



With wild-caught fish becoming scarcer, the number of people engaged in **aquaculture** in the last five years has increased by 5.5 % annually compared with only 0.8 % in capture fisheries<sup>16</sup>. But concerns have been raised about negative impacts on the environment, communities, and consumers. There is a need to upscale sustainable aquaculture certification<sup>17</sup> and promote innovations in technologies. For example, the Scottish Salmon Producers Organization has established a Code of Good Conduct on Scottish Finfish Aquaculture that covers inter-alia escaped fish, sea cages, and nutrient discharge<sup>18</sup>.

**Sustainable ecosystem management** not only secures the natural resource base on which the poor depend, but can also provide significant employment opportunities. For example, a stimulus package for **sustainable forest management** could create an additional 10 to 16 million jobs globally – at an estimated cost of US\$ 36 billion<sup>19</sup>. Non-timber forest products such as medicinal and edible plants can generate about 4 million person-years of employment annually, along with US\$ 14 billion in international trade and income for subsistent households<sup>20</sup>. Furthermore, bringing local communities equitably into the growing “**green**” **travel and tourist industry** can diversify livelihood options while achieving the conservation of biodiversity. Public work programmes that guarantee paid work for the restoration of natural capital can provide the necessary stimulus to protect the environment while transitioning people out of poverty. Over a million new jobs have been created through China’s forestry programmes in this way<sup>21</sup>.

## GREEN AND DECENT JOBS IN THE SERVICE SECTOR

Jobs in the **recycling chain** often provide a source of income for workers with low levels of education, no marketable skills, and limited access to productive assets. In Brazil, China and the United States, the waste sector employs 12 million people, most of them extremely poor<sup>22</sup>. The formalization of this sector via social policy measures and investments in green technology will ensure safer working conditions and open up opportunities to develop new skills and diversify future employment options. At the same time, recycling minimizes the need for raw-material extraction and has considerable energy savings.

Innovation of institutions, supply chains, and technology is critical to achieve the dual goals of greening the economy and increasing access of the poor to **sustainably-derived basic services**. Low-cost housing, clean energy, safe drinking water, sanitation, and other basic services can be provided by Small and Medium-sized Enterprises (SMEs) through cost-effective, low-carbon, ecologically friendly, and low maintenance technologies. SMEs are important drivers of growth in low income economies and account for up to 90% of all businesses across Sub Saharan Africa<sup>23</sup>. SMEs whose activities are green provide the triple benefits of employment, improvement of local access of basic services, and environmental sustainability. The Global Village Energy Partnership, for example, has created over 3000 local energy-related jobs in Africa and the Caribbean by supporting entrepreneurship related to the deployment of local clean energy technologies<sup>24</sup>.

The **renewable energy sector** employs 5 million people worldwide and continues to show a steady climb<sup>25</sup>. For example, an EU study that simulated the potential employment effects of investing one billion EUR into key green sectors concluded that almost 100,000 jobs could be created in renewable energy, energy efficiency, and sustainable transport sectors<sup>26</sup>. Similarly, in China the green component of the fiscal stimulus that started in 2008 may create some 5.3 million direct and indirect jobs<sup>27</sup>, including 430,000 jobs by 2030 in renewable energy<sup>28</sup> and almost 900,000 jobs relating to solar PVs by 2020<sup>29</sup>. Brazil too could see almost 52,000 jobs related to solar thermal systems by 2018.

Further investment in green and decent jobs are needed because a severe shortage of skills has been evident in some fast growing sectors such as renewable energy and energy efficiency. There is a need for better defining education policies, training teachers, and encouraging public-private partnerships to build skills and capacities. Nations will also need to invest in **re-skilling** their populations to meet several emerging challenges. Technological intensification and “robotization” can affect vulnerable, unskilled and semi-skilled workforces. Globally, 22 million manufacturing jobs were lost between 1995 and 2002 as industrial output increased by 30%<sup>30</sup>. Programmes should aim to retrain the poor towards green and decent jobs. Climate change may also force re-skilling. For example, more than half of the world’s population resides in low-lying coastal zones under threat from sea level rise, which could lead to more migration and the need to develop new livelihoods<sup>31</sup>. Skills in starting local enterprises and establishing new trade and customer networks in green jobs can maximize the benefits for the poor<sup>32</sup>.

References can be found at: <http://www.unep.org/post2015>

Comments and questions can be sent to:  
[unep.post2015@unep.org](mailto:unep.post2015@unep.org)

[www.unep.org](http://www.unep.org)