

METRICS FOR SUSTAINABILITY

**Meeting of the National Academies
Roundtable on Science and
Technology for Sustainability**

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DuPont
Wilmington, DE
17 May, 2006**

Goal for the Roundtable

Mobilize, encourage, and use scientific knowledge and technology to help achieve sustainability goals and to support the implementation of sustainability practices.

How can science and technology contribute more effectively to achieve society's goals of sustainable development?

For this particular workshop segment, concentrate on metrics for sustainability. Metrics are a critical part of the process of converting vision into results.



QUESTIONS ABOUT METRICS

- **What is the purpose of the measurement effort?**
- **What is the intended timeframe for action?**
- **What are the key issues?**
- **How do you set “sustainability” goals for an issue?**

- **How do you measure performance for an issue?**
- **How do you compare the issue metric to a performance standard?**
- **How do you relate the metric to the needs of the intended audience?**



WELCOME TO Pine View, Colorado

Established 1872

Population 732

Pets&Lvstk 3478

Elevation 4755

Weather CBBTB

SmTwn QLI >75%



WELCOME TO Pine View, Colorado

Established 1872

Population 732

Elevation 4755



WELCOME TO Pine View, Colorado

Established 1872.135

Population 731.752

Elevation 4755.004

***Audited by PPS/JGE
(Pointless Precision
Sector of Jobs for
Green Eye-shades)**



WELCOME TO Pine View, Colorado

Established	1872
Population	732
<u>Elevation</u>	<u>5755</u>
TOTAL	8359**

**Verified by 3iDataCen
(Formerly, the Center for
irrelevant, immaterial and
inconvenient Data)



CHARACTERISTICS

Few

Will not confuse the audience with excessive data

Simple

Easily understood by a broad audience

Accepted

Relevant to the concern of the audience who are also in broad agreement with the specifics

Effective

Improvement in the metric actually improves the issue

Robust

Requires minimal exceptions and footnotes

Durable

Remains relatively the same over time



SUCCESSFUL METRICS

- **Pick your issues**
- **Define your metrics and goals**
- **Get started**
- **Drive continuous improvement of your performance and your metrics. The dedvelopment and effect of the Toxic**



From “Red Storm Rising” by Tom Clancy

“... defensive weapons were ... Gatling guns ... in a fully automatic mode, ...missiles came in from aft, not a hundred yards apart. The ... gun tracked on both, but couldn’t decide on which to engage first. It went into Reset mode and petulantly didn’t engage any...”



Study the Lioness

Observe how the lioness hunts, selecting her prey with care and preparation. Carefully stalking it, she bursts from cover in single minded pursuit, ignoring a myriad of tasty opportunities fleeing desperately to either side. That lioness usually brings food home for self and cubs. The easily distracted one, frequently stands frustrated, in the midst of a fleeing cacophony, all tantalizingly
- - - just out of range.



QUESTIONS FOR GETTING STARTED

- How do we identify potential sustainability issues?
- Are there any truly global issues or will we need to focus at a range of national or regional levels?
- Should we try to concentrate on issues that can be significantly addressed through science and technology
- Should we try to focus on a few and demonstrate that we can begin to find our way forward?
- What previous work should we try to draw upon?
- What issues and metrics would we recommend as a place to start?





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HOPES FOR THE ROUNDTABLE

Frame the issues

- Energy and renewable energy
- Water
- Sustainable agriculture
- Human and environmental toxicology
- Assessment of risk

Help resolve contentious issues

- Biomass productivity and energy balance
- Passively safe nuclear power with
environmentally sound waste disposal

Help set the science and technology R&D agenda

- Renewable energy



ISSUES FOR GETTING STARTED

Heavily impacted by science and technology

- Energy and renewable energy
- Water
- Sustainable agriculture
- Human and environmental toxicology
- Assessment of risk

Balanced between societal and S&T

- Habitat and species preservation
- Life style choices
- Urbanization
- Education

Dominated by societal mechanisms

- Public commitment to sustainability
- Population
- Peace
- Governance



Thank you for your time !!!

