Project proposal for a residency on the Periferry

For the period November 2009 – January 2010

By Bartaku – August 29, 2009

Fused by: 'PhoEf: the Undisclosed Poésis of the Photovoltaic Effect.'

A research project by Bartaku - http://libarynth.org/luminous/phoef

A.Low.Slow.Flow - *A micro-intervention in the Periferry-system*

A three month micro-intervention consisting of the insertion of natural dye sensitized solar cells in the autonomous stand alone system called the 'Periferry boat'; a petrol powered boat on the Brahmaputra nearby the city of Guahati. The interconnection of an icon of the industrialized petrol powered era with a biomimetic, highly inefficient photovoltaic technology promises to give rise to social, aesthetic, functional and other transformations.

With the juxtaposition of a doomed anachronistic and a desirable futuristic energy scheme this project seeks to explore, question -and comment on- the availability and access to electrical energy as a key component of a visionary ecotopia.

Hippophae Rhamnoides

Nutrition value: 432kJ/100gr

Electric Energy: 117,5 Wh/100gr

Dye Sensitized Solar Cell Power: 0,015W/8m²

Bartaku calculations - July 2009

Periferrystatic

As a stand alone system, a petrol powered floating entity like the Periferry provides an exciting contrasting habitat for a low power solar energy harvesting device like the natural dye sensitized solar cell (DSC), arguably the greenest but also amongst the least efficient of the photovoltaic technologies; a single home-made cell (4x2cm) provides +/-0,015Wh for max. 1hr. Providing electrical power with the DSC lasts maximum one hour, 5km approximately. After that, the cells are depleted, and they will have to be replaced/remade.

Due to a low, slow, flow

The process might have a profound impact on the functioning of the boat: its users, its aesthetics and its social network: one imagines a DSC production room, storage facilities for the DSC-components, spiral gardens for the dyes and of course DSC-panels wherever sufficient and adequate light is available.

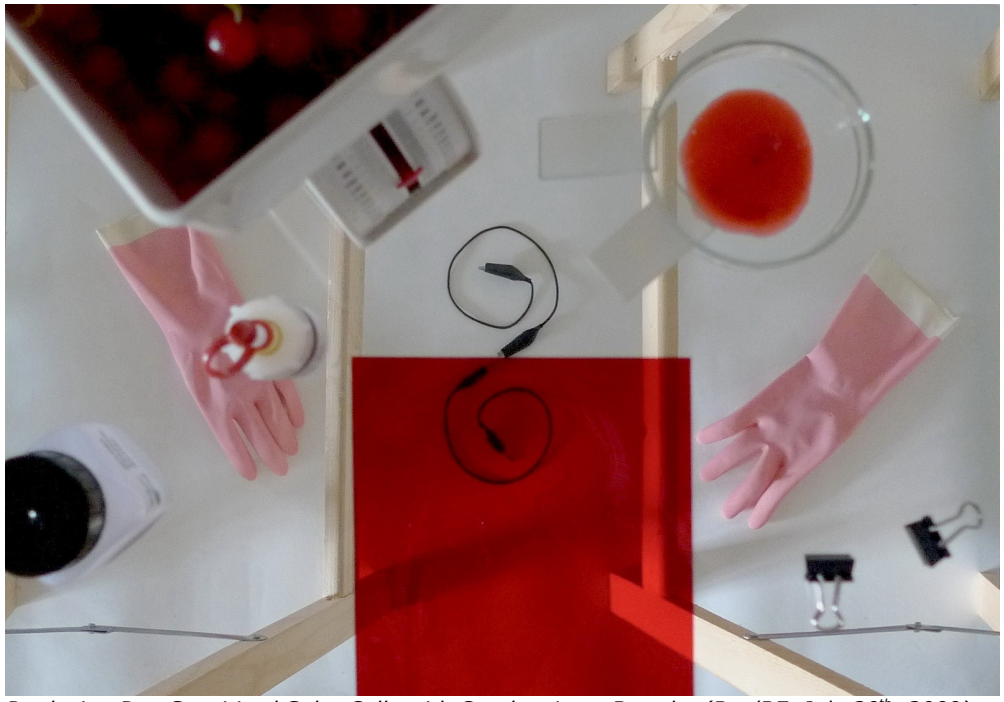
Spiral Power Plants

Spiral power plants for the supply of natural dyes will have to be set up in the city as well as alongside the Brahmaputra. As a substantial amount of spirals is required, collaboration with the local communities is needed. In such a model new kinds of power lines, or rather paths emerge- alongside which the fruits/vegetables are transported to the boat.

Research: *Composition of plant guilds for the plant spirals, containing as much anthocyanin/carotenoide-rich local plants as possible, as they are most suited for DSC.*

Production: *Spiral power plant (SpiraDye)*

A so-called SpiraDye will be made with local left-over materials; on the boat and/or on the shore (in the city) preferably in collaboration with the local community.



Producing Dye Sensitized Solar Cells with Cranberries – Bartaku (Bru/BE, July 20th, 2009)

Left Overs for the People

The fruits and plants that produce the dyes that are most suitable for the DSC contain not only high food energy values (kJ), they have also significant medicinal properties since they contain high amounts of anti-oxidants. Most of the other components (glass, TiO2, graphite) of the natural DSC are non-toxic, but not digestible. Materials research can lead to replacement of the latter making them edible.

As the natural DSC deplete rapidly, and at the same time contain nutritious, healthy, energizing components one can imagine how the DSC-waste could feed back into society, in the form of an edible solar cell, a '***solar cell snack***'.

1kWh equals 3600 kilo-Joules

Research: *New directions of DSC development: towards a solar cell snack; in* collaboration with a nutritionist and microbiologist.

Workshop: How-to make a natural DSC

Energy Over Time (12 weeks)

Intro: Screening boat and environment: week 1 → 2

Making the SpiraDye: week 2 → 8

Solar cell snack (incl. food preservation): week 2 → 11

Production of DS solar cells (+workshop): week 10, 11

Editing documentation/compiling narrative: week 11, 12

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Bartaku is affiliated with interdisciplinary lab FoAM (Brussels, BE; http://fo.am)