1309

Additional drivers that make this plan timely include a new administration, the need for succession planning for a workforce population that is highly retirement eligible, a pressing need for training and enabling staff to work in increasingly collaborative and networked environments, and rapid advances in technology. Also, the **2010 President's Budget** includes a section called, "**Building a High-Performing Government, Transforming the Federal Workforce** (Section 2 III) that calls on the Federal Government "to make greater investments in its existing workforce, helping workers build skills and gain expertise to meet new challenges."

The current GHQ is a highly functioning organization. This workforce plan considers the above drivers, and the recommendations herein aim to validate and strengthen what is already successful and position the workforce for the future.

Effective organizational change depends on clearly articulated goals (this Workforce Plan), shared goals (including employee buy-in), and a clear path on how to get there (follow-up by management including a staffing plan, etc). This Plan follows the USGS Workforce Planning Model and achieves the first two of four phases: Phase I Set Strategic Direction and Phase II Conduct Workforce Analysis. The Plan sets the stage for GHQ leadership to develop Phase III Implement Workforce Plan; the goals of which include (1) identifying opportunities to move the organization and workforce toward this Plan's strategic goals, (2) implementing strategies to reduce gaps and surpluses in expertise, and (3) developing a staffing plan. And finally, Phase IV is for monitoring, evaluating, and revising to maintain the plan as a living document.

The committee considered many proposed organizational structures, including those far-reaching and radical, and chose a structure (Section VIII, 1. Charting an Efficient and Effective Organizational Structure) deemed the most practical and achievable given the 5-year event horizon (2015) and a desire to enhance morale for the current workforce while moving forward on the future states outlined in the Plan. During employee opinion data collection phases, which included several all-hands meetings, an anonymous suggestion box, and a one-month call for peer review, the committee discerned a high degree of employee concern about yet another reorganization, or change for what is perceived to be for change sake. We request management to be sensitive to this mood by moving slowly on any organizational structure change and by using for example attrition opportunities rather than staff relocations or changes in line management reporting.

Assumptions for the Workforce Plan

- Relatively level funding (expenditures/obligations) for the study period. Since the future is so uncertain, the Plan focuses on organizational flexibility in structure and approach.
- By 2015, the discipline and program construct remain part of the bureau matrix.
- By 2015, the depth of the scientific expertise available for GS-14 and -15 level positions throughout the bureau is thin due to anticipated retirements of senior staff and competition for the same people for directing centers and leading mega projects.

Guiding Principles for Development of the Plan

- Maximize funding for science
- Maintain a transparent process
- Maximize employee involvement
- No adverse actions to current positions

Committee Recommendations — The following is a synopsis of the Plan's recommendations. Refer to section VIII Workforce Plan Strategy for expanded information.

- 1. Charting an Efficient and Effective Organizational Structure** — A proposed organizational structure is based on elements described by employees in a visioning exercise solicited in February 2009. The structure includes three scientific programs, an operations center for administrative and financial functions, and a logistics center (actual or virtual) for centralizing information and communication functions.
- 2. Enhancing an Evolving Workforce — Succession Planning, Hiring, and Recruiting** — For GHQ leadership positions, increase use of non-permanent positions, such as increased use of rotational assignments, details, term positions, rehired annuitant, interns, and the recruitment and hire of management-type positions from a broader pool such as those who have degrees in environmental science and policy or MBA's.
- 3. Retaining an Energized Work Environment and Workforce** — To enhance flexible positions and work processes, increase use of flexible teams and work groups. Develop a robust orientation effort for new employees, including documentation (organization charts, SOP, Q&As, FAQs, etc) and shadowing opportunities. Encourage the increased use of telework, flexiplace, awards, and government benefits such as transit subsidy, gym and health clubs, and Federal day care. Invest in cutting-edge technologies.
- 4. Improving the Learning Environment** — Increase utilization of short-term assignments, Leadership 101 and 201, the Federal Executive Institute, and college tuition reimbursement. Managers increase coaching employees to take details and training and to aid employees in creating Individual Development Plans (IDP). Employees create IDPs and increase pursuit of networking, training, leadership, upward mobility opportunities, and details.
- 5. Championing Diversity** — Promote diversity across all series, positions, and grades and in hiring practices, go to the source (e.g., schools, county fairs, job fairs), hire from a pool of management professionals, increase utilization of intern programs, student appointments, and the National Association of Geoscience Teachers, develop pre-doc Mendenhall (including business administration), and promote "adopt a school" programs to excite middle and high school students about science.

In addition to the recommendations above, the committee discovered information through research and employee input that while not directly related to workforce planning would contribute to the goals of a workforce that is efficient, effective, evolving, and energized (see Appendix 5).

I ORGANIZATION AND TITLE

The organization under study in this plan is the USGS Geology Headquarters (GHQ) based in Reston, Virginia; exclusive of International Programs and national laboratory management (a.k.a., National Capabilities).

II MISSION AND VISION STATEMENTS

The draft Geology Headquarters Mission statement follows from the USGS mission, and the Vision statement encapsulates the tenets of this Workforce Plan. The committee recommends that GHQ staff use these as a starting point to collaboratively develop a shared mission and vision.

USGS Mission

The USGS serves the Nation by providing reliable scientific information to describe and understand the Earth; minimize loss of life and property from natural disasters; manage water, biological, energy, and mineral resources; and enhance and protect our quality of life.

Proposed Mission/Purpose for USGS Geology Programs — To achieve the USGS Mission, the Geology Programs serve the USGS and the Nation by providing reliable geologic research, monitoring, and assessments that are used to describe and understand the Earth; minimize loss of life and property from natural disasters; provide information for the wise management of water, biological, energy, and mineral resources; and enhance and protect quality of life.

Proposed GHQ Vision — The Geology Headquarters staff is efficient, effective, evolving, and energized, strives to maximize funding for science, is responsive to the changing needs of the Department of the Interior, USGS, Office of Management and Budget, Congress, Federal and State agencies, partners, and the public and utilizes collaborative communication in execution of its duties and in service to the good of the USGS.

III BASE PROGRAM

The role of the GHQ is to implement the national mandates of Congress and the priorities of the Department of the Interior and to set national scientific priorities for geology. GHQ facilitates flow-through of geology priorities among other headquarters units and regions. In addition, GHQ fosters external communication with diverse audiences, including national and international entities that face challenges wrought by natural hazards, the need for accurate mineral and energy assessments, and changing land and coastal resources. The arising need, for example, to understand global warming and its related effects on ecosystem health requires more integration of scientific research across traditional fields of study for policy decisions. USGS scientists continue to provide more and more scientific detail about Earth's systems. Geology scientists now have a broader mission that calls for more collaboration to understand our changing world and to provide that information in a variety of ways. These details enhance the opportunity for environmental managers to manage whole systems, which requires broader understanding of interdependent disciplines thus fostering collaboration among USGS disciplines. These present continuing, evolving, and emerging challenges to GHQ staff.

Current Organizational Structure

Leadership of GHQ is provided by the Associate Director (AD) for Geology and the Chief Scientist for Geology, who set workforce goals, communicate expectations, and ensure that workforce strategies are in sync with the organizational structure. They are the primary contact for Congressional and Departmental hearings regarding USGS geology programs. The AD and Chief Scientist are supported by two Executive Assistants that maintain calendars and records, arrange meetings and travel, and perform a variety of other administrative duties and by staff scientists who manage cross-discipline and cross-bureau efforts such as the Mendenhall Program, Research Grade and Evaluation (RGE) and Equipment Development Grade Evaluation (EDGE), science venture capital, annual science planning, and develop and maintain web sites and data bases. Program Coordinators, the Senior Management Officer, the IT Specialist, and staff scientists are supervised by the Chief Scientist.

Program Coordinators supervise two to six employees to carry out the following programs:

- Coastal and Marine Geology
- Data Preservation, Laboratories, and Informatics
- Earthquake Hazards
- Energy Resources
- Geomagnetism
- Global Seismographic Network
- Landslide Hazards
- Mineral Resources
- National Cooperative Geologic Mapping
- Volcano Hazards

Program Coordinators (PCs) represent GD programs to external clients and stakeholders, including congressional and departmental staff, State and local officials, and academia. PCs have responsibility for program and budget development and work closely with a broad range of internal and external scientists and managers such as Regional Executives and Science Centers, to develop program, set funding targets for projects, and track progress toward meeting national program objectives. Under the current structure, each PC supervises one or more Associate Program Coordinator(s) who represent the program as needed, manage grants programs, or represent related activities. Some positions are staffed by rotation assignments that provide upward mobility for scientists and managers from both within and without the bureau. The program staff also includes program analysts and secretaries who support grants and Federal Advisory Committee activities, preparations for briefings and travel, outreach, and general program activities. The Data Preservation Program Coordinator functions similar to a Science Center Director as well as a PC and has seven direct reports that were not included in this study.

The **Senior Management Officer** is the team leader for program analysts who provide financial and administrative support to geology programs and GHQ staff. In addition to budget and financial support, this function includes activities relating to property and records management, document production, procurement and contracts, safety and Continuity of Operations planning, personnel, and other special projects assigned by the AD and Chief Scientist.

See the Appendix 3 for a GHQ organization chart as of 2009 and Appendix 4. for a Statement of Work showing more detail about current workforce functions.

IV STRATEGIC GOALS

Priorities Driving Current and Future USGS Policies and Efforts

To understand the demand-side of the workforce-of-the-future equation, the committee analyzed the changes predicted to take place over the next 5 years that could affect the mission, objectives, and strategies of the bureau and, hence, workforce decisions for GHQ. This Workforce Plan considers for example –

- Departmental and administration initiatives,
- Key economic and environmental factors,
- Budgetary and program issues affecting cooperators and partners,
- Increases in customer demands over time,
- Increases in accountability and government transparency and
- Long-range business plans for the bureau.

Administration and Department Priorities

Speaking before the 2009 Annual Meeting of the National Academy of Sciences, the President promised a major investment in research and development for scientific innovation: “The commitment I am making today will fuel our success for another 50 years. This work begins with an historic commitment to basic science and applied research” (AP, 4/09). The President noted a goal of doubling the budget of key agencies (NSF, DOE Office of Science, NIST). While the USGS may not see a commensurate doubling of funding, the committee assumes that major cuts are unlikely, and there is great potential for growth and involvement. Anticipated Obama Administration impacts on GHQ staff are increased emphasis on energy, climate change, natural resources, and hazards and on scientific integrity. Another positive impact, in the form of an increased candidate pool, will be the result of renewed interest in working for Federal Government because of the President’s call to public service.

"Today, more than ever before, science holds the key to our survival as a planet and our security and prosperity as a Nation. It's time we once again put science at the top of our agenda and worked to restore America's place as the world leader in science and technology."

- President Barack Obama

Source: www.whitehouse.gov/issues

Department of the Interior priorities that bear on USGS/GD mission include facilitating the production, development, and delivery of renewable energy, protecting America’s treasured landscapes, engaging America’s youth in the outdoors, and tackling the water challenges facing our country (“Progress Report, the United States Department of the Interior,” April 2009). Impact to GHQ workload will include initiative development and developing nationally coordinated efforts to advance the goals of these Administration and Department priorities

The **2010 President's Budget** includes a section called, "**Building a High-Performing Government, Transforming the Federal Workforce** (Section 2 III) that calls on the Federal Government "to make greater investments in its existing workforce, helping workers build skills and gain expertise to meet new challenges." Agencies are directed to —

- "Increase and improve **training** efforts and measure the effectiveness of training,
- Make greater use of **management rotations** both within and between agencies — move top talent around early in a career so that individuals have a wide range of experiences and skills before they reach top management roles,
- Put a healthy **leadership pipeline** in place, identifying possible successors for mission critical positions several years before potential retirees leave Federal service,
- Improve **work-life issues** for the Federal workforce,
- Improve methods for evaluating employee performance, implementing mechanisms for rewarding both success and smart risk-taking for individuals as well as teams, and creating incentives to **retain talented workers.**"

Congress: Key Legislation Driving Current and Future USGS Policies and Efforts

GHQ plays an important role in the arena of public science policy by implementing legislative mandates. Current mandates include the —

- The National Earthquake Hazard Reduction Act of 1977 and subsequent reauthorizations (most recently in 2004) established the four-agency National Earthquake Hazards Reduction Program (NEHRP) partnership, including the activities carried out by the USGS Earthquake Hazards and Global Seismographic Network programs.
- The Disaster Relief Act of 1974 mandates Federal responsibility for alerts and warnings of natural disasters. Responsibility for earthquakes, volcanoes and landslides are delegated to the USGS by executive order through FEMA.
- Energy Independence and Security Act (EISA) of 2007. Under Sections 711-712 of the EISA, the USGS has been given the lead to develop a methodology for national assessment of greenhouse-gas sequestration by geologic reservoirs and ecosystems. This effort will require redirection of personnel to complete this complex task by April 2010. Energy Policy Act of 2005 drives a majority of the activities for the Energy Resources program.
- American Recovery and Reinvestment Act (ARRA) of 2009. The “stimulus package” requires the USGS to rapidly set contracts for upgrading earthquake and volcano monitoring networks, acquiring new LIDAR data, and various construction projects while maintaining scrupulous and transparent accounting of the work. ARRA requirements have resulted in a tremendous increase in workload for GHQ.
- The National Geologic Mapping Reauthorization Act of 2009 authorizes public support of geologic mapping for the next 10 years, maintains a Federal Advisory Committee, and directs the ongoing support of Federal and two grant programs for States and universities.

The future will bring new legislation focused on global warming, reduction of greenhouse gases in the atmosphere, renewable energy sources, coastal mapping, hazard monitoring, assessment of diminishing oil and gas resources and more. In addition to the significant staff effort required for the annual appropriations process, as new authorizing bills are enacted, the bureau and GHQ will be called upon to respond to the resulting mandates.

Bureau and Geology Program Priorities

USGS Science Strategy: A cornerstone of this Workforce plan is to maximize positioning of GHQ to achieving the USGS Science Strategy. Geology programs are being called on to lead and to think in creative ways to advance the strategic directions of the strategy.

Science Strategy

The six directions ... are mutually reinforcing and ecosystem-based. They build upon, rather than supplant, existing areas of expertise within the USGS."

Science, Volume 38, p. 200-201

Geology Science Strategy: Pertinent to this Workforce Plan is the Geology Science Strategy, "Geology for a Changing World 2010-2020" (March 2009, in progress), which outlines a path for the geology programs to implement the USGS Science Strategy. While principally focusing on the scientific workforce of the future, certain goals and actions, particularly Goal 6, "Develop a flexible and diverse workforce of the future," are called for that will have a bearing on GHQ staffing, including:

"Much of the work ... will require changes in the way we conduct and fund our science. Stronger collaboration across the scientific disciplines will be necessary, both within the USGS and with academic, public, and private partners. Flexibility in our workforce and new expertise will be crucial to improving our ability to respond rapidly to changing demands and to bring the best science to bear on high priority issues. Development and adoption of new technologies and information science will be essential to improving the quality, accessibility, and use of our science.

"...ensuring the success of this strategy will require integration of geological knowledge with the other natural sciences and extensive collaboration across USGS disciplines and with partners in Federal, State, and local agencies, academia, industry, non-governmental organizations and, most importantly, the American public.

"... The USGS faces critical workforce challenges. Retirement eligibility for the entire USGS workforce currently exceeds 50 percent and for geologists it will be 60 percent in 2010. Limitations on funding resources have dictated limited replacement of departing employees. As a result, core expertise in many areas has been diminished and critical mentoring and training opportunities missed. We must hire new staff before the precipitous loss of our most experienced employees. Our talent base must be renewed both to maintain our core competencies and to hire new expertise to meet the science needs of the future."

As the principal policy-setting body for geology programs, GHQ must champion the outcomes of this geology science strategy goal by identifying a mechanism or the funds to hire new employees that will overlap with those nearing retirement and providing these new employees with mentorship from our most valued scientists and leaders.

Bureau Planning Model and Collaborative Decision Making: To address the bureau's move toward a model that integrates planning across disciplines and regions a tremendous effort in coordination and collaboration will be necessary from all parts of the Survey.

USGS Regional Realignment: Reorganization of USGS line management, which now includes region and area offices, provides an opportunity for our national programs to be better coordinated with the needs of local stakeholders. At the same time, regional offices can participate in planning and developing scientific programs.

This Workforce Plan builds on the “**Geology Discipline Workforce Strategy of 2005.**” Drivers outlined in that plan include a change in science priorities, level funding, and retirement eligibility. Trends cited in the 2005 strategy that continue today include —

- Level funding,
- Rising operations costs,
- Declining OE ratios, and
- Increasing retirement eligibility.

New Financial Tracking System: In the bureau/discipline operations/administration arena, the largest effort on the horizon that will have an impact on GHQ is implementation of the Interior-wide Financial and Business Management System (FBMS). FBMS deployment for USGS began in fall 2008, and the greatest impact in the next few years will be to personnel and operations associated with core financials, acquisition, EMIS (Enterprise Management Information System), financial assistance, personal property/fleet, real property, GovTrip and BASIS+ interfaces, budget formulation, and grants and acquisition. The deployment schedule, which was affected by 2009 half-year continuing resolution, will set back some aspects of the project, but full implementation is expected during the study period (2010 – 2015) of this report. Final preparation and training are scheduled for August 2010 through November 2010, and the "go-live and support phase" is scheduled for October 2010 through January 2011.

“The Future of Work”

- Find Jobs for People, Not People for Jobs.
- Retention is More Important than Hiring.
- Succession Planning is More Important than Workforce Planning.
- Workforce Planning and Just-in-Time Hiring are More Important than Ever.
- Devalue Experience. Hire on Potential. Train on Skills.
- Think Consumer Marketing, Systemization, Technology, and Scalability.
- Hire and Train for the New Competencies.
- Convert Managers into Triple A Coaches.

Business Week August 20, 2007

Synopsis by Lou Adler, recruiting and hiring specialist

V FUTURE WORKFORCE PROFILE — DEMAND-SIDE ANALYSIS

To meet future USGS mission requirements and to achieve the Science Strategy goals, critical functions must be performed, such as —

- Continuing alignment of GHQ management policies, programs, processes, and systems to support accomplishment of the USGS mission, vision, goals, and priorities.
- Recruiting, hiring, developing, and retaining a diverse workforce with the competencies necessary to accomplish the USGS mission.
- Ensuring GHQ maintains leadership with the technical and managerial knowledge and skills needed to manage a diverse workforce and to accomplish USGS strategic goals and priorities.
- Preserving a responsive, high-performance culture.
- Promoting knowledge-sharing, continuous learning and improvement, and a climate of open communications.

A. Workforce Skills

Due to the committee charge and shortness in reporting time, the committee considered function and skills, but not careers and positions. The committee recommends that a follow-on

implementation or staffing plan team look at this aspect. Also, several organizational changes have occurred since 2005, such as the move of IT security and support to the GIO, which have reduced the need for those skills and functions (exclusive of data base management) in GHQ.

The **office environment of the future** will be more open, more flexible, and more plugged into technology. Working from any place via wireless devices is growing rapidly, and flexible scheduling of the workday and week will naturally follow. At the office and in research facilities, the trend is to move away from working in isolation closeted in an office to increasing time spent on collaborative projects in specially designed shared spaces. Videoconferencing will improve from its current hard-to-implement state to a more convenient and natural medium. Ability of workers to adapt to quickly changing demands by expanding their efforts beyond traditional job designations will be needed.

Skills and abilities that are needed now and in the future include:

- Strategic planning competency
- Performance management
- Marketing
- Written and oral skills
 - Scientific and technical
 - Outreach to diverse audiences
- Complex communication skills
- Time management
- Adaptability
- Ability to establish rapport for team building
- Ability to negotiate for positive results
- Creative problem solving
- Abstract analytical and problem-solving skills
- Self-management and Self-development
- Computer literacy and aptitude to use new technology

Complex communication skills

"Knowing how to 'get things done,' negotiating, influencing without authority, team-building, communication and interpersonal skills, and conscientiousness. Workers at all levels in the life sciences require the ability to manage complex relationships with other organizations. Future scientists are not being trained appropriately to deal with these complex relationships, which confront them very early on in their careers."

Excerpt from Research on Future Skill Demands
National Research Council 2008

Technology (Computer Literacy) — Technology is changing so rapidly and dramatically that all organizations, public and private, are having difficulty obtaining and maintaining the skills needed to plan for and implement technology requirements. A GHQ management strategy must take into account recruitment and retention programs that will be necessary to attract and keep employees with needed IT and other technology skills and knowledge. IT security and management are now performed well by the USGS Geospatial Information Office in the form of the IT Support Help Desk, but GHQ continues to need data management and webpage development skills.

B. Workforce Demographics

By FY 2015, more than 50 percent of the GHQ workforce will be eligible to retire. By the end of 2015, GHQ could lose more than 30 percent of its most knowledgeable and experienced employees, not counting those who leave for reasons other than retirement, such as rotating out of positions.

A source for staffing GHQ program management positions has historically been the USGS Science Centers (formerly "teams") and in turn staffing for Science Centers relies heavily on the students graduating from colleges and universities. Studies show a decline in the output of geoscience graduates in general, which will affect USGS scientific workforce. This in turn will decrease the internal pool of qualified candidates available to fill key management positions throughout the bureau. GHQ must ensure that the replacement leadership has the right mix of technical knowledge and management capability to lead a diverse workforce toward accomplishing USGS strategic goals.

An American Geological Institute survey (Effects of the Global Economic Crisis on Geoscience Departments, AGI, 2009) of U.S. and international geoscience departments indicates that 83 percent of geoscience departments expect budget cuts for 2009 and/or 2010, and most budgets are expected to be cut by up to 10 percent in the next 12 months (when compared to the 2008 budget). Cuts are expected to affect faculty (reductions and hiring freezes, 43 percent) and support activities (IT, lab equipment, etc., 47 percent) the most; lab/field trip activities, medium impact (35 percent); and graduate student admission and support the least impact (9 percent). The majority of departments expect to be viable beyond the next 3 years; however, several U.S. geoscience departments reported "definite" or "immediate" threats to their viability or future beyond the next 3 years. No international departments reported this level of crisis.

Job Trends in the Geosciences

"There will be fewer opportunities for geoscientists in Federal and State government, mostly because of budget constraints at key agencies, **such as the USGS**, and the trend among governments toward contracting out to consulting firms instead of hiring new government employees. However, departures of geoscientists who retire or leave the government for other reasons will result in some job openings over the next decade."

Occupational Handbook 2008-2009
Bureau of Labor Statistics

C. Recruiting and Training for the Future

Recruiting future high-quality employees for geology as a whole will be extremely competitive. The values of future employees will be different in that they expect to change positions and job locations frequently. As pointed out, many GHQ science managers come from the Science Centers; therefore, we must promote a learning environment that builds the skills in Part A. Workforce Skills above. Offering pertinent training, either in the classroom or experience through details, will increase the potential for meeting recruitment needs. In recruiting future geoscience managers, we will need to provide a work environment conducive to the lifestyle of future generations. Generation X (born 1965 – 1978) prefer a casual, friendly work environment; involvement; flexibility and freedom; a place to learn and generation Y (a.k.a., millennials; born 1979 – 2000).prefer a structured, supportive work environment; personalized work; interactive relationship; being prepared for demands and high expectations. Collectively we (employees and managers) need to understand the job expectations of the coming generations, such as flexible work schedules, team building, and mobility

VI CURRENT WORKFORCE PROFILE — SUPPLY-SIDE ANALYSIS

To achieve the USGS mission, GHQ employs about 40 FTE. Job series include geophysicist, geologist, physical scientist, community planner, computer specialist, information specialist, program analyst, executive assistant, and secretary. The current GHQ program structure of seven programs supports an integrated system of planning, programming, budgeting, and execution. GHQ has staff members dedicated to grants, information technology, and other critical operational support functions.

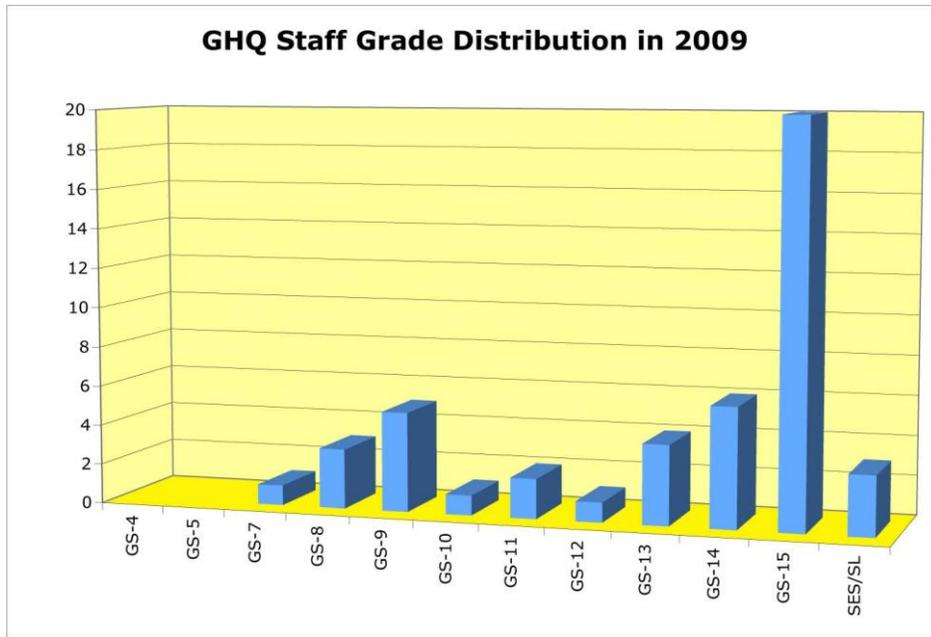
A. Workforce Skills

GHQ is has a full complement of competencies and knowledge, skills, and abilities (KSA) for the current work requirements. GHQ has demonstrated strengths in scientific leadership, strategic planning, and coordination with internal and external entities, financial management, program development, communications, outreach, and day-to-day operations. Employees frequently multi-task and work independently. There is an environment of mutual support through informal communities of practice.

During listening sessions, interviews and interactions, employees expressed interest in career growth, opportunities for details, special assignments, upward mobility positions, and clearly defined career ladders.

B. Workforce Demographics

GHQ comprises about 45 permanent positions (as of February 2009, approximately 40 FTE, including the AD and executive assistant and excluding the International Program). There are two vacancies: one in the National Cooperative Geologic Mapping Program and the other in the National Geologic and Geophysical Data Preservation Program. In 2009, the average age of the current workforce is estimated to be 48 years, and only 8 percent of GHQ employees are under the age of 40. Grade distribution, as demonstrated in the chart below, shows a preponderance of GS-15s and not many GS-5 – 14s. (Employee opinion notes that scientific activities grades GS-11-13 are appropriately placed in the Science Centers.)



Diversity by gender:

Men: 31 %
 Women: 69 %

The U.S. Department of Labor estimates that today's learner will have 10 to 14 jobs by the age of 38. Also, one in four workers has been with their current employer for less than 1 year, and one in two has been there less than 5 years.

Diversity by race:

Native Alaskan: 2 %
 Hispanic: 2 %
 Asian American: 4 %
 African American: 10 %
 Caucasian: 82 %

The average length of service is 25 years, the longest is 39 years, and the shortest 1 year.

Longevity of staff employment is a critical consideration as 30 percent of the current Program Coordinators, Associate Program Coordinators and Senior staff members (i.e., AD, Chief Scientist, and Staff Scientists) are fully retirement eligible, and this number rises to over 50 percent by January 1, 2014. A number of senior positions will turn over due to rotation rather than retirement. Statistics are significantly different for the support positions, as 5 percent are currently eligible for retirement, and this number rises to 30 percent by January 1, 2014. Bureau of Labor Statistics analyses of current employees by series and length of service support the assumption that during the next 3 years GHQ will experience only a few retirements, but by 2014, the rate and number of retirements will increase dramatically.

Staff mobility raises challenges to recruitment and retention, such as —

- “Raiding” of staff to temporarily and permanently fill vacancies in other parts of USGS and Interior
- Attraction of staff to higher graded positions in other agencies
- Increasing competition (over the next decade) for highly experienced minorities who work in the natural sciences
- High mobility of today’s generation of entry level employees who shift jobs frequently

VII GAP ANALYSIS

In analyzing the gap between the current and future workforce needed for GHQ, the committee considered workforce demographics; the anticipated surplus or shortage of employees to meet current and future needs; the anticipated surplus or shortage of skills to meet current and future needs; new skills the organization will need to accomplish its mission and goals; the skills needed to meet current and near term requirements; and the job functions/skills that will no longer be required.

The data the committee collected indicate all current skills will still be relevant and needed in the future. GHQ will continue to need employees with the ability to create new ideas and market them, to be highly flexible, to work independently and in a highly collaborative environment, to establish rapport for team building, to negotiate for positive results, and to remain current with evolving technology. The committee anticipates a shortage of employees with specific skills in web development and graphics services that will be required to meet the need for greater visibility and more transparency and the increasing challenge of staying current with technological advances.

Since it is projected that GHQ could lose more than 30 percent of its senior staff and leaders by FY 2015, not only will there be a loss of seasoned program leadership, but also a loss of corporate knowledge. GHQ will continue to need leaders who think strategically, inspire employees, and achieve results. Also, GHQ must ensure that the leadership has the technical and managerial knowledge and skills needed to manage a diverse workforce and to accomplish USGS strategic goals and priorities.

To advance the Bureau Science Strategy, enhance and encourage the new regional structure, and position the geology programs to most effectively achieve the Bureau Planning Model, a collaborative work environment must be the norm.

VIII WORKFORCE PLAN STRATEGY — RECOMMENDATIONS

Roadmap to an Efficient, Effective, Evolving, and Energized Workforce in 2015

Responding to the challenges faced by GHQ requires an inclusive, diverse, highly skilled, motivated, and effective workforce. GHQ must develop and maintain a culture that empowers people by encouraging creativity, initiative, risk-taking, and open debate. As society evolves, it is imperative that GHQ continues to have the scientific, technical, and administrative expertise necessary to accomplish the USGS mission. Recruiting, training, and retaining such a workforce requires a corporate commitment to build the necessary culture and infrastructure along with a willingness to create a workplace that rewards teamwork and cooperation. This Workforce Plan is the GHQ response to staffing challenges for the next 5 years and beyond, to establish the framework to build the GHQ workforce of the future, and to realize the vision, mission, and goals for management of staff (human capital management).

Please note: The organizational change outlined herein (recommendation 1. Charting and Efficient and Effective Organizational Structure) is a glide path to 2015 and beyond (i.e., incremental implementation). The committee recommends that organizational change requires additional research beyond what was conducted for this study. Also, movement to any desired

future state is best achieved through creative options beyond staff relocations or changes in current line-management reporting. There is an overwhelming sense from managers and employees that “nothing is broken” with the current structure; that achieving goals of advancing the Science Strategy for instance does not necessitate reorganization. However, there is understanding that more can be done to enhance the environment and culture of collaboration and working across programmatic walls, hence the recommended changes. Taking an approach of moving slowly on organizational structure change will avert an erosion of current-employee morale and garner buy-in for the process. Progress can be made by moving quickly on those recommendations that are ripe for rapid implementation.

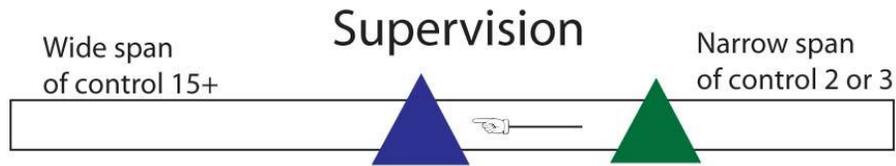
To develop the following Workforce Plan strategies and recommendations, the committee followed the USGS Workforce Planning Model, which uses a guided inquiry process to address gaps and surpluses in workforce skills. The following five themes, individually and collectively, are recommended as the best choices to move the organization toward an enhanced environment for collaboration and mobility of workforce to support the bureau Science Strategy, planning model, and regional collaboration. Included with the themes are “glide bars,” which visually portray the how the current organization could migrate to a desired future state. On the bars, triangles represent the current (green) and future (blue) states and arrows indicate direction of migration.

A. Workforce Recommendations

1. Charting an Efficient and Effective Organizational Structure

The committee was tasked with providing one “best scenario” for a desired future organizational structure. The structure recommended herein, taken directly from the “Visioning” exercise (GD February 2009 Managers Retreat), is the result of research and manager and employee input. Further analysis of pros and cons of this or any other structural change is strongly advised.

For the purpose of this report, “flattening the grade structure” and “span of control” are used synonymously. Span of control or span of management refers to the number of people who report to one manager and includes the functions of planning, organizing, leading and evaluating. The eminent expert Peter Drucker in discussing organizational development demonstrates that most effective work units comprise of 6 to 10 employees for activities that are complex in nature. The size of the unit optimizes effective communication, clarity of mission, and meeting of deadlines. The unit should comprise members with sufficient overlap in roles and responsibilities to provide redundancy for day-to-day tasks, for communication about priorities of activities, and for leadership. While increasing span of control requires more involvement and planning from the unit leader, it promotes higher job satisfaction, greater productivity, and more independence for the unit members. Technological advancements in communication (Internet, WebEx, PDAs to name a few) and widespread use of these technologies make it easier for unit leaders to increase their span of control. Unit leaders who practice close supervision of responsible professionals will tend to lose them since few good professionals appreciate working in a tightly controlled environment.



Studies show that horizontal organizations enhance cross-functional coordination

The proposed structure is based on research that shows that a horizontal structure and increased span of control are more effective and efficient because they —

- Foster cross-training of team members because groups are bigger
- Create career-ladder and development paths
- Redefine the managers' role to focus on empowering team members

In addition to using the axiom that “form follows functions,” the committee established a set of organizational goals to guide development of a new structure. The goals include:

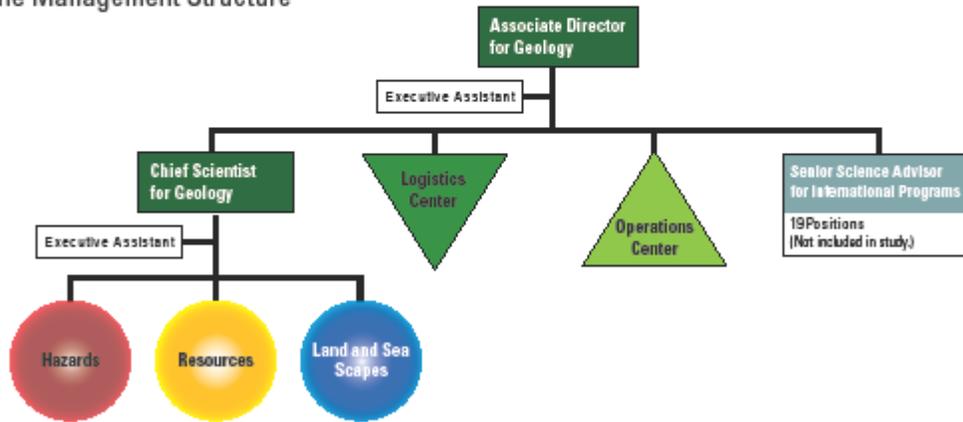
- Moving from a vertical structure to a more horizontal structure, that is, encouraging more sharing of common tasks across program boundaries. Informal collaboration is already occurring within GHQ, but the structure is not conducive to such interaction according to opinions expressed by some employees.
- Reducing the number of supervisors to increase span of control
- Redistributing workload to increase mid-grade positions (i.e., GS-10-13)
- Encouraging fluid work assignments to enhance collaboration and communication and in which teams form and reform for special or emergency needs
- Maintaining a mix of centralized and decentralized activities and functions
- Using a broad mix of temporary appointments (such as details from Science Centers, job swapping, and internships) to bring in additional support, expertise, and provide developmental experience with activities and functions of GHQ
- Hiring contractors to handle peak work loads and special projects as appropriate
- Centralizing functions that offer benefits for improved effectiveness and employee development



Currently, some functions are centralized and others are decentralized and the committee recommends a mix of this nature is appropriate

A Proposed Geology Headquarters Organization for 2015 and Beyond

Line Management Structure



Functional Structure



Recommendation: A proposed structure, which contains elements described by employees in a visioning exercise solicited in February 2009, containing organizational units described below. Due to time constraints, the study does not include the International or Data Preservation Programs.

Logistics and Information Center — To serve as a one-stop shop for planning workshops, coordinating internal and invitational travel, communication and outreach to enhance Program impact, centralized coordination of data calls, and records management. Members of the Logistics Center would have their “beats” (assigned to service specific scientific programs). Members should have strong communication skills that are consistent with information specialist job series. The center could be virtual among the programs as well as outside GHQ.

Pros:

- Achieves more efficient, effective, evolving and energizing work environment
- Empowers employees to streamline work flow and work together to improve efficiency

- Better manages workloads, better expertise through using systems and software routinely, and time savings
- Provides personal growth, career ladders, and training and cross training (see box)
- Provides fluidity, variety, and opportunity for employees to perform multiple functions or rotate through jobs up, down, and sideways through the unit
- Provides employees the opportunity to develop a diverse portfolio of skills
- Results in more robust back up for work activities and functions
- Fosters better communication within GHQ and with customers
- Improves employee morale
- Fosters learning environment and use of flexible teams
- Provides additional support to groups during times of peak workload
- Increases number of direct reports to AD

Cross Training: Employees learning about another job or function such that the employee may not become the go-to expert, but does know enough about the duties to provide back up. Cross training of this nature provides additional learning experiences and fosters networking and collaboration.

Cons:

- May break up existing, highly efficient work groups, affecting loyalty (identification with a particular group) and the timing and quality of work
- Could be viewed as an undervalued group of people
- Employee concerns that such a unit would “become like the old typing/secretarial pool standard [where] the really quality hard workers get the bulk of the work. This system is poor for morale and it is difficult to retain quality employees.”
- Limits direct access and control for key functions
- Challenges building subject matter expertise
- Concern of increasing workload for already overtaxed workforce

Operations Center — To serve as a nexus of administrative activities including financial and accounting functions, property management, personnel management, safety, and liaison with APS and FBMS. Uses “connectors” to engage effectively with other units in GHQ, that is program analysts are assigned “beats” to provide fiscal and other operational support to the scientific programs.

Pros:

- Provides effective cross servicing
- Ensures consistent practices
- Creates career ladders within administrative series
- Adds direct report to Associate Director
- Provides opportunities for cross-training
- Serves as resource for special assignments

Cons: None identified.

Scientific Programs — To foster better communication and integration; grouped by budget elements:

- **Resources** — Mineral Resources, Energy Resources
- **Land and Seascapes** — Coastal and Marine Geology and National Cooperative Geologic Mapping Programs, and Data Preservation Programs
- **Hazards** — Earthquakes, Landslides, Volcanoes, Global Seismographic Network, and Geomagnetism Programs

To enhance response to external and internal needs, the scientific programs will increase reliance on expertise and short-term assignments from the regions. The six existing programs are regrouped in this scenario but retain distinct identity for strategic planning and accountability. The model is based on the current (2009) Hazards structure, which uses a Senior Level position as a lead for multiple programs. Grant and FACA activities remain with respective programs.

Pros:

- Increases span of control (supervisor/employee) of PCs, from average of 1:3 to 1:7 or 8
- Reduces points of contact for other disciplines, regions, and geographic areas to work with GHQ, thereby improving communication among programs and with regions and geographic areas
- More aligned with the Bureau Science Strategy
- More focused points of contact strengthens interdisciplinary planning and interaction
- Provides better cross-training
- Offers back-up and scientific depth to staff
- Allows PC/APCs to better represent multiple programs at meetings
- Fosters flexible teams

Cons:

- Must consider upfront cost of time to implement new structure
- Possible dilution of expertise if one person is called upon to represent several programs
- Adds additional management costs if Land and Sea Scapes and Resources supervisors are elevated to SL positions
- Mid-ladder scientists may not be willing to take a management tour that will detract from doing the science needed for RGEN promotion

Additional Comments on Proposed Structure:

- Work with USGS Human Resources on developing career ladders for Logistics and Operations Centers functions.
- Regarding increased span of control for AD: Employee feedback indicated concern that the proposed structure would “saddle the AD with the added burden of overseeing headquarters logistical and operational staff ... would hamper the AD’s chief function... represent[ing] the discipline to the Bureau, the Department and other Federal agencies... and serving as a liaison to professional societies and other groups.”
- Further analysis is recommended to look at grade structure recommendations in the context of the entire bureau.
- Employ the use of “connectors,” people who are supervised from one program but serve the functional needs of multiple programs (e.g., grant or FAC support).
- Shift leadership for Science Venture Capital solicitation to the new Program units, rotating among Resources, Land and Seascapes, and Hazards.
- Move Scientist Emeritus program management to regions/areas. Employee feedback indicated concern with national consistency and records management.

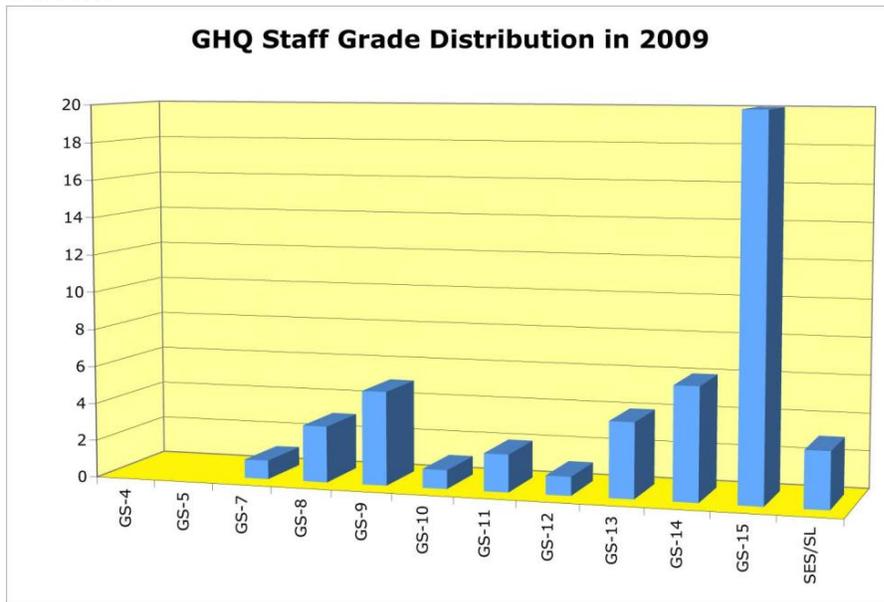
Additional study is required to define how the organization is managed, staffed, and funded. Organizational change comes with cost, which must be weighed against the cost of doing nothing. Change is disruptive to individuals and established working relationships. Government requirements, mandates, and accountability are ever increasing. Also, any consideration of staffing needs to account for the amount of time and short turn-around required

to meet Department, OMB, and congressional data calls. Special consideration should be given to the Mendenhall Program, Research Grade and Evaluation (RGE) and Equipment Development Grade Evaluation (EDGE), science venture capital, and annual science planning.

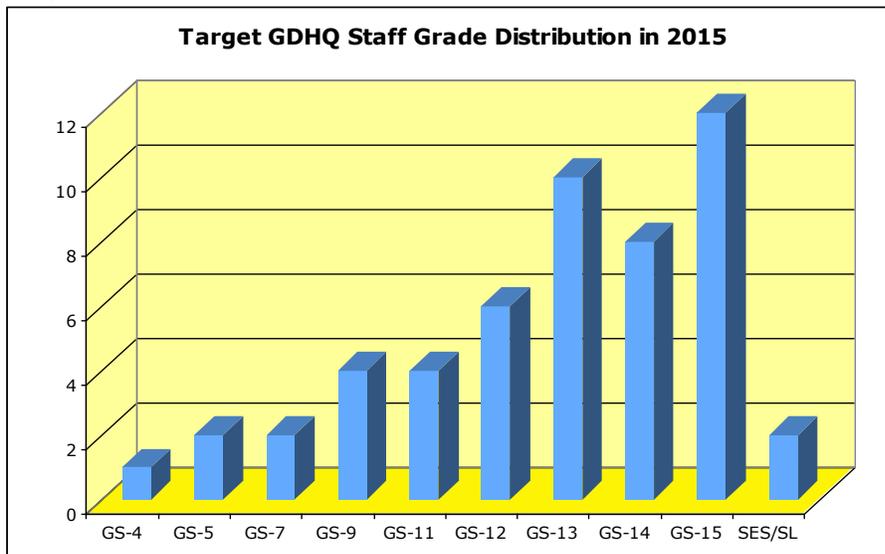
Recommendations for Grade Distribution

To increase span of control of supervisors and reduce the number of higher grades and to better achieve the functions of the operations and logistics centers and to provide career ladders, the units identified above would benefit from a full complement of grades from GS-4 to GS-13.

Current



Proposed



2. Enhancing an Evolving Workforce — Succession Planning, Hiring, and Recruiting

For the purposes of this report, succession planning is focused on leadership positions within GHQ in order to ensure continuity of operations, knowledge transfer, and retention of institutional knowledge. The recommendations below include suggestions for succession planning, as well as hiring and recruiting in general.



Recommendations:

- Increase the use of rotational assignments for Program Coordinator, Associate Program Coordinator, and staff scientist positions. Depending on the position, some jobs can take as many as 3 years to acquire proficiency; therefore, the duration of the rotation should be as long as possible for maximum benefit to the organization and the employee. At the end of the agreed upon time limit, management and employee should assess the advisability of continuing or terminating the rotation as permitted under personnel regulations.
- Utilize part-time positions to enable employees to, for example, continue project work.
- Encourage mid-career and entry level staff to take advantage of upward mobility opportunities.
- Pilot locating GHQ employees outside of the National Center in Reston. (Note: a con to this recommendation is the observation that immediate access to and visibility in Washington, D.C., is critical to headquarters functions and activities.)
- Support mentoring of future managers.
- Recruit and hire management-type positions from a broader pool such as those who have degrees in environmental science and policy or MBAs.
- Provide overlap of new employees with departing experienced employees (e.g., rehire as an annuitant).

To achieve the goals of an evolving workforce and succession planning, the committee recommends increased use of non-permanent positions (see table). Some of these positions could further the model of revolving workgroups by (a) temporarily increasing the number of people working on GHQ activities that lend themselves to collaborative work and (b) providing experience in functions outside an employee's regular duties.

Enhancing an Evolving Workforce — Alternatives to Permanent Positions

The following chart lays out a number of options for staffing from types of employment that are not permanent, full-time. While a few of these options are currently used by GHQ (used often), many have been used occasionally (used) or, as far as could be determined, have not been used.

	Used often	Used	Not used
Rotational assignment		X	
Detail (advertise/compete)	X		
Ad hoc taskforce/committee		X	
Take on more with promotion		X	
Job sharing			X
Job swap			X
Term position		X	
Contractor		X	
Interns		X	
Volunteers Emeritii Students Community/spouses		X	
Leadership assignments		X	
Developmental assignments			X
PMF – Presidential Management Fellow			X
IPA - Interagency Professional Agreement		X	
Lateral moves	X	X	
Post Docs	X		
Rehired annuitant		X	
Retirees as mentors			X

3. Retaining an Energized Work Environment and Workforce

Maintaining an energized, valued workforce, is key to retaining talent and skills. Focusing on retaining employees reduces hiring costs, improves morale, and creates an employee-valued environment.

Research on rewarding environments shows that employees do not leave organizations, they leave managers. The goals of the following recommendations are to enhance efforts for a workforce that is energized, efficient, effective and evolving (4Es); current with cutting-edge technologies; continually upgrading skills; and mobile.

Visit the Free Management Library's website on the basics of employee motivation:
<http://managementhelp.org/guiding/motivate/basics.htm>

Recommendations: Enhance and take full advantage of —

- Rewards for special efforts, employee motivation, and initiative as they occur (in addition to awards given at performance rating time)
- Telework and other programs
- Flexible work schedules
- Alternate work locations
- Transit subsidy (including bicycle and vanpool),
- Training
- Investment in cutting-edge technology
- Continual evaluation of
 - Best practices (e.g., from industry)
 - Is the structure achieving the 4Es
- Federal day-care facilities
- Health club/gym privileges

Telework Study

As of the writing of this report (spring 2009), the Merit Systems Promotion Board was conducting a survey on Federal Telework to collect information from employees, supervisors, and managers about how telework is operating in agencies and how it can be more effective. To be notified when the report is released, subscribe to the MSPB Studies LISTSERV at www.mspb.gov, "Studies" tab.



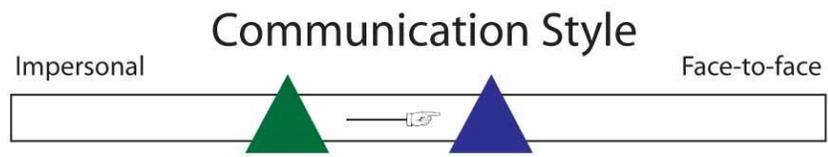


Static Work Groups (to the left) are those created and seldom changed. Flexible Work Groups (i.e., revolving or SWAT teams) are readily changed (members and/or direction) as new assignments or changing circumstances occur.

Recommendation: To enhance flexibility positions and work processes, the committee recommends extensive use of at least two types of work groups: (1) “**swat teams**” to achieve short term objectives, such as that convened to produce this workforce plan, and (2) “**revolving**” teams to achieve long-term objectives. For the revolving team, members would serve for a specified time and rotate in and out periodically. Members would bring together a needed set of skills to do their assignment and could be drawn from anywhere in the USGS. This would help GHQ accomplish more work with fewer people and acquire expertise outside its existing complement. An example of a beneficial use of revolving teams is convening a group to evaluate and recommend cutting-edge technologies for application to GHQ activities, functions, and business practices. Use of both types of teams enhances cross-training, knowledge transfer, bench strength, and upward mobility opportunities (placing inexperienced workers with experts). Use of teams of any kind enhances a face-to-face communication style.

Work Group Strategy

To enhance cross training and networking, make the formation of flexible work groups the norm for achieving the goals and objectives of this plan and for problem solving. Examples for the swat team is the recent Communications Committee and for the revolving team for managing aspects of a permanent requirement such as performance metrics.



Research shows that walk-around leadership and face-to-face communication enhance collaboration and employ morale

Recommendation: As GHQ increasingly embraces workforce mobility and champions collaboration efforts, there will be a concomitant increase in personnel that may not be familiar with GHQ activities, the committee recommends a robust orientation effort, including documentation (organization charts, SOP, Q&As, FAQs, etc) and brief shadowing opportunities with each of the major organizational units of GHQ and external to the organization.

Recommendation: When developing a staffing plan for 2015, explore alternate job classification series for work currently conducted by program assistants, program analysts, and secretaries.

4. Improving the Learning Environment

The committee's vision of a learning environment is a climate in which all employees are continually encouraged to enhance their capabilities to think in creative ways and to participate in life-long learning. An added benefit of this improved learning environment is enhanced retention of those who avail themselves of current and new excellent training opportunities. To ensure the workforce of 2015 is fully engaged in learning experiences, the committee developed a list of actions that can be taken by managers and employees.

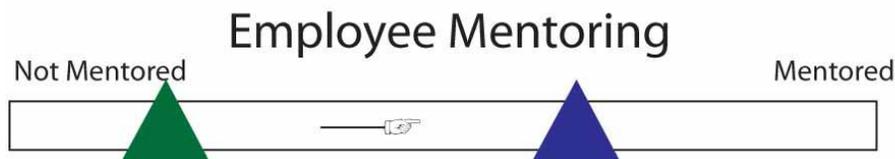
Learning organizations are...

...organizations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning to see the whole together.

Peter Senge
Engineer (Stanford) and
Social Systems Specialist (MIT)
<http://www.infed.org/thinkers/senge.htm>

Recommendations:

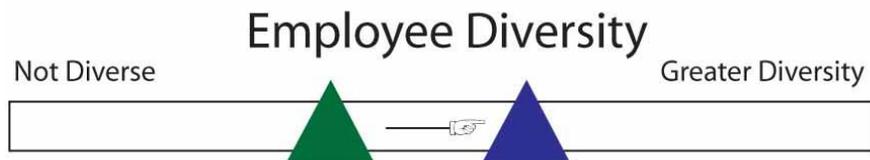
- Utilize short-term assignments that afford new experiences and skills
- Foster training and cross training.
- Continue the aggressive use of USGS programs such as Leadership 101, 201, and the Federal Executive Institute
- Utilize college tuition reimbursement
- Managers/Supervisors:
 - Encourage employees to take developmental assignments, details out of the immediate organization, and acting roles (backfilling vacancies while being advertised)
 - Coach employees to take advantage of training opportunities
 - Make time for training discussions with employees (e.g., during performance reviews)
 - Learn about and advertise upward mobility positions
 - Require Individual Development Plans (IDPs)
- Employees:
 - Take initiative in pursuing learning opportunities
 - Seek out and take short-term assignments
 - Take advantage of leadership training (e.g., Leadership 101 and 201 and the Senior Executive Service Career Development Program)
 - Take advantage of upward mobility opportunities
 - Research and make suggestions on appropriate training opportunities
 - Become a trainer/mentor
 - Participate in networking with other organizations (internal, external)



This slide bar indicates a desire to increase the use of one-on-one mentoring.

5. Championing Diversity

Research has shown that the workforce of the future values diversity in the workplace and is moving from mere acceptance to a celebration of differences. Achieving a diverse workforce for the USGS is a challenge because the candidate pool in is not diverse (i.e., paucity of minorities in science degree programs). While overall the U.S. population is becoming more and more diverse, this does not guarantee an increase in the pool of candidates with the necessary skills sets. Federal diversity goals are to have a workforce that is more aligned with diversity proportions of the U.S. labor force.



Recommendations:

- Promote diversity across all series, positions, and grades
- Aggressively look for diverse candidates in hiring practices
- Capitalize on in-house diversity-building expertise
- Go to target population centers locally (e.g., schools, county fairs)
- Take advantage of job fairs
- Hire from a pool of management professionals, which is likely to be more diverse
- Set up partnership programs in schools with target populations
- Use intern programs
- Use student appointments
- Develop pre-doc Mendenhall (not just scientists, e.g., business administration)
- Increase utilization of the National Association of Geoscience Teachers (top undergrads) and similar programs
- Promote "adopt a school" programs to excite middle and high school students about science

For more information about the concepts and themes presented in this report, refer to the articles and references in the following Bibliography and Suggested Further Reading section.

Bibliography and Suggested Further Reading

American Geological Institute, 2009, AGI Geoscience Workforce Program, Alexandria, VA.
<http://www.agiweb.org/>

American Geophysical Union, pending legislation,
www.agu.org/outreach/science_policy/pending_legislation.shtml

BussinesBalls.Com, 2009, Motivational BookList, <http://www.businessballs.com/motivation.htm>

Drucker, Peter F., 1993, Managing for the Future, the 1990s and Beyond, Penguin Books, New York.

Motivational Training, 2009, Leadership: Managing the Team, Retford, Nottinghamshire, U.K.,
<http://www.motivationaltraining.com/tailored/mtt.html>

National Science Foundation, 2009, Division of Science Resources Statistics (SRS), Science and Engineering Statistics, Arlington, Virginia, USA. <http://www.nsf.gov/statistics/>

National Research Council of the National Academies, "Research on Future Skill Demands" (2008) by Margaret Hilton, Rapporteur, <http://www.nap/catalog/12066.html>

The Nature of Success, 2009, Simple Truths, LLC, online movie short,
<http://www.natureofsuccessmovie.com/land.html>

Three Steps to the Paperless Office, Dan Costa, March 27, 2008,
<http://www.pcmag.com/article2/0,2817,2279358,00.asp>

University of California, Berkeley, on flexible team structures and cross-functional team strategies,
best.me.berkeley.edu/~pps/pps/teams.html

USGS Office of Employee Development, 2009, USGS Leadership Program,
<http://training.usgs.gov/Leadership/extcourses.html>

Appendix 1. Charter

CHARTER GEOLOGY DISCIPLINE WORKFORCE PLANNING COMMITTEE

A. Establishment

It is the goal of the Geology Discipline Headquarters (GD HQ) operations to support the USGS Director and the Associate Director for Geology (AD) in all aspects of the scientific planning and implementation processes. This specifically includes program guidance for the geology scientific efforts executed by Science Centers under the direction of Regional Executives across the Nation. This Charter establishes a GD HQ Workforce Planning Committee (henceforth called the Workforce Committee) and sets forth the purpose, scope, process, composition, and tenure.

B. Introduction

In recognition of the USGS Science Strategy, the newly implemented Regional Realignment and the current demographics of the GD HQ workforce, it is necessary at this time to establish a GD HQ Workforce Plan that reflects these realities. Of critical importance will be a workforce plan that includes: succession planning as the staff changes; implementation of the USGS Science Strategy; and support for the science activities in the field recognizing changes in the USGS organizational structure with the addition of nine Regional Executives. The workforce planning process is an opportunity to evaluate and envision a GD HQ activity creatively. At the present time, the activity is hierarchical and vertical with authority coming from the AD through the Chief Scientist to each Program Coordinator and Program Staff. This planning process is an opportunity to envision structures that may offer some other advantages to GD. We should examine the existing structure and other possibilities to help reach our goals of workforce planning, communication, and improved efficiency.

C. Purpose

The Workforce Committee should recognize and retain current capabilities that work well in supporting GD HQ mission responsibilities, establish a plan to address staff attrition, identify new skills needed by GD HQ, account for the reality of constrained resources, accommodate working with the new USGS Regional Executive organizational structure, and where possible create efficiencies to emphasize maximizing funding for scientific inquiry across the nation. Examining existing and alternative HQ structures may facilitate identifying possible efficiencies as well as help with succession planning.

D. Scope

The Workforce Committee will be responsible for reviewing the entire GD HQ Operation (currently about 42 Full Time Equivalents—FTE, excluding the staff of the International Program), and for considering working relationships between HQ, regional staffs, and science centers. The workforce plan must be strategic and address these major areas: (a) review and evaluation of how well the current HQ operations meet goals of communication and program execution; (b) identify alternative HQ structures that may facilitate goals of efficient program coordination, communication, and succession planning; (c) determine if there are gaps in capability requiring new skills or too few/many staff; (d) identify where common staff functions among GD HQ activities can be consolidated or shared among program functions; (e) recommend through the workforce plan near-term (6 month to 2 years) adjustments to GD HQ staff assignments that will enhance our ability to ensure the maximum funding support for science inquiry; and (f) strategize longer-term (2-5 year) development and directional adjustments for succession planning to ensure operations continue to function smoothly even as staff retire or move on to other assignments.

Additional topics for consideration by the Workforce Committee:

- 1) Given the scope of GD HQ responsibilities, determine the right size of the staff plan,
- 2) Assess the extent to which positions with common title, series and grade perform similar tasks identifying where any efficiencies may be gained in the future, and
- 3) Identify the best mechanisms and staff resources to respond to the many data calls HQ is given.

E. Planning Process

There are four elements to the planning process; (1) Structure of the planning process with various committees or work groups guided by the Workforce Planning Committee; (2) Timing for the Workforce Committee effort; (3) Authority of the Workforce Committee; and (4) Products from the planning process.

Structure

To accomplish the evaluation and planning process, this Charter establishes the Workforce Committee, which will have eight members, as specified under Section F, Composition. The Workforce Committee because of the limited size should foster workshops, tiger teams and/or discussions that eventually allow all GD HQ staff an opportunity to provide input on the plan. Because the plan should cover a wide scope of responsibility and be linked to Regions and Science Centers, the Workforce Committee should foster discussion of the workforce plan from these two additional levels of USGS organization by establishing ad hoc work groups to provide Regional and Science Center comment/ideas.

Timing

Beginning in fiscal year (FY) 2009 in mid April, the Workforce Committee will convene and initiate the planning process at the call of the Committee Co-Chairs and the Acting Associate Director for Geology. Because of the scope of work, it is anticipated the planning process will require about two months. A draft workforce plan should be available by June 30, 2009.

Authority

This strategic planning process is crucial to the continuing and future success of GD HQ operations in support of the USGS mission. As a result, the Workforce Committee has authority to identify changes to GD HQ staff size and functions to accommodate succession planning and efficient HQ operations.

Products

The Workforce Committee will generate various products including committee minutes, agenda, and identification of all people involved in the planning process. The principal product of the Workforce Committee will be a workforce plan for GD HQ, excluding International Programs.

F. Composition

The Workforce Committee shall be eight members who represent the appropriate functions of the USGS. Members will be selected from the following representations: Program Coordinator or Associate Program Coordinator (two people); Planning and Operations support(one person); Program Analyst or Program Assistant (one person); Executive Assistant (one person), Regional Science Coordinator (one person); Human Resources Specialist (one person); GD HQ Staff (one person); and Science Center Representative (one person). The Workforce Committee will also have three Ex-Officio Members: the Acting AD for Geology, AD Executive Assistant, and the GD Chief Scientist. The Workforce Committee will be chaired by two Associate Program Coordinators.

G. Tenure

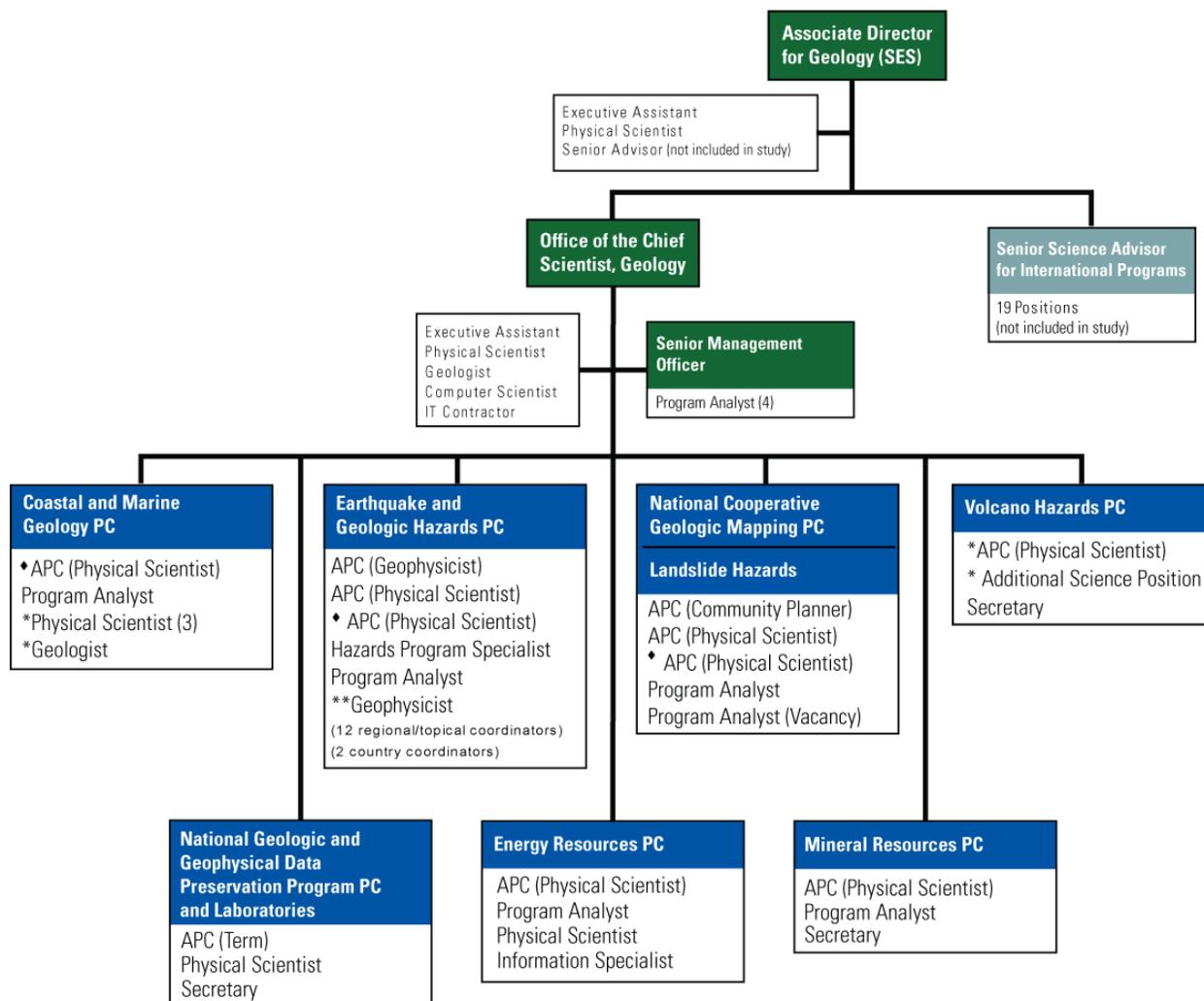
The Workforce Committee is established by the Acting AD for Geology, and the tenure of the Committee is expected to be about 2 months ending before July 15, 2009.

Appendix 2. Additional Goals of the Workforce Plan

1. Effective workforce
 - Collaborate and respond working with other Federal Agencies, Congress, and Partners
 - Support scientific efforts in Science Centers
 - Maintain staff skill to meet current HQ responsibilities
2. Efficient workforce
 - Tasks are accomplished by the fewest people in the least amount of time
 - Maintain the appropriate staffing while striving to maximize funding for science
 - Foster flexibility by sharing common tasks across programs
 - Expand flexibility with short-term details to HQ responsibilities
3. Evolving workforce
 - Expand the staff skills to meet new HQ responsibilities
 - Address an aging workforce through succession planning

Appendix 3. Geology Headquarters Organization in 2009

Geology Headquarters Organization in 2009



- PC Program Coordinator
 APC Associate Program Coordinator
 * 0.5 FTE
 ** 0.25 FTE
 ♦ Supervisory

Appendix 4. Geology Headquarters Statement of Work:

The GHQ is charged with strategic program planning and oversight, formulating GD policy, and effective communication of GD national program activities and accomplishments. GHQ serves the needs of Congress, Office of Management and Budget (OMB), Department of the Interior, USGS, partners, and the public. The following key activities can be used as a guide for creating new and updating existing Position Descriptions and Work Plans to ensure consistent portrayal of work across the GHQ.

Strategic and Program Planning

- Ensures geology strategic and program plans align with the Department of the Interior, USGS, and geology strategic directions and are coordinated with and across programs, other Federal, State, and local agencies (where appropriate), and partners and that the plans meet USGS mission and move science forward.
- Develops annual Federal budget formulation and justification to advance the geologic science, improves program performance, and responds to USGS, Interior, OMB, and Congressional mandates.
- Formulates Geology Annual Science Plan (Prospectus) to implement the USGS and Geology Science Strategies and that sets forth science performance goals and funding targets for existing projects and new activities.

Oversight of Program Execution, Finances, and Performance Evaluation

- Execution: Utilizes advisory panels and evaluates science plans, projects, and grants to assess scientific excellence, innovation, efficiency, and effectiveness. Manages Federal Advisory Committees and grants.
- Financial Integrity: Formulates annual program budget, allocates program funds, and monitors program funds to ensure program financial health and accountability. Formulates and implements Headquarters national capabilities operational budgets and allocates funds to regions for GD-specific functions.
- Operations Oversight: Manages national laboratory capabilities, provides for implementation of USGS Fundamental Science Practices, implements the Research Grade and Evaluation (RGE) and Equipment Development Grade Evaluation (EDGE) processes, manages the Geology Emeritus Program, manages the Mendenhall Program for the bureau, ensures safety training programs meet GD needs, and assesses scientific excellence and consistency across the Nation. Manages administrative and operations functions for program offices and Headquarters, specifically including tasks relating to rent and operations and maintenance, property, Continuity of Operations Planning, personnel, finance and accounting, and records management.
- Performance Assessment: Develops, verifies, and validates program annual and long-term performance results from the Government Performance and Results Act, Program Assessment Rating Tool, Interior GPRSA Strategic Plan, USGS Science Strategy, and bureau and Department policy.

Effective Communication and Partnerships

- Communicates, consults, and cooperates with customers, partners, and stakeholders to achieve the Interior and USGS missions. Focus is on external communications to ensure GD science programs are addressing societal needs as well as advancing scientific capability.
- Creates a work environment that supports transparent processes, open communication, and effective collaboration. Focus is on internal communications to ensure GD programs are successfully and efficiently executed by USGS Science Centers across the Nation, and, in cooperation with USGS Regions, ensures GD scientific capabilities are applied to national integrated science needs.

Performs roles and responsibilities that ensure USGS has a leadership role in the formulation of national policy.

Appendix 5. Additional Recommendations

In addition to the recommendations for the workforce plan, the committee discovered information through research and employee input that while not directly related to workforce planning would contribute to a workforce that supports the bureau Science Strategy, planning model, and regional collaboration and that is efficient, effective, evolving, and energized. The committee recommends the following:

Employment issues

- Review currency of PDs and update as appropriate and re-evaluate during mid-year review.
- Add linkages to the Science Strategy, planning model, or regional collaboration into selected employee PDs and or Work Plans. This model is being piloted in the Biological Resources Headquarters and in the Regions. (For more information, see the BRD Chief Scientist.)
- Strive to achieve uniformity and consistency among workplans for jobs that are similar.
- Use the Statement of Work in this Workforce Plan (section III Base Program) when creating and updating Position Descriptions and Work Plans.
- Develop standard operating procedures, known as SOP, for major job functions and to use as orientation tools for new employees.
- Charter a Swat Team to study more effective use of telework, flexible work schedules, and alternate work locations.

Workload

- Redistributing workload: Brainstorm functions that could be transferred to other organizations. Opportunity for REXs to take a more active role in accountability (e.g., performance metrics).
- Rotate AWS days for timekeepers during the week that timecards are due so at least one expert is available.
- Study past data calls to determine best practices for appropriate and quick turn around.

Facilities and Equipment

- Promoting collaboration: As space/facilities plans are renewed, look for opportunities to create environments of collaboration (e.g., more shared space, well-equipped conference rooms, etc.). Outstanding models for collaboration-enhancing philosophies and work space design are the research organization Janelia Farms and in industry the Gore Company (makers of GoreTex) and National Instruments.

Promoting Interaction — A Sterling Model for the Conduct of All Science and the Support Thereof

Janelia Farm Research Campus in Loudoun County, VA, is “an advanced research center for scientists from diverse disciplines, who are enabled and supported to work together in multidisciplinary teams to solve challenging science problems... Such collaborative groups are “self-assembling” and not imposed in any way.

“The scientific programs at Janelia Farm are designed to further collaboration and creativity among scientists. Chemists, biochemists, neurobiologists, geneticists, physicists, computer scientists, mathematicians and engineers join together to develop the new tools of research... The architectural design of the Janelia Farm buildings and laboratories respond to these same objectives, with both **work and relaxation areas designed to promote interaction and collegiality—and discourage isolation.**”

Janelia Farm Research Center
<http://www.hhmi.org/janelia/>

- To achieve collaboration goals, upgrade videoconferencing facilities to use web cameras and transmission via the internet. Costs have come down; quality has gone up.
- Productivity: Invest in dual monitors, which decrease time switching between applications and greatly facilitate moving information between documents and applications.

Communications

- Communicate GD functions/drivers to Regions.
- Use meetings for networking: Establish the habit of arriving to meetings 5 to 10 minutes early with the express purposes of networking, sharing of ideas, reducing isolationism, and improve a “start-on-time” culture.
- Train GHQ and field personnel in high-level briefing skills.

Technology

- The pace of technological advancement is currently outpacing the organization’s ability to capitalize on it. The committee suggests that to capture the power of information science, emerging information science and technology goals should be embedded in program strategies and plans.

And a final green note:

The Paperless Office: The committee recommends moving to a “paperless office” construct as far as allowable by Federal records management regulations. In addition to the obvious “save a tree,” a visible impact of a move to a paperless office is cost reductions for printing, mailing, shipping, and storing paper. We can drastically reduce our consumption of paper by “Thinking before you ink”:

- Preview digital documents carefully before printing (i.e., proof on screen as much as possible).
- Use paper more than once: separate recycling into one pile for single-side printing (to use again) and another for double-side printing (ready for recycling).
- Use scanner more often instead of copying machines.
- Send electronic fax instead of paper faxes.

Did You Know

Producing a single page of bleached white paper requires 13 ounces of clean water, an increasingly scarce resource of its own. For one ream of paper (500 pages), that’s 51 gallons of water!