

Om sarwa prani hitangkaram May all that breathes be well

Bekerja untuk ketahanan air di Bali · Working for freshwater resilience in Bali

BWP

BALI WATER PROTECTION PROGRAM · PENYELAMATAN AIR TANAH BALI www.idepfoundation.org · bwp@idepfoundation.org



Penyelamatan Air Tanah Bali

Bali Water Protection Program

PILOT PHASE

2 years program: 2015/16 – 2016/17

ECOLOGICAL REHABILITATION – EDUCATION – PUBLIC AWARENESS

Nadi tirtha-taya priye, Om tirtha-nadi ta kumbhas-ca

River, dear because thou art Holy Water, River of Holy Water, as well as receptacle

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IN TECHNICAL PARTNERSHIP WITH:



Politeknik Negeri Bali (PNB)

Note: also called "Bali State Polytechnic (BSP)" in English Jurusan Teknik Sipil Bukit Jimbaran – Kuta Selatan Badung 80364 – Bali Indonesia Website: http://www.pnb.ac.id

THIS DOCUMENT IS ALSO AVAILABLE WITH ITS ANNEXES ON: http://www.idepfoundation.org/howyoucanhelp/supportaproject/inbali/bali-water-protection-program

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ANNEXES

• 1: Overview of Bali province principal physical, administrative and environmental data

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· 1

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- 2a: Aquifer recharge with rain gravity-fed wells Introductory Technical Brief and Overview
 - . 2b: Visual gallery of freshwater aquifer recharge
 - . 2c: Summary of Case Studies

CONTEXT

Program Context - Freshwater availability

This project calls on Bali's spiritual, political, economical, and civil leadership attention and responsibility to address the island's diminishing water table and rapidly dropping levels of freshwater availability to ensure Bali's present and future water sovereignty and supply resilience. A freshwater table lost to salt water is one of the rare ecological conditions which is not reversible.

- → Bali's water table has dropped over 50 meters in some areas in a little less than 10 years and numerous wells are running dry or with foul water, particularly in the South of the main island (discussion with representatives of various banjars, mentioned by several agricultural reports as well);
- → (...) Lake Buyan (Bali's second largest natural reserve of freshwater) has dropped 3.5 meters in 3 years (Forgatty 2007) and 5 meters by 2012;
- → 60% of Bali's watersheds are declared dried (Data Badan Lingkungan Hidup (BLH) Bali News, 12 September 2011);
- → Salt water is moving into the empty space left by the declining water table, in some areas in the south in particular such as in Sanur/Suwug, as much as over 1 kilometer inland from the coast line and in the Kuta, Legian and Seminyak areas, over 10 meters (Bali Update edition 763, 25 April 2011, and Bali Advertiser, Wayan Gendo Suardana, 25 August 2012);
- > Increasing disruption in water circulation is being reported, in some areas allowing only 1 rice crop per year instead of 2 to 3; recently over 50% of Tabanan's new reservoir initially built for wet rice farming, has been diverted to south Bandung for Tourism (Prof. Merit ITV to Prof. Strom Cole, University of the West of England, in A Political Ecology of Water Equity and Tourism, A case study from Bali, 17 January 2012).

And yet Bali is one of the few islands in the world blessed by heavy rainfall and receives plenty enough water from the rainy season to fulfil its present and future needs; it only needs to be harvested and its river banks to be protected. Its topography is furthermore ideal to facilitate collection as will be appreciated in continuation.

BALI: On the brink of ecological collapse Water Emergency



Diminishing and/or Disappearing freshwater tables

- Salt-water intrusion into freshwater aguifers
- Water pollution

maps (Areas of critical low availability of water/water crisis and of excessive areas exploitation of the water resource compared to actual availability): See Annex 1. References: "Laporan KLHS Bali -Strategic Environmental Assessment (KLHS)" done by Indonesian and the province of Bali's environmental authorities Management and Conservation of Water Resources (Bali Province) "Profil Balai Wilavah Sungai Bali-Penida". Direktorat Jenderal Dava Sumber Air, Departmen Pekerjaan Umum.

Program Context (.. / ...) – Water quality issues

➔ In 2011, the water quality of the Ayung River was officially downgraded from "Class II" - suitable for water-sports to "Class III" - suitable for agriculture. Officials postulate the higher levels of pollution now being recorded are due to a number of causes, including erosion, agriculture, tourism, trash disposal and pesticides. Results for the Pakerisan River also reveal a similar level of pollution from its headwaters to the seas. Earning a "Class III" classification, the Pakerisan river has traditionally been a favored source of drinking water because of more than 15 different tributaries – including the historically sacred water sources that flow through Tirta Empul and Tirta Dukun. The Pakerisan River passes through areas traced back to the earliest settlement of Bali, flowing through a treasure-



trove of ancient historical and cultural sites. (*Bali's Clogged Arteries Bali Government Raises Official Pollution Level on Ayung and Pakerisan Rivers*, Bali News, 12 September 2011)



Sanitation: improper sanitation and sewage treatment is the cause of numerous health problems worldwide. In Denpasar health statistics in 2004 showed that diarrhoea represented 28.8% of

water borne diseases (*Pro-poor Water and Wastewater Management in Small Towns, Sanitation by the Community in Denpasar*, Indonesia (SANIMAS), published for the United-Nations, Economic and Social Commission for Asia and the Pacific), while a 2003 study documents the prevalence of ETEC (Escherichia coli) in hospitalized patients with acute diarrhoea, primarily transmitted through contaminated food and water (*Prevalence of enterotoxigenic Escherichia coli (ETEC) in*

hospitalized acute diarrhea patients in Denpasar, Bali, Indonesia, Subekti DS. et al. Diagnostic Microbiology & Infectious Disease. 2003;47:399–405).

The Bali chapter of the Environmental Impact Management Agency found in 2006 that twentyone rivers had pollution levels ranging from minus 30 to minus 70, with 0 considered a safe level, both due to domestic and industrial waste. The head of the Public Works Ministry's Agency for Bali's Garbage and Sanitation Infrastructure in Denpasar, Badung, Tabanan and Gianyar, Wayan

Budiarsa, stated, "The level of BOD in Bali's rivers is at unsafe levels [Biochemical Oxygen Demand, one indicator of the quality of water: <30 mg/L is considered safe while most legislations call for 25 mg/L]. Currently, Bali's rivers that flow through densely populated areas such as Denpasar and Badung have a level of up to 170 mg per one liter of water. That's far above the standard. That's why we need a good wastewater management system".





Program Context (... / ...) – Water quality issues

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- ➔ The excessive use of chemicals in agriculture is causing great contamination. Testing of cholinesterase levels in the blood of farmers was carried out in 1982 indicated 17% of farmers

from the sample being contaminated. A study conducted in 1981 by Electroconsult and ADC, showed that not only paddy soil samples showed serious levels of accumulation of organochlorines but that these accumulations were even higher in river bottom mud indicating alarming levels of contamination. In 1989, another study of the impact of pesticide use on surface waters was conducted, taken from 5 rivers (Sabah, Badung, Yeh Leh and Sanghiang Gede rivers) showed



serious levels of contamination, much above US or Canadian limits (Pemerintah Propinsi Daerah). (*Bali, Balancing environment economy and culture*, edited by Sugeng Martopo and Bruce Mitchell for Bali's Sustainable Development Strategy, Bali Regional Development Planning Development, with funding from the Canadian International Development Agency, 1993 – In collaboration with Udayana University (UNUD) in Bali, Gadjah Mada University (UGM) in Java and the University of Waterloo in Canada).

Analysis of the situation

The Indonesian province of Bali is renown for its uniqueness and overall bountifulness of natural resources, whose people's ancient roots in Hindu and animist faith make it home to a unique culture in the world. The province and its principal island of Bali has been blessed for centuries with an abundant resource of water and thus agriculture (rich volcanic soils and bountiful freshwater in large portions of the province), along with, until very recently, an exceptional sustainable management of its water resources by Balinese population and in particular by the Subaks organizations responsible for the island's rice irrigation. This abundance has allowed the flourishing of a highly evolved culture whose central and daily-lived spirituality expresses reverence for nature and its divine manifestations, facilitating during centuries an intelligent co-habitation between the people and its land.

In the last 20 years however, as in many other parts of the world, the main island of Bali with its four sister smaller islands, have been undergoing a rapidly growing demographic increase, both of 'endemic' population and immigrants from other Indonesian provinces, as well as tourists (almost as many visitors per year than inhabitants), coupled with rapid changes of life-style from principally agrarian societies based on barter and mutualism. While this transition is still in the making, natural resources accessibility as the basis of all growth has undergone great stress and the relationship to the environment has greatly changed; while forces of nature are still revered and prayed to, there seems to have been lacking an on-going transmission to the children about respect for nature and the importance to maintain natural integrity for present and future generations (a challenge generally shared by all societies in the world today).

The province's increasing demography in residents and tourists (3.8 Million residents for 2.7 Million tourists in 2011) coupled with endemic changes of life-styles, the building of private villa-type houses and increasing numbers of hotels with swimming pools and high water-consuming bathing fixtures, have greatly augmented the demand for in-house piped water to the point where in the last few years the demand for freshwater is superior to the available current sources. The increase of these Western-style villas and tourist accommodations have greatly contributed to this water crisis as their demand for water is often by far superior to that of local inhabitants (by minimum 3 times, about 150-200 liters + per person per day versus 30-50 liters for the latter). The sector of tourism alone was estimated in 2010 to be using 65% of Bali's water resources*. As the current extraction is superior to the water available in the aquifer/s, seawater intrusion into coastal aquifers has been growing to alarming rates (see Annex 1), irreversibly annulling the availability of fresh ground-water in these areas if the situation is left to further deteriorate, leaving only options of desalinization with R.O technologies (Reverse Osmosis) as supply of drinking water. As to the state of the seaside, in particular in the south and south-east of the principal island, it is too frequent to see 2-meter waves filled with trash as plastic and wrappings among others are flowing down from rivers' mouth. And yet, while rivers are widely used and thought-after by the various communities living in their vicinities, regularly prayed to and honored in some, the recent introduction of plastics and non-recyclable wrappings in the last 10 years + has still to be fully understood and assimilated; throwing banana and palm leaves on the ground or in the water (principal wrapping until very recently, and still used) don't have the same consequences on receiving ecosystems than synthetic materials do. All nations know the scope of investments required in education, awareness and information campaigns before its citizen start to change their behavior towards greater attention and respect given to their environment - not forgetting the importance of waste treatment infrastructures provided by the government, slowly being installed.

* Merit, 2010, cited in *A political ecology of water, Equity and Tourism, a case study from Bali* by Stroma Cole, Annals of Tourism Research, Vol. 39, No. 2, pp. 1221-1241, 2012

Analysis of the situation (.. /...)

This project has thus been conceived to respond to the current emergency and challenge surrounding freshwater supply and quality in the province. After much research into potential solutions and the way to connect them, looking at case studies around the world, technologies allowing rainwater to be returned to the water tables via gravity came clearly to the front for the rapidity of the recharge rate they allow, their low implementation cost (in some cases wells previously used for extraction can be rehabilitated), their overall high performance for minimal investment, their easy replicability and durability. They may also permit to avoid calling upon costly and potentially highly damaging environmentally-wise technologies such as dams for water supply (which in addition do not address the problem of aquifer replenishment). India is the country which stands at the forefront of these technologies as successful applications are numerous and well documented and it is the use of this family of "soft" technologies which we are proposing to use here. Rainwater gravity-fed recharge wells allow to:

- . rapidly increase the overall available supply of fresh water
- . alleviate a ground subsidence condition that has been in progress for years
- . supplement the quantity of groundwater available.

They replenish water supply sources without electricity nor short-life-cycle complex machinery and provide good quality water and in coastal areas in particular, help in maintaining the balance between the fresh and saline water aquifers, reducing or balancing salt water intrusion. They also can be so placed as to conserve and help to dispose of run-offs and flood waters with the additional benefit to prevent water stagnation (mosquitoes breading ground); finally they can be implemented rapidly and are "easy" and cost-effectively replicated. Compared to surface freshwater storage (reservoirs or other similar techniques), wells take a significantly lower surface (recharge can take place through 50 centimeters diameter wells), don't suffer from losses by evaporation and are much cheaper to build.

The main island Bali is not only blessed with plentiful of rain but has an ideal topography to allow gravity-fed rainwater distribution for aguifer replenishment on all areas lying on all sides of the large "transveral" ridge of moutains 'dividing' the island in two, from east to west (see the map in Annex 1, page 5). A discussion was initiated in 2012 with some local residents, community, business and spiritual representatives as well as with academics from the University Politeknik Negeri Bali (PNB) preoccupied by the evolution of Bali's natural environment, in order to explore the possibilities of implementing these types of wells in the province to rapidly counter-act the rapid salt-water intrusion and low water availability. An agreement has thus developed between PNB and IDEP to impulse the construction and use of wells with PNB being in charge of the necessary research and blueprint design, to analyze and complement existing data regarding the water situation in Bali and to assist into the implementation of the first wells; 10 Construction and Rehabilitation Supervisors will be trained in order to oversee future installations, beyond the end-date of this program. In order to minimize cost of implementation to the maximum, to widespread good construction practice and to encourage entrepreneurship, the 10 local well-construction supervisors will be trained so that each implementation can be ensured quality construction that is durable in the long-term while allowing the program to have a durable effect beyond its termination date.

In addition to this primary and foundational pillar of the program (which we call as working name "Adopt a Well"), it was decided to address two other fundamental aspects for any civil society to go towards greater sustainability, namely education and media.

Bali Water Protection Program (BWP) – Penyelamatan Air Tanah Bali / 9pl – Page 10 / 30

On the behavior of the province's population and in particular of the youth towards the environment, the situation is the same as for all the world's societies which have known a rapid transition from agrarian societies with biodegradable goods to a more object-consumer and plastic-based society. What is still too often ignored is that in the case of today's synthetic materials, the habit of throwing packaging into the ground and in rivers is causing important environmental problems. It causes segments of rivers to be clogged, rejection of large amounts of plastic into the ocean (with eventual breakdown into pellets mixing with plankton and thus ingested by fish and then by humans) while wild dumpsites attract pest and flies, causing great ground and water pollution. Our program therefore proposes to integrate an education component in schools with children living along the provinces principal rivers, via a teaching session on ecological principles (basic biospheric cycles) and effects of garbage on water (to allow an objectification of the natural elements taken for granted) and via sharing a hands-on "playing in and cleaning the river" session with the children to invite them to become caretakers and ambassador of their section of the river.

Finally, the field and educational aspect being addressed, there remained the public awareness level in great need of assistance. The general lack of awareness about Bali's current water crisis will be addressed through a general media information campaign throughout the province with the production of information banners about water, press articles, television talk shows about water with a PSA (Public Service Announcements) campaign to be broadcasted monthly for one year.

OBJECTIVE:

PROTECT, IMPULSE AND SECURE FRESHWATER RESILIENCE

→ 2-year program (16 month) with 3 sub-programs:

- . Adopt a Well
- . Adopt a River
- . Adopt Water

* Please consult Annex 2

Objective: Impulse the use of and implement rain gravity-fed open wells

- → To impulse Bali's water supply resilience and auto-sufficiency in drinking-quality freshwater supply;
- To contribute to the replenishment of Bali's existing water aquifers in order to stop the current water stress crisis from increasing;
- To stop increasing seawater intrusion in coastal areas, through rainwater-fed gravity open wells.

Note: Recharging the aquifer/s with rain gravity-fed wells is the focus of this aspect of our program although there are several other complementary water management good practices to protect existing or depleting watersheds - such as reforestation and ground cover, permaculture techniques such as contour trenches along hills to maintain water and accelerate infiltration, protection of watersheds from agricultural chemical products pollution, but these are outside of this project's present scope.

A healthy water table:



Situation of Bali: excessive extraction of water causes salt-water intrusion



Solution: return freshwater into the aquifer: Rainwater Harvesting



Bali Water Protection Program (BWP) – Penyelamatan Air Tanah Bali / 9pl – Page 13 / 30

<u>Objective</u>: Inform and raise awareness among children and communities living along the province's principal rivers about the sanctity of water and rivers and invite them to become ambassadors of their section of the water way.

- To provide an understanding of fundamental basic ecological principles of the biosphere with a special focus on water and plant cycles aimed at school children living along the province's principal rivers;
- → To prevent trash from being thrown into the rivers and eventually being brought to the ocean.
- To foster understanding of the importance to keep the integrity of the water resource free of contamination;
- → To nurture protection of the rivers;



<u>Objective</u>: Raise awareness among the public about the importance to protect, respect and nurture the water resource via public media.

Public information campaigns about water are currently little or non-existent in the province. Here we will provide monthly articles and information (cultural and scientific) about the water situations in Bali in the local provincial newspapers, 30 minutes talk shows with a short PSA clip broadcasted monthly and large billboard featuring information on water with visuals calling to stop to drop trash on the ground and/or in water bodies placed in major road traffic locations throughout Bali, for a duration of one year for each medium.



Bali Water Protection Program (BWP) – Penyelamatan Air Tanah Bali / 9pl – Page 15/30

PROGRAM SCOPE

I – "Adopt a Well": construction and rehabilitation of rainwater-fed wells

- → Install gravity rain-fed open wells in 9 critical areas on the main island of Bali + on the four "sister" islands of Pulau Menjangan, Nusa Lembongan, Nusa Ceningan and Nusa Penida. As this program is dependent on the research of PNB for precise location of the wells, only priority areas are here indicated; this selection has been done in accordance with areas of salt water intrusion and/or critical lowering freshwater resource.
- The natural topography of the terrain will be used by placing the wells downhill from hills and mountains in order to accelerate recharge rate by gravity.
- Consideration will be given to points of flood areas / storm run-offs (along roads for example) as potential sources of accelerated water recharge; a particular attention is given to adequate and easy to maintain filters, in particular in the case of urban environments.
- → While the precise location of wells to be installed will be determined by the results of the technical research at the end of Year 1, an initial assessment corresponding to our current capacity of implementation and management has been made for 134 wells; 4 wells are to be built, operated and maintained by our partner the University Politeknik Negeri Bali which in addition to their primary function are to serve as the university's demonstration of best practice and 1 well by our Foundation Yayasan IDEP Selaras Alam. 9 wells are to be installed or rehabilitated to serve as replenishment wells in Nusa Penida and Nusa Lembongan and 7 wells on smaller islands Nusa Ceningan and Pulau Menjangan.
- Training of 10 well construction supervisors to ensure quality of implementation and widespread knowledge about well construction; each well construction supervisor is to be entrusted with 14 wells each under his/her responsibility of good implementation over Year 2 (12 month).



Bali Water Protection Program (BWP) – Penyelamatan Air Tanah Bali / 9pl – Page 17 / 30

II - "Adopt a River": education and water awareness raising

- → An education campaign is to be conducted within the communities living along 11 rivers among the provinces' total of 401 stem-rivers, in the river basins indicated on the map below. These rivers have been chosen for the fact that they empty into the ocean (162 in total do) and that they have watersheds of over 10 km²; the program among its communities aims to provide the additional benefit of contributing to stop trash from ending up in the ocean.
- → A total of 132 schools are targeted over a 1 year period (Year 2) or 12 schools per river, with 4 schools at the source of the river, 4 schools in the middle and 4 schools at the mouth of the river.
- The children age group targeted is 9 to 12 years old since it is the age where information will be easily assimilated while representing the beginning of responsible citizenship to one's community.
- → A curriculum of fundamental biospherics, plant and water living principles will be taught to the children in two 35 minutes sessions as well as part of an afternoon will be spent with the classes in a joined cleaning of a section of the river.
- → Educational material: 10 copies of a comic book about water and general ecological information will be donated to each school's library as well as 3 posters of formal information about the water resource as teacher's aid.
- The program is currently so organized that 5 teams of 2 people per team with 1 educator at least per team, circulating on a motorcycle will be scouting in Year 1 the villages living in close proximity to the river/s where the program is to be implemented in Year 2, starting from the source of the rivers to their mouth. A precise map is to be drawn of intervention points; not all communities can be covered so that a criteria of cleanliness of the rivers and/or amount of trash carried by the river into the ocean will be applied, with intervention targeted at most damaged rivers.
- → A schematic map of garbage dumpsites and destination of wastewater and sanitation practice will be drawn during the education campaign with general environmental observations for future references and/or to be shared with organizations working in complementary fields.



Bali Water Protection Program (BWP) – Penyelamatan Air Tanah Bali / 9pl – Page 18 / 30

III – "Adopt Water": water awareness raising Media Campaign

A public awareness information campaign will be operating throughout the province in parallel to the well and education programs in Year 2.

- → 10 large banners / information panels of 3 meters by 5 meters are to be installed in key crisis area through the island and at major road traffic intersection points.
 - The campaign is to last minimum 3 month in total; while the featured funds on the budget are for 3 month total a donation of 3 additional months will be sought (usually granted for public-good campaigns, in particular as this is a campaign concerning an important public resource).
- I press article about water is to be published every month in local provincial newspapers during Year 2, for a total of 12 articles over a 1- year period.
- → One 10 minute documentary for school aid and 60-seconds PSA (Public Service Announcement / Commercial) on water is to be produced and broadcasted once a month during Year 2, integrated within a 30 minutes monthly talk show on water on local television channels; pick up of the integral show or parts of it will be sought also on a national channel.



PROJECTED IMPLEMENTATION CALENDAR

| | Responsabilities | YEAR 1 | YEA | NR 2 | |
|--|---------------------|--------|----------|-------|---------------------|
| Field of intervention | IDEP (Yayasan IDEP) | Month | Month | Month | |
| TECHNICAL RESEARCH AND FOLLOW-UP "ADOPT A WELL" | | 1-4 | 1-0 | 0-12 | |
| Identification of the provinces principal sources of drinking water supplies | PNB | x | | | |
| Precise identification and mapping of rivers, names + Demographics | PNB | x | | | |
| Mapping of Critical Intervention Areas (CIA) due to proximity to areas of salt-water intrusion into the aquifer + rapidly declining/Low or drying aquifers / freshwater source. . Determination of water table depth in CIA + Geology | PNB | x | | | |
| Design minimum 3 wells blueprint construction including rehabilitation of existing well Including options of pre-filter. (Small-Medium diameter: 0.1-0.5m diameter - Large diameter: 1 to 3 meters+ for larger banjars - Rehabilitation of wells to serve as | PNB | x | | | |
| Well construction manual writing + publishing | PNB / IDEP | x | | | |
| Training of Well construction supervisors | PNB / IDEP | | х | | |
| Well construction / Rehabilitation | PNB / IDEP | x | | | |
| Administrative clearance | PNB / IDEP | х | | | |
| Program final reporting and recommandations | IDEP / PNB | | | x | |
| EDUCATION CAMPAIGN "ADOPT A RIVER" | | 1 | | | |
| Curriculum Design | IDEP | X | | | |
| Identification of intervention areas and schools | IDEP | Х | | | |
| Map making with name and addresses of schools | IDEP | Х | | | Depend on |
| Reconnaissance and meeting with the schools | IDEP | x | | | Funding / Year 2 |
| Implementation of education curriculum / Water day in schools | IDEP | | > | (| |
| Mapping of environmental observation at intervention sites | IDEP | | > | (| |
| Administrative clearance | IDEP | х | | | |
| Program final reporting and recommandations | IDEP / PNB | | | х | |
| PUBLIC AWARENESS RAISING CAMPAIGN "ADOPT WATER" | | | <u> </u> | | |
| Media and film preparation | IDEP | x | | | |
| PSA video production about the water situation in Bali | IDEP | Х | | | |
| Installation of water public space banners | IDEP | | > | (| |
| Press articles publishing | IDEP | | > | (| 1 |
| PSA broacasting in 30 min talkshows | IDEP | | > | (| |
| Program final reporting and recommandations | IDEP | | | Х | |
| | | | | | |

PROJECTED CALENDAR

BUDGET

Budget Summary



BUDGET BRAKEDOWN PER SUB-PROGRAM

Notes

1. Research budget is allocated at 100% for AWP

2. Operational cost + Administrative expenses divided 70%AWP + 20%ARP + 10%ABW

| | YEAR 1 (5 month) | | YEAR 2 (12 month) | | TOTAL YEAR 1 + 2 | | |
|---|------------------|------------|-------------------|------------|------------------|------------|---------|
| | Total IDR | Total US\$ | Total IDR | Total US\$ | Total IDR | Total US\$ | % Total |
| ADOPT A WELL PROGRAM *** - Aquifer resplenishment | 931,168,069.09 | 80,971.14 | 6,656,226,237.62 | 578,802.28 | 7,587,394,306.71 | 659,773.42 | 77.41 |
| ADOPT A RIVER PROGRAM (ARP) - Education campaign | 262,251,636.88 | 22,804.49 | 1,406,935,813.61 | 122,342.24 | 1,669,187,450.49 | 145,146.73 | 17.03 |
| ADOPT WATER PROGRAM (ABW) - Media campaign | 145,316,688.44 | 12,636.23 | 399,903,926.80 | 34,774.25 | 545,220,615.24 | 47,410.49 | 5.56 |
| TOTAL: | 1,338,736,394.42 | 116,411.86 | 8,463,065,978.03 | 735,918.78 | 9,801,802,372.44 | 852,330.64 | 100.00 |

*** Note: the cost per well as been estimated at quite a higher price than probable actual cost in order to be ready for additional necessary soil testing or ground research, varying depth, diameter, etc. upon implementation. Average cost has been estimated at 3,350 US\$ including construction supervision for one well on the island of Bali and 4,350 US\$ for one well on a sister island. Final ultimate cost after program implementation is projected to be between 300-400 US\$ per well, for a small 110mm diameter well at about 20-30 meters depth. Remaining monies will be used for additional numbers of wells and/or allow large diamater recharge wells.



ADOPT A WELL PROGRAM (AWP) - Aquifer resplenishment
 ADOPT A RIVER PROGRAM (ARP) - Education campaign
 ADOPT WATER PROGRAM (ABW) - Media campaign

BUDGET SUMMARIES / PER YEAR

Exchange rate used: 1 IDR = 8.6957E-05 US\$ 1 US\$ = 11500 IDR

| <u>Category</u> | Qty | Total IDR | Total US\$ | % of total program cost |
|--|--------|------------------|------------|-------------------------------|
| TECHNICAL RESEARCH | | 1 | | |
| Wells + Filter Blueprints | | | | 45.05 |
| Map making - Critical Areas, Sources of water + Name Rivers | | 611,081,250.00 | 53,137.50 | 45.65 |
| Manual writing with IDEP | | | | |
| EDUCATION PROGRAM "ADOPT A RIVER" (ARP) | | | | |
| Bi-lingual Designers Curriculum Ecology Agriculture Water | 1 | 25,875,000.00 | 2250.00 | 1.93 |
| Editor Comic + Poster + Banner | 1 | | | |
| Education material production: | | • | | |
| Poster | 396 | | | |
| Comic | 1320 | 29.732.100.00 | 2585.40 | 2.22 |
| Banners (1 x 4 meters) - Campaign and moving with education staff | 15 | ,,, | | |
| SCOUTING FIELD WORK | | | | |
| 5 teams 2 people: 1 month preparation + 1 month survey | 10 | 128,991,160.00 | 11,216.62 | 9.64 |
| Map making of the education intervention program | 1 | | | |
| WATER RESPLENISHMENT: "ADOPT A WELL" (AWP) | | | | 3.61 |
| Training manual making | 100 | 48,300,000.00 | 4,200.00 | |
| | | | | |
| Media consulting and film preparation | 1 | | | |
| PSA video production on water situation in Bali | 1 | 106 490 000 00 | 0 260 00 | 7.95 |
| Ponnero (2 v E metero) Echrication | 10 | 100,430,000.00 | 3,200.00 | |
| | 10 | | | |
| Project operational cost and administrative expenses | | | | |
| STAFF | | | | |
| Program Manager | 1 | | | 21.26 |
| Field Coordinator | 1 | | | |
| Program Controller (partial position) | 1 | 284,585,998.80 | 24,746.61 | |
| | 1 | | | |
| Travel expenses to implementation sites | 1 | | | |
| ADMINISTRATIVE COST | | | | |
| | 4 | | | 7 74 |
| | 4 | 103,680,885.62 | 9,015.73 | 1.14 |
| Program overhead | 7% | | | |
| | TOTAL: | 1,338,736,394.42 | 116,411.86 | 100.00 |

BUDGET SUMMARIES / PER YEAR

Exchange rate used: 1 IDR = 8.6957E-05 US\$

11500

IDR

1 US\$ =

| Category | Qty | Total IDR | Total US\$ | % Total |
|--|-----|------------------|------------|---------|
| FECHNICAL ASSISTANCE "ADOPT A WELL" (AWP) | | I | | |
| Implementation coordination with IDEP | 1 | 203 693 750 00 | 17 712 50 | 2.41 |
| Training 10 construction / rehabilitation supervisors | 1 | 200,000,100.00 | 11,112.00 | |
| EDUCATION PROGRAM "ADOPT A RIVER" (ARP) | - | | | |
| EDUCATORS | | | | |
| 5 teams 2 people delivering educational program | 10 | | | 13.75 |
| EDUCATION MATERIAL | | 1,163,957,960.00 | 101,213.74 | |
| Tools: Gloves, Bamboo containers, children have to find the material | 132 | | | |
| Snaks | 132 | 1 | | |
| PUBLIC AWARENESS CAMPAIGN "ADOPT WATER" (ABW) | | | | |
| News articles | 12 | | | |
| PSA TV broadcasting / TV Talk Show 30 min - x1/month x 12month | 12 | 278,415,000.00 | 24,210.00 | 3.29 |
| Banners installement & permit - 3 month high passage | 10 | | | |
| FIELD WORK: WELL BUILDING / REHABILITATION (AWP) *** | | • • | | |
| Training of construction supervisors/rehabilitators | 10 | | | |
| Construction trainer / PNB? | 1 |] | | 66.19 |
| Construction of Demo wells - PNB | 4 | 5,602,110,000.00 | | |
| Construction of wells on sister island | 32 | | 487,140.00 | |
| Construction of Wells - Remaining (1 IDEP + 99) | 100 | | | |
| Construction supervision of wells - 2.3M IDR/well - Including local lodging + food + Transportation to and from site - All wells except PNB | 132 | | | |
| Project operational cost | - | | | |
| STAFF | | | | |
| Program Manager | 1 | | | |
| Field Coordinator | 1 | 1 | | 6.62 |
| Program Controller (partial position) | 1 | 560,605,746.10 | 48,748.33 | |
| Fundraising and Communication | 1 | | | |
| Administration and Accounting | 1 | | | |
| Travel expenses to implementation sites | 1 | 40.000.000.00 | | |
| MEDIA RECORDING / PROJECT PROCESS FILM | 1 | 48,300,000.00 | 4,200.00 | 0.57 |
| ADMINISTRATIVE COST | | | | |
| Office expenses contribution | 1 | 605 082 504 02 | E0 004 00 | 7.16 |
| Program overhead | 7% | 000,983,521.93 | 52,694.22 | |
| | | | | - |

*** <u>Note</u>: the cost per well as been estimated at quite a higher price than probable actual cost in order to be ready for additional necessary soil testing or ground research, varying depth,diameter, etc. upon implementation. Average cost has been estimated at 4,350 US\$ including construction supervision for one well on the island of Bali and 3,350 US\$ for one well on a sister island. Final ultimate cost after program implementation is projected to be between 300-400 US\$ per well, for a small 110mm diameter well at about 20-30 meters depth. Remaining monies will be used for additional numbers of wells and/or allow large diamater recharge wells.

YOUR SUPPORT

WE NEED YOUR HELP SUPPORT BALI WATER PROTECTION PROGRAM

TOGETHER WE CAN IMPULSE LONG-TERM SUSTAINABLE MANAGEMENT OF BALI'S FRESHWATER



*: Staff and administrative costs have been divided between the 3 sub-programs

Funds will not be used until this initial funding target has been reached (1,076,000,000 IDR or 93,500 US\$). At this stage we will seek donor approval to start the program even if we have not yet reached our full funding target. Shall we not reach remaining funding target within 1 year, we will review the program to consider implementation on a smaller scale and seek donor agreement to do so. If no implementation is possible due to lack of sufficient funds, we will ask donor whether he/she wishes his/her donation to go to IDEP's other programs or to be refunded in full (minus a 3% processing fee and the fee applied by the bank or payment system used).

PLEASE CONSIDER JOINING OUR LOCAL EFFORTS BY BECOMING ...

A BWP SPONSOR



THE FOSTER 'PARENT' OF A SUB-PROGRAM

ADOPT A WELL 57,012,000 IDR OR 4,958 US\$

This amount for 1 well construction out of 136 total includes the research and design of blueprints for various models of wells with their filters, the production of a manual and the training of construction supervisors. *** Once the program is implemented, future well construction and/or rehabilitation cost should not be superior to 200-300 US\$ equivalent per well, depending on the diameter, depth and type of soil.

ADOPT A RIVER 13,006,000 IDR 1131 US\$

Your contribution will allow a group of 9-12 years old students from one school out of 132 schools total to receive teaching on water and trash avoidance in the river towards a better stewardship of the river in their closest vicinity. It will also allow the school library to have 10 bi-lingual comics on water and ecology and teachers to have access to 3 teaching-aid posters about water. This amount includes the production and delivery of the educational material.

ADOPT BALI WATER 16,735,000 IDR OR 1.455 US\$*

Your contribution covers 1 month of awareness raising with 1 press article, 1 banner in a high traffic area of the province and 1 TV show discussion of 30 minutes about water including the diffusion of a PSA. This amount includes the production of a 10 min. documentary and PSA.

A BWP PROGRAM ASSOCIATE

If you have a public place of activity with regular visitors or customers, you can become a Program Associate by featuring a 1-page poster calling upon the attention of your visitors and inviting them to contribute to our program.

■ You can't afford to contribute with funds?

Moral support is as valuable as financial support. Please send us a dated letter via email to "Yayasan IDEP - BWP Program <bwp@idepfoundation.org>" telling us that you value this program and why you do. You authorize us to publicize your response. Please let us know if you wish to remain anonymous, we will not feature your name next to your comment.

DONOR INFORMATION

- We don't have the resources to make perks or send you gifts of thank you in exchange of your donation; we will however send you a receipt and certificate stating your support to the Program and of course keep you informed on a regular basis as our support campaign unfolds and then as the program gets implemented.
- Fiscal receipt: If we have your full coordinates you will automatically receive a fiscal receipt; if not, please indicate an email contact + name of Addressee, with full address including zip code and country + details of your donations to "Ni Made Sri Handayani: <madesri@idepfoundation.org>" with a copy to "<bmp@idepfoundation.org>".

PREFERRED PAYMENT METHOD

PAYPAL: bwp@idepfoundation.org

BANK TRANSFER:

Account Name:Yayasan IDEP Selaras AlamBank Name:BNI (Bank Negara Indonesia)Branch:Denpasar, Bali, IndonesiaBank Address:JI. Andong, Tegalalang, UbudAccount No:0361989230SWIFT Code:BNINIDJA DPSCurrency:Indonesian Rupiah (IDR)

Thank you for your support of BWP and to those we serve.

HTTP//WWW.IDEPFOUNDATION.ORG/BWP



PENYELAMATAN AIR TANAH BALI / BALI WATER PROTECTION PROGRAM (BWP)

HTTP//WWW.IDEPFOUNDATION.ORG/BWP

SUPPORT FORM

(Form available on: http://www.idepfoundation.org/images/stories/howyoucanhelp/supportaproject/2014_bali_water_protection_program/bwp_support_form.pdf)

Kind of Support given:

None - If you don't mind to share your reasons or give us advice: on this form or directly by email to

wp@idepfoundation.org>

Moral

Moral support to BWP is as valuable as financial support. Please send us a dated letter via email to "BWP Program"

support dation.org>

Yayasan IDEP Br. Dauh Uma, Desa Batuan Kaler, Kecamatan Sukawati Gianyar 80582 - Bali Indonesia

Reference of the letter: Support to BWP

Kindly consider forwarding our program description to other potential sources of support: http://www.idepfoundation.org/bwp

Financial

Amount: Currency:

Monthly recurrent (please indicate for how many month):

Preferred payment method

Via bank transfer:

Account Name:Yayasan IDEPBank Name:BNI (Bank Negara Indonesia)Branch:Denpasar, Bali, IndonesiaBank Address:JI. Andong, Tegalalang, Ubud, Bali – IndonesiaAccount No: $\overline{0}$ 361989230SWIFT Code:BNINIDJA DPSCurrency:Indonesian Rupiah (IDR)

Via Paypal:

bwp@idepfoundation.org

Fiscal receipt

If we have your full coordinates you will automatically receive a fiscal receipt; if not, please indicate an email contact + name of Addressee, with full address including zip code and country + details of your donations to "Ni Made Sri Handayani: <madesri@idepfoundation.org>" with a copy to "
bwp@idepfoundation.org>".

<u>NOTE</u>: Please note that your funds will not be used until the budget for the program's research, well training manual, education and media content production has been reached (1,076,000,000 IDR or 93,500 US\$). At this stage we will seek your approval to start the program even if we have not yet reached our full funding target. Shall we not reach remaining funding target within 1 year, we will review the program to consider implementation on a smaller scale and seek your agreement to do so. If no implementation is possible, we will ask you whether you wish your donation to go to IDEP's other programs or to be refunded in full (minus a 3% processing fee and the fee applied by the bank or payment system used).

You do NOT wish to be acknowledged as Contributor?

Other: Please specify:

Thank you for your consideration