United Nations
Educational, Scientific and
Cultural Organization

United Nations Decade of Education for Sustainable Development (DESD) 2005-2014

Guidelines for Creating a National ESD Research Agenda and Plan

UNESCO

Education for Sustainable Development in Action

Technical Paper No. 5 – 2012

Published in 2012
by the United Nations Educational,
Scientific and Cultural Organization
7, place de Fontenoy, 75352 Paris 07 SP, France

Cover photos:
©2004/P-Werquin - Agriculture
©2004/P-Werquin - Pêcheuses Vietnam
©2011/P-Werquin - Femmes Africaines
©Vasant Davé/Grandpa's picnic 2

Graphic design: Helmut Langer
Composed in the workshops of UNESCO

ED-2012/ws/26

About the publication

Guidelines for Creating a National ESD Research Agenda and Plan was written to meet the needs of UNESCO National Commissions, national coordinating bodies for the UN Decade of Education for Sustainable Development (DESD), ESD focal points in UNESCO Field Offices and other stakeholders responsible for ESD research and other aspects of the Decade.

Which organization should convene a multi-stakeholder process to create a national ESD research agenda is a matter to be decided by concerned stakeholders within an individual Member State. In some countries, a ministry will assume responsibility, while in others a national DESD coordinating body, the UNESCO National Commission, a research institute, an institution of higher education, a prominent NGO or another organization will take the lead.

The purpose of these *Guidelines* is to enable Member States to create a national ESD research agenda and an accompanying plan to support that agenda.

ESD research is currently being carried out from international to local scales. While the goal of the *Guidelines* is to create a national ESD research agenda and plan, they can be adapted to a variety of geographic scales. For example, on a large scale, a group of Member States within a geographic region may combine resources to create a regional ESD research agenda to answer questions of interest to all Member States involved. On a smaller scale, the staff of an NGO may wish to create a research agenda to improve their programmes and practices. Thus creating an ESD research agenda as well as a plan to support that agenda is a useful process at a range of geographic scales.

These *Guidelines* build on the:

- UNESCO Guidelines and Recommendations for Reorienting Teacher Education to Address Sustainability (2005).
- Report of the Joint UNU-UNESCO Workshop 'Setting the Stage for a Strategic Research Agenda for the UNDESD' (2006).
- Roadmap for Creating a Research Foundation to Support the UNDESD (UNESCO 2007).
- Roadmap to Research on the DESD, Notes from the 4th ICEE, Working Group on Research (UNESCO 2007).
- UNESCO World Conference on Education for Sustainable Development. Workshop 20: The role of higher education and research in ESD (2009).

Contents

Introduction

The *Guidelines for Creating a National ESD Research Agenda and Plan* are intended to streamline the process of creating a research agenda and research plan to support education for sustainable development (ESD) and the United Nations Decade of Education for Sustainable Development (DESD). A research agenda identifies major themes of research for a specific period (e.g. three to five years). A research plan identifies a number of activities that support the research agenda (e.g. professional development and dissemination of research findings).

Creating a research agenda and plan is a multi-stakeholder process that should tap the opinions, knowledge, experience, needs and desires of a broad spectrum of people who carry out and use research.

A process to create an ESD research agenda and plan requires deliberation on a number of topics, including:

1. Creating an ESD research agenda

A. Goal: identify three to five over-arching themes for ESD research.
B. Involve those who do research, use research and support research and those who could become involved in research in some capacity.
C. Compile an inventory of existing research.
D. Compile an inventory of needs for ESD research.
E. Identify the most important research needs to support ESD in one's country.

In these *Guidelines* ESD research is considered a sub-field of educational research or research related to education, public awareness and training. Such research is carried out in formal, non-formal and informal educational settings.

---

2. Creating an ESD Research Plan

2.1 Building capacity for practitioners and others to do ESD research

A. Goal: involve more people in doing research addressing the themes of the national ESD research agenda.
B. Guiding questions and activities:
   a. Who currently does research?
   b. Which organizations are responsible for the education of researchers?
   c. Who else should be involved in research and educating researchers?
   d. What support do these groups need to carry out ESD research?

2.2 Disseminating ESD research to a broad spectrum of audiences

A. Goal: increase the use of ESD research to inform policies, practices and programmes.
B. Guiding questions and activities:
   a. Who currently uses the results of ESD research?

b. What are the current paths of dissemination of research?
c. Who should also use ESD research within your country?
d. What are other pathways could be used or created to disseminate ESD research?
e. What activities support future dissemination of ESD research to a broad spectrum of audiences that will use it?

2.3 Providing forums for researchers to share their ESD-related research

A. Goal: provide forums for ESD researchers and other educational researchers to meet and share their work.
B. Guiding questions and activities:
   a. How do ESD researchers currently communicate with one another in your country?
   b. How do educational researchers share their research?
   c. Is it possible to link ESD researchers with existing educational research forums?
   d. Is it better to create a separate forum for ESD research only?
   e. What are other possible ways to facilitate and encourage exchange among ESD researchers and to support their professional development?
   f. Is it possible to bring other researchers (e.g. in disaster risk reduction and health education) into ESD to strengthen and enrich the field?

2.4 Enhancing sources of funding for ESD research

A. Goal: increase funding for research to support ESD.
B. Guiding questions and activities:
   a. Which governmental organizations and private foundations currently fund ESD research in your country?
   b. Which governmental organizations and private foundations currently fund educational research in your country?
   c. Which governmental organizations and private foundations currently fund sustainable development in your country?
   d. Could those mentioned in either B or C be convinced to fund ESD research?
   e. Are there other sources of funding that could be directed toward ESD research?
   f. Are in-kind contributions available?
   g. What would a campaign to increase funding for ESD research consist of?

Each of these five components for creating a research agenda and plan is described subsequently in greater detail and complemented by appendices.

Box 1. Research

For this publication, research is broadly defined to include both traditional and 'leading-edge' research methodologies. Traditionally, research was quantitative in nature and performed by 'objective' – and often remote – researchers/observers. Research results were often a one-way flow of information from the researcher or research institution – such as a university – to other researchers, policy-makers, and practitioners. Research has acquired a new face in recent decades. Qualitative research is now valued for uncovering things that quantitative research alone could not and the two are often blended. Research now listens to a mixture of voices, sometimes with conflicting opinions, and reflects those voices in the product. Action research and other forms of participatory research by practitioners are now commonplace.

1. Creating an ESD research agenda

In the research community, a research agenda is viewed as themes of inquiry that should shape the direction of research in a particular field or sub-field. Research agendas typically identify those areas that require new knowledge in the medium and longer term. Research agendas are useful to help individual researchers and research institutions (1) understand how they can contribute to a greater body of knowledge and (2) find their place in the field or role in the larger research picture. Once created, an ESD research agenda is an invitation to individuals and institutions to engage in research that will strategically serve the field of ESD and contribute to the improvement of ESD. Improving ESD through research takes more than individual efforts; it requires strategic thinking and investment across the ESD community.

The goal of creating a national research agenda is to identify three to five over-arching themes for ESD research depending on the needs of a particular country. Globally, the needs for ESD research are numerous (see Appendix A). Studies that generate new or confirmatory knowledge are needed in a wide spectrum of areas to support ESD. The question is: What are the most important ESD research needs of your country?

Given that it is easier to build on the work of others rather than to start anew, two good starting points are: (1) ESD research themes deemed important by others (see Box 3) – then add to or subtract from the list and (2) the four thrusts of ESD described in the International Implementation Scheme1 and the types of research required by each (see Box 4). For countries with established ESD indicators2, reviewing those indicators and related work to date is an excellent start.

For countries that have already begun ESD research, it would be wise to establish if there is a de facto ESD research agenda which, though not formally recognized as such, is operational. For example, is funding targeted to supporting research related to a specific government policy or programme?

1 See online version at http://unesdoc.unesco.org/images/0014/001486/148654e.pdf
2 See for example the Asia-Pacific Guidelines for the Development of National ESD Indicators online at http://unesdoc.unesco.org/images/0015/001552/155283e.pdf

Box 2. Examples of national research agendas

A joint effort by six agricultural education organizations – both international and national – created a set of 22 research priorities in five areas, including the following research priorities for agricultural education in domestic and international settings for extension and outreach activities.

- Ascertain the public's knowledge, views and openness regarding the agri-food and natural resource system.
- Identify the needs and competencies of stakeholders and professional practitioners in non-formal agricultural extension education.
- Identify appropriate learning systems to be used in non-formal education settings.
- Examine appropriate non-formal educational delivery systems.
- Identify and use evaluation systems to assess programme impact.
  http://www.aaaeonline.org/files/research_agenda/researchagenda_longlores.pdf

The National Association for Music Education, U.S.A., created a list of three major areas for study:

- Music teaching and learning in a time of innovation and reform: curriculum, learning and development, assessment, and teaching and teacher education
- Music education for new, diverse, and underserved populations: diversity and inclusion, and school and community
- Supporting and surrounding issues: history, research and dissemination, and advocacy
  Source: http://www.menc.org/resources/view/a-research-agenda-for-music-education-thinking-ahead

The National Institute for Mental Health (NIMH) of the U.S. Department of Health and Human Services has identified four over-arching strategic objectives:

- Promote discovery in brain and behavioural sciences to fuel research on the causes of mental disorders.
- Chart mental illness trajectories to determine when, where and how to intervene.
- Develop new and better interventions that incorporate the diverse needs and circumstances of people with mental illnesses.
- Strengthen the public health impact of NIMH-supported research.
  Source: http://wapedia.mobi/en/National_Institute_of_Mental_Health

Box 3. ESD research themes

The DESD Secretariat undertook a process of consultation with researchers, experts and advisory groups in the early years of the Decade. The process revealed nine recurrent research themes central to supporting ESD:

1. Tracking the progress of the DESD (i.e. monitoring and evaluation).
2. Theoretical underpinnings and critical discourse of ESD (e.g. critical analyses of the evolving concept of ESD).
3. Identifying and analyzing ESD's evolving contribution to the sustainability of society.
4. Identifying and analyzing elements and efforts that support and thwart ESD.
5. Identifying and analyzing ESD's evolving contribution to the educational community (e.g. practice, curriculum and educational outcomes).
6. Documenting ESD successes to encourage replication.
7. Documenting ESD failures to prevent replication.
8. Using research-derived data on ESD to inform decisions.
9. Learning

These research themes can be carried out in all four thrusts of ESD.

Box 4. Four thrusts of ESD

1. Improving access and retention in quality basic education

Enrolling and retaining both girls and boys in quality basic education is important to individuals' lifelong well-being and the welfare of the society in which they live. Basic education should focus on learners gaining knowledge, skills, values and perspectives that encourage sustainable livelihoods and support citizens to live sustainable lives.

Examples of research related to the first thrust include:

- Understanding the relevance of the curriculum to the lives of pupils, either now or when they come of age is needed as is research on drop-out prevention. Despite successful efforts related to Education for All and Millennium Development Goal #2 ('achieve universal access to primary education') to enrol many girls and boys in school, the drop-out rate is high.
- What are the best methods for raising level of practice to ensure quality education that engages diverse learners and makes the classroom a more equitable place for all learners?
- How can we provide quality basic education to children and youth who have dropped out of school?
- What are the benefits of investing in culturally appropriate education for marginalized populations, especially ethnic and linguistic minorities?

2. Reorienting existing educational programmes to address sustainability

Rethinking and revising education – from early childhood to university and adult education – to include knowledge, skills, perspectives and values related to sustainability are essential. Today's students will need to be able to solve tomorrow's problems. Unfortunately, the solutions thereto are not contained within existing textbooks and educational practices. Students must therefore develop creativity and problem-solving skills to create more sustainable futures.

Examples of research related to the second thrust include:

- Understanding and identifying the relevant learning outcomes to reorient curriculum to address sustainability at all levels – from early childhood through university and adult education.
- What are the most effective pedagogies for teaching sustainability at different age levels?
- What educational policies support reorienting efforts and which educational policies contradict such efforts?

3. Increasing public understanding and awareness of sustainability

Achieving the goals of sustainable development requires wipe-spread public information campaigns to advance the knowledge and the actions necessary to help reach sustainability. Cultivating an informed and active citizenry, which is willing and able to act in support of sustainability, will require widespread community education and responsible media that is committed to encouraging lifelong learning in the population.

Examples of research related to the third thrust include:

- Understanding the knowledge, attitudes, beliefs, values, skills, practice and commitment to action required for various issues requiring public involvement and change (e.g. recycling, reducing carbon footprint, conserving water).
- What are the most effective media for reaching different sectors of the public (e.g. youth, women, men, parents, senior citizens) to create support for sustainable development initiatives?
- How can media campaigns be combined with other forms of learning to change practices related to sustainability issues?
- What are the real changes in a community (e.g. reduced fossil fuel use, decreased violence against minorities and fewer people living in poverty) that stem from ESD?
- What is the difference in effectiveness of public awareness and action campaigns characterized by reliable information and empowerment compared with that of campaigns relying on scare tactics and predicting an unattractive future?

4. Providing training

All sectors of society can contribute to sustainability. Both public sector and private sector employees should receive ongoing vocational and professional training infused with the principles of sustainability so that all sectors of the labour force can access the knowledge and skills necessary to make decisions and perform their work in a more sustainable manner.

Examples of research related to the fourth thrust include:

- Understanding the various workforce sectors' training needs related to both sustainability and their employment.
- What are good avenues for delivery and good training practices related to sustainability for different sectors of the workforce?
- What are good practices for providing sustainable development-related training to the small and medium-sized enterprises that make up 99% of all businesses worldwide?
- What are incentives for industries to change from within and provide sustainability-related training to their own employees?
- Forecasts of future labour markets and the knowledge, skills, perspectives and values related to future jobs.

These nine themes and four thrusts are a place to begin discussing ESD research priorities and collectively show a breadth of research possibilities. Research priorities will, of course, be different in each country.

Having developed a general understanding of what ESD research could comprise, the next step is to look at a process for creating a national research agenda for a specific country.

Holding a **multi-stakeholder meeting** – either in person or virtually – is essential to creating a research agenda. This meeting should involve people who:

- do research,
- use research,
- support research (e.g. through financial support or advocacy) or are in a position to support research in the future,
- are positioned to become involved in research in some capacity, and
- understand the larger national efforts in ESD and the DESD (e.g. they are part of the national DESD coordinating body or the UNESCO National Commission).

The purpose of this multi-stakeholder meeting is to talk about the research needs in your country to support ESD-related policy, programmes and practices. Dialogue leading to the creation of an ESD research agenda should include formal, non-formal and informal education.

Participants should answer two questions in the context of this meeting: (1) What exists and (2) What is needed? Through their answers, they will generate an **inventory** of both existing and current research and the needs for ESD research. These two questions should include a variety of ESD dimensions (e.g. sector – formal, non-formal and informal; level – policy, programme and practice; and audience – early childhood, children and adolescents, youth, adults, elderly and disenfranchised populations).

It is important to discuss research needs across a broad spectrum of audiences, including those typically excluded from education. Given that research can delve into issues of exclusion and privilege, applying it to policy and programmes can create more inclusive and equitable education programmes – a core characteristic of ESD.

An inventory of existing research may include studies that are not categorized as ESD research by the author or publisher, but are in fact relevant to ESD.

Research priorities (i.e. what are the most important research needs to support ESD in your country?) should emerge from the inventories and ensuing discussions. These priorities can be made as statements (e.g. obtain baseline data on student performance related to sustainability) or major questions to be answered (e.g. what are effective pedagogies for furthering ESD?). Research priorities can be unified or categorized (e.g. by research population, level, setting, user, etc.).

Admittedly, differences of opinion or tensions may arise in a multi-stakeholder meeting about the urgency and importance of different research themes. The 'What is needed?' list can be studied using a matrix to reveal the roots of the priorities (see Table 1 and the worksheet in Appendix E). Such study and discussion can also help balance priorities by audience and education community sector (i.e. formal, non-formal and informal).

It may become evident after creating a research agenda that support is needed to carry it out. This support is identified and described in a research plan.

Table 1. ESD research priority matrix with examples

ESD Research Theme	Target population	Sector – formal, non-formal, informal	ESD thrust	Level – policy, programme and practice	Audience for findings	Resource availability	Importance to imple-mentation ESD or SD	Other
What are the most effective pedagogies for teaching sustainability?	Educators	Formal and non-formal	First & Second	All three	Thousands of educators, headmasters, policy-makers, teacher education institutions, etc.	Finances low, human resources low	High for the 100,000 teachers and their millions of students	
What is public understanding of water conservation?	Public	Non-formal and informal	Third	Programme	Planners of public information campaigns	Medium (ministry of natural resources)	High – much of the country is facing a drought	

2. Creating an ESD Research Plan

A research plan identifies a number of activities that will support implementing the research agenda. Although research priorities have been identified, a country's ability to carry out the research may be limited. Such limitations could be remedied through capacity-building and other measures. For example, participants in a multi-stakeholder process have prioritized research to improve ESD practice, but few academics, specialize in this field. The effort will therefore require action research on the part of many teachers and non-formal educators, who will need related training. Additionally, someone will need to collect the resulting action research studies and carry out a meta-analysis. An organization will then publish the findings of the meta-analysis for distribution to teachers and educators, as well as teacher education institutions. These groups can, in turn, provide insights both into applying the research findings to improve practice and the implications for various educational settings. In this hypothetical example, we see that training to develop capacity to conduct research and new pathways to disseminate research are equally needed to implement the research agenda. Those needs would be addressed in a research plan.

2.1 Capacity-building

Most countries already have an educational research community within universities, ministries of education and research institutes. Further, universities also train future researchers. Nevertheless, ESD research is so broad that additional researchers may be needed (see Appendix B).

The goal of capacity-building for ESD research is to involve more knowledgeable and skilled people in doing ESD research addressing the national ESD research agenda.

Discuss and inventory

It is important to understand the current research capacities and strengths of the education community prior to writing a capacity-building plan. Ask:

- Who currently does research? (This question inventories in-country human resources for research.)
- Which organizations are responsible for the education of researchers?

Then, ask:

- Who else should be involved in research?
- Who else should be involved in educating researchers?

Then, discuss:

- What support do these groups need in order to carry out ESD research? (Capacity-building to do research can come in many forms, such as training in new research techniques, research design, data acquisition, data analysis and writing research reports as well as how-to manuals, websites and mentoring.)

Future activities

Create a list of capacity-building activities with responsible parties and dates for completion.

Table 2. Sample tasks for ESD research capacity-building

Activity	Date due	Responsible organization or individual
1. Create a self-registry website for ESD researchers	December 2012	National university
2. Contact disciplinary educational organizations (e.g. geography teachers' association) and other educational organizations to ask about their current involvement in ESD and ESD research and form partnerships for the future.	September 2012	UNESCO National Commission
3. Design an action research module and pilot it with primary school teachers	March 2013	Ministry of education with a teacher education institution

2.2 Disseminating ESD research to a broad spectrum of audiences

One of the goals of increasing the existing body of research for the Decade is to increase the use of ESD research to inform policies, practices and programmes. Research supports evidence-based decision-making at every level within the education community (see Appendix C).

Discuss and inventory

Creating a research plan requires that a multi-stakeholder group look at what exists and is needed, this time with regard to research dissemination and use. Participants should begin by making an inventory of what exists by asking:

- Who currently uses the results of ESD research?
- What are current paths for research dissemination?

Then, ask:

- Who should also use ESD research within your country?
- What other pathways could be used or created to disseminate ESD research?
- What activities support future dissemination of ESD research to a broad spectrum of audiences that will use it?

Future activities

Create a list of dissemination-related activities with responsible parties and dates for completion.

Table 3. Sample Tasks for Disseminating ESD Research

Activity	Date due	Responsible organization or individual
Write semi-annual articles on ESD research suitable for primary school teachers and send the articles to disciplinary education organizations for publication in their newsletters.	September and March 2012	Prof. XXX of national university
Work with national Decade coordinating body or with National Commission for UNESCO to find out if there is a national ESD advocacy and communication strategy and how research can be disseminated through established pathways.	December 2012	National Commission for UNESCO or national Decade coordinating body.
Create a manual 'Interpreting and using ESD research for public health practitioners' and distribute to staff members.	March 2013	Ministries of health and education

2.3 Providing forums for researchers

One important activity for strengthening ESD research is to provide forums (e.g. organizing conferences) for ESD researchers and other educational researchers to meet and share their work. Through sharing, researchers hear about other studies and findings, learn new research techniques and skills and gain insight into the larger ESD picture. Because ESD is a newer field, forums for ESD research are few in number. It is important for the growth and evolution of ESD that the people involved in ESD research be provided with opportunities for sharing and learning.

Although forums for researchers disseminate research, they also provide professional development for individuals involved in research.

Providing forums for exchange can be costly. As a starting point, ESD forums can be attached to other educational forums. Combined forums have additional benefits, in that they: (1) raise awareness of ESD in educators who are currently not involved with ESD and (2) embed ESD and ESD research in mainstream education.

Discuss and inventory

It is important to inventory the existing forums for educational research exchange prior to writing a plan for further action. Ask:

- How do ESD researchers currently communicate with one another in your country?
- How do educational researchers share their research?

Then, ask:

- Is it possible to link ESD researchers with existing educational research forums?
  - If yes, which other fields of education would be appropriate for linking?
- Is it better to create a separate forum for ESD research only?

- What are other possible ways to facilitate and encourage exchanges among ESD researchers and to support their professional development?
- Is it possible to bring other educational researchers (e.g. in disaster risk reduction and health education) into ESD to strengthen and enrich the field?

International forums can also be appropriate as long as they address local contexts and no language barriers exist.

Future activities

Create a list of activities to support forums for ESD researchers, with responsible parties and dates for completion.

Table 4. Sample tasks for providing forums for ESD researchers

Activity	Due date	Responsible organization or individual
Create an ESD researchers strand at national education conference	December 2011	Ad hoc committee
Create ESD learning communities in teacher education institutions	June 2011	Teacher education institutions
Organize an end-of-the-Decade conference with a strong ESD research component	November 2014	National UNESCO Commission, national Decade coordinating body

2.4 Enhancing sources of funding for ESD research

Implementing research projects related to an ESD research agenda requires funding. The goal is to increase funding for research to support ESD through a variety of means (see Appendix D). Nevertheless, in most cases new funding for educational research will most likely not be allocated; current funding may be reallocated toward ESD research.

Reallocation of research funding to various education needs should be carefully thought through to (1) promote educational improvement or (2) prevent destabilization of successful educational improvements. For example, if quality education is the current reigning educational paradigm or goal, ESD research can make important contributions and play a synergistic role. By contrast, if the current educational paradigm or goal (e.g. unsustainable development with environmental and social casualties) is not successful, then ESD research can play a pivotal transformational role.

Discuss and inventory

Creating an ESD research plan requires that participants look at what exists and what is needed, this time with regard to funding ESD research. They should begin by making an inventory of what exists by asking:

- Which governmental organizations and private foundations currently fund ESD research in your country?
- Which governmental organizations and private foundations currently fund educational research in your country?
- Which governmental organizations and private foundations currently fund sustainable development in your country?

Then, ask:

- Could those mentioned in response in the second and third questions directly above be convinced to fund ESD research?
- Are other sources of funding that could be directed toward ESD research?
- Are in-kind contributions available? (For example, a research foundation pays for a guest researcher's travel, the host institution supplies the researcher's housing and meals, and the researcher's home institution pays her/his salary.)

Future activities

List activities that will increase funding for ESD research (e.g. what would a campaign to increase funding for ESD research consist of?). Each activity should be associated with a responsible organization or individual and a completion date.

Table 5. Sample tasks for fundraising for ESD research

Activity	Date due	Responsible organization or individual
Create a 2-page briefing paper on the importance of ESD research for your country. Then distribute it nationally soliciting comments and fostering engagement.	January 2011	Ad hoc writing committee
Distribute briefing paper to potential funders of ESD research, both public and private.	June 2011	Participants of stakeholder meeting.
Meet with selected government agencies and private foundations that fund research to advocate for more funding for ESD research.	September 2011	Spokesperson

3. Write a plan and communicate it nationally

Now that the multi-stakeholder group has gone through a process of defining a research agenda and addressing sections of a research plan on capacity-building, research dissemination and providing forums for researchers as well as enhancing funding, all the resulting insights and recommendations should be aggregated, documented (for example in a written report) and communicated nationally.

A common failure in agenda-setting and planning for change is that the resulting plan is not implemented. Below are some guidelines to increase the likelihood that your research agenda will be implemented.

3.1 Involve the right people in the multi-stakeholder meeting to create the ESD research agenda and plan

When planning, it is important to get input from all the people and organizations who will participate in carrying out parts of the plan, as well as representatives of groups affected by it. Inviting the right people initially will promote participants' ownership and buy-in. An inclusive meeting will also diminish criticism at a later stage, which could slow or thwart implementation. In addition, invitations to the process will allow organization representatives to secure commitment and, perhaps, resources for the plan from their management that they could not personally commit. (A word of caution – this process is based on voluntarism; it is therefore inappropriate to 'volunteer' an individual or organization to fulfil a role without their permission.)

3.2 Consolidate planning information and communicate it widely

The ESD research agenda and four or more components of the ESD research plan should be consolidated into one planning document. It is of paramount importance that this document be circulated widely throughout ESD stakeholders, the education community and sustainable development stakeholders. The plan should be readily available (e.g. posted on the Internet) for access by government agencies, private sector and civil society.

3.3 Characteristics of the activities of the ESD research plan

Activities in the ESD research plan should:

1. Be specific – they should be clearly described, such as 'creating a training programme on action research for in-service teachers'.

2. Be measurable – so that an observer can determine whether or not an activity took place (for example, 'raise awareness' is not measurable; however, 'contact 15 agencies currently not involved in ESD research to advocate for ESD research' is).

3. Name a responsible party – without whom the activity will probably not be implemented or redundant activities could absorb resources that could be used on other high-priority activities.

4. Secure acceptance of the responsible party – the responsible organization or group must agree to carry out the activity to ensure it will occur.

5. Link to a timeframe for accomplishing the task – and a deadline for completing the activity.

The plan's activities must also be attainable and realistic. For example, it would not be prudent to plan an expensive longitudinal study if political will, funding and human resources are not available. Forecasting what is attainable and realistic, however, is a matter of practicality and optimism. Progress toward attaining Millennium Development Goal #2 – universal primary education – results from countries around the world making an unprecedented and substantial investment in education.

3.4 Review and revise the ESD research plan

The plan should include a timeframe for review and revision. After six months or a year, a multi-stakeholder committee should meet to review progress both of the individual activities and the plan as a whole. To do such a review, the committee will need progress reports from the organizations and individuals who agreed to undertake activities within the plan. A plan could need revising for a number of reasons, for example:

- The responsible party is no longer in a position to implement an activity.
- The timeline needs to be adjusted according to what has and has not been accomplished.
- Activities need to be added or deleted to reflect new insights from the implementation process.

The plan should be revised as needed and the revised plan communicated broadly.

4. Collecting ESD research agendas and plans

The ESD Section at UNESCO Headquarters in Paris is collecting national ESD research agendas and plans in order to better understand global ESD research activities and needs. Please send your ESD research agenda and plan to esddecade@unesco.org with 'national ESD research agenda and plan' in the subject line.

References

UNESCO. 2005. Guidelines and recommendation for reorienting teacher education to address sustainability. Paris, UNESCO. http://unesdoc.unesco.org/images/0014/001433/143370E.pdf

UNESCO. 2006. Report of the Joint UNU-UNESCO Workshop 'Setting the Stage for a Strategic Research Agenda for the UNDESD'.

UNESCO. 2007. Roadmap for Creating a Research Foundation to Support the UNDESD.

UNESCO. 2007. Roadmap to Research on the DESD. Notes from the 4th ICEE, Working Group on Research.

UNESCO. 2007. Asia-Pacific Guidelines for the Development of National ESD Indicators. Bangkok, UNESCO Asia and Pacific Regional Bureau for Education. http://unesdoc.unesco.org/images/0015/001552/155283e.pdf

UNESCO. 2009. UNESCO World Conference on Education for Sustainable Development. Workshop 20: The role of higher education and research in ESD. http://www.esd-world-conference-2009.org/fileadmin/download/workshops/ESD2009WS20HigherEducationEN.pdf

Appendices

Documents to support creating a national ESD research agenda and plan

A. Importance and benefits of ESD research

B. Practitioners and students as researchers

C. Disseminating ESD research

D. Expanding funding for ESD research

E. ESD research priority matrix worksheet

Appendix A

Importance and benefits of ESD research

Education for sustainable development (ESD) is igniting the imaginations and engaging the energies of people around the world. Much is to be learned from these ESD activities to inform and improve ESD practice and policies. Research is one way forward, in that researchers have the ability to observe and analyze, extract wisdom and lessons from ESD activities and share them with the world.

ESD- related research is needed in many areas, such as policy and/or curriculum analysis, evaluation of ESD practices and/or programmes and learning. Such research will help ESD stakeholders learn from successes and avoid repeating mistakes.

Many types of research are needed to support the ESD effort. ESD research is broadly defined to include both traditional and leading-edge research methodologies, both qualitative and quantitative. Furthermore, both large- and small-scale research projects are important to ESD. Hence, collecting large data sets to support decision-making in Ministries of Education benefits ESD – as does a classroom teacher observing one class of students and analyzing student homework assignments to improve her/his individual practice benefits ESD.

To accumulate a body of ESD research knowledge, the educational community needs researchers working at many levels of experience – engaging both professionals who are traditionally engaged in research design, data collection and analysis (e.g. universities, Ministries of Education and research institutes) and professionals not previously engaged in research (e.g. ESD programme providers and practitioners).

Research can provide insight into educational questions at every level of ESD. For example, ESD research is important to writing and implementing educational policy: If a new curriculum that includes sustainability themes is mandated, how does the Ministry of Education know whether it is effective or not? ESD research is also important to programme design and implementation: for example, if a new non-formal educational programme on water conservation is implemented, how does the non-profit organization (NGO) know whether the efforts actually reduce water consumption? Additionally, ESD research is important to administrators and managers: if a manager trains all employees in sustainable practices, how does s/he know the programme has actually changed employee practices in the field offices? Finally, ESD is important to practitioners: if a rural public health worker accepts the central office's advice to teach about childhood nutrition, how does s/he know that children are provided with, and eat, healthy foods? Thus ESD researchers are needed to contribute to ESD in all sectors of the educational community – formal, non-formal, and informal.

Interpreting educational statistics with a sustainability lens is also essential. For example, with the emphasis on Millennium Development Goal #2 (achieve universal primary education), planners ask: What is the projected secondary school enrolment, and will there be sufficient schools and teachers to serve this population? Also, will the job market be able to absorb this number of students when they graduate or come of age? For more-industrialized countries: What is the dropout rate, and what is the implication for youth in terms of lifelong employment or periodic unemployment with public compensation as the industrial sector shrinks?

Thus research has a substantial role to play in informing policies, programmes and practices to educate for a more sustainable future.

Appendix B

Practitioners and students as researchers

To be effective, ESD relies on millions of educators around the world to deliver sustainability-related lessons and facilitate learning. Over 72 million teachers in formal education and millions more in non-formal education settings (e.g. community centres, healthcare clinics, farming cooperatives, etc.) are on the frontlines of education. These professionals are interested in good practices that are effective in engaging learners.

The number of supervisors or researchers available to work with these educators to identify and implement good practices is insufficient. Educators need to be, or become, reflective practitioners who can carry out research for their own professional development and the growth of ESD.

Practitioners as researchers

Reflective practitioners often use systematic ways to approach questions of teaching and learning. Action research and other forms of participatory research are now common, and they are easy-to-use, low-cost, and effective tools to help improve ESD practice.

Generally, an action research process undertaken in an instructional setting involves observing and reflecting, then asking a question. To answer the question, the practitioner creates a quick research design, gathers and analyses data, creates an intervention (gathering more data along the way) and reflects on whether the intervention actually was effective. The practitioner then uses the intervention as part of her/his instructional practice while observing. Action research is a recursive process of observing, planning, acting and reflecting that helps professionals improve their practice. Such research efforts on the part of practitioners enhance ESD around the world.

Academic – practitioner collaboration

Because the need for ESD research is so substantial, it is important that academics and practitioners be involved in ESD research together. Practitioners can bring relevance and insight to the design and implementation of research by universities and research institutions, while academics can bring technical support to practitioner research and address questions beyond the individual practitioner's scope. Both instances are beneficial to the ESD community.

Students as researchers

Students can also contribute to ESD research. Young people all over the world carry out sustainability-related research by monitoring environmental problems in their communities and creating and carrying out activities to address them (e.g. Sandwatch[3]). Simple educational research methods could empower adolescents and youth to improve their own, and their peers', academic performance. For instance, pupils in some schools form helpdesks and homework clubs to improve their marks. Understanding their own learning styles and learning modalities can also help them improve as they identify the dominant learning modalities by using established inventories. This information could be used for peer-to-peer counselling on their learning strengths so as to improve study habits. With permission, this information could be shared with teachers to improve instruction.

Children and adolescents can also carry out research on local ESD-related issues and priorities.

3 See http://www.sandwatch.ca

Appendix C

Disseminating ESD Research

Research has traditionally been disseminated through established pathways – such as journals, books and other publications – and presentation at professional conferences. These traditional pathways usually connect people who work in the same profession. The challenges that accompany ESD research dissemination are manifold. One challenge is to connect researchers with practitioners who could use the research findings. Other challenges include crossing:

- Disciplinary lines – because ESD is interdisciplinary.
- Professional lines – combining unlikely partners, such as educators and advertisers, to create and evaluate public information campaigns.

Working to place ESD research-related publications in the hands of those who can use it takes effort from two directions – the researcher and the user. Researchers are responsible for thinking about who will use the research (e.g. the target audiences) and where to place the research for their use (see Table C.1). Research users (e.g. other researchers, decision-makers and practitioners) also need to search widely to find research that they can apply to their work. For example, a school in Japan appoints one teacher annually to look for research articles that could help the school improve its practice of ESD. At staff meetings, the teacher shares articles and findings pertinent to this school's issues and priorities.

Table C.1 – Who uses ESD research and why

Audience	Purpose
Academics	Advance and apply knowledge-base
Educational institutions	Capacity-building
Non-governmental organizations	Advocacy
Ministries of Education	Implementation (e.g. evidence-based decision-making and improved policy)
Practitioners	Professional development
Politicians	Sensitization of colleagues and public as well as justification for new legislation or policy.

The Internet has greatly expanded research dissemination. Journal contents are now accessible online, albeit only to subscribers or members of subscribing libraries. Some researchers and research organizations also publish their works online.

One of the challenges of broadening research dissemination is that the reward systems for promotion or retention in institutions of higher education and research need to be expanded. For example, research articles disseminated in peer-reviewed journals are valued more highly by review committees than research articles disseminated on the Internet, even though the circulation of peer-reviewed journals is often small (a few hundred), while distribution on the Internet can reach thousands.

For free access to UNESCO's publications, conventions, statistics and image bank, visit the UNESCO website at http://www.unesco.org/new/en/unesco/resources/online-materials/publications/.

To search for publications, click on 'UNESDOC database'. This database contains 120,000 free downloadable documents in six official UN languages, covering all UNESCO fields of competence since 1945. By typing ESD into the search field, you can find dozens of ESD-related documents.

Appendix D

Expanding funding for ESD research

Although few funding sources exist for ESD research per se, a number of educational-research funders are interested in or could be convinced of the merits of ESD research.

While investigating funding sources, it is important to consider a few recommendations from institutions that have been successful in obtaining funds for ESD. The International Network of Teacher Education Institutions[4] undertook several years of action research on ESD and teacher education. The research was carried out with local funding in about 30 countries and resulted in several recommendations regarding the funding of ESD programmes and research:

- Work with Ministries of Education to redirect existing funding to address ESD.
- Work with foundations that fund education research to help them understand ESD so that they will include ESD research and programmes in their requests for proposals or funding portfolios.
- Apply for 'seed money' and innovation grants from funders that do not currently fund ESD.
- Partner with organizations (e.g. universities and research institutes) to include an ESD element in ongoing research programmes.
- Partner with organizations or units within your own institution that support grant and contract acquisition.
- Learn the vocabulary of potential funders and describe your work and research in those terms. For example, if a funder is interested in student retention in formal schooling, a researcher can describe her/his work in terms of the improvement and relevance that issue analysis of local sustainability problems brings to the curriculum, thereby increasing retention in schooling (UNESCO, 2005).

During the first half of the DESD, the ESD community did tremendous amounts of awareness-raising of ESD. These efforts were successful within large segments of the educational community. Other sectors of society, however, including the philanthropic community, remain partly unaware of the importance of ESD and ESD research.

Funding for ESD projects and research can be found at different levels, from local to international.

- At the local level, businesses and families fund various civic activities. For example, large stores fund scholarships, teacher grants and school equipment. If asked, these businesses may also be interested in allocating some of the funds to ESD research to benefit teachers, schools and students.
- Also at the local level, family and corporate foundations give grants with the goal of improving community well-being. They can be approached about funding ESD research that would help them reach this goal.
- At the state or provincial level, government agencies fund research through various ministries, departments, or agencies. The ministry overseeing education may or may not be the same ministry overseeing educational research. Also, many ministries are responsible for non-formal and informal public education (e.g. in conservation and climate change). Funding for ESD programmes and research can come from many areas within provincial and state governments.

4 See http://www.unesco.org/en/education-for-sustainable-development/networks/teacher-education/

- At the national level, many public and private funders exist and can be revealed through an Internet search. Grants and contracts available from provincial or national governments are usually on the Internet or announced through other official avenues. Grants from private funders are also often listed on websites. Before approaching foundations, read their annual reports, giving guidelines and descriptions of grant-winning projects from previous years so that you can cast your ideas in terms that are familiar to the funder. Grants are sometimes also available from non-governmental organizations that pass on funding from other sources.
- At the international level, funds disbursed by international agencies and international foundations are available for education and sustainability. An Internet search will reveal funders, while their websites will state thematic and geographical priorities.

References

UNESCO. 2005. Guidelines and recommendation for reorienting teacher education to address sustainability. Paris, UNESCO. (Available in six UN languages) http://unesdoc.unesco.org/images/0014/001433/143370E.pdf

Appendix E

ESD Research priority matrix worksheet

ESD research theme	Target population	Sector	ESD thrust	Level – policy, programmes and practice	Audience for findings	Resource availa-bility to carry out study	Importance	Other

Comments:

UNESCO has launched the ESD in Action Technical Paper series to enhance the availability of technical information on a wide variety of ESD topics and issues. This series provides insights into current thinking and trends related to ESD. Additionally, it seeks to help facilitate implementation of ESD. The series delves into topics such as early childhood education and higher education and contains guidelines for various aspects of the DESD, such as teacher education.

UNESCO has prepared ***Guidelines for Creating a National ESD Research Agenda and Plan*** to enable Member States to stimulate research to support ESD at all levels. This document is easy-to-read and user-friendly. It outlines a number of steps, questions, and considerations for a multi-stakeholder group to create an ESD research agenda. The document also outlines a process to create a plan of action to support the agenda that includes capacity-building, broad dissemination of research, funding sources and forums for ESD researchers.

United Nations
Educational, Scientific and
Cultural Organization

Japan
Funds-in-Trust