

Best Practice 3:

DIIRWB

*teaching the world the lessons learned
creating ICT-society on rural Djursland*

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Djursland International Institute of Rural Wireless Broadband



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1. Summary

Djursland International Institute of Rural Wireless Broadband, DIIRWB, is developed to generate the experience and knowledge on how rural people all over the world realistically can bridge the technological and social divide by means of their own powers and become equal participants in the global ICT-society.

Partly based on the establishment of the huge rural wireless DjurslandS.net, which up to now have bridged the broadband gap for 7000 rural households, -institutions and -businesses on Djursland at 1/3 of the average city-market price for each, securing 20000 rural individuals very cheap broadband, - and partly based on the experience from the Networking Djursland project, which by 16 partial and synergetic ICT-projects, covering all the necessary aspects of ICT in a rural context, has been of vital importance for the ongoing development of the rural society on the peninsula Djursland into a mature E-community, facilitating its inhabitants to do well in the global ICT-society, on equal terms with people in big cities, - DIIRWB has in a variety of ways shown its ability to project experience and knowledge into the context of rural or poor people all over the world.

2. Background and conditions

When the Computer-Support-community on Djursland by the end of 2004 had given birth to the DjurslandS.net and its 10 wireless area networks, (see about this in Best Practice 1 from DIIRWB), it became very clear that all the boards of the wireless area networks were so occupied with the processes of establishing, extending and running the infrastructure of the wireless landscapenets and connecting new users, that there was a need to form a project on what else was necessary concerning ITC. Based on this the Networking Djursland project was formed to create a well functioning rural ICT-society on Djursland, (see about this in Best Practice 2 from DIIRWB). Inherent in the Networking Djursland project was the intention to establish DIIRWB as a teaching mirror - for other rural people who need to bridge the broadband gap - on how and why the Djursland ICT-society is developed.

2.1. Geographic

Cities are an exception on earth. Most of the land-surface of the earth is rural districts, and among other things they have in common that it seems all too expensive to create a full surface covering broadband infrastructure that makes everyone living on earth part of the global ICT society.

Thus the divide between life in cities and countryside is further expanded by the ICT-revolution in the cities and city near areas, and this bears catastrophic perspectives for life on earth.

At DIIRWB we feel responsible to share the experience and knowledge we happened to develop together with hundreds of volunteers on rural Djursland while we were occupied to help ourselves bridging our broadband gap and develop our own rural ICT-society.



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2.2. Social

In the Danish reality Djursland is a sparsely populated rural area and as such comparably underserved. At the time in the year 2000 where Bjarke Nielsen as the founder of the then 8 year old Computer-Support-community of Djursland took the initiative to establish the DjurslandS.net, the social and cultural level had for many years degraded and this reality had not changed yet by the end of 2004. The daily newspaper "Djursland" had been closed. The regional hospital closed. The ferry to Sealand to reach the capital Copenhagen was also closed. A diverse industry was taken over by different kinds of foreign capital and closed, and the retail markets were vanishing from the village level. The educational level and the income level were low. Sure indicators of the collective social deroute were that the house prices were the lowest in the county and unemployment was the highest.

The plans of the telemarket for roll out of broadband were not considering 25 % of the rural households on Djursland. Djursland as a whole were not invited to be part of the modern society, - a very dangerous situation for the people of Djursland, which establishment of the DjurslandS.net were the first step to counteract, - but more steps had to be taken to secure the ICT-competences of the population of Djursland and development of participation in an E-community for the region. By its 16 synergetic ICT-project shared by 25 top-level institutions the Networking Djursland project cared for all of this. The crew of DIIRWB was and is at the core of this caring and is by its deep involvement prepared to share all its knowledge with other rural or poor people all over the world (see Best Practice 2 from DIIRWB on the lessons learned from the Networking Djursland project).

2.3. Political

Even though the years of developing the DjurslandS.net (see Best Practice 1 from DIIRWB on lessons learned from developing the DjurslandS.net) had shown very little results from involvement with the national, regional and local political life - as well as with the business life -, the board of the Computer-Support-community trusted an invitation to participate with the Networking Djursland project in a international EU-supported project and partnered with projects in rural areas in the Baltic Sea Region, in a common Baltic Rural Broadband Project. Part of the plan was to form the Djursland International Institute of Rural Wireless Broadband, to share the know-how from bridging the broadband gap on Djursland. Based on EU's approval of the plans the regional development fund of Aarhus County added the same amount of money as EU would refund, but tied the money for development of DIIRWB.

2.4. Attitude

The idea was and is to experience, collect and share the kind of ICT-knowledge that can empower rural and poor people, first of all by providing them with cheap enough ICT-infrastructure, and based on this by providing them with all the needed ICT-competences that enables their people to participate on equal terms with the rich city people in the global ICT-society. DIIRWB doesn't want to sit on its knowledge, but wants to train teachers for



all of this who can care for there own people and who can train other local teachers etc., so that a spreading occurs and eventually the area of contact expands very fast to a magnitude that makes it realistic to bridge the broadband gap within short time every where it might be needed.

2.5. Availability of Knowledge

By the DIIRWB crew's direct involvement in the realization of the 16 synergetic Networking Djursland projects and their continuance, and by its relevant partnerships with one hundred partners locally and around the world, the experience and knowledge on how all kind of ICT-tasks important for rural or poor people are best handled has been and are kept alive, as the dynamic background of the teaching from DIIRWB.

3. How decisions are taken?

3.1. Decision makers

The democratically elected board of the Computer-Support-community on Djursland has the responsibility for DIIRWB and therefore the last word, but in the daily practice the crew acts self responsible coordinated by an appointed manager.

3.2. Why was the decision taken

Like the rural Djursland community was endangered by the fact that a large potion of our population would not be involved with ICT (see explanations in Best Practice 1 from DIIRWB on establishing the DjurslandS.net) and the Computer-Support-community on Djursland after having established the DjurslandS.net wanted to further secure the development of a high concentration of ICT-competences on Djursland through the Networking Djursland project, the Computer-Support-community wants to share the generated knowledge with people who likewise are in difficult situations due to the digital and social divide. Like on Djursland they will need the knowledge of how to realize the following 10 goals:

- 1) Maintain and improve the quality of life of the inhabitants.
- 2) Retain the resident population and attract further settlement.
- 3) Retain and extend the competitiveness of business life.
- 4) Maintain existing businesses and attract new ones from outside.
- 5) Create the foundation that enables the inhabitants to establish new businesses by their own abilities, - e.g. based on teleworking etc.
- 6) Avoid young "emigration" by creation of competitive conditions and possibilities for a living.
- 7) Retain the current tourists and attract new ones.
- 8) Create a good place to live also for pensioners and for individuals in a difficult life situation.
- 9) Avoid a long-term decline, - a "segregated" poverty-zone consisting mainly of pensioners and social clients on very low income.
- 10) Care for their part in handing over to the coming generations a country which is in front as ICT-society.



3.3. What was the main impact for the regions

The main impact of the teaching of DIIRWB, based on its crew's practical local involvement, has been multi-fold:

- 1) Hundreds of mainly grown up rural people who had given up on ICT have been taught each semester at rural classes - at 7 remote locations around Djursland - how to handle computers, IT and Internet.
- 2) Recycled gear from among others DjurslandS.net has been renovated and used for landscapenet projects in poor rural areas in Ghana and in Laos, and more will follow. Remote real-time teaching was applied in the Ghana-project so that local rural people by Winneba learned how to establish and run their own wireless infrastructure.
- 3) Volunteers from other parts of the world, other parts of Denmark and locals, have been trained in setting up and running landscapenets the Djursland-way. Besides in Ghana and Laos projects are going on in Brabrand, Vesthimmerland, Vestjylland and Greenland and new ones are underway in Madagascar, Zambia and Liberia.
- 4) All kind of ICT-related problems are cared for by teachers of DIIRWB in the computer-support workshops around Djursland.
- 5) Cheaper network gear, running at higher speed, functioning more stable, has been found, to the future benefit of all wireless landscapenets.
- 6) This has developed the basis of handling local Net-TV service etc.
- 7) The regional and local news-service on the Djursland-portal has been developed, and different relevant services for the inhabitants of Djursland are in the process of being evolved and added. Such services will be needed in every rural community and the know-how will be shared.

3.4. What are/were problems

As the supportive approach of DIIRWB tends to focus on those who have not, economy is a staying issue to sustain the service of DIIRWB to the world. Funding have been a difficult issue, so other sources of funding the activities of DIIRWB was necessary and have by now been developed and can be seen in the following points.

4. Model of financing

As one of the 16 synergetic projects in Networking Djursland, DIIRWB was in the first place supported by The Baltic Sea Region Interreg IIIB EU-fund. This fund would after every half-yearly report refund 50 % of the investments done in accordance with the prior approved project-budget. In other words the two economically involved Danish project-partners Grenaa Technical School and the Computer-Support-community on Djursland had to invest 100 % of the needed money or volunteer work (which could be considered as a kind of money) and produce the planned results. In praxis often up to a year later we might get up to 50 % refunded by EU through the leading partner in Germany if the leading partner could understand our investments - the whole construction caused very bad liquidity for a economically vulnerable organisation like the Computer-Support-community, who as small



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and idealistic non-commercial organisation never worked to accumulate money. Without generated capital for long refund-delays the result is other time-consuming work to stay “alive”.

4.1. Investment

Grenaa Technical School relayed primarily on Danish states funding to teaching and the Computer-Support-community relayed on funding from the local municipality (which has ended by the end of 2007, on funding especially to the development of DIIRWB from the regional development fund at the county (which ended by the end of 2006), and funding from own activities as well as a lot of voluntarily work.

4.2. Operational model or sustainability

The staffs of the Computer-Support-community on Djursland were the main force in the daily work behind realizing each of the 16 synergetic ITC-projects in Networking Djursland, and the process was designed to result in educating these staffs to become the crew of the Djursland International Institute of Rural Wireless Broadband, which in turn is meant to provide sustainability for all of the projects after the end of the project period, as the crew believes in the objectives of the project for the Djursland-community, and not just in the temporary funding. After the Networking Djursland project officially ended by the end of 2007 the DIIRWB crew has been appointed as supporters for the GrenaaS.net and the EbeltoftS.net and runs the server services behind the Djursland-portal for the DjurslandS.net. Payment for all of this and government money for teaching, as well as money for solving all kind of ICT related tasks for institutions and businesses, form all together the economical foundation of all the activities of DIIRWB to day, allowing DIIRWB to provide poor people with knowledge and support for free.

The knowledge and perspective of DIIRWB are much needed by poor people in the world, so DIIRWB works on different mechanisms to make rich people, -businesses and -institutions feel good about supporting its work to the benefit of the poor.

5. Work process (implementation)

A crew of about 12 daily working people, halftime and fulltime, where only a few were paid by the project, have been striving to fulfil the project objectives of Networking Djursland and through this generate the knowledge for DIIRWB to spread. This has been going on together with a lot more volunteers, who only participated when they had the needed time and interest.

The experiences and resulting knowledge has been structured and organized into the following 9 necessary disciplines which we now teach to other rural people who need to bridge the broadband gap:

- 1) Organizing
- 2) Campaigning
- 3) Administration



- 4) Equipment and tools
- 5) Net-planning- and building
- 6) Web-portal building and maintaining
- 7) User-support and sustain of net
- 8) Handling of routers and servers
- 9) Documentation and evaluation

Normally DIIRWB will train groups from the same area with about 9 participants. They will be specialized so that a sharing of work can take place. Share of responsibility among volunteers makes non-commercial establishing and running of community network realistic.

6. Highlights/other interesting things not direct linked

DIIRWB was invited to speak on both last years "VII Infopoverty World Conference" and this years "VIII Infopoverty World Conference", in the UN building in New York and it seems that showcases in Madagascar, Zambia and Liberia will be the first outcome from this.

Also DIIRWB were invited to exhibit its contributions at the EU conference "Bridging The Broadband Gap" in Bruxelles in the spring of 2007.

DIIRWB has applied for support at the national level, the regional level and the local level of administration in Denmark for different new projects to further develop the Djursland ICT-community, - enhancing the knowledge of the DIIRWB crew to share.

7. Recommendations

The DIIRWB teacher crew should be replicated in rural areas which suffer from the technological divide all over the world. Everyone who wants to participate in this endeavour is hereby cordially invited to contact DIIRWB for further consultation of the possibilities.

8. Additional information

The crew of DIIRWB are by experience and education fit for the following tasks:

- 1) ICT-teaching
- 2) ICT-advising
- 3) Providing of ICT-tools
- 4) Solving of all kind of ICT-problems
- 5) Troubleshooting of Internet connections
- 6) Homepage-design
- 7) Hosting
- 8) Handling of network
- 9) Landscapenet-building and running
- 10) ICT-Support in general



9. References:

- 1) Presentation at the "VIII Infopoverty World Conference", 17-04-08 in the UN building in New York:
http://hos.nr-djurs.net/bjarke/DIIRWB-presentation_at_Infopoverty-2008.ppt
- 2) A 52 pages in-depht study on the lessons learned from the DjurslandS.net experience, made on request to the World Bank's InfoDev department:
http://hos.nr-djurs.net/bjarke/In-Depht_Study_of_the_DjurslandS_net_experience.pdf
- 3) Full size map of the DjurslandS.net and a very short description (seen on page 1):
http://hos.nr-djurs.net/bjarke/DjurslandS_net_poster_for_UN-conference_print-A4.pdf
- 4) Short introduction to "Djursland International Institute of Rural Wireless Broadband":
http://hos.nr-djurs.net/bjarke/Rural_huge_area_wireless_internet-2008-04-14.pdf
- 5) A brochure on "Djursland International Institute of Rural Wireless Broadband":
<http://hos.nr-djurs.net/bjarke/DIIRWB.pdf>
- 6) Concepts in detail behind the institute:
http://hos.nr-djurs.net/bjarke/Concepts_of_DIIRWB.pdf
- 7) The long term strategy behind DjurslandS.net - in short:
http://hos.nr-djurs.net/bjarke/The_strategy_of_making_the_DjurslandS_net.JPG
- 8) More detailed strategy for the IT-society on Djursland:
http://hos.nr-djurs.net/bjarke/Strategy_of_Networking_Djursland.pdf
- 9) Pictures from the preparation of equipment to the project on rural schools in Laos:
http://hos.nr-djurs.net/bjarke/Projekter/Laos/billeder_af_traadloest_grej_til_laos.htm
- 10) How it all started on Djursland:
<http://hos.nr-djurs.net/bjarke/Lithuania/Introduction-to-The-Computer-network-2.html>
- 11) Principles that made it work:
http://hos.nr-djurs.net/bjarke/Projekter/The_workings_of_a_Computer-problem-solving-network.html
- 12) A short article on the subject:
<http://hos.nr-djurs.net/bjarke/Great-solutions-4-rural-people.pdf>

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