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Accountability in education: Meeting our commitments

A review of Education for Sustainable Development and Global Citizenship Education in Teacher Education

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Abstract

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Teacher education can make an important contribution to raising understanding of Sustainable Development Goals within education. Education for sustainable development (ESD) and global citizenship education (GCED), human rights, peace and inter-cultural understanding can be seen within a range of courses for the initial training and continuing professional development of teachers. However, in many instances they are seen as optional extras to core courses.

There is a tendency in many countries for ESD and GCED to be promoted within teacher education along parallel lines. To maximise impact, there is a need for these initiatives to come more closely together.

ESD and GCED approaches tend to promote a social constructivist approach to teaching and learning. This can present major challenges to securing broader support because it is counter to dominant approaches to the training and education of teachers.

Civil society organisations and policy-makers outside of education have tended to have a major influence in determining the practices of ESD and GCED within teacher education.

To measure progress, indicators need to be developed that make connections between ESD and GCED and current themes within education such as global competencies, cultural understanding and moral and social purpose of teaching.

Networks, be they national, regional or international, can play an important role in sharing expertise and influencing policy-makers.

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1 Introduction

This paper has been produced to inform UNESCO in its preparation for the 2017 Global Education Monitoring Report (GEM) Report. Its purpose is to examine the current preparation of teachers in Education for Sustainable Development (ESD) and Global Citizenship Education (GCED) as outlined in the Sustainable Development Goal (SDG) target 4.7, which calls countries to:

By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development.

It can be argued that the areas of ESD and GCED cover a very broad range of themes and concepts (see Bourn, 2015; Nolet, 2016; Peters, et al, 2008). For the purposes of this paper, the focus will be on identifying how:

- Specific themes such as gender equality, peace education, human rights, and an understanding of cultural diversity are reflected within teacher education around the world.
- Linkages are made to relevant debates within teacher education and the broader social purpose of education.

The literature for this study is based on looking not only at material that makes direct reference to ESD and GCED, but also broader themes that have a potential bearing on these areas such as a sense of global, social and environmental responsibility and a commitment to social justice. The literature considered covered:

- Academic books and journal articles.
- Research papers and reports, Masters and Doctoral level dissertations.
- Policy reports, grey literature and other evidence from teacher education practitioners.
- Web based approaches, initiatives, resources and examples of practice.
- In some instances, data has been gathered via email exchanges with professionals in the field, where literature is not available.

This report will focus on the preparation of teachers for the compulsory school cycle with the following questions:

- What are common ways of preparing teachers in the areas of ESD and GCED?
- What is the best methodology to monitor the GCED and ESD-related training of teachers, particularly at the level of initial teacher education (ITE) from a comparative perspective? Have there been any attempts to compare the efforts of countries in including ESD and GCED in their teacher education curricula and practice? What obstacles need to be overcome to draw such comparisons at a global level?
- What is the available evidence base on the extent to which GCED and ESD are included in ITE and materials in different countries, as well as CPD programmes? What are the most emphasized GCED and ESD-related issues in teacher training around the world?
- What could be the best mechanisms to improve GCED and ESD-related teacher education?
- What are the prospects (given the current situation and the available evidence) that systems will meet the 4.7 target in relation to teacher education by 2030?

In this paper teacher education includes the initial and in-service continuing professional development (CPD) of teachers.

UNESCO has over the past decade produced a range of publications on teacher education including a number related to specifically to ESD. This paper aims to build on this work and take the discussions to a broader context that brings in areas which have to date had less attention such as GCED, human rights and gender equality.

2 Context

In this section, we provide some context to the study. Specifically, we look at the focus and scope of ESD and GCED in academic literature and teacher education; and some of the known factors that can encourage or challenge the incorporation of ESD and GCED into teacher education.

2.1 2.1 Themes in academic literature and teacher education

In relation to the themes covered in SDG 4.7, teacher education perhaps is most evident in recently published major academic publications on ESD (Barth et al, 2016; Chalkey et al, 2010; Stibbe, 2009). There are also recent GCED publications that have a focus on teacher education (Gaudelli, 2016; Harshman et al, 2015; Peters, et al, 2008).

It is noticeable that environmental awareness (Hwang, 2008; Alvarex-Garcia, et al., 2015; Redman, 2013) and global and inter-cultural competencies (Grant and Portera, 2011; Holmes et al, 2016) have some prominence. Human rights and peace are less prominent in academic literature on teacher education. The area where there has perhaps been least debate is in the incorporation of gender awareness into teacher education (Crocco, 2010; Jennings, 2007).

Teacher education around the world has increasingly recognised the need to respond to the economic, social, cultural and political challenges taking place in the world. For example, the changing cultural composition of many societies has led to many countries including inter-cultural competencies within their training of teachers (Cushner, 2011, 2012, 2014; Grant and Portera, 2011). There are also examples of teachers from conflict-affected states being trained in peace education initiatives (Bretherton et al, n.d.). Concerns with themes such as climate change and pollution can be seen in an increased emphasis in developing knowledge and skills on environmental matters in teacher education.

2.2 Influence of Social and Political Goals

A society's perception of the value and role of teachers can often be related to broader social and political goals. ESD and GCED themes amplify questions about the purpose and role of teachers in society, and especially the extent to which they have a role beyond simply imparting knowledge and skills, including promoting themes such as social justice, greater equity in the world and a sense of environmental responsibility (Bretherton et al, n.d; Jones, 2009)

A feature of the discourses around ESD and GCED that is directly relevant to teacher education is the extent to which these themes could be interpreted as instruments to achieve pre-determined goals. The dangers of focusing on societal outcomes and behaviour change rather than educational processes is particularly relevant in the discussions on ESD and teacher education (Pipere, et al, 2015; Manteaw, 2012; Mannion, et al., 2014).

Initiatives in ESD and teacher education also often support a re-orientation towards quality teacher education. Proponents of this approach have suggested that, 're-orientating education to address sustainability is a deep process that involves changes in programmes, practices and policy, as well as awareness, knowledge, skills and values and acceptance of the sustainability paradigm' (McKeown, 2014:129). This is significant because poor

quality of teacher education in many areas around the world can have a direct impact of the promotion and inclusion of ESD and GCED.

2.3 Factors that can support or inhibit ESD and GCED in teacher education

The following are known to influence ESD and GCE in teacher education:

Policy-makers and Civil Society Organisations

The extent to which ESD and GCED are prioritized by a range of international, national and local actors is crucial in determining whether, and the extent to which, teacher education supports global themes.

Increasingly, governments and policy-makers are encouraging teacher development programmes to include themes such as cultural understanding, global awareness and sustainable literacy. Examples of this can be found in Canada (Mundy et al., 2007); Finland (Alasuutari, 2011); Ireland (Martin et al, 2016); Scotland (Bourn et al, 2016; Wisely, et al., 2010); South Africa (Lotz-Sistka, 2011) and South Korea (Sung, 2015).

NGOs and civil society organisations are major drivers in many regions of the world. Their involvement is however closely related to funding, which often results in unsustainable practice (Ongevalle et al., 2011). Initial teacher education (ITE) initiatives that have been more university-led have tended to be more sustainable because the outcomes have been built into follow up courses (e.g. Martin et al, 2016).

Motivations and enthusiasm of teachers

An underlying assumption in much of the literature is the importance of teachers' own motivations and enthusiasm for ESD and GCED in their classroom practice. The extent to which a teacher is concerned with themes such as social justice (Boylan and Woolsey, 2015), compassion and empathy can play an important role in influencing the impact of ESD and GCED within the classroom. This means that in teacher education, the relationship between a teacher's own values and the skills needed to teach global citizenship themes, for example, is important (see: Andreotti, 2012; Gaudelli, 2016; Osler and Starkey, 1996; Lang-Wojtasik, 2014.) Carano's (2013) research identified that where teachers were globally minded, their influences came from a range of factors including the family, exposure to diversity, minority status, attending global education courses and international travel. However, there is also evidence that pressures on achieving targets can have a demotivating influence (Czerniawski, 2011).

The role of teacher educators

The role of teacher educators is crucial in developing trainee teachers, but they often do not get the focus they deserve:

Despite their important role, teacher educators are often overlooked ... Yet the role of the teacher educator is difficult and complex and of great importance. In both developing and developed contexts, better student learning outcomes could be attained if teacher educators were better prepared, resourced and supported (Deem & Lucas, 2007). Despite this reality, in very few countries are there effective frameworks for the professional development, support and guidance of the teacher educator. Rather than planned programs of work, many teacher educators approach their work in an ad hoc way (INEE, 2015: 104-5).

In relation to teacher education in ESD and GCED there is evidence to suggest that (like teachers), motivated and enthusiastic teacher educators are more likely to include global themes (Hunt, 2012). With teacher educators often having autonomy in what they teach and how they train teachers, the focus on ESD and GCED can be limited and ad hoc in nature.

Competing priorities

There are competing priorities within education systems which can impact on whether and the extent to which ESD and GCED are included in teacher education. To prepare teachers for the classroom, policy makers already have increased requirements (Moore, 2005). In cases where GCED and ESD are not included in the curriculum, teacher educators have to be creative and imaginative in arguing for their inclusion within courses.

Pedagogical focus

Proponents of ESD and GCED tend to call for a constructivist approach to learning and see it as part of a transformative approach to learning (McKeown and Hopkins, 2010; Sterling, 2001). Similar themes can be found within the discussions on GCED, human rights and inter-cultural education (Bourn, 2015; Gaudelli, 2016; Osler and Starkey, 2010; Scheunpflug, 2011; Wisely, et al., 2010). However, as evidence from different regions of the world has identified, the skills that many teachers have mastered are often related to reproduction of bodies of knowledge within the classroom, teacher- rather than learner-led pedagogical approaches and an over-emphasis on usage of textbooks (Darling-Hammond and Liebermann, 2012; Bajaj, 2012; Kithuka, 2015; Griffin, 2012). How teachers are trained and the pedagogical focus of that training is therefore crucial.

3 Common ways of preparing teachers in ESD and GCED

This section looks at the common ways of preparing teachers in ESD and GCED. The areas it covers includes the different forms of ITE and CPD and their approaches to pedagogy.

3.1 Initial teacher education

ESD and GCED can be seen across a range of forms of teacher education. In ITE, these can be best summarised as:

- Training on the purpose and role of teaching and its wider social purpose within ITE.
- Content within ITE training for subject-based teachers, particularly in geography, sciences, citizenship/civics/social studies, and religious education.
- Specialist modules and courses, usually of an optional nature within ITE – often on longer teacher preparation courses.
- Courses aimed at existing or prospective teachers, such as undergraduate education degree courses and masters level programmes. (These may not be explicitly identified as teacher training.)
- Short sessions introducing trainees to these concepts, but with little depth.

For the most part, ITE provision is led by higher education institutions such as universities or teacher training colleges, where teacher educators have a critical role in deciding whether and the extent to which ESD and GCED are included. At times, external providers can support ITE provision in more specialist themes (e.g. Bergumuller, 2016; Boni et al, 2013; Schell-Straub, 2013; Wierenga and Guevera, 2013). A range of publications discuss ESD and GCED in ITE provision (Petegem et. al, 2007; Wisely et al, 2010; McLean and Cook, 2011; Darji and Lang-Wojtasik, 2014), but these commonly suggest that such courses are often seen as optional and extra to core provision (Choi, 2011; Gaudelli, 2016).

Training teachers on ESD and GCED is not only about the course content and its delivery. McKeown (2014: 128) describes a more holistic approach to ESD within teacher education institutions, that 'have accumulated a great

deal of experience in reorienting teacher education to address sustainability through efforts to infuse ESD into teacher education, curriculum, professional development programmes and certification'.

3.2 Continuing professional development

CPD plays an important role in the development of teachers in relation to ESD and GCED. CPD in these themes often consists of:

- Professional development courses run by NGOs, universities or private companies.
- Study abroad or international partnership initiatives (Martin and Raja, 2014; Liddy, 2016).
- Outdoor learning activities particularly in environmental education (Rickwood, et al, 2009; Tan-Hus, et al, 2007).
- Courses that are part of broader accredited or validated programmes such as at Masters level.
- Teacher-led CPD based on forms of peer learning.

Courses can be short, often running for one day, a week or as a series of workshops over a term. Organisations are also increasingly offering CPD as online courses.

The type of provision varies and might be dependent on the needs and interests of teachers and schools, the availability of CPD provision in the area or a specific drive by local / national government or international organisations. Many of these initiatives are dependent on financial support, either from external sources or from within school budgets.

3.3 Different Pedagogical Approaches

ESD and GCED themes tend to be linked to promoting a more learner-centred and participatory form of pedagogical practice. But in many parts of the world, the dominant pedagogical approach is a transmissive one with the teacher playing the role of the deliverer of bodies of knowledge that need to be understood and reproduced through examinations and testing. Around the world therefore you will find a range of pedagogical approaches as described below (and as described by Westbrook et al, 2013).

Behaviourist: A teacher centred, whole-class teaching approach with an emphasis on the use of textbooks. Based on an assumption that learning will lead to behaviour change. Some examples in relation to ESD and GCED include:

- teaching human rights in India (Bajaj, 2012);
- environmental awareness in Zimbabwe (Ongevalle et.al, 2011);
- global education in the Czech Republic (Skalicka and Sobotova, 2016).

Constructivist: activity and project based work with an emphasis on experiential learning:

- Environmental education, particularly outdoor learning (Field Studies Council, 2007: Natural Connections Project, 2016; Learning and Teaching Scotland, 2016; Knight,2013)

Social Constructivist: Teacher guided, learner-centred, group work, cooperative learning, inquiry-based, example:

- Nali Kali in India (CEI, n.d). Also see: Gillies et al (2008); Baines, et al (2017).

Liberationist: Critical Theory, critical pedagogies. Examples:

- Philosophy for Children (P4C) (Anderson, 2017)
- Escuela Nueva in Columbia (Fundación Escuela Nueva, 2016).

There are examples from around the world that encourage linkages between increased knowledge and understanding about ESD and GCED with broader pedagogical issues. A related consideration is whether these themes should be aiming to promote broader universalist approaches or more relativist notions. This can be particularly seen within the discussions on gender awareness and teacher education. Crocco (2010:22) notes that 'presenting a complex, multifaceted and balanced portrayal of women of the world can be difficult' in the context of the influences of media stereotypes and cultural essentialising.

4 Evidence Base

In this section, evidence is provided of ESD and GCED² in ITE and CPD in different country contexts³ and across the key thematic areas. The countries were chosen because of evidence of interesting practice, the availability of information and the need to cover a wide geographic area. It does not attempt to provide a systematic analysis of evidence in the field, but provides support to Section 3 by giving more detailed evidence of examples of ESD and GCED in teacher education.

The bulk of the evidence is presented in

² We use the term 'global themes' in a broad sense to incorporate global citizenship education, education for sustainable development, human rights, gender equality, promotion of a culture of peace and non-violence and an appreciation of cultural diversity. Where evidence focuses on specific initiatives and ideas, we highlight this.

³ Australia, Brazil, Canada, China, Costa Rica, England, Ireland, Poland, South Africa, South Korea, Spain, USA, West Indies.

APPENDIX 1: Background country information on how teacher education incorporates sustainable development, global citizenship, human rights, intercultural understanding, peace and gender global themes in different country settings as well as examples of practice. It provides comparative detail of provision between countries. It also provides further interesting examples of evidence of projects and initiatives, where available.

This section brings the data together, looking at how global themes are incorporated into teacher education, the scale and type of content in evidence, and any information on impact. Examples of practice include a range of models from different settings and across thematic areas, which include innovative alongside more traditional models.

4.1 *Initial teacher education*

In most of the countries identified for this study, the coverage of global and sustainability themes in ITE is limited in scale and usually (i) a result of individual interests of teacher educators or (ii) where an institution, in responding to their inclusion within the school curriculum, has included specific modules or courses on these themes (e.g. Montemurro et al, 2014 in Canada; Wisely et.al., 2010 in Scotland; Scoffham, 2013 in England). There is also evidence of ESD and GCED-related modules in ITE course outlines from the West Indies, England and Brazil (see: Appendix 1, Section 9).

In some cases, institutional or project-driven initiatives can support teacher educators to develop or enhance global themes in their practice (e.g. Hunt, 2102; Ferreira et al, 2015a, 2015b). While NGOs and other outside organisations are less involved in ITE, there is evidence of them being used by some tutors to provide more specialised interventions where necessary (e.g. Hunt et al, 2011).

There are also examples of ITE programmes including initiatives to support inter-cultural learning and understanding via international study visits and online interactive projects involving teacher educators (Carr, 2016).

4.2 *Continuing Professional Development*

There seems more evidence of CPD being used to support teacher education on global and sustainability themes. This is rarely done in any systematic way, but is often a result of individual interests of school leaders / teachers in schools and the availability of relevant CPD.

There is some evidence of nationally-driven CPD programme⁴ which support teacher education on global and sustainability themes:

- South Korea – where the MOE’s CPD programme in 2016 included human rights education, peace and cultural diversity. Each teacher is encouraged to take 60 hours of CPD per year and courses vary in length.
- The Global Learning Programme is a government-funded programme which covers the four regions of the UK. The aims is for 50% of schools to engage with the GLP in each region. A key feature of the GLP is the development of teachers’ understanding of global issues and confidence to incorporate global learning into their teaching via CPD.
- There are also examples of more locally-driven global support to teachers e.g. Spain has local CPD programmes that can include global issues.

Continuing professional development as suggested in the previous section takes a variety of forms:

⁴ See Appendix 1 for further information and information sources

- Often CPD on ESD and GCED is run by NGOs e.g. Kenya Environmental Education Network⁵;
- CPD on ESD and GCED can be part of externally-funded (international organisations, bilateral or multilateral donors) projects, e.g. SSTEP project in South Sudan (Reisman and Janke, 2015); Gender Socialisation in Schools project in Uganda (El-Bushra and Rees Smith, 2016).
- Online initiatives include conferences (GEC⁶) and distance learning programmes (British Council, Schools Online⁷).
- There are exchange programmes for teachers.
- CPD can be peer-led (GLP in England), rather than external.
- There are a number of examples of published guidelines to support teachers incorporate issues such as peace into their teaching and classroom practice.
- Many CPD examples are just one day courses, but longer and more developmental courses have been identified that can enhance deeper learning.

For teachers who are interested in a more in-depth understanding of specific global issues, there is evidence of teacher-led action research on global themes (in England via the GLP⁸); and universities that run Masters and PhD programmes taken by teachers⁹.

4.3 *Scale of provision*

In many cases, data that provides evidence on scale are gathered from self-reporting interested parties, e.g. teacher educators and NGOs with an interest in specific global or sustainability themes. This means that scale of incorporation can be over-estimated. Data on scale where available is discussed in Appendix 1, in examples to follow and within survey-based literature (Hunt et al, 2011; McKeown and Hopkins, 2014; OHCHR, 2015; Teacher Education for ESD Network, 2013).

Data on scale shows that unless there is a national drive or external input for GCED and ESD in teacher education, then provision by teacher educators tends to be ad-hoc and limited.

4.4 *Examples of practice in thematic areas*

In this section, we provide examples of practice within ITE and CPD in key thematic areas under discussion in this paper. Further examples and more information can be found in Appendix 1.

4.4.1 *Sustainable development*

There are a considerable number of initiatives that support ESD in teacher education, some of which are described below or can be found in Appendix 1.

The UNESCO Chair, Professor Charles Hopkins, at York University in Canada focused on reorienting teacher education to address sustainability during the **UN Decade of Education for Sustainable Development** (UNESCO, 2005b). This work has been concerned with systemic reorientation of teacher education, rather than short-term in-service training that seeks to change classroom practice in primary and secondary schools.

⁵ <http://keenet.org/>

⁶ <http://www.globaleducationconference.com/>

⁷ <https://schoolsonline.britishcouncil.org/develop-your-skills/professional-development-courses/teaching-the-core-skills>

⁸ <http://glp.globaldimension.org.uk/research/innovation-fund>

⁹ There are many examples of modules within broader Masters programmes or even specific programmes that focus on ESD and GCED themes. These include: the Global Citizenship course at Columbia University in United States; the Development Education and Global Learning programme at UCL Institute of Education in England; the Globalisation programme at Oulu University in Finland; Education for Sustainability programme at London South Bank University; environmental education courses at Federal University of Ceara in Brazil; gender and education courses at Oviedo University in Spain.

Ferreira et al. (2015a, 2015b) describe a **ESD teacher educator project in Australia** which aimed to facilitate change across a whole system, incorporating multiple people, parts and processes that are involved in pre-service teacher education, including schools, education staff, administrators and students, unions, professional associations, registration authorities and government agencies. Outcomes included teacher educators' enhanced knowledge about and skills in ESD; changes in teaching and learning practices, including new courses and course content alongside new teaching and learning pedagogies; a community of inquiry for project participants within and between institutions; new institutional positions and policies on ESD; and new relationships between elements of the pre-service teacher education system were developed.

There are numerous examples of CPD support to teachers in relation to sustainable development. These include initiatives run by the Kenyan Environmental Education Network. Further examples can be found in research on environmental education in Costa Rica by Blum (2012); in India by Ravindranath (2007) and South Africa by Lotz-Sistka (2011).

Science education is an obvious area for inclusion of sustainable development themes within the training of teachers. Around the world, there are many examples of the inclusion of themes such as climate change, energy, pollution and concern for the natural environment. But various research studies (Hagevik, et al., 2015; Reid and Petocx, 2006) show that many teachers lacked an understanding of the interconnectedness between the environment, energy and education to the political, economic and social concerns related to sustainable development. A theme suggested to address these challenges is the conceptual framework of place consciousness (Moseley et al., 2015; Grunewald, 2003).

4.4.2 *Global citizenship education*

There are also a considerable number of examples of GCED¹⁰ initiatives in teacher education in ITE and CPD. A good example is in Ireland where since 2003, learning about development and intercultural issues has been a core component of the degree programmes for student teachers at primary level via the DICE programme (Martin et al., 2016: 115). A similar funding agreement for initial training of teachers at secondary level has been existence since 2006 with the Ubuntu Network in Ireland¹¹.

There are also numerous examples of global citizenship education being incorporated into ITE modules (see Appendix 1 for examples in Australia, Canada, United States and the UK). A feature of some of these examples is that they are often linked to longer undergraduate teacher preparation courses (e.g. Scoffham, 2013).

The **Global Learning Programme** (GLP) in England is a government-funded national programme which supports teachers to be more confident and able to teach global issues in schools. A major vehicle for this is peer-led training where teachers with experience and expertise in global learning set up local networks of schools to train and support other local teachers. With a remit to cascade training to teachers within schools, it is estimated that over 11,000 teachers have received some form of training on global issues as part of the GLP.

Global Education Conference: The Global Education Conference is a free virtual conference which has run annually during International Education Week for the past seven years. It brings together educators and innovators from around the world over three days. Presentations in the November 2016 conference included topics such as: collaborative projects between teachers and schools to support global initiatives; professional development in GCED; and preparing students for a global future. The annual conference has 200-300 sessions, with around 10,000 logins to these sessions. The conference is supported by a website which hosts recordings

¹⁰ Often referred to as global learning, development education and global education in different contexts.

¹¹ <http://www.ubuntu.ie/about.html>

from the conference sessions as well as an online network of interested educators/ GL professionals and has a range of sponsors and partners including Google, TES, iEARN and VIF. The overall network has approximately 24,000 members from around 180 countries (around half are from the USA¹²). Around one third of members self-identify as teachers, and about 10% working as college or universities (which would include teacher educators). The intention originally was for the GEC to appeal to in-service teachers and NGOs, but colleges and universities are also now directing pre-service and graduate students to the GEC website (Gray, 2016).

4.4.3 *Peace education*

There are several texts that highlight the importance of promoting a culture of peace and non-violence in teacher education but few examples of literature on how this works in practice (Horner et al., 2015). Horner et al. (2015) and INEE (2015) provide some insight, focusing particularly on teacher education in fragile contexts. Examples from practice that specifically look at how teacher education can include peace-building and non-violence are rare, but include:

- Guides on how to include peace in teacher education (e.g. Balili et al., 2013; INEE, 2013; UNESCO, 2005a).
- The IRC's Healing Classrooms Initiative¹³ website hosts a series of tools for IRC staff, teacher educators and teachers related to student and staff well-being and supporting gender-sensitive practices in conflict and early reconstruction contexts, including Kirk and Winthrop (2006).

Research from Reisman and Janke (2015) explores the USAID-funded South Sudan Teacher Education Project (SSTEP) as a case study, to explore how guidelines from INEE (2013) were used for teacher education in practice. The researchers found that there were real difficulties in using the guidelines in this post-conflict context, which raises questions for its potential. For example, in the case of SSTEP an adequate governance system was not in place to support the guidelines. The South Sudan government placed a higher focus in teacher education on core subjects over conflict-sensitive ones such as peace-building and human rights. There was not sufficient capacity or numbers of teacher educators in general, and certainly not with expertise to support conflict-sensitive subject areas. SSTEP did provide some training of teacher educators in conflict-sensitive subjects, but Reisman and Janke (2015: 152) suggest the scope and quality of what was delivered to trainee teachers is uncertain. The authors recommend that donors have a part to play in ensuring conflict-sensitive strategies within teacher education, highlight the importance of NGOs to support conflict-sensitive teacher education and recommend guidelines to offer practical suggestions to improve the conflict sensitivity of teacher recruitment practices.

4.4.4 *Intercultural learning*

There are numerous examples of initiatives to support intercultural learning and understanding amongst teachers and trainee teachers through:

- Teacher exchange programmes and study visits (Cushner, 2007, 2009; Leonard, 2012; Bourn and Cara, 2012; Liddy, 2016).
- Online courses and distance learning to support intercultural competence (e.g. British Council Schools Online);

¹² In addition, there are high numbers from Canada, Australia, India, Mexico, Pakistan, Argentina, Colombia, Spain, Egypt, and Brazil.

¹³ <http://www.healingclassrooms.org>

However, all too often there is an imbalance in such programmes in terms of equal access to technology and resources.

Using ICT to enhance intercultural competence: Carr (2016) describes the eTutor programme which encourages trainee teachers to explore their own cultural backgrounds and helps build their confidence to engage with children from diverse cultural and linguistic backgrounds. Trainee teachers on a BEd. programme in Australia engage with school students from India, Australia, Malaysia and Nepal in an online environment. They develop a portfolio of interactions and reflections from the interactions that illustrate their intercultural competences. Participating schools engage to develop pupils' writing skills. Carr (2016: 112) suggests through the project trainees display increased intercultural competency, through developing knowledge of other cultures and identifying similarities as well as differences between their own and other cultures. Many trainees reflected on the impact this programme has on the role of intercultural understanding in their teaching.

4.4.5. Human rights and teacher education

There are few identified examples of initiatives to incorporate human rights is incorporated into teacher education.

Struthers (2015) provides an overview of **Human Rights Education (HRE) in ITE in Scotland** and provides information on how it can be enhanced. She recognises that HRE in ITE provision is 'sparse'. Of the 22% of practicing teachers (BEMIS, in Struthers, 2015) that said they had received some form of HRE training, most indicated it was in the form of a solitary lecture or tutorial on the topic. None of the ITE courses discussed currently run compulsory modules on HRE, but some make references to HRE in discussions about citizenship or inclusion, and where universities link to outside organisations, examples of HRE are sometimes included via work on global citizenship. This suggests that where ITE is incorporating aspects of human rights, it is often through a citizenship frame.

4.4.6. Gender equality in teacher education

Gender equality has not been a major feature of themes within ESD and GCED in teacher education. Where the theme is addressed, as in Henderson (2015), it is posed as a distinctive pedagogical approach. Merryfield and Subedi (2003:14) have suggested the following as the basis of practice for gender education within the training of teachers:

- Confronting exoticism, stereotypes and misinformation directly
- Teaching multiple perspectives through primary sources and contrapuntal literature
- Developing student skills in analysing how people's norms, beliefs and values shape their worldviews and the knowledge they accept as truth
- Teaching about interactions of power, prejudice, injustice and worldview
- Providing students with cross-cultural experiential learning.

There are limited examples of practice of how gender equality is incorporated into teacher education.

In some instances, gender equality and peace-building initiatives are integrated, for example, **Gender Socialisation in Schools in Uganda**. This UNICEF-project from the Karamoja region of Uganda involves over 1,000 primary school teachers being trained to enhance their knowledge, attitudes and practices relating to the promotion of gender equality and conflict management (El-Bushra and Rees Smith, 2016: 10). The project which took place over 9 months in 2015, was designed to sit alongside existing training and support for teachers:

The training covered teachers' understanding of concepts related to gender equality (e.g., the difference between gender and sex, gender roles and gender socialization) and to conflict resolution, as well as the practical application of these concepts in the classroom.

It was hoped that trained teachers would have better capacity to recognize and address gender inequalities and conflicts in schools, thus supporting a more gender equitable environment. Impact evaluation research shows that the training had succeeded in increasing teachers' knowledge of some gender equality concepts and how to promote a more gender-equitable environment. However, there was less evidence of impact on increased gender-sensitive practices within the school, where 'teachers had not entirely internalized the training' and teachers found the 'traditional views on gender roles held by the wider community as a barrier to progress' (2016: 7). El-Bushra and Rees Smith (2016) conclude that achieving changes in teacher practices requires multiple interventions over a period of time and the impact of small projects such as this will be limited.

4.5 *Concluding from this evidence*

This section provides evidence of ESD and GCED being incorporated into ITE and CPD from regions across the world, focusing on different thematic areas. It is supported by country-specific information in Appendix 1.

- The incorporation of ESD and GCED in ITE is generally via dedicated and interested teacher educators (e.g. Scoffham, 2013; Carr, 2016).
- Some teacher preparation programmes have specific modules related to ESD and GCED. Teacher educators seem more able to incorporate these aspects on longer courses, such as undergraduate teaching programmes.
- Some subject areas more easily lend themselves to ESD and GCED, such as science and geography, and examples show how these links can be enhanced.
- There are examples of government-funded support to ESD and GCED in teacher education (e.g. DICE in Ireland).
- CPD often takes place with the support of external bodies, but there are also examples of peer-led learning for teachers in ESD and GCED.

There is less evidence on how gender, human rights and peace are incorporated into teacher education.

The literature (Reisman and Janke, 2015) highlights the practical difficulties of delivering CPD global themes to teachers in contexts where teacher educators have limited capacity themselves to deliver such initiatives.

Evidence from Poland (IGO, 2013), for example, suggests that incorporating GCED (for example) into the curriculum is not enough on its own to motivate and change teacher education to ensure it is incorporated. Ferreira et al (2015a, 2015b) examined the importance of whole system support to incorporating ESD into teacher education that involved a range of stakeholders and the benefits this could bring.

In terms of other impact, Hunt (2011) queries the extent to which trainee teachers (ITE) will go onto include learning about global themes in their practice, particularly in the initial years of teaching. While there is evidence of changes in teachers' practice as a consequence of engagement in CPD (Hunt and Cara, 2017 forthcoming), there is also a need for this professional development to be sustained over a period of time (El-Bushra and Rees Smith, 2016) and not tokenistic.

5 Methods, forms and recommendations for comparative monitoring of ESD and GCED in teacher education

The aim of this section is to highlight methods and form of comparative monitoring of ESD and GCED through teacher education networks and broader forms of data gathering and quality assurance that could be relevant to the development of themes identified in this paper.

5.1 *Teacher education networks*

5.1.1 *UNESCO and International Network of Teacher Education Institutions (INTEI)*

The International Network of Teacher Education Institutions (INTEI) is associated with the UNESCO Chair on Reorienting Teacher Education to Address Sustainability at York University in Canada. The member institutions work to incorporate sustainability into their programmes, practices and policies. INTEI has started to collate a biennial report on embedding ESD in teacher education. This data is sourced primarily through a survey across INTEI, a network of teacher education institutions (TEIs) across than 70 countries, who have all self-declared interest in ESD. The 2014 questionnaire was designed to query teacher education policy and practices. 50 completed surveys were received from TEIs from 44 countries and six responses were received from NGOs and other bodies active in ESD and teacher education. The findings indicate positive if incremental changes in attitudes, practices and discourse around ESD (McKeown and Hopkins, 2014). Reflecting the title and objectives of the network, the focus within the questionnaire was solely upon ESD without consideration of GCED. The survey is designed to capture examples of good practice and the perceptions of those leading within ESD in particular institutions, networks and countries. The 2014 survey did not include any quantitative measures to capture progress over the longer term.

The survey was repeated in 2016, when TEIs were asked a small number of questions relating to types of ESD activity. This survey required qualitative responses and respondents were also asked to self-report, on a numerical scale, the extent to which particular concepts within ESD and GCED are reflected in policy, curriculum, student' assessment and teacher preparation. In 2016 respondents were asked not only to self-report on education for sustainable development (ESD) but also human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship, and appreciation of cultural diversity. The final report of the survey is yet to be published. Despite an attempt to broaden the focus beyond ESD, it is the view of the authors of this report that the current methodology lacks the rigour, in terms of participation and survey instrumentation, to effectively monitor the GCED and ESD-related training of teachers across countries.

INTEI met at Visby in Sweden in August 2016 for the conference 'Bridging the GAP – Educators and Trainers' hosted by Swedish International Centre of Education for Sustainable Development (SWEDESD) at Uppsala University. This meeting, attended by 126 teachers, teacher educators, researchers and policy-makers from 47 countries, was to produce recommendations for re-orientating teacher education to ESD. The draft report from the conference includes suggestions for developing partnership, practice and policy for ESD but does not include an explicit focus on methodologies for measuring and monitoring progress towards meeting these goals.

5.1.2 *UK Teacher Education for Equity and Sustainability Network*

The UK Network for Teacher Education for Equity and Sustainability (TEESnet) aims to develop a UK wide community of practice in ESD and GCED within teacher education, and aims to share research and practice in the field.

In 2009-10, TEESnet conducted an email survey to explore how teacher educators approach ESDGC in their course provision. 32 responses were received from 27 providers. The report concluded that while there were interesting examples of provision, there was a lack of co-ordination of ESD/GCED within ITE providers and ESDGC was often promoted in an ad-hoc way by individuals, with limited support (Hunt et al, 2011: 2). Most ITE providers who responded to the survey reported working with external bodies such as NGOs on ESDGC, particularly to teach sessions and provide resources.

A recent TEESnet publication of case studies of pedagogical approaches used in all four UK countries (Higher Education Academy, 2014) reiterates the importance of collaboration between teacher education providers and NGOs suggesting the NGO sector may be a valuable source of monitoring information in the UK and elsewhere. More recently, members of TEESnet completed a comparative review of policy and practice for ESD/GC in teacher education across the four nations of the UK (Bamber et al, 2016) exploring aspects of divergence and convergence across the UK. This comparative review illustrates the difficulties of identifying indicators and monitoring in this area. For instance, the research noted that all four nations have reviewed their approaches to how teacher education is conceptualised and governed within the last decade, leading to a period of rapid change in the sector. The change of UK government in 2010 heralded a raft of policy initiatives effecting teacher education in England which have led to a concerted shift from university to school-led provision, with the majority of teacher training places now led by schools. This has led to the proliferation of providers of ITE, complicating further any attempts to monitor the extent to which ESDCE is embedded within formal ITE practice.

5.1.3 World Programme for Human Rights Education

In 2009 the Human Rights Council included a focus within the World Programme's second phase (2010-2014) on human rights training programmes for teachers and educators. At the end of this phase, each participating country undertook an evaluation of actions implemented under this plan of action.

The survey elicited responses from 28 countries and found that human rights currently constituted a basic element in pre-service and in-service teacher education for 'several states' (OHCHR, 2015). The survey found there to be 'a variety of opportunities for cooperation with other Governments, international organizations and NGOs in human rights training initiatives for teachers'. Also, the national context provided a different focus for human rights initiatives in teacher education, For example, there was a focus on gender, equality and child rights in the Republic of Moldova, Sudan and Italy, and HIV/AIDS and gender-based violence in Botswana.

5.1.4 United States Teacher Education for Sustainable Development Network

The US Teacher Education for Sustainable Development Network is a voluntary organisation of teacher educators and teacher education institutions, with members from a range of universities from across the United States, alongside other organisations, such as Kappa Delta Pi and the National Network for Educational Renewal. This network produced a report on Reorienting Teacher Education to Address Sustainability in the US context (Teacher Education for ESD Network, 2013) which summarised current practices and identified potential themes for measuring progress, including teacher certification, institutional accreditation and the dispositions in the INTASC Model Teacher Education Standards.

5.1.5 The role and potential of regional and national networks

We have highlighted above the potential for teacher education networks to collect monitoring information from teacher education institutions. This is not without its issues, as respondents tend to be enthusiasts and their evidence might not be representative of the wider-scale. Difficulties in monitoring across countries also emerged

(Bamber et al, 2016). However, a range of teacher education networks exist across the world on ESD and GCED¹⁴ and there is potential that they too could be encouraged to collect such data. More information about these networks can be found in APPENDIX 1, 10.3.

There is further potential for monitoring of ESD / GCED in teacher education to be undertaken by regional and national networks:

- Talloires Network¹⁵ is an international association of institutions committed to strengthening the civic roles and social responsibilities of higher education and is well placed to monitor progress in community engagement and service learning.
- Networks such as the Partnership for Education and Research about Responsible Living (PERLs) focus on learning through social innovation. They also conduct periodic monitoring of initiatives (PERL, 2016) and could also be involved in efforts to capture progress towards target 4.7.
-

Emergent networks may serve to strengthen collaboration between academia, government and civil society to advance ESD/GC policy and practice and may best secure the involvement of multiple stakeholders.

- For instance, the UN has recognised a number of Regional Centres of Expertise (RCE) working to advance UNESCO's planned Global Action Programme on ESD (UNESCO, 2014).

5.2 *Monitoring curricula and frameworks for quality assurance in teacher education*

Many countries have now developed professional standards /competencies as the foundation for assuring the quality of teaching (Conway et al, 2009), although reference to ESD and GCED varies. Coding and analysis of published competencies / standards for teaching, similar to the textbook analysis completed by the International Bureau of Education for the 2016 GEM Report (IBE, 2016) may provide a productive way forward. However, this approach has well-documented limitations, particularly when attempting an international comparative study. This includes the difficulties of identifying and securing a reliable data-set, the conceptual definition of concepts for coding comparison, and the translation and applicability of codes to different languages (see for example IBE 2016, 25-27). If the resources and collaboration is secured to conduct a global process to code national curriculum framework documents using a standard protocol (as proposed in UNESCO, 2016: 369), an extension of this exercise to incorporate aspects teacher education may be a cost-effective way forward.

Analysis of teacher education curriculum, for example through a standard coding protocol for ESD/GC, however, must adopt a mixed methodological approach that attends to how any published curriculum is mediated and enacted in practice. Some education systems will afford teacher educators high levels of autonomy in determining curriculum development and implementation (Eurydice, 2007). Monitoring should account for differences in approach even when policy and curricula are determined at the national level. This supports the conclusions of comparative evaluations of ESD/GC in teacher education that have highlighted the importance of attending to the role of policy networks and multiple actors involved in forming, mediating and enacting policy and practice in this area (Bamber et al, 2016; Tilbury, 2007).

¹⁴ Other examples include the Beijing International Forum on Education for Sustainable Development.

¹⁵ <http://talloiresnetwork.tufts.edu/>

5.2.1 *Monitoring institutional commitments to ESD/GC*

The United Nations Economic Commission for Europe (UNECE) Steering Committee on Education for Sustainable Development, at its February 2009 meeting, established the Expert Group on Competences in ESD with the mandate to define a range of core competences in ESD for educators to facilitate the integration of ESD into all educational programmes at all levels. The recommendations for monitoring progress included focusing on assessing institutional commitments to sustainable development and creating an enabling environment for the development and practice of the competencies (UNECE, 2012:12). The final report did not provide detail on how this can be achieved in practice. The conclusion does however substantiate the themes outlined in sections 3 and 4 of this report regarding making connections to mainstream educational provision.

There are other examples of monitoring frameworks that could be explored further. For example:

- HRE 2020, a civil society coalition to support and strengthen the implementation of international human rights education commitments, has recently produced a set of indicators to be used to monitor and assess the implementation of HRE (HRE 2020, 2015). This includes domains on ‘HRE in the Curriculum, ‘HRE in Training Materials and Methodologies’ and ‘HRE in Teacher Training’ that may be used to support the monitoring of SDG 4.7.

5.3 *International surveys to support ESD / GCED monitoring in teacher education*

Carefully selected indicators from international surveys can be powerful drivers for change, but attempts to make explicit educational phenomena and processes can easily become overdetermined by metrics that become perverse ends in themselves (Biesta, 2011). Moreover, focusing indicators upon international surveys completed only by a subset of the international community may further marginalise nations, including those with remote communities (see for instance Liarakou, et al., 2016) and small island states, silencing their contribution to policy and practice in teacher education for ESD/GC.

A challenge is to ensure evaluations of ESD/GC interventions are consistent with the values of ESD/GC itself (Mayer and Dillon, 2016). For instance, the monitoring process should involve multiple stakeholder participation. This is a particular challenge since ‘there is only recent and limited experience of assessing progress through ESD indicators’ (Tilbury, 2007: 253).

The following outline examples of international surveys with potential to support monitoring:

Teaching and Learning International Survey (TALIS)

It has been suggested that global competence could be a theme in future rounds of the quinquennial OECD Teaching and Learning International Survey (TALIS). TALIS in 2013 covered 34 countries and was conducted in primary and upper secondary schools as well. Although further countries are expected to be involved in 2018, the limited coverage qualifies the usefulness of this data. TALIS is an international study of teachers, teaching, and learning environments. Therefore, measures of teacher competence could be used to assess the effectiveness of professional development for teachers.

International Civic and Citizenship Education Study (ICCS)

ICCS is a comparative research program of the International Association for the Evaluation of Educational Achievement (IEA) that investigates how young people are prepared to undertake their roles as citizens. UNESCO and the IEA have established an official agreement to collaborate to help countries monitor progress towards SDG target 4.7, commencing with an extended study in 2019. They have begun identifying a set of potential indicators for measuring Target 4.7, one of which is being considered as a potential global indicator for Target

4.7. We understand it is the intention of the two organizations to extend this collaboration to further align future cycles of the ICCS study with the indicator for Target 4.7 and to develop at least one thematic report, relevant to GCED and ESD. Both the school and teacher questionnaire in ICCS 2016 ask questions about involvement in initiatives and programs related to environmental sustainability. More promisingly, regional components allow countries to explore specific topics of common interest. This presents an opportunity to track progress in relation to regional aims and goals.

Programme of International Student Assessment (PISA)

Global policy discourse sympathetic to ESD/GC is also evident in the 2018 Programme for International Student Assessment (PISA). The 2018 PISA will include measurement of global competence - assessing a 15 year olds awareness of the interconnected global world we live and work in and their ability to deal effectively with the resulting demands. The PISA sample items primarily relate to the multiculturalism / interculturalism aspects of global citizenship. However, sample items also include climate change in the curriculum. The PISA data, collected triennially, is limited by focusing on 15 years olds in formal education and the findings are qualified by the usual concerns about international testing methodologies. However, the sample items (OECD, 2016) from the school questionnaire include some indicators of the extent to which ESD / GC is embedded in teacher education. There could be potential for this to be developed, but it would need the support of OECD.

6 Recommendations to improve teacher education in the areas of ESD and GCED

This paper has noted that there are wide variations around the world in terms of levels of engagement in the areas of ESD and GCED within teacher education. What the evidence tells us however is that some common themes can be identified that could form the basis of recommendations.

Expertise and Building Capacity in ESD and GCED

ESD and GCED themes are complex areas and are often seen as being marginal or counter to dominant pedagogical approaches within teacher education. It is often difficult for a teacher educator to gain expertise and build support for ESD and GCED themes within their institutions. A question to pose therefore is where and how do teacher educators develop their knowledge and expertise in ESD and GCED?

In some countries this can be through a range of accredited courses at masters or doctoral level, but these opportunities may not be available to many teacher educators.

The Teacher Education for Sustainability Resource¹⁶ provides an important starting point for the development of building capacity and expertise. There are also initiatives by Earth Charter International¹⁷ and the MESA toolkit on environmental education¹⁸. There are a range of online courses on global education run by the North-South Centre and the British Council that include specific modules on intercultural dialogue, human rights and democratic citizenship¹⁹. There is also free access to online conferences and networks via the Global Education Conference.

What perhaps is needed is a portal site to bring these and other initiatives together with an extension to more directly include themes of human rights, gender equality and global citizenship. Dialogue could also be developed

¹⁶ <http://www.unesco.org/education/tlsf/>

¹⁷ <http://earthcharter.org/events/online-certificate-education-sustainable-development/>

¹⁸ <http://www.unep.org/training/programmes/mesa.asp>

¹⁹ <http://nscglobaleducation.org>

with a range of leading universities around the world who are promoters of these themes in their teacher education programmes to make direct reference to these materials.

Role and Contribution of External Bodies such as International NGOs

The evidence outlined in this paper has identified that a major driver for the inclusion of ESD and GCED has been the contribution of bodies external to teacher education, such as civil society organisations. In a range of countries, initiatives have tended to come from outside of the training institution through the securing of funding from international bodies, national governments or private sector partners.

However, compared with other areas of education, the initial training of teachers has had a lower priority for these civil society organisations. In Europe for example, whilst some projects may have had a professional development of teachers' component, less than 10% of projects funded by Europe Aid over the past decade have had ITE as a major focus (See Rajacic, et al., 2010).

Similar trends in terms of lack of recognition can be found elsewhere in the world in terms of projects around peace, environment and global education, although there have been exceptions such as the UNICEF project in Sierra Leone²⁰.

What is needed is for funding bodies (multilateral, bilateral and philanthropic) and international NGOs to give a higher consideration to the contribution of teacher education to achieving objectives around ESD and GCED.

Value of International Partnerships to support development of models of good practice and sharing expertise

Some of the most innovative models of practice identified in this paper have been as a result of universities (Darji and Lang-Wojtasik, 2014; Boni et.al, 2013) and in some cases, civil society organisations²¹ working together to develop expertise and share examples of practice. There are a range of funding bodies at a national and international level (including World Bank; government departments responsible for aid; European Commission initiatives such as Erasmus) that have and could do more to support such initiatives. International partnerships can sometimes be one-way relationships, with the Northern partner determining the content and delivery in the Southern context (Bourn and Cara, 2012). There is however evidence of teacher education institutions working together to develop joint programmes of mutual learning (see Martin and Raja, 2014).

Role of Policy-Makers

It is evident that as a consequence of the Decade on Education for Sustainable and the leadership provided by the UN and UNESCO, the themes that are the focus of this report have much higher prominence amongst policy-makers than they did at the beginning of the twenty-first century.

At a national level, ministries responsible for international development and the environment have given funding and resources to projects and initiatives that make references to teacher education. However, there are only a few examples such as in China, South Korea and Ireland (Martin et al., 2016) where national government monies have been used in a strategic way to support initiatives directly within teacher education. There are many examples in Europe, North America and Asia Pacific region of the inclusion in strategies and programmes on continual professional development of teachers, but these tend to be outputs from projects rather than the main focus.

A theme in a number of countries in Europe particularly (see Bourn, 2015) is that policy initiatives on ESD and GCED have not been followed up by increased resources to build capacity and expertise within the teaching

²⁰ <http://learningforpeace.unicef.org/resources/sierra-leone-emerging-issues-teacher-training-programme/>

²¹ www.bgz-berlin.de; www.varianty.cz

profession. In Poland, despite a national curriculum focus on global education, a lack of awareness and institutional support means that incorporation of global education into ITE remains largely with the individual teacher educator. Moreover, with the possible exception of Australia (Ferreira, et al, 2015a, 2015b), initiatives with regard to teacher education tend to be on a specific element of ESD or GCED and not developed in a holistic way, incorporating the range of adjectival themes and key stakeholders across teacher education.

Within policies in higher education that might make direct reference to ESD or GCED themes, they are likely to give minimal reference to teacher education. For example, there have major international initiatives on themes such as internationalization (Deardoff et al, 2012) and sustainable development within higher education (Barth et al, 2016), but there have been very few references to teacher education within them.

There is a strategic need for national policy makers who have responsibility for environmental education and GCED to give greater recognition to teacher education, to encourage and support programmes that embed these themes within both the initial training of teachers and ongoing professional development.

Incorporating ESD and GCED themes within the training of teachers in specific subjects

The themes of sustainable development and global citizenship can be seen within a range of subjects and topics within the school curriculum. In some countries, there have been recommendations for the inclusion of these themes within specific subjects or in some cases as cross-curricula themes.

There are a number of subjects that directly lend themselves to the themes of sustainability and global citizenship. These are geography, social studies, sciences and citizenship / civics education. It is recommended therefore that any course concerned with the training of geography teachers, be they initial or in-service, should make specific reference to themes outlined in the SDGs. The teaching of sciences (Bodzin, et al., 2010) can also easily include learning about local environmental themes and wider global issues such as climate change, pollution, clean water, and 'affordable and clean energy'. Citizenship and civics and social studies curriculum areas lend themselves to learning about how to engage in society and understandings of political institutions. In many countries, the tendency of teaching is to focus more on local and national considerations (Arthur, et al., 2008), rather than global aspects. It is in the training of teachers in these areas that there are perhaps the most important openings to address the lack of learning about global citizenship in the classroom. The Global Goals on 'Responsible Consumption and Production', Peace, Justice and Strong Institutions and 'Reducing Inequality' should be on the curriculum of these subjects.

These subject areas are the most obvious in terms of including major knowledge components around the SDGs. But other subjects such as mathematics, language learning and literacy could all use global and sustainable themes. For example numeracy skills can play an important role in understanding causes and impact of global poverty in specific countries. As research by Alcock and Ramirez-Barker (2016) has shown, improving writing skills can be a valuable opening for addressing global and sustainability themes. In a number of countries there are also curriculum areas covering personal and health education (Ito and Nakayama, 2014) and within these areas, subjects such as conflict resolution, peace and gender education could be, and in some countries are, covered. For example there is an obvious connection with the Global Goals on 'Good Health and Well-Being' and 'Gender Equality'

Quality Assurance and Inspections

The increasing focus in many countries on quality assurance bodies can be an important mechanism to sustain and improve practice in teacher education, both at the initial and in-service level. For instance, UNECE recommended that academic quality assurance instruments (such as school inspection, institutional and departmental reviews and external evaluations) should be underpinned by a set of defined competences for ESD and GCED (UNECE, 2012). To address these themes, there is a need for greater clarity around terminology and

concepts relevant to ESD and GCED, for example social justice, inter-cultural understanding and a sense of environmental responsibility. Without such quality assurance and evidence of practice, studies suggest that ESD and GCED can be lost within wider curriculum priorities (Hunt, 2012).

Around the world there are strategies within higher education on sustainable development and internationalization. There are regular forms of reporting progress on these themes at a regional level and in some countries also at a national level. As noted in this paper, teacher education rarely features in this reporting. A recommendation therefore is that bodies responsible for measuring progress on sustainable development and internationalization should be encouraged to:

- Identify and encourage approaches within teacher education that include the SDGs and make explicit reference to sustainable development and global citizenship.
- Generate closer collaboration between bodies responsible for internationalization and sustainability agendas.

All countries will be asked on an annual basis to report progress on the SDGs and to facilitate this process, networks of organisations within an interest in sustainable development and global citizenship should at a national level be encouraged to provide evidence that can demonstrate progress within teacher education.

Securing Accountability

A major challenge in progressing the influence of the SDGs within teacher education is to secure meaningful engagement and a culture of accountability amongst policy-makers and bodies responsible for the delivery of the training of teachers. A model that has becoming increasingly influential within Europe has been the Peer Review process on Global Education organized by Global Education Network Europe (Hartmeyer and Wegimont, 2016). This network of government organisations across Europe have valued their peers commenting on current practices in their own country and identifying how best to develop strategies. This model could be piloted in other regions through the engagement of not just government ministries but higher education bodies and those organisations responsible for validating and accrediting teacher education courses.

Developing modules that include specific emphasis on ESD and GCED themes within training courses for senior managers within schools.

To have a sustainable impact within schools, policy-makers and bodies responsible for delivering training of senior managers should be encouraged to include sessions on ethos and mission of the school in terms of addressing global and environmental responsibility. The importance of this had been identified in research in the UK (Birney et al, 2011).

In addition, any specific qualifications or certification for training of senior managers within a school should include within its specification an understanding of the role of the school within the context of living in a global society and equipping its pupils to have a sense of their responsibility to live sustainably.

If the professional development of senior managers is linked to broader forms of qualification, for example a Masters' programme on leadership, then this could include the introduction of a specific module on Leadership for a Global and Sustainable Society.

Resourcing opportunities for teacher educators to network and share expertise and approaches

There is evidence from around the world of a range of networking initiatives within teacher education (see: APPENDIX 1, 10.3). An example of this from the UK was the Open Sustainability in Education Resource (OSIER) project²² which was funded by the Higher Education Academy and ran from 2010 to 2012 and was co-ordinated by the TEESNet network which acted as a repository for resources and models of training courses for teachers. Over a hundred resources and examples of courses were made available and whilst this resource was popular with those actively engaged in ESD and GCED themes, it did not appear to engage a broader community (Priddle et al, 2012). ESD and GCED themes are still on the margins of most teacher education activities and those who are passionate about these areas need support to make them more mainstream and to feel less isolated.

Where networks tend to exist they tend to cover one of the adjectival areas covered by this discussion paper. What is needed are the promotion of sharing of expertise across networks and to encourage existing groupings to broaden their focus and membership.

In too many countries around the world, networks concerned with ESD and GCED tend to operate in parallel to each other. They might make references to each-others' work, but a priority has to be at a national and regional level for networks and policy-makers to recognise the value of having one overarching strategy or forum. This will maximise resources and is more likely to have greater impact upon learners. It is noticeable that in countries where there has been closer co-operation such as Ireland (Martin, et al, 2016), Finland (Hartmeyer and Wegimont, 2016) and Scotland (Wisely et al, 2010), teachers are better equipped and trained to have the knowledge and skills to deliver the themes central to the SDGs.

Recognising Specific Starting Points

Within the need for strategic co-operation across the ESD and GCED themes, there needs also to be a pragmatic approach which recognises specific starting points and opportunities within individual countries. It may be that a mechanism for securing broader progress and change will come from projects on specific themes such as peace and conflict resolution, climate change or gender education, which could lead to the recognition of the interconnected nature of many issues. Themes can also become a way of demonstrating more learner-centred pedagogical approaches.

Targets could therefore be set that encourage training programmes that demonstrate connections between improving the quality of teaching to learning about a specific theme within ESD and GCED.

²² <http://osier.ac.uk/199/>

Using the Language and Themes within Education

As this paper has identified, there a range of themes within education and the training of teachers that can make a connection to the themes of ESD and GCED. What therefore is needed is to demonstrate where and how themes such as global competencies, inter-cultural skills and promoting teachers as agents of change can contribute to progress on the SDGs. This can be done by building evidence of the impact of courses for teachers that address these themes to broader educational influences within the schools. It is in this way that connections can be made to influencing bodies responsible for assessing teachers' performance, accreditation and validation.

Framework for Measuring Progress on ESD and GCED within Teacher Education

As the earlier sections in this chapter have suggested, a range of approaches need to be undertaken to gather the appropriate evidence to measure progress towards incorporating ESD and GCE themes within teacher education. If monitoring is to be both inclusive and comprehensive, it requires more than a reliance on existing ESD contacts. There is a need to bring in evidence gained from other areas such as subject specific networks, bodies responsible for monitoring citizenship education and policy-makers within an interest in the themes. In several regions of the world that are well established networks in areas such as citizenship and human rights education. They need to be consulted on measuring progress on the SDGs. For example it may be appropriate to identify specific themes in a particular region where there is potential for progress.

The monitoring process needs to come together within a clear conceptual framework that puts (i) the process of gathering evidence and (ii) the role of teacher trainers in terms of promoting themes such as equity, environmental and global social justice and intercultural understanding at the centre.

A central body would co-ordinate the data collection and analysis process. Data gathering would be focused around the conceptual framework and a common set of data collection tools, adapted to suit the focus of the institution or subject-body as necessary. Key people at institutional, national and regional levels would be identified to support the data collection process, which would incorporate the range of themes incorporated into SDG 4.7.

7 Prospects for achieving target 4.7 through teacher education programmes

To ensure by 2030 'all learners acquire the knowledge and skills needed to promote sustainable development', a priority has to be improving the knowledge and skills of teachers and ensuring that new teachers have the competencies to address them in the classroom. But as this paper has suggested this is a very ambitious in terms of securing engagement and ownership from within the teacher education community.

There is some evidence that in some countries there is increased engagement with global and sustainability themes in teacher education (Hartmeyer and Wegimont, 2016; McKeown, 2014; Reynolds, 2015). Country case studies in APPENDIX 1 provide evidence of practice. For the most part incorporating ESD and GCED into teacher education is largely determined by the interest of teacher educators and the priorities of schools, individual teachers and NGOs. There are examples where the prospect of embedding ESD and GCED within teacher education seems to have greater potential in terms of scale. In these cases the direct involvement of governmental funding and support is key, along with high expectations for engagement:

- The Global Learning Programme in England, funded by the UK government, has an expectation that 50% of schools will register and engage with the programme.

- Irish Aid's support to teacher education means that all of the main universities and colleges of education in Ireland are expected to make direct reference to development and intercultural education.
- In South Korea practicing teachers are encouraged to take 60 hours of CPD a year. CPD topics are run by metropolitan/provincial offices of education (MOE/POE) or other organisations certified by MOE/POE. These courses include aspects such as HRE, cultural diversity, peace education and ESD.

Despite these examples, all the evidence suggests there is a long way to go in terms of embedding ESD and GCED in teacher education. ESD and GCED in teacher education generally needs a much higher profile in terms of funding, commitment and indicators to measure progress. Teacher education is a key starting point to ensure pupils of the world are able to actively engage as environmentally informed, global citizens - and needs to be recognised as such.

To make progress, the following themes need to frame the indicators:

- Encouraging greater co-operation and synergy between global and sustainability networks. This will help to address areas of duplication, lack of focus and clarity of pedagogical purpose.
- Goals and targets need to be framed more in terms of current educational themes and priorities such as skills and competencies to live and work in a global society and growing up in a sustainable world.
- Recognising the subject based nature of most curriculums around the world and that teachers tend to be trained within these, particularly at secondary level. Therefore targets need to be set within specific subject areas.
- The importance of senior management support within schools.
- Starting points will vary from country to country due to educational, cultural and political influences.
- ESD and GCED themes pose major pedagogical challenges for many teachers and any targets related to improving the quality of teacher education need to consider the influences of factors which may work against a learner-centred approach.

8 Conclusions

Teacher education must be a central feature of any educational programme aimed at promoting the SDGs. Whilst there has been significant progress in many regions of the world in promoting sustainable development and global citizenship within training courses for teachers, in the vast majority of countries these themes are still seen as optional and marginal to the main purposes of teacher education.

This paper began by posing a number of challenges and questions regarding how best to incorporate ESD and GCED within teacher education. In summary, here are the concluding observations in answer to these general questions:

Common ways of preparing teachers in the areas of ESD and GCED

There are many ways teachers can be prepared to teach ESD and GCED themes. In most regions of the world the emphasis is on the development of increased knowledge and skills around specific issues concerned with themes such as climate change, global poverty, human rights and intercultural understanding.

Methodology to monitor the GCED and ESD-related training of teachers

The evidence gathered here has found some examples of methods of measuring GCED and ESD related themes within the training of teachers. It is where there has been a focus on a particular theme such as human rights or ESD that some form of comparative data has been found.

In taking forward the monitoring and comparing of data around the world, a good starting point would be to utilise existing GCED and ESD networks and include teacher education within broader forms of educational measurement such as those noted in Section 5.

New Conceptual Framework

The themes outlined in the SDGs and the current global issues requires a radically different approach to gathering evidence and data from that promoted in the past. There is a need to move beyond the theme of 're-orientating ESD to quality education' to one that puts a clear values base at the centre of any framework with equity and social and environmental justice being the dominant messages.

Best mechanisms to improve GCED and ESD-related teacher education

A priority in all countries must be to encourage all bodies responsible for providing teacher education to support all teachers to be aware of the social, cultural and environmental relevance and impact of what they teach, and to encourage a sense of global and environmental responsibility and a belief in social justice.

Secondly, teacher educators themselves need to have the opportunities to improve their knowledge and understanding of ESD and GCED and how to apply it within their training.

Thirdly, appropriate forms of language that are culturally specific and educationally relevant must be applied that build on broader international themes identified in the promotion of ESD and GCED.

9 APPENDIX 1: Background country information on how teacher education incorporates sustainable development, global citizenship, human rights, intercultural understanding, peace and gender

Information provided here is based on the availability of information. There may therefore be gaps / inaccuracies where we have not been able to find detail on projects or initiatives. This list is not comprehensive and there will be teacher educators and CPD providers providing support to teachers on global themes that we are not aware of.

Country	Background info on teacher education	Key policy	Curriculum focus	ITE	CPD	Evidence of focus
Australia ²³	School system is state based. ITE largely provided via university while CPD mainly a state and sector-based responsibility. Teachers must take yearly professional development.		Australia-wide curriculum includes Civics and Citizenship. HRE: no systematic or integrated opportunities in curriculum, but explicit and implicit opportunities in topics that teachers can adapt.	Where this is covered in ITE - usually the result of committed / interested teacher educators. Not generally coordinated within or across institutions and on small scale. Some evidence of ESD in ITE, but research suggests ITE: 'not adequately preparing teachers for	NGOs provide CPD support to teachers in areas of HRE, ESD.	ESD HRE I/C

²³ Information on Australia gathered from: Burrige N and Chodkiewicz A. (2016) Educating teachers about human rights: building a rights based culture in Australian schools. *Asia-Pacific Journal of Teacher Education*: 1-14, Ferreira JA, Ryan L and Tilbury D. (2007) Mainstreaming education for sustainable development in initial teacher education in Australia: a review of existing professional development models. *Journal of Education for Teaching: International Research and Pedagogy* 33: 225-239. Fien J and Maclean R. (2000) Teacher Education for Sustainability. II. Two Teacher Education Projects from Asia and the Pacific. *Journal of Science Education and Technology* 9: 37-48. Ferreira JA, Ryan A and Davis J. (2015b) Developing Knowledge and Leadership in Pre-Service Teacher Education Systems. *Australian Journal of Environmental Education* 31: 194–207.

Country	Background info on teacher education	Key policy	Curriculum focus	ITE	CPD	Evidence of focus
				teaching education for sustainability in schools' (Ferreira et al., 2015b: 195). Little evidence that ITE covers HRE.		
Brazil ²⁴	ITE is provided by public or private teaching courses. CPD is the responsibility of municipal or state Secretariats of Education and/or by university extension courses.	Common National Base Curriculum for Basic Education (2016) National Curricular Guidelines for Human Rights (2012) National Curricular Guidelines for Environmental Education	National Curricular Guidelines for EE focus on: complex-curricular approach; linking environment to other dimensions e.g. health, gender, rights; encourage development of critical and reflective thinking; pedagogical tools that improve environmental / active citizenship; developing individual and collective responsibility in terms of local, regional and global environment; and associating the concept of sustainable development with EE. But this EE not fully	EE not yet fully incorporated into ITE: this includes more traditional training institutions as well as those following new guidelines for teacher training.	CPD is the responsibility of municipal or state Secretariats of Education and/or by university extension courses.	EE ESD GCED

²⁴ Information on Brazil is provided by Silvia Moraes.

Country	Background info on teacher education	Key policy	Curriculum focus	ITE	CPD	Evidence of focus
			integrated into curriculum. Acknowledgement that EE, ESD and GCED need to include knowledge and the study of African and Indigenous peoples.			
Canada	School and ITE system devolved to provincial level	Council of Ministers of Education ESD Working Group produced guidelines for Faculties of Education	Range of policy initiatives with different provinces on themes such as global citizenship, sustainability, cultural understanding at provincial level including civics and social justice in British Columbia, World Studies and Global Citizenship in Ontario (Montemurro, et al, 2014)	Inclusion in global and sustainability themes within courses at: University of Ottawa, Alberta, British Columbia,	NGOs and universities provide a range of courses and initiatives	GCED ESD I/C H/R
China ²⁵	CPD is supported by NGOs.	National Guidance for Sustainable Development Education (2007)	MoE (2003) put a strong emphasis on ESD in national curriculum. SD integrated into curriculum initiatives, e.g. geography, chemistry, physics,	Some courses have ESD and global themes incorporated but this is largely dependent on	CPD in ESD is supported by NGOs, the ESD Research Centre and school awards. School-led training and support via the ESD School Programme and	ESD (umbrella term that includes GCED).

²⁵ Information on China provided by: Xiaodan Sun and Wei Kuang

Country	Background info on teacher education	Key policy	Curriculum focus	ITE	CPD	Evidence of focus
			science, PE, Chinese and health education. Ministry of Education: National Guidance for Sustainable Development Education (2007): provides information on how to implement ESD into the curricula. Core concepts of ESD related to poverty reduction, food security, peace development and cultural diversity.	teacher educators.	other government-funded initiatives. Focus on ESD in China's National Working Committee on ESD.	
Costa Rica ²⁶	ITE provided in universities. CPD usually organised by MoE or sometimes at provincial level.	Integrated Programme for ESD and Institutional Management Education for the New Citizen (2015)	EE and ESD normally described as co-curricular / transversal themes. Not formally examined. Often up to individual teachers to include EE/ ESD themes in teaching.	No information available	MOE provides CPD and organises conferences etc. for teachers and leaders. NGOs play major role in CPD. Local conservation groups provide support for teachers.	ESD EE
England ²⁷	ITE provided in universities and some mainly school-based training. CPD run by peers (in-house; teaching		Links to global themes can be found in subjects e.g. Geography and topics areas.	Incorporation of global themes largely dependent on	CPD supported by NGOs, Development Education Centres and school awards	GCED ESD HRE

²⁶ Information on Costa Rica gathered from: Nicole Blum.

²⁷ Information on England gathered from: Hunt, et al, (2011) Taking Stock: A report from the UK Teacher Education Network for sustainable development (ESD) /global citizenship (GC) - survey on provision for ESD/GC in initial teacher education in the UK. London: London South Bank University.

Country	Background info on teacher education	Key policy	Curriculum focus	ITE	CPD	Evidence of focus
	schools) and outside organisations e.g. NGOs.			individual interests of teacher educators.	programmes. Many of these initiatives funded by DFID.	I/C Peace
Indonesia ²⁸		National strategy on Education for Sustainable Development		Although TEIs have developed modules on ESD, under leadership of MoE it has not been explicitly integrated into the curriculum for core training of teachers. Guidelines have been produced for TEIs.		ESD
Ireland	ITE provided by universities and colleges of education (for primary teachers) .CPD mainly led by NGOs	Strategy for Education for Sustainable Development (2014)		There is a strong DE and ICE focus within the training of teachers due to the Irish Aid funded DICE project (for training of primary school teachers) and Ubuntu Network	A range of NGOs provide ongoing professional development support for teachers alongside some in-service courses provided by universities.	GCED ESD ICE

²⁸ See Young Choi, M. (2011) Education for Sustainable Development Country Guidelines for Changing the Climate of Teacher Education to Address Sustainability, UNESCO

Country	Background info on teacher education	Key policy	Curriculum focus	ITE	CPD	Evidence of focus
				(for secondary school teachers.		
Nigeria ²⁹	<p>Officially, teachers require a minimum level of qualification: a professional certificate (FME, 2013), but in practice recruitment varies. In the north of Nigeria teachers (esp. women teachers) are less likely to be qualified.</p> <p>ITE provided by universities and colleges of education. In 2006 more than 90% of primary school teachers received CPD, but this dropped to 51% in 2011 (UBEC, 2009, 2013 in Unterhalter).</p>	Gender in Basic Education Policy (2007)		Efforts to mainstream gender into ITE has been limited.		
Poland ³⁰	ITE takes place through teaching degrees or one year post graduate studies. CPD conducted via training, workshops, studies, etc.	National Curriculum (2008). MoU (2011) between MoFA, MoE and Polish NGDO platform – states	National curriculum includes global education (involving knowledge, skills and attitudes) at every level of education. Particular focus on the geography curriculum, but aspects	Despite curriculum focus, awareness of GE low. Incorporation of global education is largely dependent on the	CPD is supported by NGOs providing support to teachers and schools in global learning.	GCED ³¹

²⁹ Information on Nigeria is taken from: Unterhalter E, Jegede PO, Ezegwu C, et al. (2015) Student Teachers, Gender Equality and Some Problems about Sustainability for EFA in five Nigerian States. *UKFIET*. Oxford.

³⁰ Information on Poland taken from IGO (2013); Marta Gontarska and Paweł Rudnicki

³¹ Called Global Education in Poland

Country	Background info on teacher education	Key policy	Curriculum focus	ITE	CPD	Evidence of focus
		importance of promoting global education in Poland. According to European and national qualification framework, global education should be part of ITE.	of GE to be incorporated across curriculum areas.	individual interest of teacher educators.		
South Africa ³²	ITE provided in universities and TEIs via teaching degrees or one year postgraduate study.					I/C
South Korea ³³	ITE is provided in universities and colleges of education via different routes, including 4-year BEd. for primary teachers and graduate training for secondary teachers. Practicing teachers are encouraged to take 60 hours of CPD a year (not compulsory). CPD topics vary and courses are run by	Influence of formal education policies is important.	National curriculum.	Coverage of ESD and GCED on undergrad courses limited. CHECK	MOE/POE organises CPD curriculum according to the annual teacher education plan by MoE. Each year, the plan has different emphasis. In 2016: HRE, cultural diversity, peace education. 2015:	ESD HRE I/C Peace

³² Information on South Africa taken from: Cappelle G, Crippin G and Lundgren U. (2011) World Citizenship Education and Teacher Training in a Global Context. London: CICE.

³³ Information on South Korea gathered from: Kyoungwon Lee.

Country	Background info on teacher education	Key policy	Curriculum focus	ITE	CPD	Evidence of focus
	metropolitan/provincial offices of education (MOE/POE) or other organisations certified by MOE/POE.				cultural diversity, HRE, peace and ESD. Each course is usually 15/30/45/60 hours long.	
Spain ³⁴	Primary teachers require a degree in primary education. Secondary teachers require a degree in a specific subject area, plus a Masters in teacher training for secondary schools.		There is a national curriculum, but each university develops its own syllabus. Education for Citizenship removed from curriculum in 2013.	Some courses have global themes incorporated but this is largely dependent on teacher educators. Global dimension not clear in primary education, but might be more evident in certain subjects at secondary e.g. Geography. Global dimension is not very clear in transversal competences within degree programmes.	There is more evidence of CPD to support teachers in global themes. Every community, through the Education Administration, offers an annual CPD plan for teachers. Some collaborate with NGOs or Cooperation Agencies. Every community has one or more Teaching Trainer centre. In some communities there is a Science Education Institute (ICE) that offers teacher training. And there are various Masters degrees in development education.	GCED

³⁴ Information on Spain provided by Maria Adelina Calvo Salvador

Country	Background info on teacher education	Key policy	Curriculum focus	ITE	CPD	Evidence of focus
USA	Policy-making in education is devolved to county, district and state level and only by adopting conditions to funding can federal government have a degree of influence,	State of ESD in the United States- A 2015 report to the US Department of State		Many universities that provide teacher training programmes would include global citizenship and sustainability themes	<p>NGOs play an important role alongside teacher networks in providing professional development opportunities for teachers. Many of these within the sustainability theme would tend to focus on 'green themes' such as Green Schools National Network and Center for Green Schools National Action plan for Education for Sustainability.</p> <p>Within the field of global citizenship organisation such as Asia Society offer a range of courses for teachers.</p>	

10 Examples of practice

10.1 Country examples

10.1.1 Australia

Ferreira et al. (2015a: 10) focuses on teacher education and ESD and notes that teacher education:

‘remains notoriously slow at preparing the next generation of teachers to educate their students about climate change and sustainability. To date, initiatives have mostly consisted of small numbers of teacher educators working in isolation at the subject level within programs’.

It is usually the result of a particular interest and/or dedication of individual academic staff members within pre-service teacher education institutions (Fien, Kumar, & Ravindranath, 2001; Henderson & Tilbury, 2004; Steele, 2010 in Ferreira et al., 2015b).

Ferreira et al. (2015b): describe a teacher education project in Australia which focused not on subject content and transmission, but aimed to facilitate change across a whole system, incorporating multiple people, parts and processes that are involved in pre-service teacher education, including schools, education staff, administrators and students, unions, professional associations, registration authorities and government agencies.

The key goal of such an holistic approach is for change to occur concurrently across a number of policy-to-practice ‘levels’ within a pre-service teacher education system, including governmental policy, accreditation and registration standards, course provisioning, and teaching and learning processes.

The project was long-term, running from 2006 to 2015 and included:

- an international review of initiatives used to facilitate change in teacher education (this identified three main approaches - resource development, action research and whole of system). A new approach – the Mainstreaming Change Model – was proposed, using the best features of these.
- Mainstreaming change model piloted in two states (7 TEIs).
- Replication of the pilot in two states identified five factors that strengthened change towards sustainability in teacher education programs - collaboration; developing a shared vision/ethos of sustainability and sustainable practice; connecting up existing EfS content and practices; using experiential and active learning processes; and creating opportunities for integrated programs within teacher education.
- State-wide systems change process (involving all TEIs in one state)
- A series of workshops in each state where the project and mainstreaming change model were discussed, and the national network of teacher educators was consolidated and strengthened.

Ferreira (2015a) goes into further detail about one aspect of the larger project, which included support at selected TEIs in two Australian states over a 16 month period (in total). The project team provided identified advice and support to institutional participants through phone and email consultations, provision of appropriate articles to read and providing guest speakers at workshops. There was also a phone-based community of inquiry: ‘where group discussions deliberately focused on problematizing and clarifying a range of diverse conceptual understandings about key topics in order to build knowledge capacity for systems change’.

Ferreira et al (2015a) found the main issues in their project related to individuals’ willingness to initiate project activities, their personal perceptions of their capacity to bring about change, and their abilities to inspire and

lead others in a change process. They realised they needed to develop participants' knowledge of change and change strategies and also their personal capacity for leadership.

The key outcomes included: teacher educators' enhanced knowledge about and skills in ESD; changes in teaching and learning practices, including new courses and course content, alongside new teaching and learning pedagogies; a community of inquiry for project participants within and between institutions; new institutional positions and policies on ESD; and new relationships between elements of the pre-service teacher education system were developed. This included teacher educators engaging with policy developers in government agencies.

In order to bring about larger-scale system-wide change Ferreira (2015a) states:

Our experiences indicate that it is vitally important to learn how systems work and how organisations — as elements of a system — can change. This is especially so when working within large systems such as pre-service teacher education, which often seem to be resistant to broad-scale change. As others have found, this is because individuals either do not want to change, do not see the changes as relevant, do not feel they have a mandate to implement such a change, have conflicting incentives within the organisation, and/or simply have a different worldview to that being promoted by the project.

10.1.2 Brazil

The following example is from a degree course for trainee teachers who will teach early years in Brazil. It is an **Environmental Education (EE) course in the Federal University of Ceará** curriculum. In the Pedagogy curriculum EE disciplines are offered as optional courses and follow National Curriculum Guidelines. The course includes elements of:

- Identity, difference and diversity: includes intercultural studies, social inequalities, gender, and ethnicity
- Environmental Education
- Education and spirituality
- Religious phenomena and Education: includes values in education.
- Education and human rights: human rights, democratization of society, culture of peace and citizenship
- Inclusive Education
- History of Afro-descendants in Brazil: includes Black histories and social movements in Brazil
- African worldview and Afro-descendant culture in Brazil
- Indigenous education; difference and inter-culturality from the perspective of indigenous education
- Rural education, sustainable development society
- Intercultural education
- Education, health and transversality
- Topics in Environmental Sciences.

Environmental Sciences ITE courses (Licenciaturas): follow national curriculum guidelines, which mean they are similar throughout Brazil. Environmental issues are integrated into these courses and trainee teachers are expected to support research and develop environmental projects in their placement schools. The Environmental Sciences Course at the Federal University of Ceará includes topics such as:

- Ecology applied to Environmental Sciences. Practical activities include the characterization of environmental systems in the State of Ceará.

- Chemistry applied to Environmental Sciences
- Continental aquatic ecosystems. Practical activities include the characterization of continental aquatic ecosystems in the State of Ceará.
- Introduction to the Environmental Economy. Includes evidence of environmental problems, sustainable development, environmental policy and climate change.
- Environment pollution
- Climatology and global changes
- Marine ecosystems
- Treatment of environmental data
- Pollution of aquatic environments
- Environmental microbiology
- Environmental assessment
-

Teaching Respect for All is a joint UNESCO-USA-Brazil project to counter discrimination and violence both in and through education which was set up in 2012 (UNESCO, 2014). The project aims to develop tolerance and respect for all people, and is built on the universal values and core principles of human rights. The Teaching Respect for All Implementation Guide (UNESCO, 2014) which is an output of the project provides support to head teachers and formal and informal educators to integrate these aspects into their teaching. In so doing it provides:

- methods of dealing with difficult topics such as racism and discrimination with learners;
- lesson plans (key concepts, learning objectives, topics and ideas);
- suggestions for learning activities (e.g. simulation, role play, games, discussion, etc.);
- suggestions for possible entry points and topics to link the issues of respect for all with particular teaching subjects (e.g. mathematics, science, history, etc.).
-

There is little information available about how much the implementation guide is used in practice by teachers.

10.1.3 Canada

The Canadian International Development Agency (CIDA) funded Ottawa University's ten year global citizenship project with NGOs under the Global Classroom Initiative (McLean and Cook, 2016). In Canada, teaching from a global perspective is supported by a number of provincial education programmes. The research by McLean and Cook found that whilst many teacher candidates were sympathetic to global citizenship themes, many were intimidated by the knowledge and pedagogical skills required to teach a rapidly changing information base. To address these challenges they developed an educational tool, called a 'Primer' to help them critique the resources that were available and to encourage particularly a more interdisciplinary perspective.

Canada is also one of the leading countries in terms of the development of scholarship and research in GCED (Montemurro et. al., 2014) and this has had a considerable impact on teacher education. Examples can be found at OISE, University of Toronto, Alberta and British Columbia.

With regard to ESD, a report was produced in 2012 on ESD in Canadian Faculties of Education (Council of Ministers of Education, Canada, 2012). This extensive report surveyed faculties in education across Canada and asked the extent to which ESD existed within the curriculum for training teachers and what research was being undertaken in ESD within the faculties. The key findings were:

- There is a modest but promising progress towards reorienting teacher education to address ESD.
- Whilst most universities had SD policies, there was less certainty about the engagement of education staff in these areas.
- There was evidence to suggest that the commitment was more at an individual than a faculty wide level.

The report recommended professional development workshop for staff, encourage greater dialogue and networking within faculties and involve ministries and departments to share more with certification bodies.

The limits of faculty commitment to ESD was shown in research in Manitoba found that despite provincial educational policies promoting sustainability, teacher education programmes tended to ignore it. The reasons given were lack of leadership within the faculty and university, an unfavourable view of the role of education for sustainability and silo-ing within the faculties of education (Falkenberg and Babiuk, 2014).

10.1.4 China

China's National Working Committee on ESD was founded in 1998, and is responsible for providing policy guidance, creating teaching materials, providing teacher education and delivering ESD in China's primary and secondary schools. China's National Working Committee on ESD an NGO, supported by UNESCO and China's Ministry of Education. In China ESD is an umbrella term which includes global citizenship. China's National Working Committee is in a unique position to promote UNESCO's value of sustainable development and GCED. By November 2016, there were more than 1,000 schools registered for this network and they have received teacher education conducted by the China's National Working Committee on ESD and ESD Research Centre, Beijing Academy of Educational Science. Almost 4,000 teachers had received external CPD via the network. The teacher education helps teachers learn UNESCO's new policy initiatives, integrate ESD into curricula, increase their confidence and teaching ability and develop a bank of support materials, teaching resources and continuous professional development (CPD) tools to support schools and teachers to delivery ESD effectively (Wang, 2015).

Beijing International Forum on ESD

The Beijing International Forum on Education for Sustainable Development, organized by China's National Working Committee on ESD and ESD Research Centre, is a virtual conference which has run biennially in Beijing for the past fourteen years. The conference brings together key national and international stakeholders over three days. In the 7th Beijing International Forum on ESD in 2016, it published the Beijing Declaration, which promotes policy advocacy in ESD and advances the implementation of UNESCO Education 2030 agenda. This declaration calls for the improvement of teacher education.

So far, 2,100 teachers receive external CPD from this network. Experts from UNESCO, China's Ministry of Education, the academic community in ESD will provided UNESCO and national policy guidance, share innovative pedagogical approaches and set up local networks of schools to train and support other local teachers. This network enables different stakeholders to share information, experiences and good practices among ESD schools and teachers (Shi, 2015).

This conference focused on the role of teacher education in integrating ESD into curricula. It has developed actions initiative as follow:

- The development of ESD teaching manual and national ESD publications
- The development of national ESD research guidelines and publication of outstanding ESD research findings

- The collection and dissemination of outstanding ESD case studies to share successful practices
- The promotion of school seminars, inter-school and inter-regional experience exchanges

10.1.5 Costa Rica

CPD example: The Earth Charter and UN University for Peace offer a 6 month virtual ESD diploma for teachers: <http://cartadelatierra.org/eventos/diplomado-en-educacion-para-el-desarrollo-sostenible>

CREADS, A Teacher Training Course on ESD in Costa Rica: Costa Rica has a long history of policy and practice in the areas of education and sustainable development, including inclusion of those themes within the national curriculum. Training for teachers and administrators, however, has tended to be somewhat limited. Jiménez-Elizondo (2010) reports on a key example of an initiative which intended to address this – the CREADS (ESD Regional Course) project which ran from 2008-2009. Organised by a coalition of governmental and nongovernmental organisations, and coordinated by the Ministry of Education, it was put in place to deliver a training course which used the Earth Charter as its key framework. The content of the course was designed to align with topics within the National Strategy for Environmental Education, including: conservation, protection and environmental recovery (social, cultural and natural); prevention and mitigation on the impacts of human actions on the environment; respect to all forms of life; sustainable human development (MEP 2004).

The course used a highly participatory methodology, a ‘learning by doing’ style, which gave the participants the experience of a transformative process in their way of thinking and acting towards more sustainable lifestyles. It was envisioned that after being trained in the process, it would be easier and more natural for the participants to communicate this to their students and colleagues. To make course attendance more attractive, the Ministry of Education and Civil Service accredited the course so that participants could earn ‘points’ that eventually translate to salary increases. Results from feedback surveys with participants showed that they all gave high scores (very good to excellent) to all sessions and facilitators. However, many also expressed a desire to have longer sessions for each topic, arguing that there was not enough time to grasp all the new information provided. Jiménez-Elizondo (2010) concludes that having more sessions and reaching out to more regional management units, however, would require an increase in the budget, so new funding sources are pressing need for the future.

10.1.6 England

There are some examples in England of courses within undergraduate education programmes, but not many where global or sustainability are integrated within initial training of teachers³⁵.

One example is that outlined by Scoffham (2013) who describes a **global learning module, integrated into a primary ITE course** over a three-year period and the challenges this created. The initiative involved 550 trainees over three years on a four-year B.Ed. course and was encouraged by the strategic prioritisation of international perspectives in the university more widely. The global dimension module was one of six compulsory elements students had to complete in the final year of their undergraduate programme. It consisted of 30 hours of tutor contact time, covering topics such as, globalization, environmental degradation, sustainability, trade, climate change and comparative education. It was:

aimed to respond to changing cultural and social conditions, to prepare students for working in multicultural settings, and to explore issues relating to sustainability and the environment. It was argued that in the modern

³⁵ Examples of courses that offer this can be found at Bath Spa, Chichester and UCL Institute of Education.

world, teachers need to engage with and develop an understanding of global issues if they are to be effective classroom practitioners (Scoffham, 2013: 28).

The module was informed by a number of pedagogical perspectives, including Hicks vision ‘for a form of global education that embraces critical traditions to bring about personal and political change’ (Scoffham, 2013: 31). In addition to collecting baseline and impact data from trainee teachers, Scoffham also got feedback from teachers who had taken the course and were in their first years of teaching. The findings indicate that many trainees developed their thinking about global issues, albeit on a surface level. A small but significant minority proved much harder to reach (Scoffham, 2013: 28). In terms of the practicing teachers there were examples of some teachers introducing global aspects into their teaching, however some had found it difficult of practical considerations in their schools (e.g. it wasn’t in their topic plans, there wasn’t enough time or they didn’t have enough confidence to convince colleagues) (Scoffham, 2013:37). Scoffham concludes by emphasising the challenges inherent in incorporating global learning into ITE, which includes acknowledging the difficulties teachers can have in feeling able to teach complex global issues; the practical restrictions of these courses within wider teaching programmes and the time it can take to bring about any sort of ‘transformation’.

The **Global Learning Programme** in England is a government-funded national programme which supports teachers to be more confident and able to teach global issues in schools. In November 2017 the GLP had over 5,000 schools registered, which is around 20% of English schools. Over 4,500 schools had receiving training as part of a peer-led network and almost 4,000 teachers had received external CPD via the programme (often by NGOs or DEC’s). With a remit to cascade training to teachers within schools, it is estimated that over 11,000 teachers have received some form of training on global issues as part of the GLP. The GLP not only focuses on increased knowledge, but also enhancing pedagogy to include participatory / inclusive teaching practices. Impact of this CPD support to teachers can be seen in terms of teachers’ increased confidence and understanding of global issues, their awareness of how to teach these issues in class, the quality and quantity of what they teach and pupils understanding of global themes (Hunt and Cara, 2017 forthcoming).

There are numerous examples of modules and courses that include some element of ESD in the training of teachers. One of the leading example is Plymouth University which includes fieldwork activities and are introduced to Forest Schools. Other examples include modules at Nottingham and Hertfordshire University (Cook, et al., 2010).

10.1.7 Ireland

Global, intercultural and sustainability themes have a strong presence with the training of teachers in Ireland. There have been a number of strategic initiatives on global and sustainability themes within education over the past decade including a strategy for development education from Irish Aid and from the Ministry of Education a strategy for ESD (Department of Education and Skills Ireland, 2014). There has also been a peer review of global education in Ireland that recognises the strategic nature of initiatives to include global and sustainability themes within the training of teachers undertaken by Global Education Network Europe (Hartmeyer and O’Loughlin, 2015).

As a result of funding from Irish Aid since 2003, learning about development and intercultural issues has been a core component of the degree programmes for student teachers at primary level (Martin et al., 2016: 115). This initiative is called the DICE Project and works with both universities and the colleges of education. This project has the following strategic aims:

To support students graduating from teacher education programmes to have good knowledge and understanding of development education and intercultural education and to be motivated and equipped with the pedagogic skills to teach DE and ICE effectively.

To influence the development education and intercultural education policy agenda and practice in Ireland, including the implementation of the National Strategy on Education for Sustainable Development.

To explore opportunities for synergies and coherence with post-primary level education within the new institutional configurations for ITE.

To enhance the sustainability of development education and intercultural education in ITE across all public providers. (<http://www.diceproject.ie/about/strategy/>)

A similar funding agreement for initial training of teachers at secondary level has been existence since 2006 with the Ubuntu Network. This network is made up of teacher educators from Higher Education Institutions, NGO representatives and partner organisations with a commitment to education for social justice, equality and sustainability

The Ubuntu Network aims to support the integration of Development Education into post primary ITE in Ireland. It works to ensure that graduate post primary teachers entering the workforce are equipped with the requisite knowledge, skills and motivation to incorporate Development Education into their teaching.

Its mission is to support teacher educators to embed into their work a living understanding of and commitment to education for global citizenship, sustainable development and social justice, so that student-teachers at post-primary level can integrate into their teaching, and into the schools where they work, perspectives that encourage active engagement to build a more just world. (<http://www.ubuntu.ie/about.html>)

An example of the type of courses provided in Ireland is that at Trinity College Dublin where a 'Development Education Elective course' is run within the Professional Diploma in Education. The programme based on a series of lectures and workshops aims to:

demonstrates a commitment to democracy, social justice, equality and inclusion and to promote and accommodate diversity through active learning methodologies. It aims to build student's critical media literacy skills, and enabling creative approaches to delivering issue-based content in the classroom. The student teacher will explore themes of social injustice, inequality, human dignity, cultural and environmental concerns framed within the context of DE in a cross curricular context. (<http://www.ubuntu.ie/our-work/projects2015-16.html#tabs|Projects:TCD>)

10.1.8 Jamaica

There seems to be a particular focus on ESD and Citizenship in teacher education in Jamaica.

The Joint Board of Teacher Education³⁶ has a history of supporting such initiatives, with the Sustainable Teacher Environmental Education Project running between 2000 and 2007. Current courses for eight teacher education colleges in Jamaica which share common programmes include:

- Introduction to ESD and Citizenship: general education courses completed by all trainees
- Advanced Citizenship: taken by trainees preparing to teach Social Studies in secondary schools
- Literature & ESD: taken by trainees preparing to teach English in secondary schools

³⁶ An association of organisations involved in the certification of teachers and the development of teacher education and accreditation. Institutions include: The University of the West Indies; the governments of Jamaica, the Bahamas, Belize and Turks and Caicos Islands (through their Ministries of Education); the teachers' colleges; and the teaching profession.

- Down (2012) carried out research with student teachers and found that there was a potential connection between their own vision of education and themes such as sustainable development. She noted that students saw their future role as teachers as change agents with a concern for social justice and a vision of education that equates with UNESCO's vision of quality of life. However in follow up interviews she conducted with students once they were teachers, she found a slightly different emphasis on their vision of education, more personal than social, more concerned with the here and now than the long-term.

10.1.9 Nigeria

There is little evidence of **global citizenship initiatives in teacher education** in Nigeria. However a recent course on developing teachers and global learning champions³⁷, suggests there is interest amongst teachers for such an initiative. The recent one-day taster course (supported by NIEP) involved 35 head teachers in Ondo State and included focus on applying global learning themes to specific subjects and classroom practice. It included discussions on the SDGs and some micro-training, where teachers presented to their peers how they would teach a particular topic. This example suggests that although its approach was quite challenging to many of the teachers, they responded favourably and indicates that with leadership, resources and clear leadership more progressive pedagogical approaches can be introduced in the training of teachers.

There is little evidence about how **teacher education courses incorporate gender**, but Unterhalter et al. (2015) have looked at this within the context of Nigeria. Although the Nigerian teacher education curriculum was revised in 2012 with some intention to include reference to addressing gender issues, there is little evidence that this has impacted on teachers. Indeed, the research raises concerns about whether student teachers:

are being trained is adequately developing insights into gender equality and inclusion that can take forward the policy visions in Nigeria for UBE and expanded development of gender equality in education.

It states:

Efforts to mainstream gender into the teacher education curriculum ... have been limited (Okey, Odok and Ejue, 2009; Mulugeta, 2012 in Unterhalter et al., 2015: 4).

Unterhalter et al. (2015:5) also note the conditions in a number of teacher education institutions which do not appear conducive to supporting the mainstreaming of gender into teacher education. They suggest 'the conditions for examining gender equality issues may be difficult in some areas'.

10.1.10 Pakistan

We have identified the following project from Pakistan:

Middle School Programme: Developing 21st Century Skills: The Aga Khan University-EB Middle School Programme is a project-based learning approach for students of grade VI, VII and VIII in Pakistan. This is a form of experiential learning that recognizes learner diversity by offering broad-based interdisciplinary projects.

³⁷ Run by www.softoptions.org

Project-based learning is a student centric learning approach that enriches the learning experience through application of knowledge to real world situations. It facilitates the cognitive development and proficiency of students, thus preparing the students for a smooth transition to secondary school studies and beyond.

Middle School Programme projects focus on developing essential competencies – often referred to as 21st Century Skills – deemed vital to success in both school and beyond. These competencies include listening, reading and observation skills, information gathering, communication skills, interpersonal skills, critical thinking and problem solving, responsibility, team work, creativity, and innovation. In the coming years, these competencies will be used to further develop pluralism and a commitment to service in students.

Each class opting for Middle School Programme receives a set of six interdisciplinary projects. These project tasks are designed by AKU-EB and are based on middle school syllabi drawn from the National Curriculum of Pakistan, which outline key concepts for each grade level across five core subjects: Mathematics, Science, Social Studies, Urdu and English. Students work individually and in groups to complete project tasks and then compile them as one portfolio.

Support for teacher development is provided throughout the year in the form of an orientation session, annual teacher training, and on-going consultations with schools to ensure that the projects are implemented correctly; teachers understand their role as a facilitator and the essence of the competencies.

Teachers assess the academic quality of students' project work and the competencies demonstrated in task completion using a standard rubric developed by AKU-EB. The scores are moderated at an annual teacher meeting. The process is facilitated by AKU-EB and offers an opportunity for teachers to improve their assessment practices.

10.1.11 Poland

Despite the policy focus on global education in Poland (the National Curriculum includes global education at all levels), incorporating global education into ITE is primarily up to the individual or small groups of teacher educators. However, there is a lack of awareness of what global education is amongst teacher educators. Pedagogy used tends to be traditional:

The methodology of teaching still depends on tutors' individual capacities and few courses are innovative, interactive or based on new teaching methodologies (IGO, 2013).

The activities of NGOs in Poland in global education focus on: the training of teachers, training of pupils and preparing and disseminating tools for teaching and learning of global education.

An IGO (2013) study looked at the syllabus of 12 teacher educators from 4 universities. Within that 4 of the 12 syllabus related directly to global education, with one named 'Global Education – theory and practice' and others integrated more generally. The courses identified are focused on increasing the knowledge of trainees e.g. processes of globalization.

There is no space for transforming this knowledge into practical teaching skills and students are not instructed how to communicate this knowledge to pupils of different age groups. Also, there is a lack of examples of initiatives, projects or partnerships working on these issues ... Although global education is included in selected syllabuses, there is no common practice to include global issues in certain subjects or modules, and the inclusion of such issues still depends on individual tutor's interests. Furthermore, there isn't a subject dedicated to global education in the minimum pedagogical programme at any of the higher education institutions.

Teacher educators in the study (IGO, 2013) global issues were not a priority for university management, leaving it up to individuals to decide whether to incorporate.

As there is no official policy to include global issues in initial teacher training, universities usually do not ensure that global issues are included in educational modules.

Various organisations (including NGOs) support teacher education on global education in Poland.

- The Centre for Education Development (in Polish: Ośrodek Rozwoju Edukacji – ORE), offers courses on global education, and they are often supported by NGOs.
- A regional network of trainers, leaders, facilitators and coordinators who work on global issues has been developed to support teachers and schools' management.
- Various non-governmental development organisations are also working locally with teachers and school management on global education.
-

There is involvement in various cross-country projects, often EU funded.

Teachers as Agents of Change: was a project which aimed to introduce courses in development education (DE) into teacher education in selected universities in the Czech Republic and Poland and promotes them in a wider number of universities.

10.1.12 South Africa

There are some resources on how ESD is incorporated into ITE and CPD in South Africa (Lotz-Sisitka, 2011), but few on GCED and HRE.

A study on social cohesion in education (Sayed, et al, 2016) focuses to education for peace and intercultural education, within the context of a formerly divided country. It uses examples from two ITE programmes in HEIs – and suggests that trainee teachers get opportunities to reflect on diversity and to develop ways to respect diversity, e.g. in terms of diverse learner populations and identify social problems. Sayed et al (2016) suggest that trainees' experiences around social cohesion are mediated by the histories of the particular institutions they are studying in and the experiences, expertise, and understandings of their teacher educators. Indeed:

It is their (teacher educators') purpose to support and challenge, provide content knowledge, as well as empower student teachers to seek knowledge, as well as expose students to diverse pedagogies and contexts. Thus, the understanding of teacher educators about social cohesion is as important as that of the student teachers. And as much as student teachers need support, policy frameworks and specifications have to pay particular attention to the needs of tertiary teacher educators (Sayed et al, 2016:26).

Lotz-Sisitka (2011) provides information on the development of a national network, curriculum framework and resources for teacher education in relation to ESD in South Africa. Previous efforts to strengthen ESD in teacher education have failed to make systemic impact:

While many examples of good practice exist in schools, and good policy frameworks exist, very little has been achieved in ensuring that environment and sustainability issues are consistently and coherently integrated into teacher education (Lotz-Sisitka, 2011: 33).

She carries out a case study of the establishment and initial implementation of a teacher education programme for ESD that is curriculum and policy aligned and sustainable. The pilot she discusses is a module on a BEd. Programme and involves 12 (practicing) teachers who are taking the BE.d. The study identifies participating teachers' ability to engage with ESD in some ways, but indicates teachers' limited ability to critically engage with environmental issues and reflect on contested knowledge; and their difficulties in developing assessment activities that could that could develop values and skills towards action competence.

10.1.13 South Sudan

Research from Reisman and Janke (2015) explores the **USAID-funded South Sudan Teacher Education Project (SSTEP)** as a case study, to explore how guidelines from INEE (2013) were used for teacher education in practice. The researchers found that there were real difficulties in using the guidelines in this post-conflict context, which raises questions for its potential. For example, in the case of SSTEP an adequate governance system was not in place to support the guidelines. The South Sudan government placed a focus in teacher education on core subjects over conflict-sensitive ones such as peace-building and human rights. There wasn't sufficient capacity or teacher educators in general, and certainly not with expertise to support conflict-sensitive subject areas. SSTEP did provide some training of teacher educators in conflict-sensitive subjects, but Reisman and Janke (2015: 152) suggest the scope and quality of what then was delivered to trainee teachers is uncertain. The authors recommend that donors have a part to play in ensuring conflict-sensitive strategies within teacher education, highlight the importance of NGOs to support conflict-sensitive teacher education and recommend guidelines to offer practical suggestions to improve the conflict sensitivity of teacher recruitment practices.

10.1.14 Spain

ITE in the University of Oviedo, includes the following elements:

- Education Technology: A compulsory subject in the Pedagogy degree;
- Education and cooperation for human development: a non-compulsory subject in the Pedagogy degree;
- Gender and education: A subject in the Masters course on "Gender and Diversity"
- Education, immigration and human rights: A subject in the Masters course "Socio-educational intervention and research"

The **Solidarity Schools project** is an example of CPD on development education to support teachers in Navarra, Spain. This project is supported by the community administration of Education in Navarra and the NGO coordinator in Navarra. The course develops teachers' awareness of global inequalities, power relations and encourages a social commitment to a fairer world.

Carrica-Ochoa (2015) carried out PhD research which looked at **trainee teachers' knowledge and perceptions of development education** in Navarre, Spain. While she found that the trainees understanding and awareness of global issues was limited, she identified positive responses to the potential training of teachers in this field. Her PhD concludes that there is a lack of training related to development education in teachers and trainee teachers in Spain – in particular in terms of practical training, alongside more theoretical / conceptual understandings.

Research by Vega-Marcote et al. (2015) explores the importance of **training teachers on sustainable competences** in order to support sustainable development in Spain. The study looked at a teacher training model which aimed to develop sustainable competencies around the solving of environmental problems. The training encouraged trainee teachers to critically engage with environmental problems, with a focus on developing related competences and the identification of possible solutions. Vega-Marcote et al. (2015) suggests the

training led to significant differences in the knowledge, attitudes and intentions of the trainee teachers and they therefore conclude that ITE is a good place to develop such initiatives. The research doesn't though show any evidence of how this influences practice once trainees are qualified.

10.1.15 Switzerland

There are a range of strategies and initiatives related to ESD under the co-ordination of Education 21³⁸, which provides services mainly for teachers, schools and teacher education institutions, NGOs and officials. There is a new Sustainable Development Strategy for 2016-19 and ESD is part of a common declaration of the Swiss Confederation and the Swiss Conference of Cantonal Ministers of Education.

The Centre of Human Rights Education (ZMRB)³⁹ at the University of Teacher Education Lucerne (PH Lucerne) supports initial and in-service teacher training on human rights at the university and in schools.

- **Certificate of Advanced Studies CAS Human Rights Education:** aims to qualify participants as trainers and multipliers of human rights education. Teachers of all levels are among the primary audience for the part-time course, which provides credits towards a postgraduate qualification.
- **Special study programme on Human Rights Education:** prepares future teachers to include human rights education in their teaching in primary and secondary schools. The course uses different pedagogical techniques, methods and instruments including human rights experts-hearings, field trips to human rights institutions.

10.1.16 Uganda

In some instances gender equality and peace-building initiatives are integrated, for example, the **Gender Socialisation in Schools in Uganda**. This UNICEF-project from the Karamoja region of Uganda involves over 1,000 primary school teachers being trained to enhance their knowledge, attitudes and practices relating to the promotion of gender equality and conflict management (El-Bushra and Rees Smith, 2016). The project which took place over 9 months in 2015, was designed to sit alongside existing training and support for teachers:

The training covered teachers' understanding of concepts related to gender equality (e.g., the difference between gender and sex, gender roles and gender socialization) and to conflict resolution, as well as the practical application of these concepts in the classroom.

It was hoped that trained teachers would have better capacity to recognize and address gender inequalities and conflicts in schools, thus supporting a more gender equitable environment. Impact evaluation research shows, the training had succeeded in increasing teachers' knowledge of some gender equality concepts and how to promote a more gender-equitable environment. However, there was less evidence of impact on increased gender-sensitive practices within the school, where 'teachers had not entirely internalized the training' and teachers found the 'traditional views on gender roles held by the wider community as a barrier to progress' (2016: 7). El-Bushra and Rees Smith (2016) conclude that achieving changes in teacher practices requires multiple interventions over a period of time, and the impact of small projects such as this will be limited.

³⁸ The National Competence Centre in charge of ESD at the primary and secondary school level

³⁹ Information taken from: <http://www.phlu.ch/en/dienstleistung/centre-of-human-rights-education/>

10.1.17 United States of America

Within the wealth of activity in teacher education, engagement in global and sustainability themes tend to follow parallel paths around GCED and ESD. For example with regard to ESD, there have been a number of strategic reports and documents that have aimed to give an overview of current practice within teacher education. These are:

- The Status of ESD in the United States: a 2015 Report to the U.S. Department of State
- Teacher Education and ESD in the United States produced by the US Teacher Education ESD Network in 2013.
- Education for Sustainable Development in the United States of America – a report submitted to the international Alliance of Leading Education Institutes (Feinstein, 2009).
-

It has been noted (Nolet, 2013) that teacher education compared to the rest of higher education has been slow to embrace sustainability. ESD is not yet used in teacher certification requirements but ESD approaches can be seen in the InTASC Core Model Teaching Standards (Smith, 2015: 11-12), Networks of teacher educators have also been established within the Association for the Advancement of Sustainability in Higher Education. Where ESD has begun to be implemented it tends to be through adaptation of existing courses, certification at state level and institutional accreditation (Nolet, 2013). Examples can be found at School of Education at Webster, West Chester and Antioch universities (Nolet, 2009).

There has alongside ESD been a strong tradition within USA in global education (Maguth and Hilburn, 2015) and this theme can be seen in the Partnerships for 21st Learning publication, Framework for State Action on Global Education (2014). A central theme in this publication is the promotion of global competencies and international understanding. The framework calls for global competency to be part of the standards for teacher education. It also recommends that resources and material be available in digital repositories at a state level. Bodies responsible for initial training of teachers should include expectations for infusing instruction with global content and competencies. The report also recognised the value of encouraging networking amongst teachers and teacher educators and the value of student teachers having some form of international experience. Increasingly the term global citizenship is being used by universities in the courses and programmes they run that have a global theme. An example is the GCED at Teachers College, Columbia University: This course has several aims:

- To develop a robust and cogent understanding of GCED;
- To consider values, principles, institutions and problems associated with global citizenship discourse and related pedagogical practices;
- To examine various types of GCED practices;
- To inform the future practices of professionals in education and allied fields;
- To theorize and articulate a narrative situated around GCED core concepts

Learning Objectives:

Upon completion of the course, students will be able to:

- Synthesize disparate and divergent conceptualizations of global citizenship and develop a cogent and coherent articulation of theory in the field;
- Examine institutions and phenomena that shape global citizenship discourse through activities and projects;

Also in Asia is the Regional Centre for Environmental Education (CAREC⁴⁵) based in Kazakhstan which facilitates dialogue between education organisations, runs courses for teachers provides resources, methods to evaluate programmes.

In Africa, the Mainstreaming Environment and Sustainability in African Universities (MESA) Partnership Programme, one of UNEP’s initiatives with universities. It has a membership spanning over 85 universities in Africa, supports the mainstreaming of environment and sustainability concerns into teaching, research, community engagement and management of universities in Africa⁴⁶. It has produced an influential ESD Innovation toolkit as a short course to help build capacity within universities, including teacher education⁴⁷.

There are a range of projects in Europe that have a strong networking function around the training of teachers. These include the Global Schools project⁴⁸ for primary schools in ten countries and the Teachers as Agents of Change in Czech Republic and Poland which aims to strengthen the competencies of teachers in these countries to introduce innovate approaches towards development education.⁴⁹

The PESTALOZZI Programme⁵⁰ is the Council of Europe's programme for the professional development of teachers and education actors. There are various training opportunities for European teachers, with an emphasis on topics such as democracy, values and human rights.

The European Wergeland Centre (EWC)⁵¹ carries out Europe-wide research and training on issues such as education for democratic citizenship, human rights and intercultural understanding. EWC is based in Norway, but was established by the Council of Europe and Norway in 2008 and serves all 47 member states. Much of EWC’s training work is with teachers.

10.3 Examples of teacher education networks and resource banks

There are many networks around the world related to the themes of ESD and GCED. However the majority that have a direct involvement in teacher education tend to be those under the umbrella of ESD. There also some with specific focus on a particular theme such as peace or human rights. There are a number of networks that whilst not having teacher education as their main focus can make an important contribution to the themes addressed in this report.

Networks include the following:

Name of network	Country(s)	Who is involved	Focus
Peace Education Network ⁵²	UK	Teachers	Peace
Global Education Conference Network ⁵³	USA (and globally)	Teachers, trainee teachers and teacher educators.	GCED

⁴⁵ <http://www.old.carecnet.org/programmes-and-activities/education-for-sustainable-development-esd/?lang=en>

⁴⁶ <http://www.unep.org/training/programmes/mesa.asp>

⁴⁷ <http://unep.org/Training/mesa/toolkit.asp>

⁴⁸ <http://www.globalschools.education>

⁴⁹ www.varianty.cz

⁵⁰ <http://www.coe.int/en/web/pestalozzi>

⁵¹ <http://eng.theewc.org/>

⁵² <http://peace-education.org.uk/about-us>

⁵³ <http://www.globaleducationconference.com/>

TEESNet	UK	TEIs	ESD and GCED
TEACHUnicef			http://www.teachunicef.org/about-us
China's National Working Committee on ESD	China	Teachers	ESD http://www.esdinchina.org/_d1479.htm
International Human Rights Forum Lucerne (IHRF).	Switzerland		Human rights
Beijing International Forum on ESD	China		ESD
Global Education Network Europe ⁵⁴	Europe	Policy makers	
ESD Expert Network ⁵⁵	India, Germany, Mexico and South Africa	Ministries, universities, TEIs and NGOs	ESD
Education 21 ⁵⁶ is a Centre for ESD	Switzerland	Teacher educators	ESD
Learning for a Sustainable Future Network ⁵⁷	Canada		ESD
ESD Canada	Canada		ESD
Partnership for Education and Research about Responsible Living ⁵⁸	International		ESD
The International Network of Teacher Education Institutions (INTEI)	International	TEIs	ESD
The Education for Strong Sustainability and Agency Partnership (ESSA)	Sweden and Southern Africa	TEIs	ESD
Network on Education for Sustainable Development within the Baltic Sea Region (BSRES DN)	Baltic States	Multi-level	ESD

⁵⁴ www.gene.eu

⁵⁵ www.esd-expert.net

⁵⁶ <http://www.education21.ch/en/education21/portrait>

⁵⁷ <http://lsf-ist.ca/en/projects/education-sustainable/network>

⁵⁸ <https://eng.hihm.no/project-sites/living-responsibly>

Caribbean Regional Network for the Reorientation of Teacher Education to Address Sustainability	Caribbean	TEIs	ESD
the Regional Environmental Centre for Central Asia (CAREC)	Central Asia		ESD

Further information on networks:

Education 21⁵⁹ is a Centre for ESD in Switzerland - that maintains a network of teacher educators interested in ESD and organised partnership initiatives with universities in the Global South. It maintains a databank with training resources for ESD, evaluates and produces teaching material and has produced a report on measurements implement ESD in Swiss teacher education institutions.

Learning for a Sustainable Future Network - Canada: Through the development of ESD networks, LSF helps to bring together educators, researchers, business people, and government and non-government organizations to advance ESD in the formal, non-formal and informal education systems.

ESD Canada is a network that brings together a broad range of stakeholders from across the country and there are Provincial/Territorial ESD Working Groups support and foster a culture of ESD in each jurisdiction.

The **Partnership for Education and Research about Responsible Living** is a partnership of educators and researchers from over 140 institutions in more than 50 countries "working to empower Citizens to live responsible and sustainable lifestyles". With regard to the training of teachers, led by Victoria Thoresen from Norway, they have produced a publication Learning to Do and examples of practice can be found at: www.livingresponsibly.org.

⁵⁹ <http://www.education21.ch/en/education21/portrait>

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