The 2009 Greenhouse Gas & Climate Change Workforce Needs Assessment Survey Report

ghg management institute
www.ghginstitute.org

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"I am convinced that this challenge, and what we do with it, will define us, our era and, ultimately, our global legacy."

Ban Ki-moon, on climate change,
Secretary-General of the United Nations

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Contributors

The Greenhouse Gas Management Institute was founded in 2007 in response to the growing demand for qualified professionals who can perform greenhouse gas measurement, accounting, auditing and management. Just as engineering and financial accounting rely on certified professionals, the greenhouse gas management industry needs professionals charged with measuring, reporting, auditing, and reducing emissions with high competency and ethical standards. The Institute has developed rigorous training with a curriculum authored by leading experts and delivered globally via an online e-learning portal and onsite sessions.

The Institute's mission is to train and develop a global community of experts with the highest standards of professional practice in measuring, accounting, auditing, and managing greenhouse gas emissions. This effort is critical to ensuring that market mechanisms and policy responses to climate change are effective and credible, as well as a valuable source of new green jobs.

The Institute is for individuals and organizations, from beginners to certified professionals, working on all aspects of climate change including both voluntary and regulated emission markets as well as organizational emission inventories, corporate disclosure, GHG projects for emission reductions and removal enhancements, Kyoto Protocol CDM and JI projects, project development, as well as supply chain, products and technologies in various industry sectors.

As a nonprofit 501(c)(3) organization, the Institute is training individuals as well developing programs to certify professionals who meet the highest standards of expertise and ethical conduct. Financial aid and full scholarships are available to worthy applicants, especially those at non-profit organizations and from developing countries.

The Institute offers training on the GHG Protocol and the Carbon Disclosure Project questionnaire through its partnership with the World Resources Institute and the Carbon Disclosure Project. And it is developing training on carbon markets with Point Carbon and on the Kyoto Protocol's Clean Development Mechanism (CDM) and Joint Implementation (JI) programme jointly with the World Bank.

The Institute has also been chosen by the Regional Greenhouse Gas Initiative to develop their accreditation process and mandatory training program for verifiers and by the United Nations climate change Secretariat to train their accreditation panels for CDM and JI verifiers.

The Institute's founding sponsor is ClimateCHECK, whose world-class experts have dedicated themselves to supporting the Institute's mission. The Institute also hosts the largest network of greenhouse experts in the world.

For more information, go to www.ghginstitute.org

Sequence

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Sequence is a leading professional services organization committed to providing executive search and staffing to the environmental and engineering industries.

We are not your average executive search firm. With over 13 years experience, we labored in niche environmental industries when it wasn't always profitable and trendy, but was essential to the scientific and international environmental communities. We have assisted organizations from around the globe in building, maintaining and protecting the world's infrastructure, natural resources and environment.

Specifically focusing a large portion of expertise on the greenhouse gas and climate change industry for public, private and municipal sectors, we are on the cutting edge of industry trends, technical knowledge and personnel needs within this emerging and growing sector. Few other firms are as steeped in this newly developing and quickly evolving profession.

The Sequence team of highly skilled and experienced staffing professionals possesses the industry knowledge, abilities and dedication to staff board of directors, technical advisory boards, executive, management and field level personnel in employment opportunities globally. We have the long seated environmental technical knowledgebase to address the industry's growing demand to assist organizations in finding skilled and qualified personnel to achieve success.

Just as important, our word is our bond; whether you are in the urbanized cities of North America or Europe, the jungles of Africa or newly industrialized frontiers of Southeast Asia you can count on us to proudly stand behind our motto: *"Sequence: Where a handshake still means everything."*

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Acknowledgements

The Greenhouse Gas Management Institute and Sequence Staffing thank the many individuals who contributed to the conceptualization, development, implementation, analysis and publication of *The 2009 Greenhouse Gas and Climate Change Workforce Needs Assessment Survey Report.*

We deeply appreciate all the help, thoughtful analyses and authorship provided by the assembled teams from each of our lead organizations, without whom this report could not have been developed. While many members of these teams participated at various stages, particular acknowledgement goes to work done by Brian Miller and Rob Fowler, as well as the rest of the staff at Sequence Staffing and ClimateCHECK.

It was our great pleasure to work with such a talented and dedicated group.

Special thanks also go to Cornerstone Technologies' Shaun Gartner, Apian Softwares' Bob Gately and Jay Kaneshige from Kaneshige Design for their help in designing, crafting and implementing the technological aspects of this year's Internet survey.

Most importantly, we would like to thank the international greenhouse gas, climate change and atmospheric sciences community members for their participation and thoughtful answers – they were extremely forthcoming in their responses to us and we are grateful for their honest insights.

Finally, we would especially like to thank civic and government leaders for their support and encouragement as we work to tell the evolving story of the newly emerging greenhouse gas accounting and management profession.

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Executive Summary

It is now widely accepted that climate change is occurring. The range of consequences, time scales to act, methods for addressing the issue, and other such particulars are still open for debate, but an overwhelming majority of scientists worldwide have publicly agreed that human-based greenhouse gas emissions are a serious problem facing humanity and the planet on which we live.

However, even if all the world's government, business, and civil society leaders agree on the emission reduction targets necessary to mitigate the catastrophic effects of global climate change, the questions remain: How are we going to accurately measure and account for these reductions? How are we going to make sure that durable, lasting, and real reductions are taking place? How are we going to ensure that the system of enforcing these reductions is fair and transparent, especially when we use market mechanisms, which are subject to potential abuse if not checked and regulated in some way?

For one, we will need a diverse community of qualified, well-trained and ethical greenhouse gas accountants, verifiers, and managers. In short, we will need a class of GHG professionals who will support global systems for managing and reducing greenhouse gas emissions worldwide.

In spring 2008, the Greenhouse Gas Management Institute and Sequence Staffing began developing the first in a series of surveys designed to learn more about the needs, limitations, ambitions, and concerns within the emerging greenhouse gas and climate change workforce.

This Greenhouse Gas and Climate Change Workforce Needs Assessment Survey was created to uncover some of the unique challenges facing this growing and diverse industry and, specifically, to obtain data regarding industry perceptions, growth projections, workforce needs, policy responses, favored/disfavored protocols, human capital needs and training practices, and other key developments related to this emerging and important global profession.

Begun on August 6, and running through October 1, the survey includes results from over 700 key international industry professionals, scientists, and organizational leaders throughout public, private and non-profit sectors. From a geographical perspective, participants responded to the survey from every continent and practically every major nation on the globe. Of these, 20% were organizational leaders

"Few challenges facing America – and the world – are more urgent than combating climate change. The science is beyond dispute and the facts are clear. Sea levels are rising. Coastlines are shrinking. We've seen record drought, spreading famine, and storms that are growing stronger with each passing hurricane season…."

"Now is the time to confront this challenge once and for all. Delay is no longer an option. Denial is no longer an acceptable response. The stakes are too high. The consequences, too serious."

Barack Obama
President
United States of America

and some 40% were senior level managers. They represent a significant fraction of the professional experts and leaders on climate change from around the world.

Results of the survey now confirm the workforce and skills shortages that have been suspected by many of those already working in greenhouse gas and climate change fields, but this assumption has never before been confirmed with detailed findings such as these. However, this report goes beyond assessing a labor shortage; it details the breadth and depth of the skills deficiency, the anticipated growth of the industry, and the development of the industry itself as a professionalized occupation. The survey also touches on the establishment of carbon commodity markets as well as their potential for misuse.

The picture that emerges is both complex and compelling. The results expose trends and key needs that alert us to potential challenges facing this industry and serves as an outline for predicting the future of this dynamic and emerging field.

Specifically, the research identifies seven key findings:

Greenhouse Gas Accounting is Critical to Climate Change – 98.4% of respondents throughout the international community believe measuring and accounting of greenhouse gas emissions is critical or very critical to the successful management of global climate change.

Shortage of Qualified Greenhouse Gas Personnel and Experts – 83.9% of respondents believe there is a shortage of qualified greenhouse gas staff and experts to undertake current needs and planned initiatives. Further, as new emission trading schemes and other policies are implemented, 86.8% believe there will be a shortage of qualified experts in the marketplace to support these efforts.

Significant Business Growth Projected for Greenhouse Gas Industry – Participants forecast that the overall business of addressing greenhouse gas emissions will grow significantly in the days ahead. In the next year alone, 84.7% of respondents believe the industry will experience up to or more than 25% growth. Additionally, over 88.9% believe the industry would at least double in the next five years; with 22.8% saying it will triple and 19.6% saying it would more than triple.

Perhaps the most interesting finding of the survey in relation to industry growth is that no single respondent surveyed believes that the industry will shrink in the next year to five years.

Carbon will be Traded at Volumes Equivalent to or Greater than that of other Major Commodities – With the increased focus on carbon trading, 64.5% of respondents believe that the growth of carbon markets will lead to carbon being traded at volumes equivalent to or greater than that of other major commodities such as steel or coal.

Carbon Trading Subject to Same Problems as Those of Enron, WorldCom and Tyco – Given the shortage of qualified personnel and experts, 83.2% of survey respondents now believe that there is either a moderate or high risk that carbon markets will suffer from problems similar to those symbolized by the Enron, WorldCom and Tyco accounting scandals of the past.

Greenhouse Gas Accounting to Become Professionalized like IT Industry – In a remarkable indication of how the emerging industry has advanced in a relatively short period of time, 77.2% of respondents now expect that GHG accounting and management will become professionalized in a fashion similar to that of the Information Tecnology industry in the 1980s.

Educational Universities are not Adequately Training New Graduates with Greenhouse Gas Accounting and Management Skills – 81.9% of all respondents believe that our educational universities are not currently providing the necessary skills for new graduates to work within the emerging industry. When results are specifically broken out by respondents working within educational institutions themselves, this number is even higher, at 84.1%.

This report is designed to provide an orientation to the survey results, draw out generalized conclusions based on respondent data and bring the most important or striking observations to the forefront. It specifically breaks out the seven key findings detailed above and defines the relationship between them in connection with current industry drivers, events and other mechanisms at play in shaping the field as it evolves.

The discussion also highlights important geographic, regulatory, and economic factors that are occurring as further context of survey participant responses.

We present for consideration short summary evaluations of the results with some generalized recommendations to address some of the issues identified by the survey respondents. These recommended actions include those described herein and many being explored or carried out by our individual organizations, members of the greenhouse gas profession and the broader world community to further the profession and successfully address global warming.

With the prominent role greenhouse gases represent globally in business, government, and civil society, we believe it is vital to gain an understanding of these complex workforce needs and requirements for reliably measuring emissions and managing climate change. How decisions are made, how resources are allocated, and how results are measured all critically depend on skilled, ethical, and available professionals.

We hope the findings in this report serve as a useful tool in presenting what limiting factors need to be addressed in the days to come to ensure that this class of professionals is ready to effectively engage on one of the most pressing global issues of modern times.

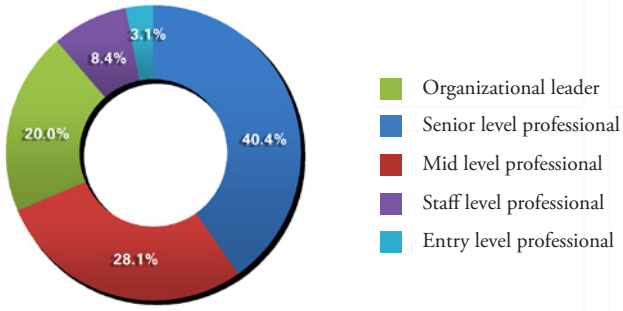
Survey Participant / Respondent Profiles

More than seven hundred (719) respondents participated in the Greenhouse Gas and Climate Change Workforce Needs Assessment Survey.

These respondents represent an extremely diverse group of global professionals that collectively came together to provide answers and insight into the greenhouse gas and climate change field of practice.

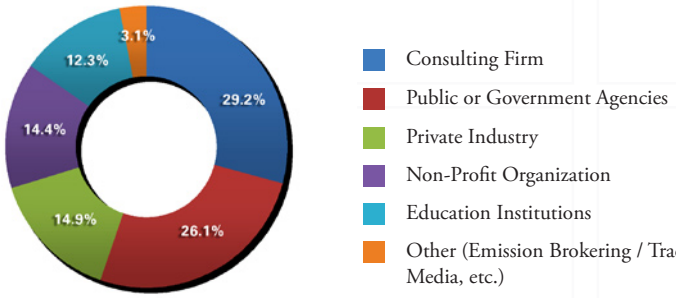
Of these, some 20.0% were noted organizational leaders, 40.4% were senior level professionals and 28.1% were mid level staff members. Combined, they represent a significant fraction of the experts, leaders and practitioners active on climate change around the world.

Current rank / position within the organization in which you are currently serving?



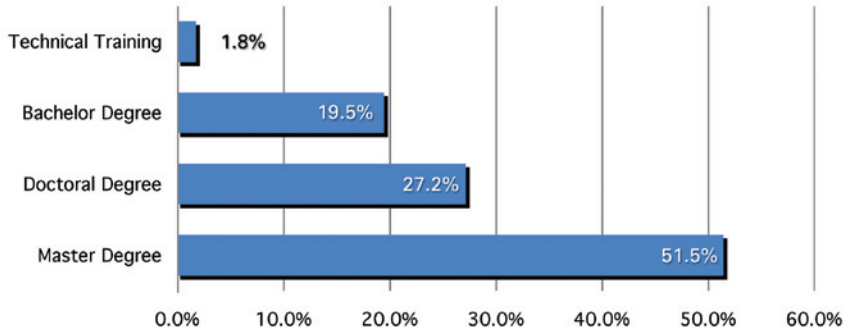
Respondents hail from a variety of organizational types, allowing for a mixture of unique insight into the industry. They belong to consulting firms (29.2%), public or government agencies, or organizations including the United Nations, national, federal, and regional administrations (26.1%), private industry (14.9%), non-profit organizations (14.4%), and educational institutions (12.3%). With others serving with emission brokering and trading firms or in the media.

In what type of organization are you currently serving?



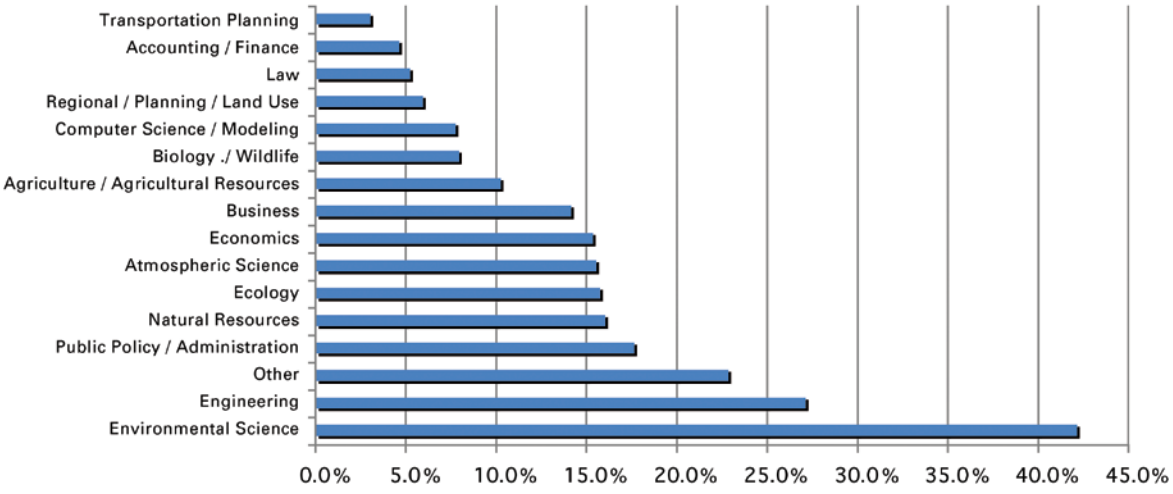
The overall group of respondents was extremely well educated and trained. More than half (51.5%) hold Master degrees, almost one third (27.2%) also hold Doctoral degrees, while one-fifth (19.5%) hold Bachelor's degrees alone.

What is the highest level of education / training you have personally achieved?

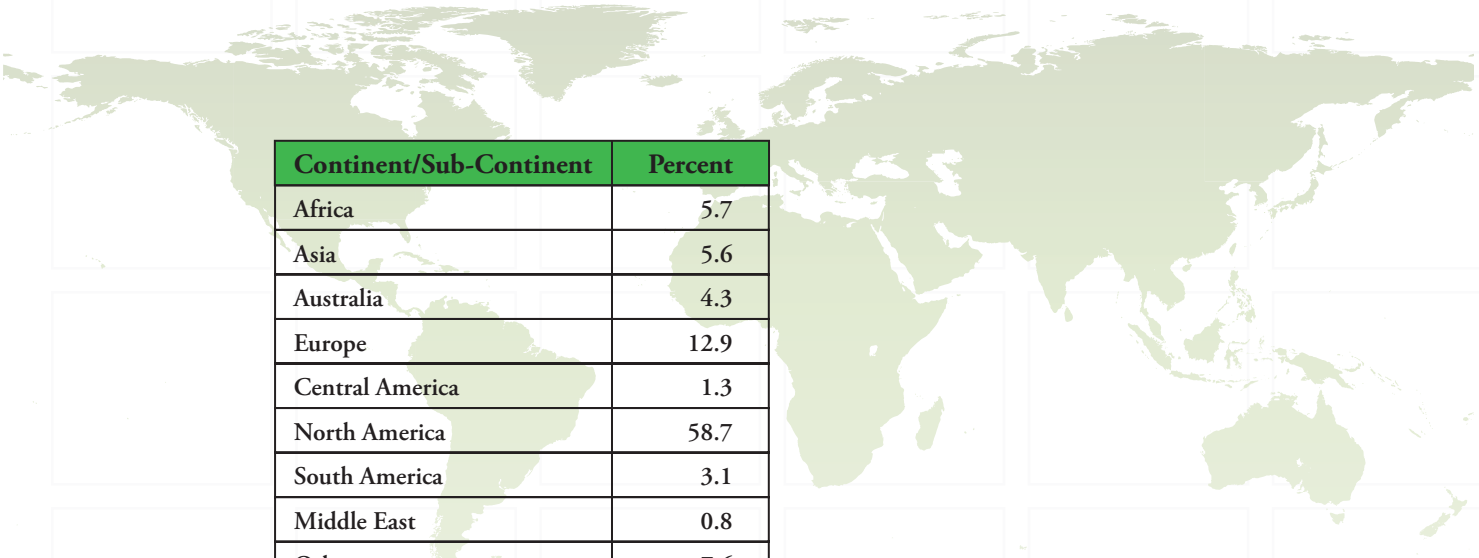


As many participants came from varied backgrounds, they were asked to indicate education and training which reflected the generalized focus of their academic disciplines. As many individuals have diverse skill sets, participants were given the opportunity to indicate as many as they felt applied to them. With that in mind, the following statistics are representative more of comprehensive education and training for respondents with relation to varied disciplines rather than strict percentages. Many had generalized Environmental Science (42.2%) educational backgrounds and training, followed closely by Engineering (27.2%). Thereafter, a great diversity of professions were represented with many weighted quite equally response-wise.

What is the general focus of your education / training?



From a geographical perspective, participants responded to the survey from every continent and practically every major nation on the globe. Not just the well traveled places, but in locations like Albania, Kazakhstan, Malaysia, Nepal, Sri Lanka and Rwanda. The connection of these individuals to one another, their openness to share resources and information and the willingness to work together is unprecedented. The range of their geographic distribution reflects the exceptional sense of purpose and commitment greenhouse gas and climate change professionals throughout the world have to one another and to the cause of battling global warming.



Continent/Sub-Continent	Percent
Africa	5.7
Asia	5.6
Australia	4.3
Europe	12.9
Central America	1.3
North America	58.7
South America	3.1
Middle East	0.8
Other	7.6
Total	**100**

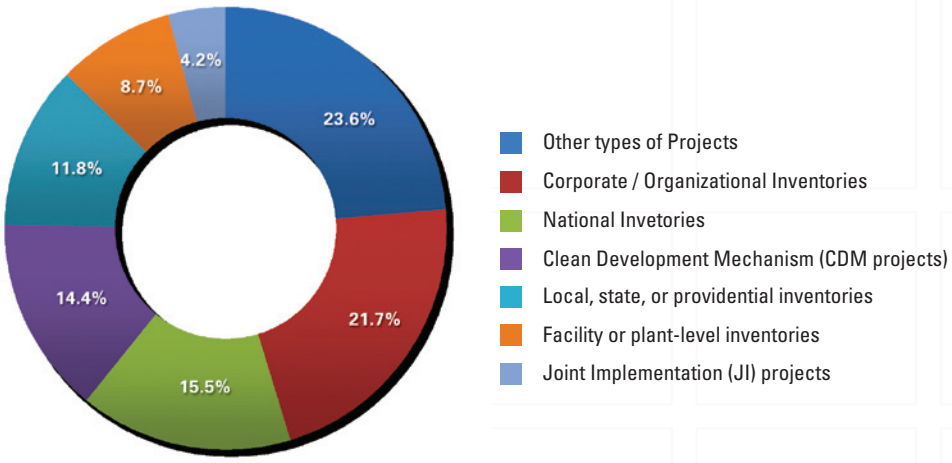
Two-thirds of the total respondents (64%) resided or worked in the United States, Europe or China/Asia. Although all regions need a competent workforce to address greenhouse gas and climate change issues, the survey results are admittedly biased, geographically, towards English-speaking areas. Future surveys will attempt to better capture non-English speaking regions (see Data / Methods Section of this report).

In terms of focus on greenhouse gas and related climate issues, participants were asked to define their specific sector practice. Responses were distributed quite widely, but eight sectors were most common: Renewable Energy / Energy Efficiency

(22.4%), Fuel Combustion (12.5%), Land-use Change and Forestry (11.6%), Transportation (9.2%), Waste (8.9%), Agriculture (8.6%), Other Industry such as industrial processes (7.4%) and Fossil Fuel Fugitives Emission such as methane (6.9%).

When further questioned in regards to each respondent's specific focus in relation to greenhouse gas inventories or projects: 23.6% worked primarily on Other Project Types, 21.7% on Corporate / Organizational Inventories, 15.5% on National Inventories, 14.4% on Clean Development Mechanism (CDM) projects, 11.8% on Local / State or provincial inventories, 8.7% on Facility or Plant-level inventories, and 4.2% on Joint Implementation (JI) projects. The high percentage reporting Other Types of Projects is reflective of the great diversity of activities and engagements in the field.

In terms of greenhouse gas emissions (GHG), what is your focus in relation to inventories or projects?



Greenhouse Gas Accounting is Critical to Climate Change

98.4% of respondents throughout the international community believe measuring and accounting of greenhouse gas emissions is critical or very critical to the successful management of global climate change.

The first step in addressing climate change is to measure and manage the emissions that cause it. With their nearly unanimous response in the survey, respondents throughout the global community are echoing with resounding sentiment that, "If you cannot measure, you cannot manage."

Any serious effort to address the problem of climate change is predicated on the effective measurement, reporting, management and reduction of GHG emissions. The success of greenhouse gas emission policies and programs will be in large part defined by the integrity and credibility of greenhouse gas measurement and accounting systems, which itself will be defined by the staff that support these systems. The accuracy of baseline studies, credible emissions measurements, solid monitoring systems, and independent auditing are at the heart of any global mitigation strategy. The sharper and more unassailable these components are, the more robust and powerful the success of our efforts is likely to be.

Overall, some 98.4% percent of respondents believed that accounting, auditing and managing of greenhouse gas emissions is critical (27.5%) or very critical (70.9%) to management of global climate change. In a reflection of how strong the overall response to this question was, only 1.5% of respondents believed that it was not critical.

In an effort to gain a clearer understanding of the drivers seen as most valuable to the skill set of greenhouse gas experts, participants were also asked to rate what they considered to be the three most important widely accepted international and regional programs. These included 12 of the most commonly known programs, protocols, standards and emission schemes generally accepted within the greater community.

Respondents picked three of these 12 programs and listed them in their perceived order of importance. The data provides us with not only overall numerical ranking, but also an implied level of ranked importance for each program.

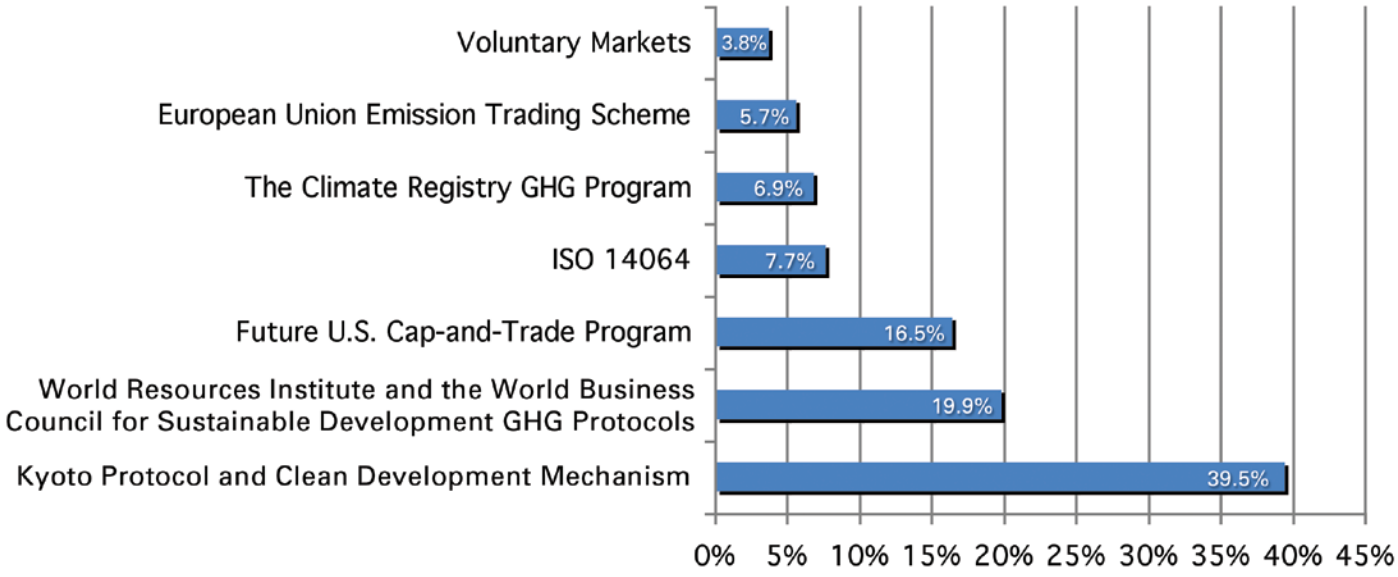
The survey resulted in three of these programs emerging as the clear leading drivers in the mind of participants: the Kyoto Protocol and Clean Development Mecha-

"As we confront the urgent challenge of protecting our planet from the irreversible damages of climate change, it is imperative that we accurately and comprehensively account for the emissions of greenhouse gases so that we may design and implement policy solutions that are as effective as possible. It is essential that we have institutions and individuals that bring the utmost seriousness to this issue."

Gary Gero
President
California Climate Action Registry

nism (rated 1st in order of importance with 39.5% and 1st in overall combined responses); World Resources Institute and the World Business Council for Sustainable Development GHG Protocols - (rated 2nd in order of importance with 19.9% and 3rd in overall combined responses); and a future U.S. Cap-and-Trade Program (rated 3rd in order of importance with 16.5% and 2nd in overall combined responses).

Program Importance - Total Respondents



Given the importance of the international process in creating a framework for addressing climate change, it is not surprising that the Kyoto Protocol and Clean Development Mechanism (CDM) were seen by participants as key drivers.

The CDM, as part of the Kyoto Protocol and the United Nations Framework Convention on Climate Change (UNFCCC), is generally seen as the key program allowing wide scale implementation and verification of greenhouse gas emissions reduction efforts. The CDM enables industrialized countries to achieve emissions reductions through a framework of paying developing countries for certified emission reduction credits. Emission reduction projects qualify through a rigorous registration and issuance process (For more information, see http://cdm.unfccc.int/index.html).

The GHG Protocol, a partnership between the World Resources Institute and the World Business Council for Sustainable Development, is widely accepted in providing an accounting framework for greenhouse gas standards, programs, and emission inventories around the world (For more information, see http://www.ghgprotocol.org/).

What did emerge as somewhat surprising was the emphasis by survey participants on a future U.S. Cap-and-Trade Program. Respondents perceive the emergence of such a program as being a major driver in the development of expert level personnel.

Although earlier attempts at legislation in the United States have failed, it is generally held that federal legislation to address greenhouse gas emissions will soon be enacted. United States President Barack Obama supports the implementation of such a policy; however, it is unclear how the on-going financial crisis will impact these plans. He has pledged to make the United States a leader on climate change and has stated his intent to implement an economy-wide emissions cap-and-trade program to reduce U.S. greenhouse gas emissions 80 % by 2050.

Cost containment and program architecture have emerged as key points of contention in the current debate about designing a cap-and-trade program to limit future United States greenhouse gas emissions. Policymakers are juggling trade-offs among alternative designs for a cap-and-trade program for carbon emissions. These trade-off issues include significant debate about upstream versus downstream points of regulation, allowance allocations, emission offset provisions, reduction targets and timetables, and other factors that revolve around pricing.

As was seen in the European Union's Emission Trading Scheme (EU ETS) Phase I (2005-2007), high quality data is of paramount purpose to the success or failure of policies. While a number of explanations have been offered for the early over-allocation of emission allowances in the EU ETS, it is increasingly clear that the predominant cause was the quality of the data used to set the caps. The United States and the world must learn from the hard work and lessons learned from the EU ETS. We cannot afford to have such accounting mistakes undermine future cap-and-trade programs, and therefore, it is crucial that training programs help create a new class of carbon accountants to ensure the generation of reliable and credible GHG data.

In addition, the following four programs ISO 14064 GHG Standards (4th with 7.7% and 4th with overall combined responses), The Climate Registry GHG Program (5th with 6.9%), European Union's Emission Trading Scheme (6th with 5.6%) and Voluntary Markets (3.8%) were also seen by participants as being important and key to their professional activities. These additional programs and protocols represented generally a close relative response and indicated the diversity of currently accepted practices, and the need for a more consolidated approach.

ISO 14064 is a three-part international standard that provides guidance on developing organization-level emissions inventories; quantifying, monitoring, and reporting greenhouse gas emissions reductions at the project level; and validating and verifying greenhouse gas emissions and emission reduction projects. A key strength of the ISO standards is that they are platform agnostic, and can be applied to any carbon reporting or trading program. (For information see http://www.iso.org/iso/home.htm).

The Climate Registry was established by states, tribes and provinces in North America (the United States, Canada and Mexico) as a mechanism to measure greenhouse gas emissions from organizations and facilities consistently across industry

sectors and borders. The Registry's accounting infrastructure supports a wide variety of programs that reduce greenhouse gas emissions including voluntary, regulatory and market-based programs (For more information, see http://www.theclimateregistry.org/).

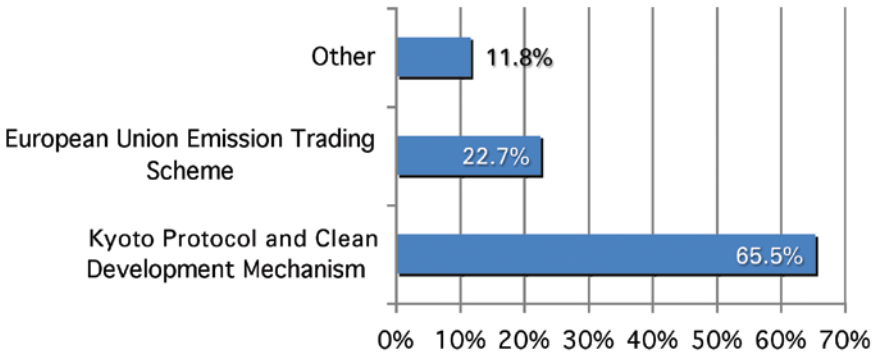
The European Union Emission Trading Scheme (EU ETS) is the largest multi-national, emissions trading scheme in the world. The EU ETS currently covers a significant proportion of the emitting facilities in European energy and industrial sectors, which are collectively responsible for close to half of the EU's emissions of carbon and nearly 40% of its total greenhouse gas emissions. The scheme has established practices and guidelines for monitoring, reporting and verification of emissions. The EU has decided to accept the Kyoto Protocol's flexible mechanism instruments from the CDM and the Joint Implementation programs for compliance within the EU ETS (For more information, see http://ec.europa.eu/environment/climat/emission/index_en.htm).

In regard to the EU ETS, it should be specifically noted that although the survey indicated that this scheme was only 6th in order of importance with combined total responses, it was clearly rated 2nd by international participants overall when they choose their second program of importance; in this case it was just behind the Kyoto Protocol.

There is a likely an international bias on this point, given that the survey was weighted a bit toward North American respondents. Moreover, had the survey been available in other languages, as is intended in the future, there is the likelihood that more individuals in Europe would have participated.

With that in mind, when data is analyzed from those respondents in the European Union, the survey resulted in the Kyoto Protocol and CDM being rated 1st with 65.5% and the EU ETS clearly being rated 2nd with 22.7%. Moreover, in terms of total combined results, the Kyoto Protocol was ranked just ahead of the EU ETS. This essentially reflects that although European participants clearly see the importance of the Kyoto Protocol and CDM, they view the EU ETS as a key driving mechanism in their region.

Program Importance - European Union Respondents



Without question, respondents worldwide overwhelmingly indicate that measuring and accounting for greenhouse gas emissions is highly critical to management of global climate change. Though geographically separated, participants recognize that one ton of greenhouse gas emitted in Australia does the same damage to the climate as a ton emitted in Norway.

From the breadth of their responses, it is also clear that while some mechanisms are larger drivers in the consciousness of participants, that there is awareness and openness to a diversity of programs and protocols to address greenhouse gas emissions. While extremely encouraging, this finding also points to the need for standardized protocols and programs that are universally accepted or compatible throughout the international community.

Shortage of Qualified Greenhouse Gas Personnel and Experts

83.9% of respondents believe there is currently a shortage of qualified greenhouse gas staff and experts to undertake current needs and planned initiatives. Further, as new emission trading schemes and other policies are being implemented, 86.8% believe there will be a shortage of qualified experts in the marketplace to support these efforts in the future.

Managing climate change presents one of the defining global challenges of the 21st century. With the far reaching implications of global warming and our responses to it, each of us as individuals will be impacted by the extent to which measures to reduce emissions are incorporated into our lives.

Managing climate change will require significant modification of human behaviors and activities; some subtle, others more all-encompassing; changes from the way we think, to the way we work and live.

The emergence of new programs, protocols and other climate change management forces have resulted in the foundation of initiatives to measure, manage and mitigate climate change internationally. Growing at a tremendous pace, driven by international will and the very real crisis at hand, they represent the beginnings of this global effort. They also mark the emergence of a new professionalized industry.

To support these current efforts and future activities there is a requirement for a diverse community of qualified, well-trained and ethical greenhouse gas accountants, verifiers and managers. In short, we will need GHG professionals who will help create and direct a global system for GHG accounting and management.

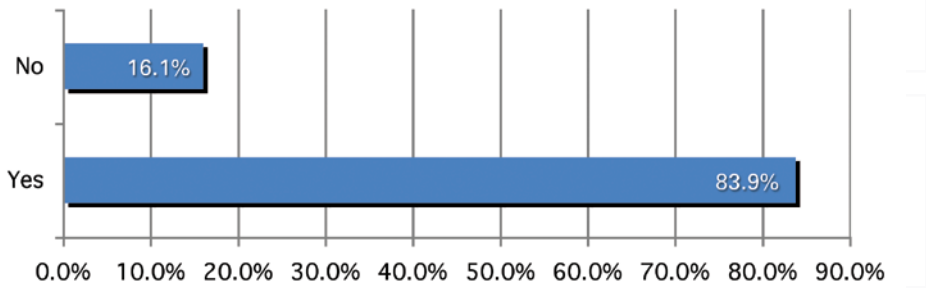
When surveyed, 83.9% of respondents believed that there is indeed a shortage of qualified greenhouse gas staff and experts to undertake current needs and planned initiatives.

These results confirm the workforce and skills shortages that have been suspected by many greenhouse gas and climate change community leaders, but never before has the extent of the problem been confirmed in such detailed findings.

"A critical element of developing a profitable corporate climate change strategy is understanding metrics and underlying accounting system used to measure GHG emissions. If an organization hopes to have an effective response to the increasingly diverse, complex, and regulation-oriented set of climate change policy and market trends, then they need to build GHG accounting expertise as an internal resource to support their data and analysis on an ongoing basis."

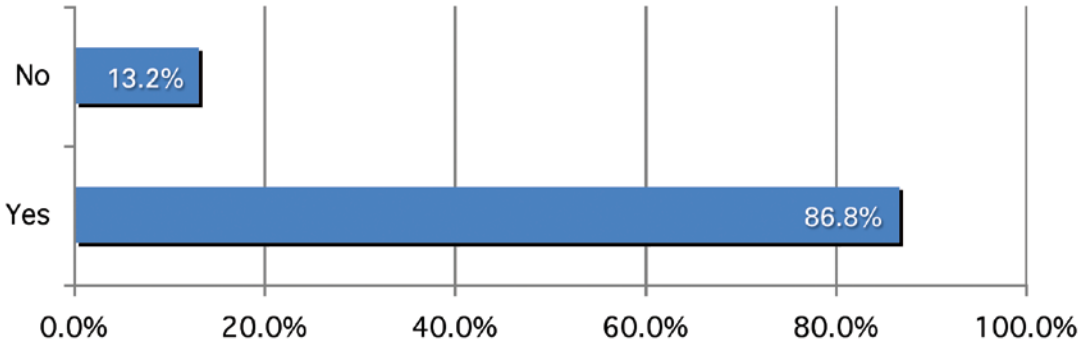
Pankaj Bhatia
Director, GHG Protocol Initiative
World Resources Institute

Would you say there is currently a shortage of qualified GHG staff and experts to undertake your current needs and planned initiatives?



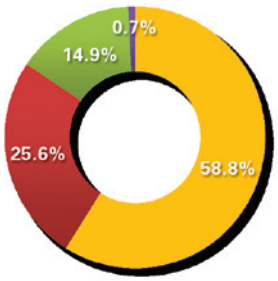
Just as striking, 86.8% of those surveyed believed that there will be a future shortage of qualified experts in the marketplace to support new emission trading schemes and other policies that are being implemented.

As new emissions trading schemes and other policies are implemented, do you think there will be a shortage of qualified GHG experts in the marketplace to support these schemes and policies?

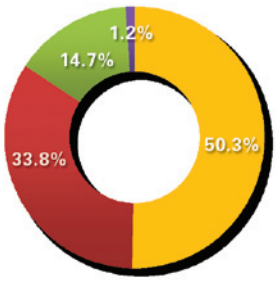


With the profession just emerging, and widespread program implementation in many parts of the world not yet undertaken, there are already high demands for qualified staff throughout the industry. Survey respondents currently indicate a severe shortage of qualified individuals at the mid-level (25.6%), project management level (33.8%) and expert level (58.1%).

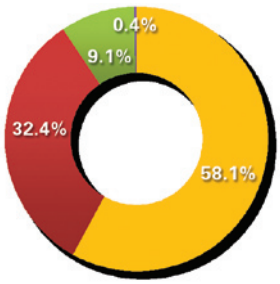
Mid-level personnel



Project Management personnel



Expert Level GHG personnel



Left unchecked this shortage will only become exacerbated as efforts are more defined and international programs emerge and expand. Essentially, we are only at the very first steps of the vast staircase of GHG programs and initiatives that will need trained and professionalized staff throughout the world.

Survey respondents already indicate that 65.1% of their organizations have filled or tried to fill vacant full or part time positions in the past six months. Another 68.1% indicate that they will attempt to do so again in the next twelve months. This number is even higher, at 72%, when one focuses on results specifically from organizational leaders.

With that in mind, results show that survey participants are not availing themselves of, or have no access to, hiring tools or resources commonly available in other professions. Hiring resources specifically geared towards niche greenhouse gas and climate change activities are not available in this emerging profession. The resources that are currently used often seem ineffectual or unsuited to actual industry needs. As an example, 64.5% of respondents say they have never used an online job board, and of those that did, only 6.3% were successful in filling these niche positions. Another 69.4% have never engaged an executive search or staffing firm and only 6% percent were successful when they placed online ads on related industry specific websites.

This shortage of qualified greenhouse gas staff and professional experts could have a profound effect on accounting and measuring practices well into the next two decades. This shortage could occur at a critical moment for the emerging industry and seriously impede efforts to successfully address climate change. Failure to meet this challenge will threaten the quality and legitimacy of GHG accounting, the greater welfare of the international community through potentially devastating impacts of climate change, and the future of the professionals who practice within this field.

At a time when new rules, laws and regulations are being formulated to address the emerging issues of climate change, government may be restrained in enforcing them based on the lack of trained and certified professionals. This in turn can contribute to a failure of meeting the terms and emission reduction goals of the established agreements.

With carbon now emerging as a globally tradable commodity, there will be a tremendous demand to reliably account, measure, and audit it.

The integrity of this accounting, indeed the entire concept of a GHG emissions inventory and monitoring system, revolves around accuracy, transparency, and standardization. The accuracy of baseline studies, credible emissions measurements, and solid monitoring systems are at the heart of any global mitigation strategy. The sharper and more unassailable these components are, the more robust and powerful the program.

A deficiency of qualified personnel to support such trading opens the industry up to lack of legitimacy in establishing baselines and measurements derived through well established practices, protocols and procedures. It also lends itself towards possible abuse and scandal.

Significant Business Growth Projected for Greenhouse Gas Industry

Participants forecast that the overall business of addressing greenhouse gas emissions will grow significantly in the days ahead. In the next year alone, 84.7% of respondents believe the industry will experience up to or more than 25% growth. Additionally, over 88.9% believe the industry would at least double in the next five years; with 22.8% saying it will triple and 19.6% saying the industry would more than triple.

Perhaps the most interesting finding of the survey in relation to industry growth is that no single respondent surveyed believes that the industry will shrink in the next year to five years.

As an emerging industry, growth for the professions and businesses related to greenhouse gas emissions has not yet been formally tracked. There are certainly varied studies available that show segments of this market experiencing tremendous expansion, but the actual tracking of this lies ahead for us to survey more deeply and formally quantify in the days ahead.

Regardless, we are unmistakably seeing widespread industry growth.

Scientists, consumers, lawmakers, investors, governments, not-for-profit groups, private industry and other stakeholders comprise the driving forces behind this growth. The growth stems from the generalized belief of people across all sectors who have become convinced about the damaging effects of greenhouse gas emissions, and the need of a well-designed system to manage them.

"Our way of life will change radically, not only over the next 50 years but over the next 10 years. In my mind, those changes are a bigger business opportunity than the Internet ever was."

Stefan Reichenbach
Global Head of
Environmental Markets
Thomson Reuters

Initially, only the most progressive governments and organizations realized that addressing greenhouse gas emissions was not only critically important, but also the right thing to do. Now, an ever growing list of governments, businesses and civic leaders has realized that these efforts are not only essential to the well being of the planet, but good business practice. Not merely an altruistic effort; rather it has been widely accepted that appropriately structured environmental initiatives have strategic import and financial merit on their own. More specifically, they can lead to enhanced profitability, lower operational and financial risk and improved workforce productivity.

Many organizations today are now actively addressing the significance of environmental and social risks associated with greenhouse gas emissions with relation to their operations and growth strategies. For these organizations, demonstrating environmental and social sensitivity is not only core to their strategic business activities, but also serves as the foundation for achieving sustainable growth and lasting competitiveness.

Likewise, more and more companies are beginning to think systematically about their responsibilities, not only to their shareholders but towards the environment, their employees, the community and society at large, and how to make this responsibility a part of their overall strategic and operational considerations. Greenhouse gas emissions can represent inefficiencies, but also opportunities to improve operations, reduce risks and save money. Many companies now understand that continuous learning and innovation, brand and reputation management, access to capital and other economic drivers related to sustainability cannot be overlooked in a competitive global marketplace.

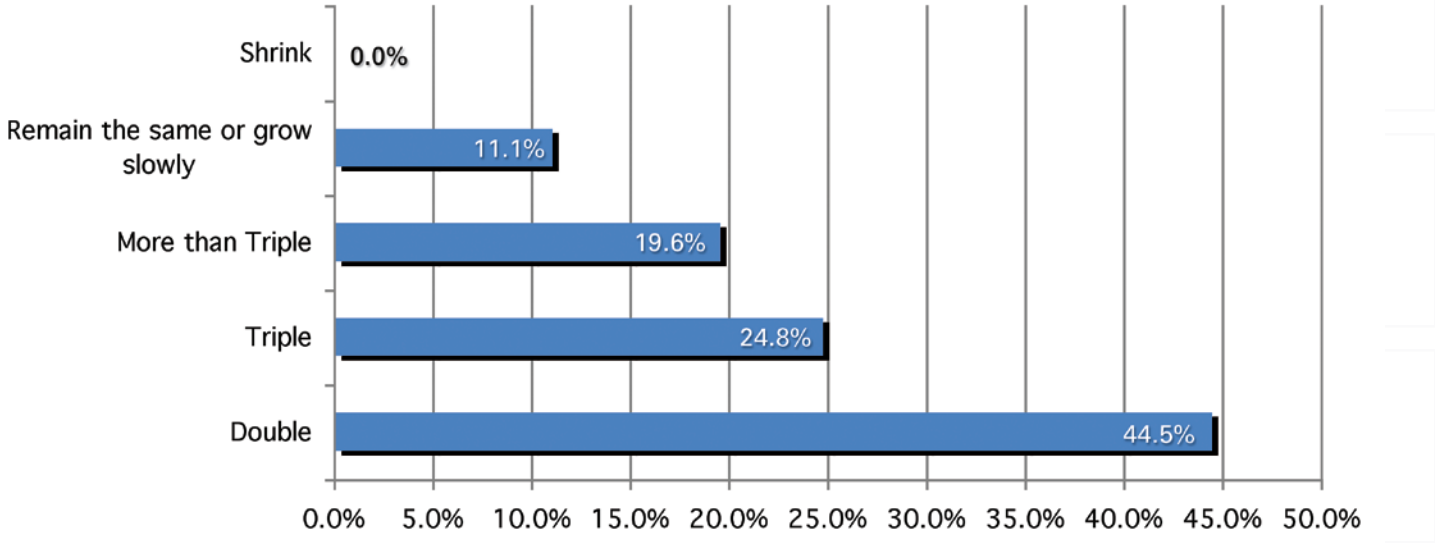
In relation to markets, government and business alike are beginning to see the need and the merit behind carbon trading. The markets for GHG emissions and carbon trading are still in their infancy, but have grown considerably in recent years, reaching as much as $70 billion worldwide in 2007. The United States federal government alone estimates that there are now over 600 organizations developing, marketing or selling offsets in their nation. The European Union Emissions Trading Scheme (EU ETS), the largest multi-national GHG emissions trading scheme, now incorporates some 10,000 energy-intensive facilities across the EU. These facilities are able to buy and sell permits to emit carbon dioxide, representing some 40% of the EU's total CO_2 emissions.

In an effort to address this topic, participants were specifically asked to predict what they believe lies ahead for the industry in terms of future growth during the next year and the next five years. These findings were of specific interest in the context of efforts by nations under the Kyoto Protocol to reduce emissions during the five year compliance period running from 2008 to 2012.

Respondents forecast that the overall business of addressing greenhouse gas emissions will grow significantly in the years ahead. In the next year alone, 84.7% of participants believe the industry will experience up to or more than 25% growth. Of those, some 15.9% believe it will achieve 50% to 100% growth and 9.2% believe it will more than double.

Additionally, over 88.9% believe the industry will at least double in the next five years; with 24.8% percent saying it will triple and 19.6% percent saying more than triple.

How much do you expect the overall business of addressing GHG emissions to grow in the next five years?



In perhaps the most compelling and interesting aspects of the entire survey, no single respondent surveyed throughout the world believed that the overall business of addressing GHG emissions would shrink in the next year to five years. This response specifically shows how confident participants were in their perception as to the future of the industry.

This perception is widely supported by strong regional and international data. The United Nations Environment Programme's recent Green Jobs study (Green Jobs: Towards Decent Work in a Sustainable, Low-Carbon World) currently cites that globally the environmental goods and services sector is estimated to be worth $1,370 billion (€1,000 billion) and is expected to grow by 50% to $2,740 billion (€2,200 billion) by 2020. In the EU-15 this sector is said to account for 1.3% of total employment, which is as large as the region's aerospace or pharmaceuticals industries. In new EU member states, direct employment in the environmental goods and services sector is equivalent to around 1% of total employment. The United States Department of Labor, Bureau of Labor Statistics, projects employment in professional, scientific and technical services to grow by 28.9% and add 2.1 million jobs by 2016 in their new 2008-09 Occupational Outlook Handbook. President Barack Obama and many United States congressional members have gone further, advocating creation of five million new jobs by strategically investing $150 billion over the next ten years to catalyze private efforts to build a clean energy future.

These would include new global climate change related jobs and greenhouse gas accounting, management and mitigation occupations within various scientific, environmental and technical professions sectors.

High growth industries that experience fast or double digit growth of this sort are often referred to as "super sectors."

Clearly, with their responses, survey participants are anticipating this type of exponential growth in fields related to addressing greenhouse gas emissions in the years ahead.

Carbon will be Traded at Volumes Equivalent to or Greater than that of other Major Commodities

With the increased focus on carbon trading, 64.5% of respondents believe that the growth of carbon markets will lead to carbon being traded at volumes equivalent to or greater than that of other major commodities such as steel or coal.

Could carbon trading become the world's largest commodity market? Many traders believe so as managing emissions is becoming one of the fastest growing segments in financial services and companies scramble for talent and methods to capitalize on emerging markets.

Emerging little more than 10 years ago after the UNFCCC conference in Kyoto 1997, the Kyoto Protocol introduced international greenhouse gas emissions trading using market-based mechanisms, leading to the creation of environmental commodity markets that are now rapidly escalating in value.

The United States will impact the value of these markets greatly, depending on future policy changes addressing greenhouse gas emissions. A new international agreement to succeed the Kyoto treaty and the implementation of a cap-and-trade system to limit greenhouse gas emissions in the United States could result in massive growth in these markets.

Former U.S. President Bill Clinton suggested that the potential size and scope of a structured carbon emissions market in the United States is unequivocally vast, and it is certainly possible that the emissions market could overtake many other commodity markets.

Carbon trading was estimated to be worth about $70 billion last year with European nations contributing 78% of this total. Should the United States enter the market and encourage other countries to do so, it is estimated a global carbon market could swell anywhere from $1-$2 trillion within the decade. How large it will get is a matter of speculation, but certainly it will represent a significant international commodity market.

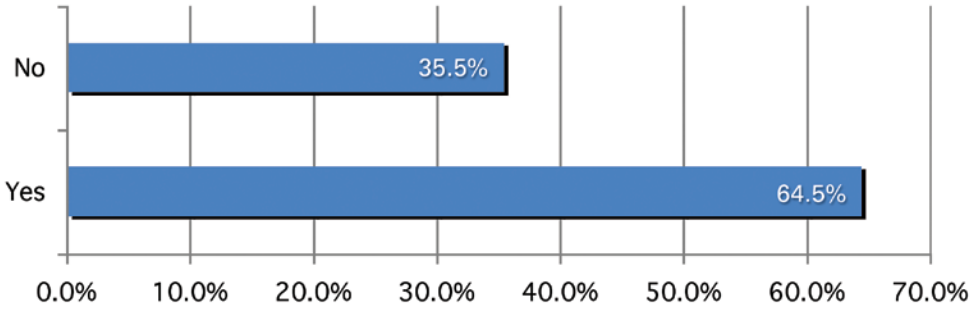
These sentiments were generally echoed by 64.5% of the survey respondents who now believe that carbon markets will eventually grow to the point that carbon is traded at volumes equivalent to or greater than that of other major commodities such as steel or coal.

"The potential size and scope of a structured carbon emissions market in the U.S. is unequivocally vast. It is certainly possible that the emissions market could overtake all other commodity markets."

Bart Chilton,
Commissioner
U.S. Commodities Futures Trading Commission

Carbon will be Traded at Volumes Equivalent to or Greater than that of other Major Commodities

Do you expect GHG markets to grow to the point that carbon is traded at volumes equivalent or greater to that of other major commodities (e.g. steel, coal, etc.)?



With that in mind, carbon could become one of the fastest growing markets ever, with volumes comparable to credit derivatives. Given the current problems in the credit market, it is clear how essential it is to have sufficient and highly competent experts and professionals doing the accounting that establishes the very value of environmental commodities. It is equally important that these commodities be regulated with guidance for transparency and quality.

The wholesale movement of carbon as a tradable commodity is becoming an accepted part of business practice and governmental policy in many parts of the world. While some criticisms exist of this relatively new development, well integrated carbon trading within broader reduction schemes has also been widely praised.

Although carbon trading alone is not expected to be the sole policy mechanism used to address the problem of climate change, it has become widely accepted that emissions trading will be a major component of efforts to mitigate global warming. The widespread and exponentially growing nature of carbon markets is testament to this expectation.

Carbon Trading Subject to Same Problems as Those of Enron, WorldCom and Tyco

Given the shortage of qualified personnel and experts, 83.2% of survey respondents now believe that there is either a moderate or high risk that carbon markets will suffer from problems similar to those symbolized by the Enron, WorldCom and Tyco accounting scandals of the past.

The current environment of economic uncertainty and global financial crisis underscores the need for credible and transparent accounting practices, as well as environmental commodity and professional competency standards.

The international community has dealt with a number of accounting scandals in the past. Perhaps most notable in recent years were those of early 2002 that included such companies as Enron, Tyco International and WorldCom. These scandals, which had at their root failed accounting practices and a lack of ethical standards and oversight, cost investors billions of dollars, shook public confidence in security markets and led to wide scale regulatory reform. In the United States as an example, this led to the passage of the Public Company Accounting Reform and Investor Protection Act of 2002 (The Sarbanes-Oxley Act). Internationally, it resulted in implementation of other governmental/quasi governmental oversight organizations, standards and practices that have as their focus more accountability.

In specific relation to greenhouse gas accounting and verification practices, this is a critical time.

Carbon is rapidly emerging as a global commodity with massive market potential, diverse drivers and over-arching financial implications. Supply of offsets generated from projects is growing rapidly on an international scale. All across the globe hundreds of organizations now develop, market and/or sell offsets and emission allowances involving a wide range of participants, prices, transaction types and projects.

Coupled with this, there is the growing demand for an ethical, trained and professionalized workforce to carry out emissions accounting and verification activities.

With this in mind, there is now immediate need to ensure transparent and competent greenhouse gas accounting practices and standards. Additionally, it is even more important to put in place the appropriate training and certification programs, and to build professional organizations that can create and support a large pool of

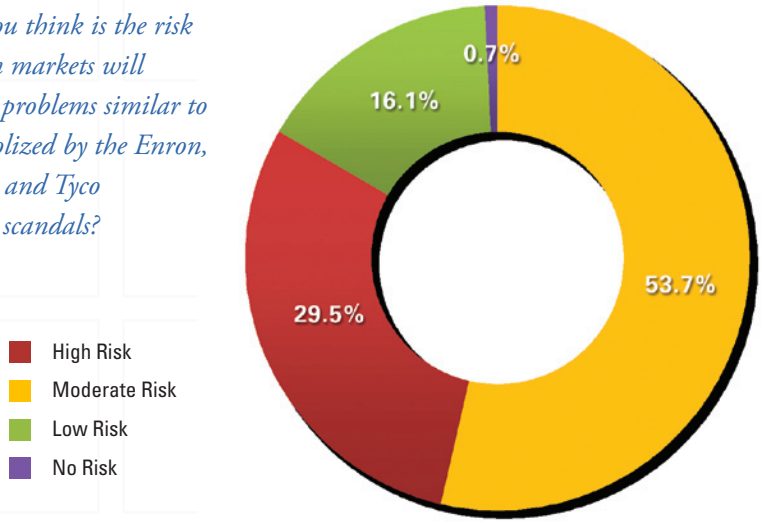
"It is exciting to see many of the world's governments taking action to internalise the cost of emitting greenhouse gases. This is creating a vast new market in carbon as a commodity. For this market to work effectively and to avoid pitfalls experience in other more developed markets, a significant investment is needed to create accounting standards and a stable infrastructure to underpin the market. Paramount to this is the training and education of a large numbers of professionals in the carbon market."

Paul Simpson
Chief Operating Officer
Carbon Disclosure Project

qualified experts who will define and establish metrics upon which carbon markets are founded and policies are implemented. Moreover, these individuals must operate with a common ethical code and provide high levels of confidence in the integrity of this emerging system.

As a backdrop, the recent U.S. Government Accountability Office study (CARBON OFFSETS: The U.S. Voluntary Market Is Growing, but Quality Assurance Poses Challenges for Market Participants) found that the carbon market faces challenges ensuring the credibility of offsets, including problems determining additionality, and the non-existence of many quality assurance mechanisms. In fact, the report confirmed concerns about the credibility of offsets that led to the conclusion that these could in fact compromise the environmental integrity of a compliance system.

What do you think is the risk that carbon markets will suffer from problems similar to those symbolized by the Enron, WorldCom and Tyco accounting scandals?



Given the painful realities of this current environment (growth, emerging non-professionalized industry, lack of accounting standards/certifications, workforce shortage, etc.), survey recipients have clearly alerted us to the risk that carbon markets might suffer problems similar to other accounting scandals.

This is chiefly because of three factors. First, while most markets involve tangible goods or services, the carbon market involves a product that represents the absence of an invisible gas; in this case, an offset equals the absence of one ton of carbon dioxide emissions. Hence, the accounting of intangible financial instruments can be more complex.

Second, ensuring the credibility of carbon offsets poses challenges because of the inherent uncertainty in measuring emissions reductions or sequestration relative to a projected business-as-usual scenario. Any crediting involving projections are inherently uncertain and vulnerable to manipulation by the unscrupulous. These challenges are compounded by the fact that project developers produce offsets from a variety of activities and do not use a single set of commonly accepted quality assurance mechanisms. It is no wonder then, that without a unified regulatory system in place, an emissions market would lead to a wide spectrum of quality offsets and emissions measurement practices.

Third, many transactions do not involve a central trading platform, exchange or registry system. These factors limit market transparency and pose potential challenges for participants, especially consumers.

Among proposed solutions is the establishment of clear rules about the types of offset projects and increased oversight. Some options for increased oversight include requiring the use of standard quality assurance mechanisms, mandating the use of a common registry, establishing product disclosure requirements that help consumers evaluate an offset's quality, establishing best practices, developing a single verification system, providing financial or regulatory incentives or developing voluntary programs to encourage participants to take certain actions, and regulating the allowable types of activities that can generate offsets.

All these must be considered and addressed in the future and require immediate participation by industry leaders. Yet, even once quality assurance mechanisms are in place, they will still be highly dependent on the ethics, competency, and availability of qualified experts and professionals to implement them. Just like financial accounting, the rules for greenhouse gas measurement and accounting are of no use if there is an insufficient supply of competent professionals to implement and enforce them.

Greenhouse Gas Accounting to Become Professionalized like IT Industry

In a remarkable indication of how the emerging industry has advanced in a relatively short period of time, 77.2% of respondents now expect that GHG accounting and management will become professionalized in a fashion similar to that of the Information Technology industry in the 1980s.

Some 30 years ago, the Information Technology (IT) industry experienced tremendous growth as it emerged from the humble origins of start-up businesses and garage entrepreneurs into the homes and business of most participants in the global economy. Today that industry is represented by more than 10 million IT professionals throughout the world, many of them certified in some way.

The expansion of IT professions was unprecedented with sustained periods of double digit growth as the industry continued to reinvent itself first with computer hardware, then software and now Internet technologies. The impact of the industry has been a vast and powerful force upon the world and directly or indirectly impacted nearly all human life.

Like the IT profession, the greenhouse gas and climate change workforce now finds itself emerging as a still loosely defined "occupation" that is quickly being thrust towards the forefront of society.

It not only represents a dynamic and emerging profession, but arrives as a potentially powerful force of technological, economic, and social change in the world.

The rise of new green jobs in renewable energy, green building and construction, alternative transportation, sustainable agriculture, and the like, are the first tangible results of efforts to tackle emerging environmental issues. Many see these eventually coming to represent employment for millions of workers throughout the world.

New issues are emerging out of climate change that are beginning to dominate the job market and the global economy, including the rise of clean technologies, massive job growth in the renewable energy sector, an increase in sustainable agriculture and in general building jobs. Clean technologies, for example, are now the third largest sector for venture capital in the United States, just behind IT and biotechnology. In China, green venture capital also more than doubled to 19% of total investment in recent years. This phenomenal growth seems only to be the beginning.

Looking at the job prospects in recent years in the renewable energy sector, the United Nations estimates that 2.3 million people around the world have started a job in this industry and the potential for job growth is still massive. They believe that employment in alternative energies will rise to 2.1 million in wind, 6.3 million in solar power and on the order of 12 million jobs in biofuels-related agriculture and industry by 2030.

"Climate change is the most important issue of the 21st century. A comprehensive international response must be underpinned by transparent and credible assessments of emissions. Achieving this requires rapid and widespread mobilisation of sufficiently qualified professionals working with recognised procedures. This is not just a challenge, but also an opportunity for creation of new and rewarding professional careers globally."

Matt Spannagle
United Nations Development Programme

Directly or indirectly though, all these industries feed from or are affected by global climate change. And at the forefront of climate change is greenhouse gas emissions accounting and management.

Fully addressing climate change will require significant changes in society and its organizations. There are many requirements to create organizational change in relation to greenhouse gas emissions. One is through the professionalization of the field of greenhouse gas management and accounting. Professionalization will occur when an entire class of people makes greenhouse gas accounting, auditing and management part of their professional identity.

This professionalism will not occur overnight, like other occupations before it, the evolution and development of the trade will require hard work, commitment and time.

Professionalization in greenhouse gas accounting and management will formalize when four distinct events occur: (1) the recognition of greenhouse gas accounting and management as a distinct professional occupation, (2) the establishment of training and the formalization of an academic study that reflect the requisite knowledge and learning of the greenhouse gas management field and that confirms technical proficiency, (3) the formation of professional associations and groups to support continuous learning, occupational and project activities, and (4) the formation of a formal code of ethics and creation of official certifications or licensure for competency.

The demand for greenhouse gas management and accounting experts is increasing exponentially. With this demand, it is imperative that the caliber of those responsible for this work meets a high, uncompromising and consistent standard. It is also vital that the population of professionals with the expertise to measure and address greenhouse gas emissions is globally widespread.

A global problem, climate change requires a global solution. The establishment of a formal greenhouse gas accounting and management occupation, development of training and formation of professionalized community will be a powerful force to help us combat climate change and provide that solution.

Educational Universities are not Adequately Training New Graduates with Greenhouse Gas Accounting and Management Skills

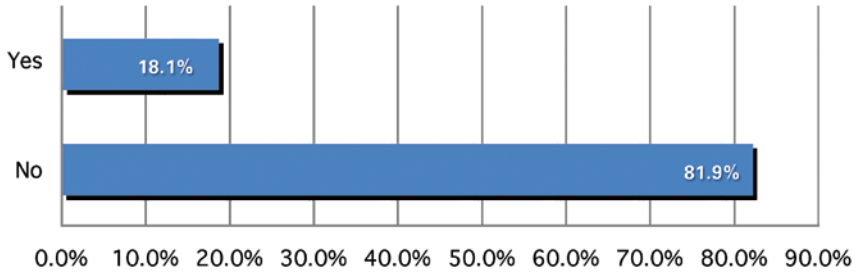
81.9% of all respondents believe that our educational universities are not currently providing the necessary skills for new graduates to work within this emerging industry.

When results are specifically broken out by respondents working within educational institutions themselves, this number is even higher, at 84.1%

As the need for climate change solutions continues to grow, so does the need for properly educated and trained greenhouse gas management and measurement professionals.

A staggering 81.9% of all respondents believe that our educational institutions are in fact not providing the necessary educational background and skills necessary to work within the industry. Even more compelling, when results are specifically broken out by respondents from educational institutions themselves, this number is even higher at 84.1%.

Do you think our educational universities and institutions are adequately training new graduates with greenhouse gas, accounting and management skills?



Universities and colleges are typically the first place one thinks of when they hear the term "advanced education." Unfortunately, these institutions alone do not currently provide education for the full spectrum of needs within the climate change industry. Though many institutions offer courses in atmospheric sciences and the relevance of climate change to other topics, the challenge with the development of a thorough professional training program is that climate change stretches across academic disciplines. It has important connections to various studies such as engineering, chemistry, biology, political science, economics, business management, and more. We have observed that graduates seem to gain some exposure of climate change as it relates to their major area of focus, but are not obtaining the comprehensive skill sets needed in the carbon market and greenhouse gas management industries.

"Let us not forget that the most important investment we can make in our efforts to mitigate the severe impact of climate change is the investment in human capital. The skills and knowledge of an educated and trained greenhouse gas reduction workforce is our most powerful tool"

Gord Miller
Environmental Commissioner of Ontario

Some people may be quite enthusiastic to learn about designing control systems which can be used in coal-fired power plants to monitor and control emissions. Others may wish to learn about the effects of climate change on international relations. Still others may want to learn how to design more efficient solar panels. It is quite possible to gain knowledge of these things at a university.

But other fields related to greenhouse gas emissions management and carbon markets have very little presence at academic institutions and the level of detailed knowledge that is required in the industry is simply not currently offered. There is a big difference between knowing that ISO 14064 exists and knowing the CO_2 emissions from the combustion of biomass must be quantified separately from other direct CO_2 sources.

For some years, there has been a call for action heralded by select industry educational and scientific leaders in this regard. They have advocated and undertaken the development of certification and accreditation programs. In light of industry growth, it seems clear now that there is critical need of these types of programs; programs specifically targeted at professional practices with regard to measuring, accounting, auditing and managing greenhouse gas emissions.

Such education would encompass both the instruction and conveyance of knowledge, ethical conduct, and technical competency. It would also focus on the development of skills, trades or professional pursuits.

Areas of training would have to include general and project-level greenhouse gas emissions accounting, sector-specific methodologies, product carbon footprinting, validation and verification, and climate change risk assessment. As well as an understanding of commodities markets, professionals will need an understanding of business analytics related to emissions management, and of technological solutions to climate change.

Because this is an international industry and is currently represented by such a small pool of professionals situated throughout the world, innovative e-learning, regional workshops and training systems will also initially need to be developed.

Social institutions and driving societal forces can affect educational processes and outcomes that can help academia establish disciplines specifically related to greenhouse gas emissions. Just as powerfully, education is a means of not only providing knowledge, but motivating and aspiring progress for the betterment of society.

To undertake this process, multiple frameworks must be employed, including further establishment of professional groups and associations, formal industry recognition of experience and expertise and eventually the development of graduate and post graduate courses. This can only be done through establishment of accreditation programs and mandatory verification training, outreach to universities to develop curriculum, creation of regional partnerships and collaboration between the United Nations, governments, non-governmental organizations, corporations and other market participants.

Truly representative of a the global threat, the global effort to train and educate professionals that will account, measure and manage greenhouse gases and mitigate climate change requires unprecedented cooperation and commitment.

Data and Collections Methods

The Greenhouse Gas and Climate Change Workforce Needs Assessment Survey was designed to obtain qualitative and quantitative responses with regards to industry perception, growth, the emerging profession, workforce, policy, protocols, human capital and training.

Survey invitations were sent to members of the international greenhouse gas and climate change community. These included organizational leaders, as well as senior, mid, staff, and entry level professionals in varied governmental, private and non-profit groups. The survey was promoted widely and participation was open by request to qualified individuals. Data was collected via Internet with each participant having an individual survey code and responses kept anonymous and confidential.

The survey was divided into four short sections, each with approximately seven to ten questions. On average, we estimated that it would take between five to ten minutes to complete, but in some cases it was longer for thoughtful responses and some individuals returned to finish their survey on separate occasions. Overall, 849 individuals participated in the survey, but results were only tabulated from the 719 that completely finished the survey and confirmed completion via the final submit survey button (i.e., finalized drop off response rate was roughly 10%).

The data was deposited into an SQL database through survey software interface and reviewed as necessary to confirm validity. The respondents were divided into industry groups according to responses and, in some cases, the groups were combined to allow for more insight through cross-tabulations. This report includes summary results of the survey and analysis of the responses as well as our insights and recommendations. In addition, we have provided several brief quotes from community members and leaders to help reflect or illustrate key points of data findings in the report.

While we have made every effort to receive representative responses from a good cross sampling of the broader international community, the survey is biased by the fact that it was only offered in English. While English is widely used within the international community, we had no way to fully ensure that a representative sample across all geographic sectors was captured. Additionally, taking the survey required Internet access. While many of the world's experts and those involved with greenhouse gas emissions and climate change are connected to one another via the Internet, Internet access does represent a barrier; especially to individuals in less developed countries or those where access is limited due to organizational or governmental constraints. In future surveys, priority will be given offering respondents the opportunity to participate in multiple languages and attempt to better capture non-English speaking individuals. Thus, while our data is valid, these results simply represent our best attempt to gain information from community members across geographic regions of the world. We believe though, that this data is very reflective of the opinions, developments and trends of the international community.

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The 2009 Greenhouse Gas & Climate Change Workforce Needs Assessment Survey Report