# Mens et Manus et Mundus

# New Directions for Global Education and Research at MIT

Report of the MIT Global Council September 2009



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# **PROLOGUE**

### TO SUSTAIN UNPARALLELED INNOVATION

With this report, the Global Council presents a plan for an historic advance in MIT's approach to international education and research.

How important is this evolution? The Institute's capacity to remain an unparalleled source of innovation depends, fundamentally, on our ability to accomplish this mission.

The following pages are a roadmap for making international studies a core part of an MIT education — and for creating a model community where research, scholarship, and innovation are profoundly informed by global knowledge and awareness.

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# SECTION ONE OVERVIEW

"By preparing our students to work, lead, and thrive in cultures around the globe, we equip them with crucial skills for tackling the world's great challenges."

Susan Hockfield, President Massachusetts Institute of Technology

#### **EXECUTIVE SUMMARY**

The vision of MIT as a global presence is embedded deep in our institutional history. This global vision was expressed publicly in 1916, and literally carved into stone at the center of the new Cambridge campus when it was dedicated that year. The east wall of Lobby 10 is inscribed with the words of President Richard Cockburn MacLaurin, forseeing a vast contingent of MIT students going forth and able to serve effectively "anywhere in the world."

The frontiers of knowledge and technology now stretch around the globe, and in this new environment, MIT continues to lead, serving at the cutting edge of global research and teaching. One of MIT's strengths lies in a vibrant, pioneering international educational infrastructure that encourages students who are passionate about science, engineering, and management to participate in knowledge creation abroad.

Increasingly, however, our students' hopes for productive, sustainable careers depend on acquiring even stronger, deeper, and more refined international skills and understandings. Society's best hope for scientific advance depends on our ability to draw on knowledge from the entire world, and to contribute to knowledge creation across national and cultural boundaries.

These emerging realities present MIT with an historic opportunity. The Global Council encourages the Institute to respond with a bold course — developing the resources needed to deepen international learning at MIT, and make international education a core component of an MIT education.

By building on considerable existing strength and launching several new recommended initiatives, MIT can create a far more strategically designed global education and research infrastructure. No other technical university in the world would have such a powerful, coherent array of international opportunities — designed to give our students unsurpassed abilities to serve, succeed, and lead in the global environment.

We believe this initiative will create the basis for extraordinary new opportunities, and will allow MIT to continue to lead in innovation and excellence. We also believe the initiative will be a manifestly appealing opportunity for the philanthropic community to make a difference. To support this vision we encourage a major effort to attract new resources for international education and research.

#### **GUIDING PRINCIPLES**

This vision in this report rests on two principles that reflect core MIT values:

#### **SOLVING PROBLEMS**

Global education and research at MIT will succeed most by building on the Institute's renowned strengths — as a problem-focused, problem-solving institution of scientific discovery, applied knowledge, and service to humanity.

#### **FACULTY LEADERSHIP**

Major success in this endeavor will rely profoundly on the expertise, endeavors, knowledge, creativity, and enthusiasm of our faculty, and so it is essential that both the content and administrative oversight of global education be a faculty responsibility. The Council recommends plans to ensure that all programs offering subjects, internships, or other experiences linked to international learning, are led and supervised by faculty, who remain accountable to the Deans in their respective Schools.

#### **RECOMMENDATIONS IN SUMMARY**

The Council's key recommendations cluster into three groups: New Initiatives; Vital Infrastructure; and Partnerships-to-Passports. In addition, we recommend one Immediate Action to sustain momentum for this initiative.

#### **NEW INITIATIVES**

The Council recommends that MIT establish the following global education and research initiatives:

#### Launch Global Scholars Program

Launch a Global Scholars Program to provide a committed group of undergraduates with an intensive four-year program of global studies and international experiences to complement their major.

#### **Support Global Challenge Research Assistants**

Earmark graduate fellowship support for "Presidential Global Challenge Research Assistants," who combine disciplinary expertise with interdisciplinary global research projects.

#### Expand the MISTI model

Expand the successful MISTI model, linking classroom learning with hands-on foreign experience under faculty supervision. The Council recommends doubling the annual number of students who participate in student internship and other hands-on projects abroad over the next five years through a variety of efforts, including:

A major expansion and strengthening of programs like MISTI, D-Lab, and G-Lab, and others that, today, have far more demand than they can meet;

### Adding international practicums

to classroom offerings and providing resources for encouraging more professors to employ this creative model of problem-based global learning;

# Encouraging IPOP, IROP, and department-based initiatives,

such as VI-A International, and linking these to classroom learning and country training;

#### Increasing student participation in international research projects

across the Institute by expanding the Global Seeds Fund and other initiatives that connect classroom learning to global research.

#### **VITAL INFRASTRUCTURE**

The Council recommends that MIT:

#### Add Space and Faculty

Enlarge infrastructure dedicated to international studies by adding space and faculty in targeted areas such as discipline-based area studies and foreign languages.

#### **Leverage Existing Programs**

Meet and stimulate student demand by leveraging existing research programs to expand undergraduate subject offerings in cutting-edge global topics such as development, energy, poverty, and international security.

#### **PARTNERSHIPS-TO-PASSPORTS**

The Council recommends that MIT:

#### **Develop Select International Partnerships**

Strategically develop select international partnerships for long-term relationships that encompass comprehensive educational and research activities, and exchanges for students, faculty, and administrators.

#### **Develop a Cadre of International Tutors**

Create an international graduate resident tutor program (iGRT) and continue development of the International House for Global Leadership (iHouse) to enhance the international component of residential learning.

# **Provide Passports for All**

Assist and subsidize every incoming student, who is eligible, to obtain a passport.

# **AN IMMEDIATE ACTION**

### **Appoint a Faculty Implementation Group**

Finally, to sustain momentum and harvest the investment of time, collective wisdom, and effort embodied in this report, the Council recommends that the Provost act with due speed to appoint a group of faculty (including representatives from each academic school and from CUP and CGP), to advise on and oversee the implementation of the recommendations of this report.

#### **BACKGROUND**

#### RESPONDING TO THE GLOBAL CHALLENGE

The great challenges that engage and inspire MIT students, faculty, and graduates cannot be addressed by working only within Cambridge, or within U.S. national boundaries. Nor can they be met by working only with those people whose ideas about defining problems, organizing teams, recovering from failures, or measuring successes are one's own.

Success in the new global environment takes a deep understanding of foreign experience and systems. While MIT has already accomplished much in this area, much more can be done — in both the classroom and the laboratory, and in 02139 as well as abroad. Strategic advances in global education and research are essential to sustaining the Institute as the world's preeminent educational and research institution for scientific discovery and application of knowledge.

The Council believes that MIT's increased global focus will succeed most by building on the Institute's existing strengths, and on our core values and culture: theorizing from practice; faculty leadership; and education and research in the service of solving real-world problems. Success will require building on MIT's past and existing efforts in international education, including the GIR Task Force, GEOMIT, the IAC, the planning phase of the program in global studies at MIT, and the Course VI International Strategy Group. (See Appendix 2 for details.)

#### THE PROVOST'S CHARGE AND MIT PRINCIPLES

In September of 2008, Provost Rafael Reif announced the formation of the MIT Global Council, comprising senior faculty from MIT's five schools and members of the senior administration. The Council was asked to articulate a strategy for boosting MIT's profile in global education and global research in a way that is not merely satisfactory, but "game-changing." In doing so, we have considered innovative approaches that are not only ambitious, but also cost-efficient and sustainable. Our aim is to catalyze an endeavor that fulfills the highest ideals of the Institute, in keeping with MIT's tradition of transformative initiatives in service of society, including programs with vast international impact such as OpenCourseWare.

The goal is to "mainstream" global research and education at MIT, to make MIT a place where global knowledge is recognized as essential for disciplinary mastery. Although this requires adjustments from the *status quo ante*, it also requires that we hew closely to what is best about MIT — particularly MIT's strengths in valuing excellence, sustainability through decentralization, rewarding entrepreneurship, and, above all, nurturing discovery and applied knowledge, as embodied in our motto, *Mens et Manus*.

The title of the report reflects our vision of more fully integrating the world into MIT, and MIT into the world. It also articulates the idea woven into the core of the MIT mission statement: "The mission of MIT is to advance knowledge and educate students in science, technology, and other areas of scholarship that will best serve the nation and the world in the 21st century."

#### **CREATIVE RESPONSES TO GLOBALIZATION**

We believe that the ongoing challenge and opportunities posed by globalization require us to:

- Enhance student capabilities to be leaders in the global community;
- Facilitate cross-cultural communication and learning;
- Expose students and faculty to generators of innovation and knowledge abroad;
- Boost traditional strengths through international cooperation and co-production of knowledge; and
- Facilitate cutting-edge research on persistent and emerging transnational challenges that diminish human welfare.

#### **SOME GUIDING IDEAS**

# **Different Institutional Opportunities for Different Learners**

The Council recognizes that global studies will appeal to some individuals more than to others. For some students, initial exposure to global affairs can be transformative. Even an entry-level course in global studies can shape students' perspectives. Some students will attend occasional seminars or workshops. Others may elect one or two subjects related to global issues.

Those who are eager for more extensive classroom and laboratory experiences might opt to spend a summer abroad in a research setting. And the most ambitious global learners will complete language and culture subjects in preparation for international practicums and multiple internships abroad. The Council recommends that MIT enhance the global experiences of each of these groups of students.

In order to raise the awareness of all students about how their disciplinary studies intersect with global opportunities and issues, we suggest several efforts: offering "Your Major in the World" seminars across the Institute; better utilization of international visitors; new globally-oriented gateway subjects; freshman seminars with global content; and a commitment by MIT to help every member of the student body who is eligible to obtain a U.S. passport.

For students who desire a somewhat more extensive global experience, we suggest the formation of an international "IPOP" internship module attached to the popular UPOP program, transforming a large proportion of UROP research apprenticeships into international "IROPs," and the expansion of MISTI "Global Seeds" funding for international research collaboration.

For students seeking full immersion in global studies, we recommend participation in MISTI, an expansion of course-based international practicums, and creation of a Global Scholars Program.

### **Expanded Language Offerings**

These initiatives will result in increased demand for foreign language classes, which MIT must be prepared to satisfy. We recommend expanding MIT's foreign language offerings for students and faculty starting with, but not limited to, the introductory level.

# **Residential Programming for International Studies**

Residential programming is another important arena for fostering global awareness. The creation of an international graduate resident tutor (iGRT) program has the capacity to add to the global character of an MIT education regardless of one's personal commitment to global studies, and the International House for Global Leadership (iHouse) is an existing program that provides a handful of committed students with intensive, globally oriented leadership training.

In the following sections we elaborate on each of these modalities, detailing activities that can be undertaken in 02139, as well as around the globe.

# SECTION TWO

# THE PLAN IN DEPTH

"Giving MIT students deep knowledge of other languages and cultures, and the capacity to be global citizens and wise leaders, is vital to a 21st century education — and critical to the Institute's leadership position."

Deborah K. Fitzgerald, Kenan Sahin Dean MIT School of Humanities, Arts, and Social Sciences



#### **CAMPUS CLASSES ON GLOBAL ISSUES**

### **Leveraging Research Programs**

MIT students are enormously interested in more classroom learning about major global challenges to humanity and the planet. The Council therefore strongly recommends that the Institute expand subject offerings that address this need. For example, the Institute has a number of interdisciplinary research programs in areas such as energy, the environment, health care, poverty, innovation, and security. Efforts should be fully supported to encourage faculty affiliated with these research units in particular to offer introductory-level undergraduate subjects on these topics that are large enough to accommodate student interest, even if that means opening up multiple course sections and adding TAs.

# **Nurturing Discipline-Based and Applied Area Studies**

We should also expand course offerings on countries and regions of great interest to students. As examined below, limited faculty expertise has been a major impediment to increased course offerings in these areas. The Council advises targeted faculty or lecturer hires to meet the increasing demand for faculty with disciplinary training that is complemented by extensive knowledge of specific geographic areas.

### "Global Gateway" Courses

Global Gateway courses are also an important route for supporting classroom learning about international issues. Freshman Gateway courses can be offered through SHASS and SA+P to provide intensive, foundational introduction to the humanities, arts, and social sciences. These courses would employ interdisciplinary perspectives, and either tackle a pressing theme of global significance — such as poverty, energy, or the environment — or focus in-depth on the issues of a particular region of the world.

We recommend that SHASS coordinate an effort with SA+P/DUSP to offer at least two Global Gateway courses each semester, one on a specific geographic area and one on a particular transnational challenge. Each of these subjects should count toward the HASS distribution requirement.

#### Freshman Seminars

To reach those students who seek an introduction to global affairs, we recommend utilizing MIT's freshman seminar program to teach about global issues in the classroom. As with the Global Gateway courses, offering globally oriented freshmen seminars each autumn will require advance planning and incentives to encourage regular participation by faculty.

The Council recommends that departments consider providing course load reductions as a possible encouragement for faculty who offer globally themed freshman seminars.

#### **OTHER CAMPUS BASED ACTIVITIES**

# "Your Major and the World" Seminars

The Council recommends a systematic expansion of campus-based activities related to global education and learning. Initiatives would include new Institute-wide electives, seminar series, IAP workshops, and other activities available to all graduate and undergraduate students and faculty. The Council also recommends that each department develop and offer an ongoing seminar series on how its core discipline(s) intersect with global conditions.

Each department will decide the appropriate format for its own seminar, and possibilities abound, among them: lectures by faculty just returned from abroad; discussions with alumni who live and work abroad; analyses of the state-of-the-art in other countries' laboratories or firms; global technology transfer issues; and discussion of the global flow of researchers in specific fields.

#### **Teaching about Partner Countries**

When MIT plans major collaborations with institutions abroad, we should include a budget for educating MIT students and faculty on campus about the country or region in which the activities will take place. Only in this way can MIT 02139 derive full benefit from its engagements with foreign institutions.

This learning could be organized via lectures, subjects, seminars, film series, and language classes, inter alia and need not take place as a traditional, semester-long subject. It should also balance the dual needs of meeting student interest in these places with the moral obligation to provide our students with an honest assessment of the social and political circumstances in their intended destination.

#### **CLASSROOM LEARNING ABROAD**

### **Practicums and other Curriculum-Based Programs**

The Council recommends that MIT classroom learning be undertaken abroad in the form of subject-based practicums — field projects abroad that extend classroom learning. These international practicums are an excellent means of promoting globally oriented, creative problem-solving as well as intercultural communication and interdisciplinary cooperation. Existing practicums are typically linked with an institutional partner, relationships that often lead to positive outgrowths, such as MISTI internships and faculty research support. They are often conducted during spring break but can also be offered during IAP or at the end of term as semester extensions.

The model as currently implemented at MIT works well when it is applied, but has high barriers to adoption because it depends so much on the entrepreneurial skills of individual faculty members. However, because international practicums optimize MIT's strengths — particularly the integration of classroom and field-based learning — the Council believes that these barriers can be minimized, and that international practicums should be scaled up by departments and normalized across the five schools.

To that end, the Council recommends the creation of a "global practicum list" that would provide listings of subjects with practicums that students can access easily, and that would help faculty carry out the logistics of running international practicum programs. In addition, some practicums can be designed to work with immigrant communities in the metropolitan-Boston

area, activities that clearly enhance global education and research. An example is the MIT Department of Urban Studies practicum in Lawrence, "the immigrant city," which is engaged in a struggle for economic and cultural renewal. The MIT@Lawrence practicum provides technical assistance in affordable housing, community asset building, and youth development.

# **Targeted Study Abroad**

Study abroad offers the promise of learning how other cultures approach similar intellectual challenges. These opportunities can be facilitated by identifying select global university partners capable of providing such educational experiences. The Council supports study abroad, but only when there is strong departmental support and direct faculty involvement, and after thorough, department-based evaluations of host institutions for the quality and value of the educational experience.

There are many challenges to address, such as quality control, transfer of credits, and tuition arrangements. The effort and overhead for coordinating this sort of study abroad could be high and should be considered only as part of a broader comprehensive and long term institutional relationship and where MIT could take advantage of economies of scale by sharing successful practices and program templates across multiple institutional relationships.

### **Strategic Institutional Relationships**

MIT is often responsive and opportunistic in developing international institutional partnerships. The Institute should, in addition, proactively develop strategic relationships at the Institute and departmental levels with select "targeted" international universities and institutions. Such relationships should not detract from individual and other small-scale connections, but could provide opportunities for deeper and more substantial research and educational collaborations, and for visits and exchanges by undergraduates, graduate students, faculty and administrators. In addition, MIT should develop targeted international relationships where MIT can contribute to local institutional building and problem solving. We recommend such relationships especially in areas of MIT strength, and when the endeavor provides service and learning opportunities for our students and faculty.

# LEARNING BY DOING

We have made the case for more, and more coordinated, programs that encourage MIT students to apply their classroom learning to problems abroad, as well as at home. We also note that a remarkably diverse set of mechanisms for applied international learning has already evolved at MIT.

In the 1980s, MIT revolutionized foreign area studies in the U.S. when MISTI was created as the nation's first program of applied international studies. Still the world's largest and most innovative such program, MISTI has been joined at MIT by a number of very innovative programs, including D-Lab, G-Lab, and J-PAL, each of which is wired in a distinctively MIT way: each marries research to education in order to solve some of the most vexing problems in world affairs; and each is characteristically "hands on," the antithesis of "academic tourism."

Unfortunately, too few students take the chance to step outside to learn in a foreign setting under MIT auspices. The Council believes that MIT can increase the number of its students who undertake internships overseas, especially in laboratory and corporate environments. We recommend scaling up existing initiatives, of which the following are representative:

### MIT International Science and Technology Initiatives (MISTI)

MISTI is currently the largest set of opportunities for students to combine global learning with on-campus activities. It has grown from a Japan Program with a handful of students to a program that offers undergraduate and graduate internships ranging from summer months to a year in nine countries. In 2009, MISTI placed 386 students, yet can satisfy only half the current demand. Participation in the program requires prior on-campus learning in foreign language, culture, and history before MISTI will place students in laboratories abroad. Some combination of MISTI funding and host institution support covers all the students' expenses.

The Council recommends that MISTI serve a larger number of students by: I) diversifying the range of offerings from entry-level internships (that might have as prerequisites only one subject plus a training course), to full-scale lab and corporate internships after more intensive course preparation in MIT classes on language, history, culture, and politics; 2) increasing the number of countries covered in MISTI to include emerging world powers like Brazil, Russia, South Africa, Korea, and Nigeria; 3) using MISTI expertise to provide faculty leadership, orientation training, and support for a range of other global educational activities at MIT such as IPOP, IROP, and VI-A International internships.

# D-Lab

D-Lab is an immensely important, over-subscribed, and rapidly growing program that combines social science and engineering approaches to development challenges. It emphasizes hands-on technical problem solving, reaches a large number of undergraduates, provides students with substantive experiences abroad, and has an enormous positive impact on poor communities in other countries. The Council recommends that MIT significantly scale up D-Lab by: creating additional teaching sections to accommodate student demand; integrating it more coherently across the Institute; increasing its lab space; and providing a larger, stable number of dedicated TA-ships. Efforts to create a "D-Lab Plus" could consist of reinforcing the existing D-Lab

program and creating stronger links to other initiatives on campus such as G-Lab and the Deshpande Center, which could help translate some of the design innovations created in D-Lab into viable, marketable, products, services or enterprises.

# MIT Global Entrepreneurship Lab (G-Lab)

Students in G-Lab work with entrepreneurs from developing countries as part of a subject taught by Sloan faculty, helping develop their businesses. The core component is a 4-month internship (three weeks on site) in which teams of four MBA students work with firms to overcome obstacles to growth. Most G-Lab companies are for-profits enterprises, but others, such as G-Lab-Global Health Delivery/Africa, work with both non-profit and for-profit organizations.

In 2008, 183 Sloan School MBA students worked with organizations in 19 different countries. Many of these organizations are "repeat customers," in that they have hosted G-Lab teams in the past and, because of the value received, re-applied for new teams to work on new problems. Student demand for this course far outstrips supply. Notwithstanding that G-Lab has added an additional third section, all sections of the course fill up immediately. Because of the Sloan School bidding system, these sections consist almost entirely of Sloan MBA and Sloan Fellows students. In order to accommodate students from other MIT departments and schools, and to create genuinely interdisciplinary teams of students working on G-Lab projects, we recommend that increased resources be dedicated to enhancing G-Lab's teaching staff and infrastructure so that this unique experience is available to all qualified MIT students.

### **International UPOPs (IPOPs)**

MIT's existing Undergraduate Practice Opportunities Program (UPOP) is a proven model for helping our students find internships and succeed in the professional workplace, but its focus is on internships within the United States. Some of these internships are international, and we recommend growing the international option in UPOP, "IPOP," with a high enrollment target to help MIT sophomores find exciting, introductory-level summer internships abroad, and teach them skills that will help them succeed in an international workplace. These internships will not require as high a "front end" investment in language training, but could stimulate students to seek the educational tools needed for successful MISTI placements in subsequent years. Priority for acceptance into IPOP should be given to students who have completed classroom study on relevant global issues.

#### **Department-Based Initiatives**

Departmental-based initiatives offer another important avenue for expanding global studies at MIT. An example: in 2006, the Department of Electrical Engineering and Computer Science globalized its pioneering and successful Course VI-A Masters of Engineering Thesis Program. The program now provides professional experience in an industrial environment abroad and offers students the opportunity to do a masters of engineering thesis under the supervision of both MIT faculty and company engineers. By collaborating with MISTI faculty and staff who provide an orientation for the students, the VI-A International Program represents a model for cross-campus cooperation and enhancing students' global experience. The Department of Materials Science and Engineering has its own department-based initiative for student internships within their discipline, the III-B internship program. These programs could be expanded and used as models in other departments.

# A NEW PARADIGM FOR INTERNATIONAL LEARNING

THE GLOBAL SCHOLARS PROGRAM

The Council recommends creating a signature program — the Global Scholars Program — that responds, in a uniquely MIT way, to the increasing number of students with a passion for international involvement. The breadth and depth of their focus demands a close, well-coordinated fit between curricular and extra-curricular activities, both on the MIT campus and abroad. Most students attend MIT because of its preeminence in science and engineering. At the same time, more and more high schools feature advanced classes in foreign language, history, and politics, and increasing numbers of high school students travel with clubs and families to other countries.

In addition, many MIT undergraduates were born abroad or have parents who were. Consequently, many students come to MIT already excited by the prospect of collegiate-level international activities. Increasingly, students are looking for a university that can meet these twin needs — a first-rate science and engineering education with a first-rate international academic and internship experience.

At the same time, however, many MIT students face significant barriers to fulfilling these two goals. For some, the demands of the major field of study prohibit them from exploring extra classes in global humanities and social sciences, or from traveling abroad. For others, the passion to become a global citizen comes later in their undergraduate experience, when it seems nearly impossible to master the requisite languages. MIT must be responsive to all its students, creating opportunities that fit the many different circumstances in which our students find themselves.

As a GSP student, the MIT undergraduate would identify a country or region to study in depth and in person from the start of their time at the Institute. The student, working with his or her advisor, would then identify six classes in humanities, arts, and social sciences that focus on that country; they would be encouraged but not required to take the relevant language classes as well.

Students would be guaranteed two experiences abroad through programs that already exist at MIT — MISTI, D-Lab, several study abroad programs, and so forth. These would occur primarily in the summer. In addition, students would attend a monthly "Global Tables" dinner meeting with MIT faculty who are interested in the same part of the world; most dinners would feature a speaker from MIT, industry, or academics visiting from abroad. Finally, students would be mentored closely by faculty from both the science/engineering and the humanistic/social sciences disciplines. The Council envisions MIT reaching a goal of between 50-100 students in the Global Scholars Program per year.

### In practice, the Global Scholars Program would combine:

six classes in humanities, arts, and social sciences that provide in-depth education in a country, a region, and/or a language; at least two experiences abroad through internships or classes; participation in Global Tables, a monthly dinner with a speaker to which students and faculty interested in that region are invited; and close mentoring by faculty, ideally two faculty members — one from the major and one with specialized area expertise. Most students would be able to claim a Minor in Applied International Studies through the completion of GSP requirements.

"No one's career will take place in a single country, if they're at the cutting edge of science and technology. It's not an option anymore."

Suzanne Berger, Director MIT International Science and Technology Initiatives, Raphael Dorman and Helen Starbuck Professor of Political Science

# IV GLOBAL RESEARCH

MIT is a world leader in cutting-edge research, including research on global topics. However, the Council feels that more can be done to engage students in these endeavors. To this end, the Council recommends the creation or expansion of three major initiatives: Presidential "Global Challenge" RA-ships, the MISTI Global Seeds Fund, and International UROPs. We recognize that our students encounter multiple other international research-related opportunities, such as travel for conferences and exchanges of students for research. These efforts are also positive and worth continuing.

#### Presidential Global Challenge RA-ships

In the late 1980s, MIT faculty from across the five schools collaborated to produce *Made in America*, a study that became the handbook for industrial and technological revitalization in the United States and abroad. Following a similar blueprint, MIT is now seeking a leading role in energy and environmental research by coordinating activities in areas where MIT has existing pockets of specialized expertise. The Council endorses this model and recommends it be adapted and expanded, as an Institute-wide approach, to accommodate initiatives in other areas of global concern.

Specifically, we feel that these programs offer an excellent opportunity for student participation to be expanded dramatically and supported systematically. The Council suggests the creation of a program for interdisciplinary Presidential RA-ships across the five schools to support graduate students who engage in research on global challenges facing humankind. These issues include the work done by MITEI and the MITERC, as well by research groups working on other issues where MIT has potential centers of excellence, such as health care, poverty, international security, climate change, and innovation. The Council believes there should be an explicit determination to avoid "stove-piping" by discipline or research center.

#### MISTI Global Seeds Fund

The MISTI Global Seeds Fund was established in 2008-09 at the Center for International Studies to encourage international research collaborations involving MIT faculty and students. It offers grants for early stage workshops with colleagues abroad with additional funding if these projects engage MIT undergraduates. The faculty response to this new program has already been extremely positive: in its first year, 103 applications for these funds were received, and 25 grants were awarded for collaborative research with colleagues in 10 countries. Funded by the Provost's Office, with some external gifts, this program requires significant additional outside funding if it is to continue. The Council recommends expanding the Global Seeds Fund to provide additional incentives for students and faculty to incorporate global partnerships in their research.

# International UROPs ("IROPs")

The Undergraduate Research Opportunities Program (UROP) is another proven model that can be adapted to facilitate learning from international experiences. Undergraduates have expressed strong interest in international UROPs. We recommend an international "IROP" module with a high enrollment target to increase the proportion of UROP research apprenticeships that center

on global issues. While some would naturally involve RA-ships based in Cambridge, we recommend significantly increasing the number of UROP apprenticeships to include overseas travel for research purposes.

We recommend that the current UROP office also serve as a clearinghouse for such IROP research opportunities, but, as in the case of IPOPs, the Council recommends that MISTI faculty and staff provide the global orientation for IROP students. Also, it may be worth requiring candidates for this program to have first spent at least one semester at MIT on the research project to develop familiarity with the research context and ensure that travel expenses yield maximum rewards. Priority for acceptance into IROP should be given to students who have completed classroom study on relevant global issues.



The culmination of the four areas described to this point — Classroom Learning, Learning by Doing, Global Scholars Program, and Global Research — represents a substantial new level of coordinated international education activity across an entire university. The strength of this plan comes, in large part, because it leverages existing programs, and draws on collaborations, intelligence, and expertise from all sectors of the Institute. To support those approaches, we also recommend some judiciously planned infrastructure and capacity building.

Fully aware of the current need for financial austerity, the Council nonetheless believes a major global studies initiative to be so vital to MIT's future, that we support committing new institutional resources to implement this plan. We recommend some targeted capacity-building in seven areas: faculty hires; residential learning; passports for students; visitors from abroad; international tutors program; international clearing house for students abroad; Industrial Liaison Program; and physical space. Each area is described below.

# **Targeted Faculty Hires**

The Council has identified two areas in which the Institute lacks the full complement of faculty required to sustain a high-quality program in global studies: foreign languages and discipline-based regional and area studies.

# Foreign Languages

Foreign language instruction is essential for MIT to prepare students to be global leaders. At present, MIT offers foreign instruction in only five foreign languages. MIT needs a sizeable increase in the number of languages and the range of subjects it offers. The Council recommends a flexible and fiscally responsible strategy that builds on existing capacity and that provides new offerings to meet the needs of students and faculty. In the near term, we urge the immediate hiring of new lecturers to meet current demand as well as to staff IAP classes that currently turn a large number of interested students away. Priority should be placed on offering additional introductory level sections in existing languages, a broader range of languages than are currently taught, and to scale up the use of sidecar modules to teach students "technical language." We recommend a staffing model that includes hiring a senior faculty member — perhaps a "professor of practice" — with sufficient pedagogic training in order to supervise and support the team of lecturers and the expansion of programmatic offerings. Expanding foreign language instruction at MIT will require both more efficient use of current space and the dedicated use of additional classrooms equipped as language laboratories.

#### Discipline-Based Area Specialists

MIT has great strength in the study of some areas of the world, such as Latin America, China, and Western Europe. In other areas, such as Japan, the expertise is shrinking due to impending retirements and departures. However, there are also a number of important regional subject areas in which MIT is understaffed, such as South Asia, the Middle East, Russia & Eastern Europe,

and Sub-Saharan Africa. This has proved to be a significant obstacle to the growth of global studies on campus. As we think about new hires in social science and humanities at MIT, departments should be encouraged to think about hiring scholars who are capable and committed to bringing deep understanding of these areas of the world into their teaching and research within their discipline. Also, potential funders should be identified who could help support such hires. While funding is explored for tenure-track positions in these areas, the use of lecturers to fill immediate gaps in instruction is worth serious consideration.

#### **Residential Learning**

#### **iHouse**

The International House for Global Leadership (iHouse) provides a small group of highly motivated MIT undergraduates with an intensive residential learning experience for developing global competencies. In particular, the program focuses on exposure to project management, interpersonal skills, and knowledge about the world. The Council strongly supports the idea of residential global learning and supports the basic mission of iHouse. It also recommends that the house's focus on global education be expanded, possibly by giving preference to students who elect to minor in applied international studies or who are participants in MISTI, D-Lab, or the proposed Global Studies Program and adding more substantive emphasis on foreign languages, history, culture, literature, and arts to complement the existing focus on international leadership.

#### **International Graduate Resident Tutors**

The Council recommends the creation of an international graduate resident tutor ("iGRT") program. Roughly 40% of all MIT graduate students are international, and they represent an untapped resource for supplementing the formal education of our undergraduates about the wider world. International graduate students are typically ineligible to be GRTs under the current system because receiving free rent on top of their fellowships is a violation of the terms of their visa. However, it is worth examining whether there might be a creative and reliable legal solution that would make it safe for both the student and the university to work around these restrictions, perhaps by charging iGRT's \$1 a month of rent or granting them a unit of course credit (this is what UPOP does for its international students). Of course, iGRT's would have to be screened and trained in order to ensure that they are just as prepared as their domestic GRT counterparts for handling challenging social issues in a residential environment.

#### Passports for All

The Council also recommends that MIT demonstrate its commitment to global learning by becoming the first major American university to actively encourage every student who is eligible to obtain a U.S. passport upon arrival at the Institute. The university should support application logistics as well as subsidize application fees as needed. Doing so would represent a strong symbolic commitment to global studies, and help all MIT students be one step more prepared for global activities.

#### **Utilizing Other Visitors from Abroad**

The Institute welcomes a broad range of mid-career visitors from abroad every year and recognizes international student associations from some five dozen countries and regions of the world (See Appendix 6 below). However, there is little systematic integration of these visitors or students within MIT in general or with MIT's global activities. We ought to better utilize their presence and willingness to inform our students and faculty about their home country and region. The International Visitors' Office together with the Dean for Student Life should develop

programs to connect these visitors more directly to MIT's residential and intellectual life, as well as to the orientation activities for prospective interns when appropriate. Relevant cadres from which to draw include the SPURS/Humphrey Fellows, Sloan Fellows, visiting scholars at the CIS, and the Knight Journalism Fellows, inter alia.

# Information Clearinghouse on MIT Students Abroad

MIT currently has an ad hoc set of arrangements for tracking information about the security, insurance, and emergency information of students abroad. This crucial information needs to be supported and standardized across the Institute. The Global Education Office is designing a centralized system for collecting and maintaining this information. The Council acknowledges and encourages efforts to strengthen logistical support for students abroad, especially in regard to insurance and emergency medical issues.

#### Industrial Liaison Program (ILP)

The Council and the Executive Director of Corporate Relations, Karl Koster, note that there is considerable overlap between MISTI's corporate network, which facilitates placement of interns, and the network of firms that provide unrestricted ILP fee income to the Institute and corporate funding for research and gifts facilitated through ILP activities. The Council believes that ILP is well-positioned to help increase the number of students MIT sends overseas for internships because of its large network of corporate partners abroad. The Council, ILP, and MISTI recognize that some firms may be under the impression that they could be doubly charged by both MISTI and ILP for access to MIT.

We therefore recommend that ILP and programs such as MISTI, IPOP, and IROP collaborate in identifying internships (and funding where possible) for MIT students abroad, while avoiding overlaps of services provided within MIT. Making international corporate internships a priority will require approval and support from the senior administration. (The Council notes that ILP and MISTI are already working together to foster new sponsors in developing markets and to share in joint- and cross-marketing of their distinctive offerings.)

#### **Physical Space**

Recognizing that programming for students should remain the Institute's first priority, the Council endorses the suggestions of Faculty Chair and MITGC member Bishwapriya Sanyal in the Faculty Newsletter (March/April 2008) calling for updated and expanded facilities for the Center for International Studies, laboratory and teaching space for D-Lab and FL&L, the Global Scholars Program, MISTI office space, interdisciplinary hubs for faculty working on the same geographic area, and provision of short-term residential space for visiting fellows from abroad. The construction of a campus hub for global studies and cultural activities is central to the Council's long-term vision.

# THE WAY FORWARD

Always, and especially in times of economic challenge, it is important to fully consider the sustainability and cost efficiency of new Institute initiatives. In making some of the recommendations in this report, the Council has stipulated ways to make them feasible in the immediate term, the long term, or both.

We make the recommendations in this report wholeheartedly — even in challenging economic times — because we believe that MIT's preeminence in education and research can be sustained only through greater adaptation to the increasingly global playing field. Fiscal responsibility is essential, but not sufficient, to advance a historic center of learning like MIT. Indeed, we believe that a signature global studies program is a singular opportunity for the Institute to sow the seeds for its long-term strength and competitiveness.

We also believe that a sound, strategic vision for international education at MIT will inspire generous external funding from far-sighted supporters who will recognize the transformative nature of this endeavor for MIT, for the United States, and for the world we serve.

With the approval and support of the MIT administration and faculty, we recommend the following priorities and criteria for phasing in funding and programming to reach the goals of this report:

#### **CALENDAR FOR IMPLEMENTATION**

#### **TWO YEARS**

Over the next two years, we recommend that MIT:

Cultivate Resources

Identify resource development for global research and education.

Increase Student Internships

Increase the annual number of number of student internships and other hands-on projects abroad by 50%.

Resource Existing Hands-on Programs

Resource the growth of existing "hands-on" programs such as D-Lab, G-Lab, J-PAL, and others to meet student demand.

Create Global Scholars Program

Create a "Global Scholars Program" for undergraduates.

Hire More Foreign Language Teachers

Increase the number of foreign language instructors to satisfy the large unmet demands of students for introductory language classes during semesters and IAP.

Provide Global Gateway Subjects that Meet HASS Requirements

Position global studies in the core of undergraduate education by providing at least two global gateway subjects that satisfy HASS requirements.

Announce Passports for All Program

Announce the goal to help every MIT student obtain a passport.

Announce Presidential Global Challenge Plan

Announce the plan to create a "Presidential Global Challenge RA-ship" program.

#### **FIVE YEARS**

Over the next five years, we recommend that MIT:

Send More Students Abroad

Double the annual number of student internships and other hands-on projects abroad.

Hire Leader for Larger Foreign Language Team

Recruit a professor of practice to develop, supervise, and support an expanded team of foreign language instructors who will significantly increase the number of foreign language subjects offered.

Reach 50-100 Global Scholars Annually

Reach a goal of 50-100 students in the Global Scholars Program per year.

Increase Courses in Global Issues

Increase the number of campus courses on global issues, especially in geographic areas of booming interest such as China and India and issue areas that pose long-term "global challenges" for technical research and practice such as energy or health.

Encourage More Interdisciplinary Global Undergraduate Courses

Encourage faculty in interdisciplinary "global challenge" research areas to offer introductory-level undergraduate courses.

Hire More Faculty for Undergraduate Global Studies

Hire additional faculty in discipline-based area studies to expand global studies offerings for undergraduates.

Create Targeted International Relationships

Establish a set of Institute- and department-level strategic relationships with select, targeted international institutions, providing for opportunities for faculty and undergraduate and graduate student visits and exchanges and studies abroad.

Enhance MISTI Capacity to Provide Global Orientation

Enhance the capacity of MISTI to provide global orientation for students and faculty participating in all MIT activities abroad, including D-Lab, J-PAL, VI-A International, G-Lab, IPOP, and IROP, inter alia.

Provide Passports to All Eligible Students

Reach a goal of 100% of eligible MIT students having a passport.

#### **TEN YEARS**

Over the forthcoming decade, MIT should:

Give Every Student International Experience

Integrate student internships and other hands-on projects abroad in every student's MIT experience.

Offer Foreign Languages to All Undergraduates

Offer all MIT undergraduates the opportunity to complete at least two semesters of a foreign language.

Achieve Leadership in Teaching about Many Global Issues

Lead in undergraduate teaching on a broad range of global challenges.

Make Research Progress

Make scientific progress through new interdisciplinary research initiatives on a broader range of global challenges beyond energy and the environment.

Advance a "Global Hub" on Campus

Make progress toward creation of a campus hub for global research and education.

# VII **CODA** A MODEL OF INTERNATIONAL ENGAGEMENT

The vision and plan detailed in this report will draw on strengths, creativity, skills, and innovations across the Institute to create a global studies and research program that is precisely suited to the MIT community.

MIT's senior leadership has been unambiguous about the importance of global studies. The President, Provost, and Deans all wish for MIT graduates to step more boldly and intelligently into the global arena of ideas, discovery, commerce, and service. The Institute's leadership recognizes that we will achieve this vision only by making a strong, energetic, and deliberate investment in understanding the social, cultural, linguistic and historical dimensions of other societies. In doing so, MIT will secure its leading role in economic and technological advances, at home and across the globe.

As we have detailed in this report, the MIT experience, and our collective intellectual life, can become far more defined by international realities — and in a systematic, strategic, sustainable manner. As we build on successful, long-running pilot programs like MISTI, UROP, UPOP, Course VI-A, D-Lab, and create other new programs and efforts, MIT can become the model of a community where innovation is deeply informed by global knowledge and awareness.

The Council envisions global studies as a core part of MIT education and research, and offers this report as a roadmap for the realization of an historic — and immensely exciting — evolution in the Institute's life.

#### **SECTION THREE**

#### **APPENDICES**

#### I. ACRONYMS

CIS - Center for International Studies

Course VI-A - Department of Electrical Engineering and Computer Science, Master of Engineering Thesis Program

CGP - The Committee on Graduate Programs

CUP - The Committee on the Undergraduate Program

D-Lab - Development, Design, & Dissemination Lab

DUSP - Department of Urban Studies and Planning

ERC - Environmental Research Council

FL&L – Department of Foreign Languages & Literatures

GIR - Undergraduate General Institute Requirements

G-Lab - Global Entrepreneurship Lab

GSP - Global Scholars Program

GEOMIT – Committee on Global Educational Opportunities for MIT Undergraduate Education

GSC - Graduate Student Council

IAC - International Advisory Committee

IAP - Independent Activities Period

iHouse - International House for Global Leadership

ILP - Industrial Liaison Program

IPOP - International Practice Opportunities Program

IROP - International Research Opportunities Program

J-PAL - The Abdul Latif Jameel Poverty Action Lab

MISTI - MIT International Science and Technology Initiatives

MITEI - MIT Energy Initiative

MITERC - MIT Energy Research Council

MITGC - MIT Global Council

SA+P - School of Architecture and Planning

SHASS - School of Humanities, Arts, & Social Sciences

UA - Undergraduate Association

UPOP – Undergraduate Practice Opportunities Program

UROP – Undergraduate Research Opportunities Program

#### 2. PREVIOUS EFFORTS

MIT's leaders have recognized that new global realities require major shifts at the Institute. Department Heads, Deans, the Provost, and the President have already commissioned several reports that in one way or another bear on this topic. This Council has built upon prior efforts whenever possible in order to avoid duplication and reap the greatest gains. Indeed, many members recruited to the Council had served on earlier committees, ensuring that recent lessons could be incorporated in our current work. Relevant past or ongoing efforts include:

GIR Task Force — In October 2006, the final report of the Task Force on the Undergraduate Educational Commons devoted an entire chapter to international experience as part of the core MIT undergraduate education. It emphasized that an MIT education should be designed to encourage students to assume leadership roles in a global society, and strongly recommended that "MIT will make it clear that acquiring experience in living and working with people from other countries is an essential feature of an undergraduate education, work to expand current international education programs that have proven successful in the MIT environment, and develop strategies to create other opportunities that are especially relevant to an environment that emphasizes science and technology. We must aim to allow every MIT student who wishes to undertake a meaningful study, work, or internship experience abroad to do so without financial or academic penalty."

**GEOMIT** — In 2006, the Dean of Undergraduate Education, Daniel Hastings, commissioned a survey of global studies at MIT. The GEOMIT report recommended doubling the number of undergraduates involved in global studies and proposed a global education opportunities program.

Planning Phase of the Program in Global Studies at MIT — In March 2008, Deborah Fitzgerald, the Dean of the School of Humanities, Arts, and Social Sciences (SHASS) submitted a report calling for formulation and implementation of an MIT Program in Global Studies. This Program would consolidate curricular and co-curricular opportunities for MIT students, significantly increase the number of undergraduates who participate in meaningful international experiences, and create concrete ways for MIT faculty to play a key role in the global education of undergraduates from the beginning of their academic lives at MIT. The Global Council's mission included taking responsibility for carrying out this planning.

International Advisory Committee (IAC) — In April 2009, the Provost's IAC recommended an Institute strategy for building relationships with research institutions and governments abroad. While the IAC report focused on external initiatives and contacts, the Global Council has focused on programmatic initiatives in 02139.

Course VI International Strategy Group — In 2008, the head of the Department of Electrical Engineering and Computer Science, Eric Grimson, appointed a faculty committee to develop a new strategy for international presence and engagement in order that EECS at MIT maintain its leadership and pre-eminence in a globalizing world. The MIT Global Council endorses that committee's recommendations, including international experience for all students and partnering with MISTI where applicable.

#### 3. COUNCIL MEMBERSHIP

#### Co-Chairs

Richard J. Samuels,

Ford International Professor of Political Science, and Director of the Center for International Studies

Dick K. P. Yue

Philip J. Solondz Professor of Engineering, and Director of International Programs

#### Rapporteur

David Weinberg, Ph.D. Student in Political Science

#### Members

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Suzanne Berger, Director of MISTI, and Raphael Dorman and Helen Starbuck Professor of Political Science

Charles Cooney, Robert T. Haslam Professor of Chemical Engineering

Michael Cusumano, Sloan Management Review Distinguished Professor (on leave)

Isabelle de Courtivron, Head, Department of Foreign Languages & Literatures; Professor of French Studies

Diane Davis, Head of the International Development Group, and Professor of Political Sociology

Kai von Fintel, Associate Dean, School of Humanities, Arts, and Social Sciences, and Professor of Linguistics

Deborah Fitzgerald, Kenan Sahin Dean, School of Humanities, Arts, and Social Sciences, and

Professor of the History of Technology in the Program in Science, Technology and Society

Daniel Hastings, Dean of Undergraduate Education, and Professor of Engineering Systems and Aeronautics and Astronautics

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Richard Locke, Alvin Siteman Professor of Entrepreneurship, and Professor of Political Science

Anne Marie Michel, Assistant Dean for Development, School of Humanities, Arts, and Social Sciences

Christine Ortiz, Faculty Director of MIT-Israel, and Associate Professor of Materials Science and Engineering Bishwapriya Sanyal, Chair of the MIT Faculty, and Ford International Professor of Development and Planning

Robert Silbey, Class of 1942 Professor of Chemistry

Charles Sodini, LeBel Chair of Electrical Engineering

Lawrence Vale, Professor of Urban Studies and Planning

#### 4. GUESTS

Karl Koster (Industrial Liaison Program), 2/10/09

Bish Sanyal and Amy Smith (D-Lab), 2/10/09

Abhijit Banerjee and Esther Duflo (Poverty Action Lab), 2/26/09

Sandra Harris & Chris Colombo (iHouse), 2/26/09

Dara Entekhabi (Environmental Research Council), 3/3/09

Noah Jessop (Undergraduate Association), 3/3/09

Ernest Moniz (MIT Energy Initiative), 3/9/09

Alex Chan (Graduate Student Council), 3/9/09

Isabelle de Coutrivron & Shigeru Miyagawa (Foreign Languages & Literatures), 4/1/09

Malgorzata Hendricks & Melanie Parker (Global Education Office), 4/16/09

#### 5. MEETING DATES

Fall 2008

Tuesday, 9/9/08, 3-5 PM - E51-095

Wednesday, 9/24/08, 9:30 -11:30 AM - E51-095

Wednesday, 10/1/08, 9:30-11:30 AM - E51-095

Tuesday, 10/21/08, 3-5 PM - E51-275

Wednesday, 11/3/08, 9:30 -11:30 AM - E51-275

Friday, 11/14/08, all day (American Academy of Arts and Sciences)

Friday, 11/21/08, 3-5 PM - E51-095

Wednesday, 12/3/08, 3-5 PM - E51-095

Spring 2009

Tuesday, 2/10/09, 10-12 AM - E51-275

Thursday, 2/26/09, 3-5 PM - E51-275

Tuesday, 3/3/09, 10-12 AM - E51-275

Monday, 3/9/09, 3-5 PM - E51-275

Thursday, 3/19/09, 10-12 AM - E51-095

Wednesday, 4/1/09, 10-12 AM - E51-275

Thursday, 4/16/09, 3-5 PM - E51-275

Wednesday, 5/6/09, 3-5 PM - E51-275

Friday, 5/15/09, all day (American Academy of Arts and Sciences)

#### 6. INTERNATIONAL STUDENT GROUPS

**RECOGNIZED BY THE MIT ASSOCIATION OF STUDENTS** 

#### International Development (5)

China Development Initiative

MIT International Development Consulting

MIT International Review

International Shipping Club

International Association for the Exchange of Students for Technical Experience, MIT

#### International Cultural Groups (59)

Arab Student Organization

Asian American Association

Association of Indonesian Students

Association of Puerto Rican Students

Association of Taiwanese Students, MIT

Australian New Zealand American Club, MIT

Bangladeshi Students

Bhangra Club, MIT

Brazilian Student Association

Bulgarian Club

Canadians Club

Capoeira Angola, MIT

Caribbean-Club

Chamak

Chinese Choral Society

Chinese Students Club

Club Argentino Club Francophone, MIT

Colombian Association of MIT

European Club, MIT

Filipino Students Association

Hapa, MIT

Hellenic Students' Association

Hong Kong Student Society

Hungarian Student Association

International Students Association

Irish Association of MIT

Israeli Association, The

Japanese Association Japanese Society of Undergraduates Korean Graduate Students Association Korean Students Association La Union Chicana por Aztlin Lebanese Club at MIT, The Malaysian Students Association Mes Latino Mexican Student Association MITALY - Italian Student Association Miteri: Nepali Students' Association Mujeres Latinas Nigerian Students Association Oori Organization of Serbian Students **Paksmit** Persian Students Association Portuguese Student Association **ROCSA** Romanian Student Association Rumi Club, MIT Samskritam Sangam Scandinavian Association of Students, MIT Singapore Students Society South Asian American Students Sri Lankan Students' Association Thai Students at MIT Turkish Student Association Venezuelan Students Association at MIT Vietnamese Students

#### 7. MACLAURIN QUOTATION

The following is the full text of a quotation referenced on page 5 of this report, and found on the east wall of the lobby of Building 10, at the center of MIT's campus:

"I see proceeding from our technology of the future a vast army of vigorous young men able to play their part manfully and effectively anywhere in the world."

— Richard Cockburn MacLaurin, 1916, on the occasion of the dedication of Building 10

Adjusting for the fact that the MIT of 1916 was overwhelmingly male, MacLaurin's prescient vision of MIT graduates on the world stage is stirringly apt for our current initiative. With the full-force global education envisioned in this report, MIT's young men and women will be among the most prepared global citizens on Earth — able to serve with excellence and integrity anywhere in the world.

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