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Highly effective fog-water collection with *Pinus canariensis*

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Fog-collecting nets require constant manpower in terms of maintenance. Also, those nets are made of artificial material, and they do not really fit into the natural environment. They are, by far, not as effective as plants that are specialised for catching humidity from the air. The probably most effective plant to serve this purpose is *Pinus canariensis*, a tree native to the Canary Islands. It is well-known for its capability of collecting air moisture, and has already been used for many centuries for this purpose. This tree would allow a much more effective and environmentally friendly way of supplying arid regions with drinking water than this could be done with fog-catching nets. Moreover, it would also help to establish or re-establish vegetation in a natural way. Agriculture would profit from it, too, because vegetables could be produced, watered with the help of *P. canariensis*. In those places, where the net-projects are currently running, it is the right time now to plant *P. canariensis* seedlings underneath the nets, which they will soon replace. The surface of the trees is much larger than the surface of the nets, thus enabling much more water to condense. Within a few years, a population of *P. canariensis* will be established that collects many times more water than the nets. With regard to ecological aspects, the introduction of *P. canariensis* into the environments concerned does not cause a problem, since in those desert areas, there are no native trees that could be superseded, and the *P. canariensis* trees are easy to control. They are a natural alternative to the unnatural plastic nets, and can even help to enhance any local flora.



The functions of trees within different ecosystems with regard to collecting fog water have been studied intensively during the past years, both in general,¹ and especially with regard to *P. canariensis*.² The tree grows in a wide range of climatic conditions, it can survive drought, heat, and some frost, and it can live in areas from sea level up to more than 2.000 m above sea level. When a population of trees has been established, it additionally produces timber and fuel-wood.



Areas, in which *Pinus canariensis* could be used for obtaining drinking water from fog, include:

Chile, the Dominican Republic, Ecuador, Eritrea, Guatemala, Haiti, Israel, Namibia, Nepal, Peru, the Sultanate of Oman, Venezuela and Yemen. Generally, these are areas where there is air moisture, but the climatic conditions do not allow for enough condensation of the humidity in the air, which is necessary for rainfall.



The research institution S.A.C.S. (Structural Analysis of Cultural Systems), based at the Technical University of Berlin, has recently suggested to the UN Human Rights Council that projects of implementing *Pinus canariensis* be carried out, targeted at serving the access to drinking water in such areas.³

Image sources (clockwise from top left): http://upload.wikimedia.org/wikipedia/commons/0/06/Pinus_canariensis.jpg
http://www.superstock.com/preview.asp?Image=1566-0237189&Image=11&id=945051&productType=38&pageStart=&ImageEnd=100&page=100&intCount=77&filterForCat=&filterForFog="
http://commons.wikimedia.org/wiki/File:Pinus_canariensis_%2C_Sant%27n_Agust%27_01.jpg
http://picasaweb.google.com/ln/photo/G9C5Nk34LcT35ME0Mg (all 13. 7. 2010).



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¹ Burkard et al. (2002), Hughes & Brimblecombe (1994), Jauregui (1991), Neal et al. (1993)

² Aboal et al. (2000), Grill et al. (2004), Morales et al. (1999), Page (1974), Luis et al. (2004), Tausz (1998)

³ In reply to Decision 2/104 on Human Rights and Access to Water, particularly with regard to items d), e), f), and g), correspondence of 13. 4. 2007; and in reply to a call by the Independent Expert on the issue of human rights obligations related to access to safe drinking water and sanitation OHCHR Special Procedures Branch - Water and Sanitation, on 30. 6. 2010. There has been a preparatory meeting with the scientists of the Universidad de la Laguna (ULL), Tenerife, who are specialised in *P. canariensis* research. At the ULL, there are enough seedlings available to start such a project. Also, preparatory correspondence has been made with research scientists in several other countries, as well as with project partners in Namibia and Peru. The Technical University of Berlin is in touch with scientists in most of the countries concerned, so that the number of project locations could easily be expanded.