

**“Mandates, Concepts and
Tools for Educators Who
Wish to Help Our
Societies Make Progress
Toward Sustainability.”**

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A stylized graphic of a mountain range with white peaks and dark green slopes, positioned at the bottom of the slide.



What Types of Corporation Will Respond to This Type of Advertisement?

To attract companies like yours...We have flattened mountains, razed jungles, filled swamps, moved rivers, relocated towns...All to make it easier for you and your business to do business here.



To attract companies like yours...We have flattened mountains, razed jungles, filled swamps, moved rivers, relocated towns...All to make it easier for you and your business to do business here.

- **Philippine Government advertisement in Fortune. Magazine of September 1999.**



What types of concepts should be being introduced into courses?

- **Concepts of what SD is and what it means for us in daily life as well as how it can be effectively taught.**



Human-ecosystem Relationships

- **If Mankind is to Survive, We Shall Require a Substantially New Manner of Thinking.**
– **Albert Einstein.**



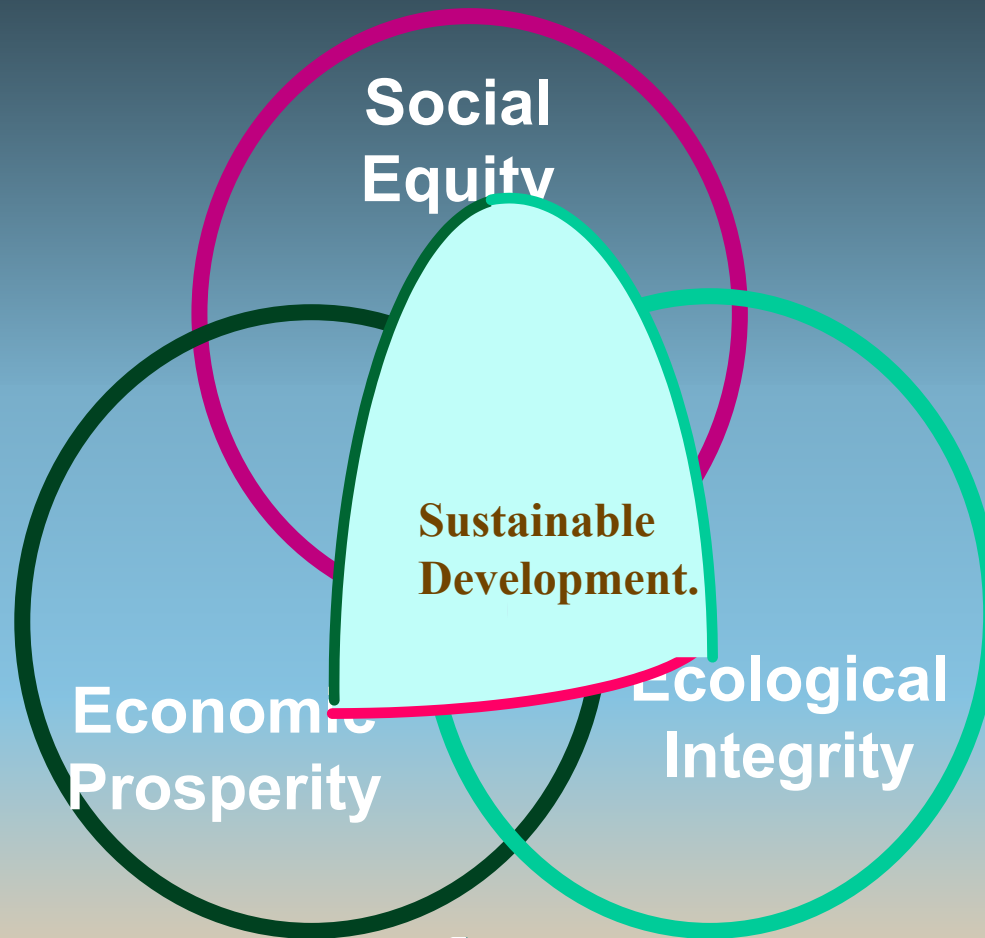
Human-human-ecosystem Relationships

**We Must Begin To See the
Possibility of Evolving a New Life
Style, with New Methods of
Production and New Patterns of
Consumption;
A Lifestyle Designed for
Permanence.**

– E.F. Schumaker.



Sustainable Development



Social
Equity

**Sustainable
Development.**

Economic
Prosperity

Ecological
Integrity

**What is a possible, Guiding
Principle for Making the Transition
Sustainable Development?**

**It Could Be:
The Seven Generation Mandate.'**




What Is 'the Seven Generation Mandate?'

- According to some North American Indian traditions, the tribal council always asked the *GREAT SPIRIT* to guide them in making decisions so that their decisions would be positive for the present and for seven generations into the future.



What Is`the Our Common Future,´ Mandate?

Sustainable Development is meeting the needs of the present generation without compromising the ability of future generations to meet their own needs.



Sustainable Development Is a *Journey*

**..... Not a
Destination!!**





Where Are We and Where Are We Going?

- These questions can be posed at different levels including:
 - Geographically;
 - Locally,
 - Nationally,
 - Regionally,
 - Globally.



Where Are We and Where Are We Going?

- Economically;
 - Quantifiable aspects,
 - Non-Quantifiable aspects,
 - Short-term aspects,
 - Long-term, multi-generational aspects.



Where Are We and Where Are We Going?

– Environmentally;

- In regard to the external envn;
- In regard to the internal envn.



Where Are We and Where Are We Going?

- Politically;
 - At the local, regional, national and global Governmental Levels,
 - At the University Level.



Where Are We and Where Are We Going?

- Philosophically;
 - Human-centered,
 - Eco-centered,
 - A philosophy that supports an integrated eco-human approach.



Where Are We and Where Are We Going?

– Ethically;

- Utilitarian,
- Rule-Based,
- Right's Based.

– From *Ethical and Environmental Challenges To Engineering*, Gorman, Mehalik & Werhane, Univ. of Virginia, Prentice Hall, NJ:



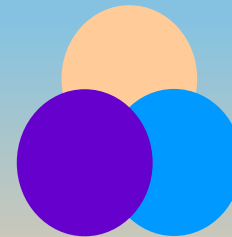
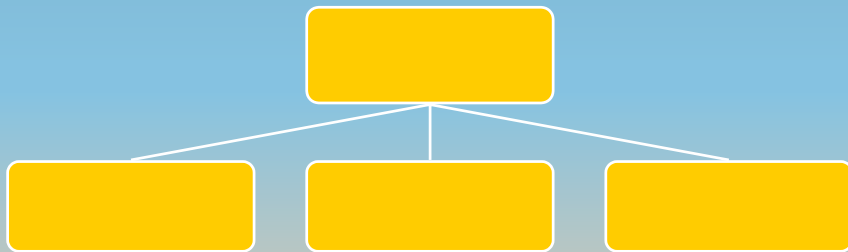
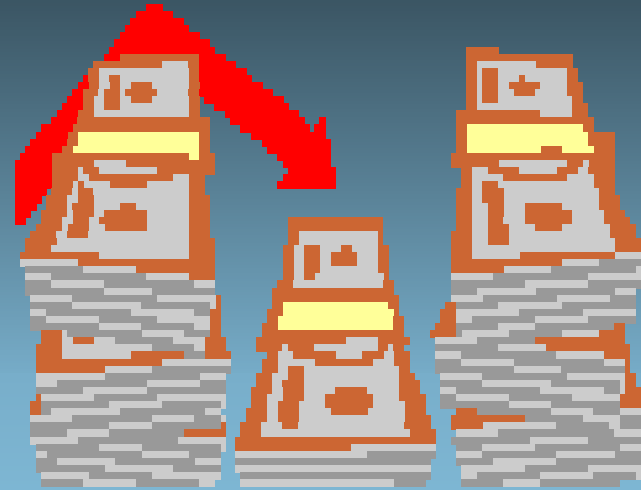
If We Need to Make Changes?

- **What types of changes must be made and who needs to make the changes toward SD practices?**



Changes of Values and Lifestyles are Needed.

BEST
Value \$





- **Overview of this presentation:**
- *Educational challenges and mandates* to help society make the transition to SD.



Some Mandates Are Included in Agenda 21 From the 1992 Rio Conference.

- Among the 40 Chapters of the Agenda 21, Chapters 35, 36 & 37, especially address academic responsibilities.



Chapter 35

Science for Sustainable Development

**Support the prudent management of
the environment and development
for daily survival and for the future
of humanity.**



Chapter 36

Education, Training and Public Awareness

- There is an urgent need to increase people's sensitivity to and involvement in finding solutions for environment and development problems.



Chapter 36

Education, Training and Public Awareness

Educators must provide understanding of both the physical and biological environment as well as the socio-economic environment of human development.



Chapter 36

Education, Training and Public Awareness

- Education can **(Should)** give people the environmental and ethical awareness, values and skills needed to make SD reality.



Chapter 36

Education, Training and Public Awareness

- Therefore, all nation's educators should:
 - Incorporate environment and SD concepts into all educational programs;



Chapter 36

Education, Training and Public Awareness

- Therefore, all nation's educators should:
 - Develop a special emphasis on training decision makers within governments and industry;



But how should we translate those mandates into action within Colleges & Universities?



What Policy Responses Have Some University Leaders Developed in Response to These Mandates?

- Many declarations provide guidelines:
 - The Talloires Declaration of 1990;
 - The Halifax Declaration of 1991;
 - The Swansea Declaration of 1993;
 - The Copernicus Charter of 1994;
 - The Kyoto Declaration of 2000.
 - The Umbuntu Declaration of 2002
 - The Earth Charter



What are our Responsibilities According to these Declarations?

- We must increase awareness and commitment for SD within and outside our colleges and universities;
- We must enhance the capacity of college and university educators to teach and practice SD principles;
- We must create an institutional culture for SD in education, research, policy formation and information exchange;



What are our Responsibilities According to these Declarations?

**We must educate and foster
environmental literacy, environmental
ethics and responsible citizenship for
all.**

**We must set an example to society by
practicing 'Institutional Ecology.'**

**We must utilize academic resources to
address the need for SD.**



What are our Responsibilities According to these Declarations?

- We should encourage partnerships and networking with various stakeholders;
- We should collaborate using interdisciplinary approaches on curricula, research initiatives, campus operations and outreach;
Locally, Nationally, Globally.



What Is Being Done on Some Campuses?

- In the U.S. a *National Wildlife Federation* questionnaire was sent to 3907 U.S. Institutions of Higher Learning. (They educate 14 million students, each year.)
- Responses were received from 891 (22%) of the institutions. The report of the study, '*State of the Campus Environment: A National Report Card on Environmental Performance and Sustainability in Higher Education,*' is available at:
- (<http://www.nwf.org/campusecolog/stateofthecampusenvironment/pre ssrelease.html>.)



What Are Some of the Findings?

Educational activities:

- Although 68% of the biology departments and 33% of the political science programs offer undergraduate environmental courses;
- only 12% of the engineering and 11% of the education programs offer such courses;
- Only 8 % of the Institutions require all their students to take at least one environmental studies course!!



What Are Some of the Findings?

Campus Greening Activities:

- Most campuses have programs to improve energy efficiency for heating, ventilation and air conditioning;
- About 80% have implemented lighting efficiency upgrades;
- Approximately 72% have made improvements in water use efficiency;



What Are a Few Bottom Lines From This Study?

- The publication, *Green Investment, Green Return,* derived from an in-depth study of 13 of the campuses, documented that their programs saved almost 17 million U.S. \$'s through Campus Greening projects.



Indicators Of Campus Progress Toward SD

- **Management systems:**
 - Campus mission statement;
 - Goal setting and review;
 - Written environmental policies;
 - Training and orientation;
 - Accountability mechanisms;
 - Staffing for SD;
 - Incorporation of SD into all planning;
 - Adaptation of the GRI for use with academic facilities.



Indicators Of Campus Progress Toward SD

- **Education and Training:**
 - Implementation of environmental majors and minors;
 - Required environmental courses for all students;
 - Environmental courses offered within each discipline;
 - Professional development of the faculty;
 - Evaluation of teaching and learning;
 - Experiential learning opportunities for students.



Recent United Nations Declaration

- On December 21, 2002, the United Nations adopted a draft resolution on, “The United Nations Decade of Education for Sustainable Development. (2005 – 2015)”
- Although, Japan took the leadership in pushing for its passage, they were joined by 45 other nations.
- Details of the goals, objectives and processes will be completed soon, under the leadership of UN Educational, Scientific and Cultural org.
(<http://www.mofa.go.jp/policy/culture/education0212-2.html>)



International Journal for Educators of SD

- The International Journal of Sustainability in Higher Education, published by Emerald, contains an array of reports of Sustainability efforts in curriculum development, SD research, Campus Greening and Outreach. The journal is available on-line at:
(www.emeraldinsight.com)



University Leaders for a Sustainable Future

- Is developing a “Higher Education for Sustainability Implementation Toolkit.” (<http://www.ulsf.org/toolkit/>)
- Rosalyn McKeown of the U. of TN has developed and published an “Education for Sustainable Development Toolkit for K-12 educators.” (<http://www.esdtoolkit.org>)



Summer Course for University Educators

- “Wanted: Educators determined to help save the world: one classroom at a time.”

Educator’s course on concepts, tools and courses on SD, to be held at U. of TN, July 27 –31, 2003.

Prof. Don Huisingh will lead this course. For more information access:

(<http://eerc.ra.utk.edu/what-new/slowressustain.pdf>.)



International Conference for Educators & Administrators

- “Sustainable Development Education: Holistic and Integrative Educational and Management Approaches for Ensuring Sustainable Societies,” will be held at Monterrey Tec, Monterrey, Mexico, June 9 –11, 2004.

(<http://campus-sostenible.mty.itesm.mx/>)



**IT'S AMAZING WHAT PEOPLE CAN ACCOMPLISH
WHEN THEY WORK TOGETHER.**





Monterrey Tec's Sustainable Development (SD) Programme*

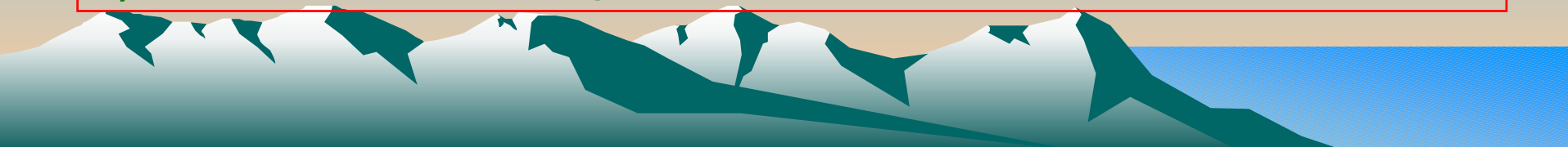
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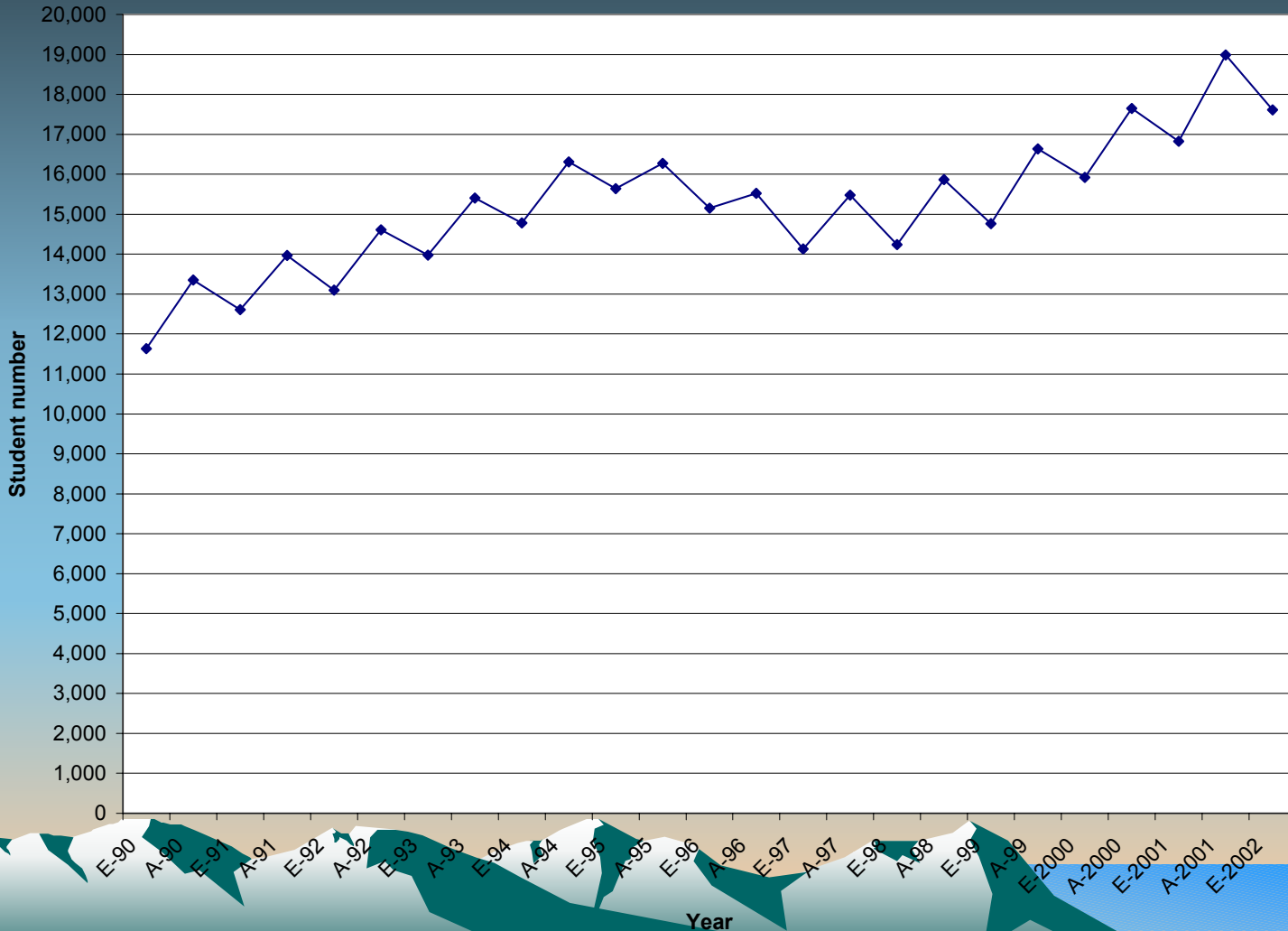
Monterrey Tec's *Sustainable Development Program.*

- 1) Weave SD concepts, as the "Golden Thread," throughout courses and curricula.
- 2) Build and Operate the physical facilities, based upon SD criteria
- 3) Ensure that SD is incorporated, as the contextual framework, for disciplinary and multidisciplinary research
- 4) Co-ordinate and integrate SD into Tec's Societal Outreach
- 5) Prepare and disseminate, internally and externally, regular reports of Tec's SD, plans, programs and progress
- 6) Support, plan and hold "High Level Conferences" on SD and Conservation.



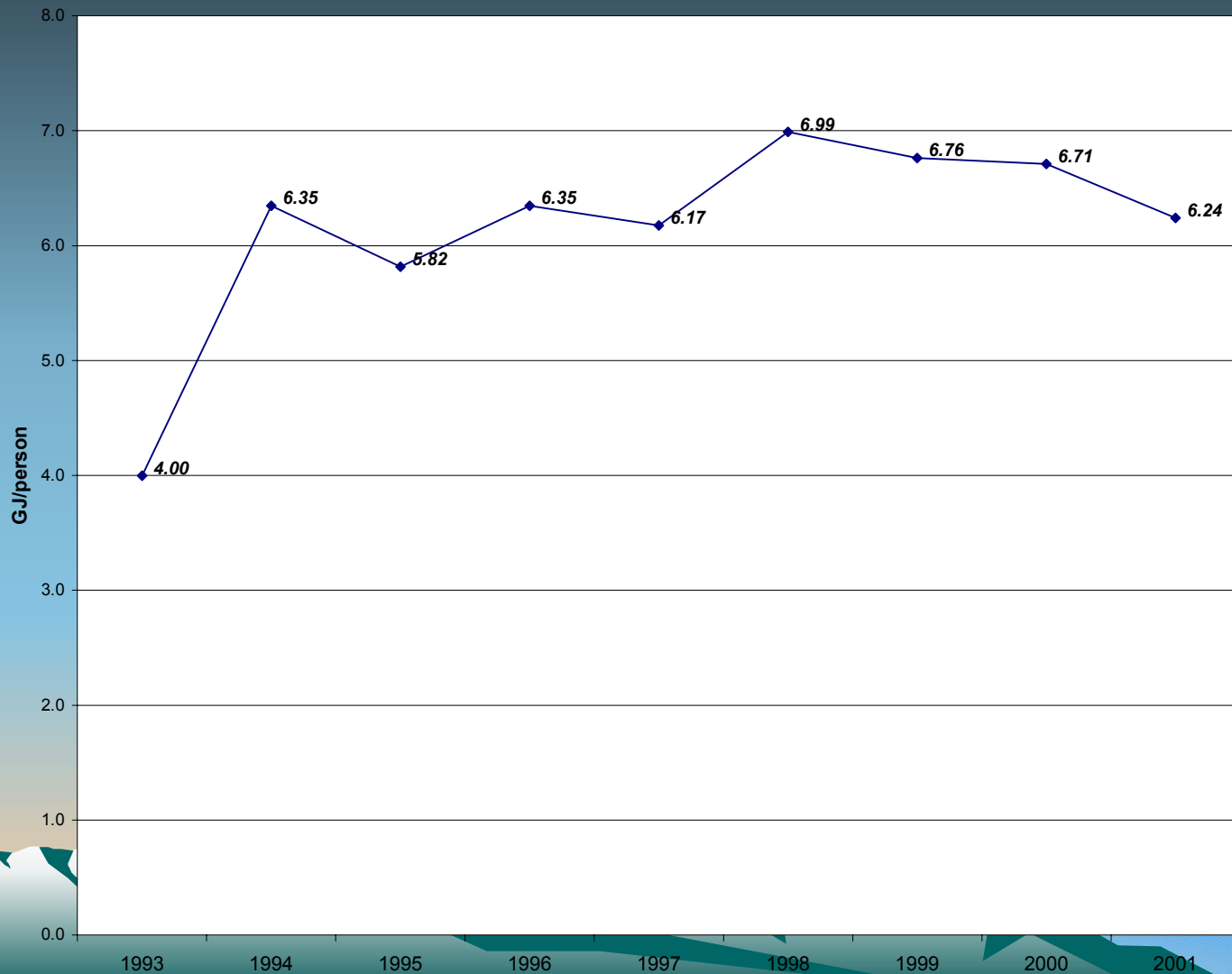
Operate and Build the Physical Facilities, Based Upon Sustainability Criteria

Students in Monterrey Campus



Operate and Build the Physical Facilities, Based Upon Sustainability Criteria

Electrical Energy Consumption per Student at Monterrey Tec



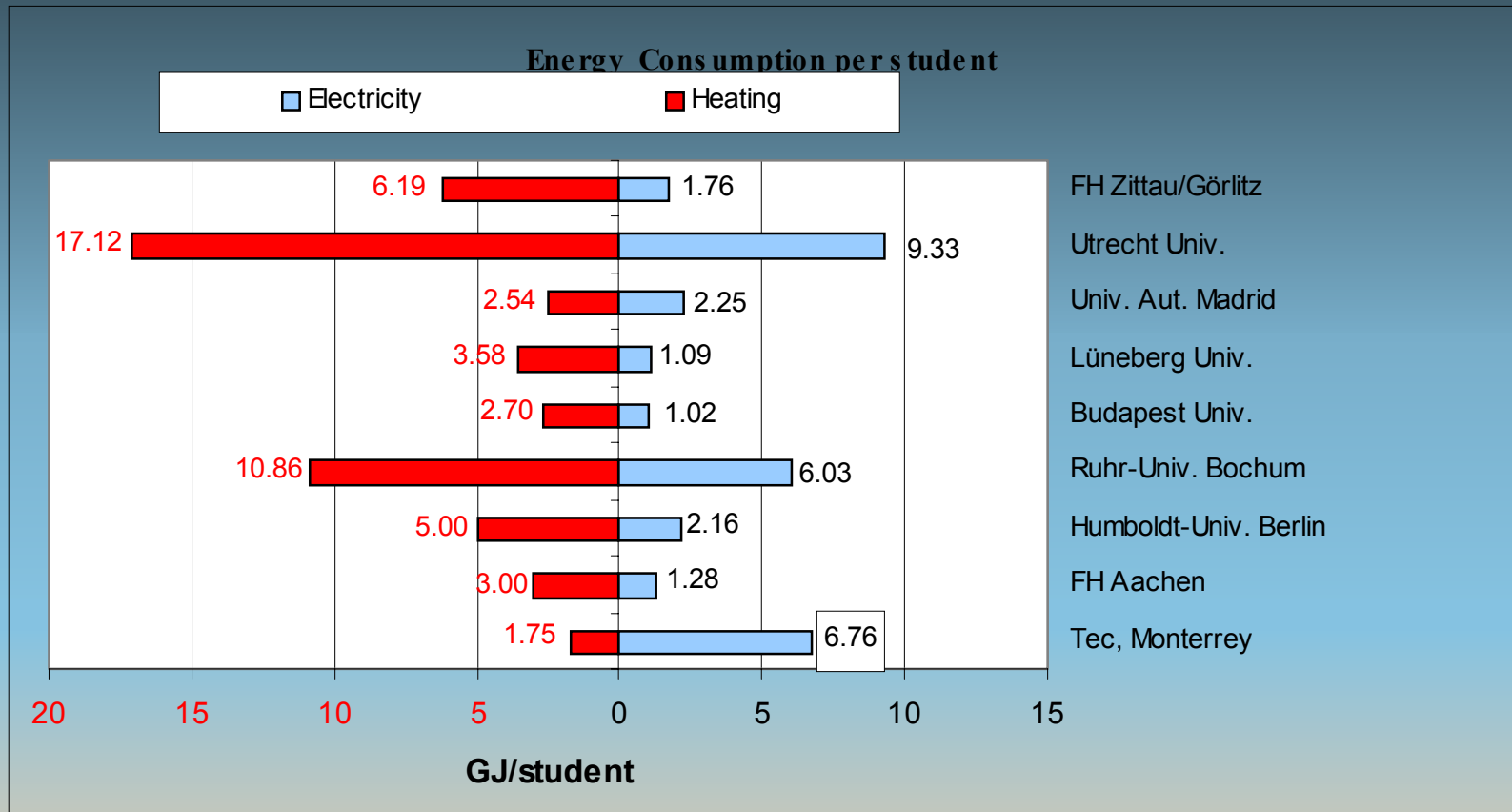
Operate and Build the Physical Facilities, Based Upon Sustainability Criteria

Natural Gas Consumption per Student at Monterrey Tec (1996-2001)



Operate and Build the Physical Facilities, Based Upon Sustainability Criteria

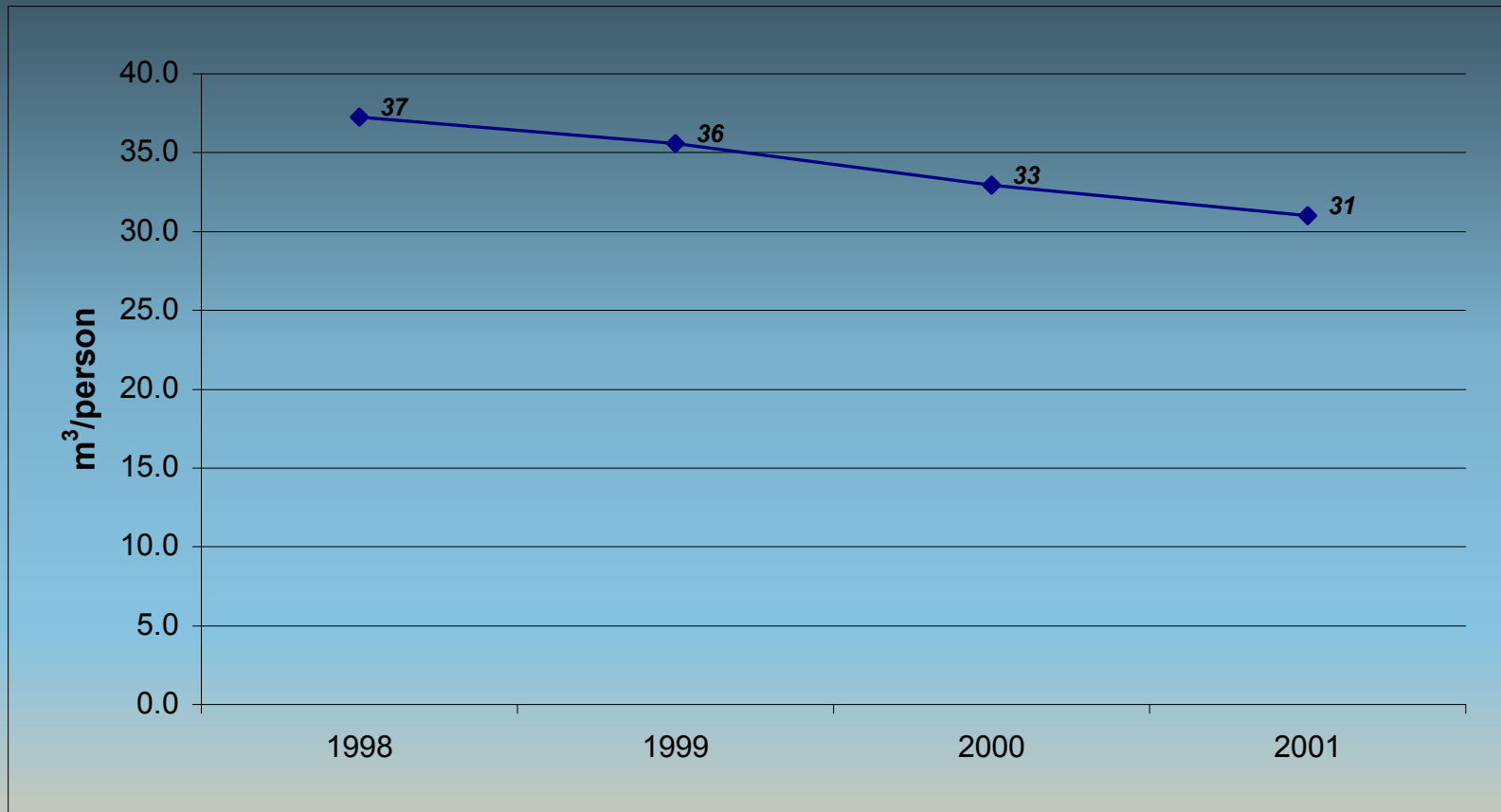
Comparative Energy Consumption in GigaJoules/year/ Student



(Data for European Universities taken from the Low-Energy Project in Copernicus Campus
(<http://www.copernicus-campus.org/>))

Operate and build the physical facilities, based upon Sustainability criteria

Water Consumption, per Student, at Tec from 1998 to 2001.



Campus Sustainable

“Development of Performance Indicators”

- Measuring progress towards sustainability requires generating suitable performance indicators that take into account the full life cycle issues of products or activities.



Performance Indicators

“Campus Physical Plant Operations”

- Electrical energy per capita consumption for 2001:
6.24 GJ/student
- In the last four years there has been an average of **11% per capita energy consumption decrease.**



Performance Indicators

“Campus Physical Plant Operations”

- Natural Gas consumption, per capita consumption for 2001:
1.58 GJ/student
- During the last five years, there has been a decrease of **14 % per capita consumption.**

Performance Indicators

“Campus Physical Plant Operations”

- Water consumption per capita for 2001:
31 m³/student.
- In the last four years there has been a decrease of **16 % per capita consumption.**



Performance Indicators

“Faculty Capacity Building”

- Educate-the-Educators courses were offered in the autumn of 2002 and will be offered throughout 2003 & 2004.

Performance Indicators

“Faculty Capacity Building”

- Presently, Tec is offering 39 courses with SD as the golden thread.
- A first educate-the-educator’s course was offered in July 2002 to 28 educators from architecture, international affairs, civil and chemical engineering.



What About the Future of Tec's SD Program?

Much more must be done on developing “Partnerships” with other academic institutions, worldwide. We hope that participation in this conference will help to facilitate cooperation in new course development, international research and societal implementation of SD policies and practices.





Jenna '78