

# ChosKor $\mu$ Wind 0.25kW

*ChosKor is the name of the tibetan “prayer mill”  
...while spinning, gives to the Mankind the energy of the Sky*

*Pisa, October2010*

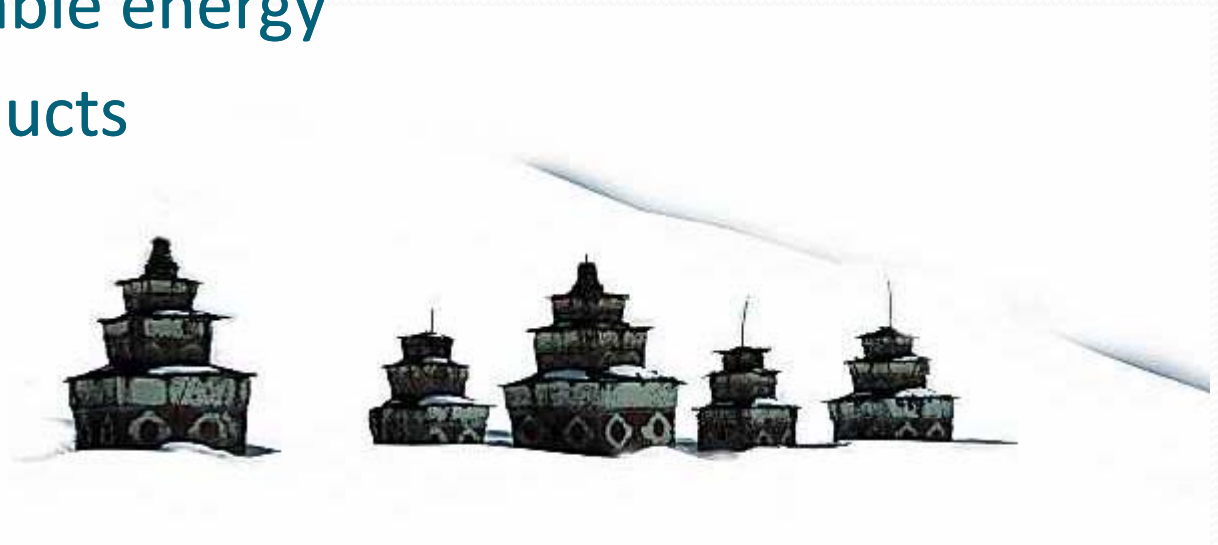


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## ChosKor $\mu$ Wind 0.25kW

ChosKor is a small idea, that can give to any Company a *contribution* in these 3 *Directions* :

1. investments in renewable energy
2. more sustainable products
3. social responsibility



[www.teloua.com](http://www.teloua.com)

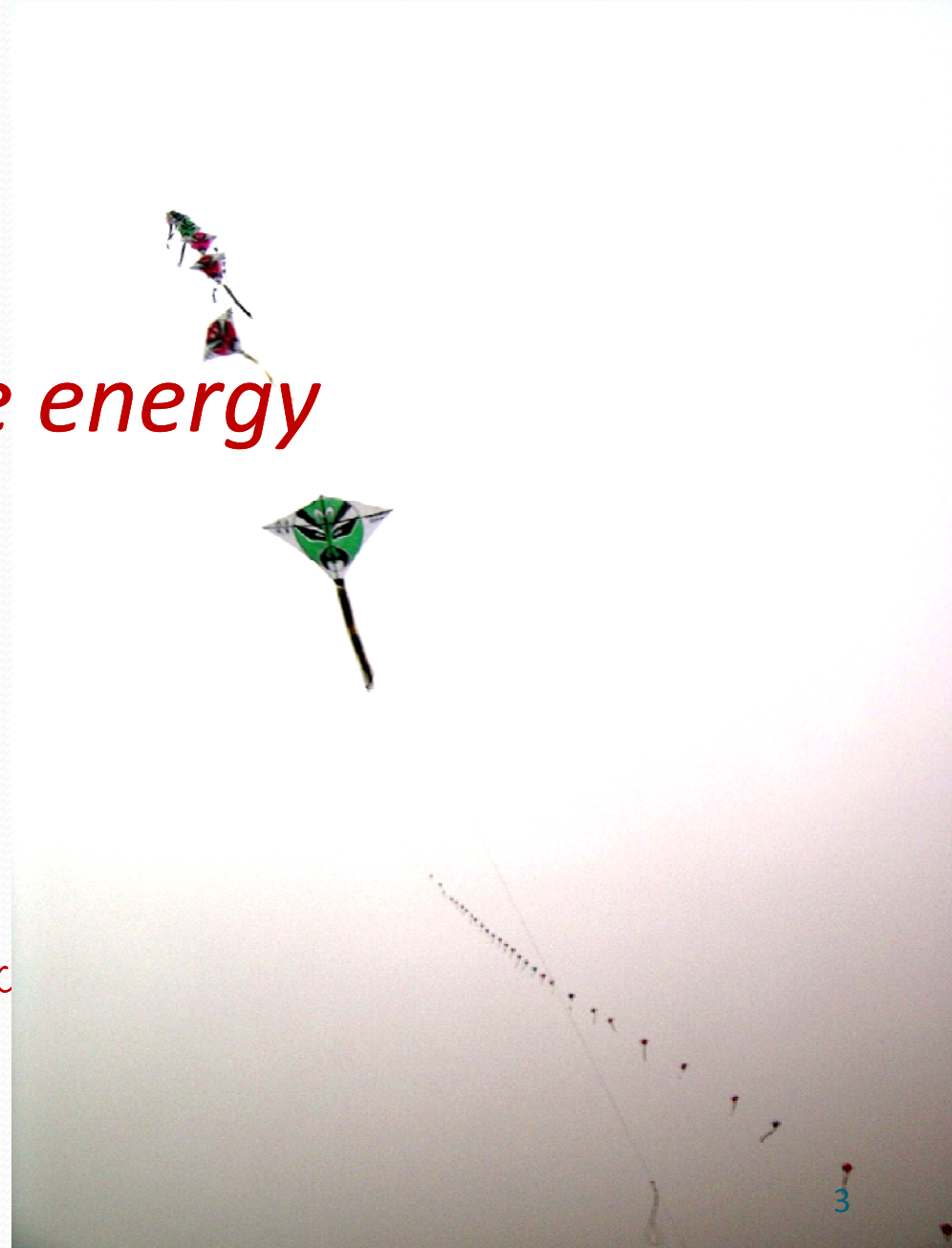


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1.

*investments in renewable energy*

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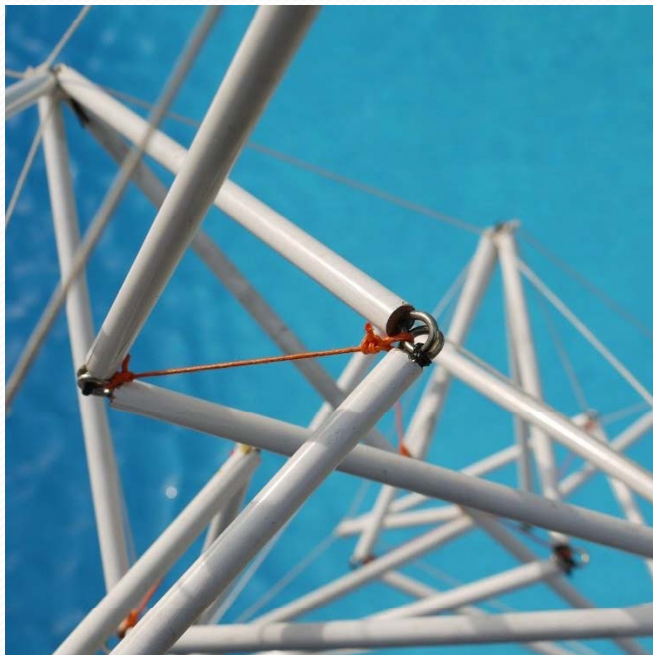


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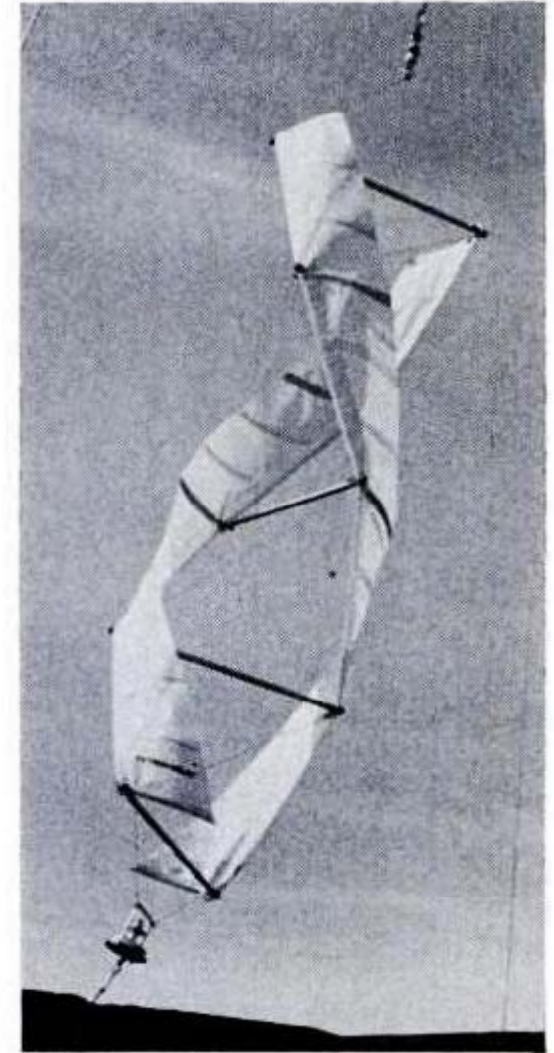
## 1. *investments in renewable energy*

the idea of ChosKor is to realize a wind generator

- ❖ Darrieus type, vertical axis
- ❖ simple tenso-structure
- ❖ blades made of fabric
- ❖ directly coupled to the electrical brushless generator



in the picture :  
an example of a  
Darrieus wind generator  
is "Tetrahelycs"  
by Zephir Co, USA, 1977





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## 1. *investments in renewable energy*

To be used for advertise purpouses,  
fabric blades could be made with commercial  
**LOGO**s and brand colours.

*by the way:*  
*tetrahelycs* geometry is attractive,  
because it recalls the shape of DNA...



[www.tetrahelycs.com](http://www.tetrahelycs.com)

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## *1. investments in renewable energy*

such a wind generator could in the same time :

- ❖ produce energy

*and* also

- ❖ strongly link a brand  
to sustainability mission of the Company

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2.  
*more sustainable products*



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## 2. *more sustainable products*

ChosKor could become a product to be sold worldwide because it is :

- ❖ made of low-cost components
- ❖ easily assemblable
- ❖ easily maintainable

and can be used everywhere as an off-grid generator

- ❖ for general purposes,
- ❖ for didactical scopes,
- ❖ for advertising...



commercial and National flags in San Pedro de Atacama, Chile

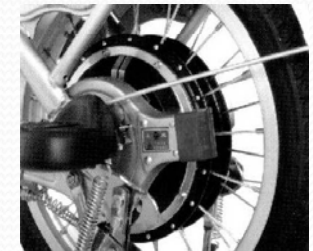


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## 2. more sustainable products

*Note that* the electrical equipment could consist just of a directed-coupled, brushless generator (or a brushless motor, used as a generator).

Brushless motors of the right size are produced in China in millions of pieces per year, for internal and international market of electrical motor-bikes.



[ brushless motors are also easy to be assembled, starting from permanent magnets, copper wires and iron tapes ]

sight inside a large store of electrical motorbikes; Kunming, Yunnan, China



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3.  
*social responsibility*



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### 3. *social responsibility*

授人以鱼 不如 授人以渔

*yuán rén rèn yú bù hé yuán rén rèn yú*

(老子)

*giving a fish to a man  
isn't worth as much as  
teaching him to fish*

(Lao Zi)

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## 3. *social responsibility*

ChosKor must be designed to be easily realized :

- ❖ at very low cost,
- ❖ using materials everywhere available,
- ❖ requiring the tools and the ability of someone who can
  - ❖ repair a bike *and*
  - ❖ make a kite.

So, it could be used as a **basic equipment** to give electricity to the numerous small off-grid Communities [about :  $1.1 \cdot 10^9$  (onebilliononehundredmillions) people]

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## 3. social responsibility

To do so, as a bike and a kite,

- ❖ ChosKor Design must be shared as a **Non-Patented** product

the role of a **FOUDATION** linked to the brand, would not be to donate, but to:

- ❖ manage the Tecnology-Transfer of such an easy know-how to the off-grid Communities
- ❖ curate the Design improvement

**Note that :**

being **Non-Patented** products does not avoid that bike and kites are produced and sold in many different and optional configurations ...

[www.tecnodipapale.it](http://www.tecnodipapale.it)

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## 3. *social responsibility*

*resuming:*

ChosKor Basic Design criteria are

- ❖ technical simplicity
- ❖ components' availability
- ❖ low cost
- ❖ easy assembly
- ❖ no copyright



*William Kamkawamba, 19 years old  
and his wing generator, assembled by himself  
Kasungu, Malawi, 2007*

<http://www.kataweb.it/multimedia/media/790949/7>

[www.talodico.mpale.it](http://www.talodico.mpale.it)



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*Back.Up*



unused old Hydro wooden wheels, Lijiang, Yunnan, China



waving prayers, Dazhu, Sichuan, China



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*Back.Up → a) Partecipative Design*

*Partecipative Design* is a way to activate, on the Internet, an open source design process, based on the so-called “copyleft” model;  
the same model that, in IT world, generated the LINUX Operating System.

for the ChosKor Design, the “copyleft” model may activate the international academic and scientific Community in its optimization, not in technological improvement.

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*Back.Up → b) Design guidelines*

250 W has been assumed as the nominal capacity (@ 10m/s) for the ChosKor, taking into account the needs of small “off-grid” Communities, as described by the **Clini-Stuart Committee**, 2001 (*see next slides*).

ChosKor must also be equipped by a battery charger regulator, and must be capable of modular connection of PV panels in parallel and of other similar genators (wind or **microHydro**).

*Note that:*

an easily-maintainable wind generator is preferable (for rural communities) to PV panels, because is less expensive and requires lower technologies

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Back.Up → c) Clini-Stuart Analysis (1)

- ❖ During the **2001 G8 meeting in Genova**, the international *Task-Force* named “*Renewable Energy*” presented its document.
- ❖ The Task-Force, also known as “Okinawa Group”, was directed by **Sir Mark Moody Stuart** (Royal Dutch Shell Group), and **Corrado Clini** (at that time General Manager of IAR Service of Environment Ministry; **now** Minister of Italian Government)
- ❖ The document described a scenery, called “*Diversify-Renewables*” in which was indicated that more than 1 billion people were not (and had no chances to be) connected to any electrical grid; those people are fragmented in small familiar communities of about 5 persons each, having an annual potential request of energy of about 250 to 500 kWh /year

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*Back.Up* → c) Clini-Stuart Analysis (2)

- ❖ In the industrialized Countries, electricity consumption is strictly related to growing and welfare.
- ❖ In the developing Countries, electrical energy availability allows food and medicine conservation; helps in water lifting from wells; is essential to communicate, and to realize school programs.
- ❖ This nightly image of the Earth (obtained as a puzzle of satellite pictures) shows the unequal distribution of electrical power production and consumption.
- ❖  $1.1 \cdot 10^9$  people on the Earth does not have access to any electrical grid; they could have electricity only by self-production from renewable sources.



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*Back.Up* → d) State of Art (1)

- ❖ During the 2001 meeting in Genova, the G8 approved the “Prospective Goals”, pledging to meet by 2020 the basic demand of energy of **ALL the world rural population** “off-grid”, using self-production systems from renewable sources.
- ❖ Subsequently, in Johannesburg, during the 2002 World Summit on Sustainable Development, was founded the REEEP (Renewable Energy & Energy Efficiency Partnership) organization, **with the aim to finance** renewable energy projects in developing countries.

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Back.Up → d) State of Art (2)

- ❖ At 2002 World Summit in Johannesburg, USA did not participate: the President George W. Bush considered the event “*not relevant*” to his Country.
- ❖ More than 10 years later, **no consistant investment** has been done in the direction indicated in Genova 2001, by none of the G8 Countries.

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... and this is why:

*“giving a fish to  $1.1 \cdot 10^9$  men and women”*

is not only **less worth** than:

*“teaching them to fish”,*

but is also very **low probable**...