



# Bustan Qaraaqa Annual Report

# 2011

This report covers the third full year in operation of the Bustan Qaraaqa project, which was founded in April 2008. The reporting period for this document is from May 1st 2010 to April 30th 2011

Propagating a  
grassroots  
permaculture  
movement in  
Palestine



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## Basic information

**Name of Organisation:** Bustan Qaraaqa

**Date founded:** April 2008

**Physical Address:** Wadi Hanna Sa'ad, BeitSahour, Bethlehem, West Bank, Palestinian Territories

**Postal Address:** P.O. Box 31316, Jerusalem 91002, Israel

**UK Headquarters Address:** The Old School, Lydfords Lane, Gillingham, Dorset, UK

**Website:** [www.bustanqaraaqa.org](http://www.bustanqaraaqa.org)

**Email:** [info@bustanqaraaqa.org](mailto:info@bustanqaraaqa.org)

**Phone:** +972 2 274 8994

**Registration:** Branch of the Permaculture Association (UK), Charity no. 1116699

**Bank details:** Bustan Qaraaqa, Lloyds TSB, Gillingham, Dorset, Account no: 0052001, Sort-code: 30-93-45

## Project Background

Bustan Qaraaqa was founded in April 2008 by a team of four British environmentalists who came together with similar ideas about supporting the growth of a grassroots environmental movement in the Palestinian Territories to address the severe and ongoing humanitarian and environmental crises.

It was the view of the founders that permaculture provides a toolkit for people to directly address the problems that are facing them: empowering individuals and communities to take back control over their relationship with the environment, to access life-sustaining resources, to halt environmental degradation, to build resilience and thus to adapt to the effects of climate change and to resist the ongoing occupation and colonisation of their country by Israel. We therefore set out to build an experimental permaculture farm that would also serve as a demonstration and education site, and to grow a network of partners in our local community so that we could share our ideas and support the growth of a grassroots movement.



Since the project was founded, the problems that spurred us into action in the first place have only escalated. There have been 3 years of severe drought in the region, and the general downward trend in precipitation of the past decades continues. This translates into crop failures for farmers, death or slaughter of livestock for pastoralists, food insecurity for the poorest members of the society as prices sky-rocket, and severe domestic water shortages across Palestinian towns and cities.<sup>1</sup>

It is worth noting that Israel controls the majority of water extraction and distribution infrastructure in the West Bank, water access between Israelis and Palestinians is unequal (on average Israelis have access to 3.5 times as much water as Palestinians)<sup>2</sup>, and thus the effects of water shortage are disproportionately borne by already water-stressed Palestinians as Israel cuts water supplies to Palestinian towns, particularly during the summer months.

At the same time, illegal Israeli settlements in the West Bank have continued to expand onto privately owned Palestinian land and the settler population continues to grow at a rate much higher than the rest of Israel (5.8 % compared to 1.8 %)<sup>3</sup>. In 2008, amidst the 'settlement freeze' agreed upon in the Annapolis framework, tenders for new settlement building increased by 550 % from 2007. Actual

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<sup>1</sup> Oxfam (2011) Hung out to dry, Oxfam media background briefing.

<http://www.ewash.org/files/library/Oxfam%20media%20background%20briefing.pdf>

<sup>2</sup> CJPME (2010) Water in Israel/Palestine. Canadians for Peace and Justice in the Middle East,

<http://www.cjpme.org/DisplayDocument.aspx?DO=795&RecID=553&DocumentID=1001&SaveMode=0>

<sup>3</sup> Pierre Tristam (2010) Briefing: Israeli Settlements and Outposts in the West Bank. About.com,

<http://middleeast.about.com/od/israelandpalestine/a/me080826.htm>

settlement construction increased by 30 % following the Annapolis talks, whilst settlement building around Jerusalem increased by a factor of 38 (all of this during a period of ‘settlement freeze’).<sup>4</sup>



*Left: Construction of new housing units in HarHoma settlement, March 3<sup>rd</sup> 2009; Right: Construction in Gilo settlement, January 21<sup>st</sup> 2010. Images by Anne Paq, Activestills.org.*

In September 2010 the ‘settlement freeze’ officially came to an end, and building accelerated even more. As an immediate response, construction on 1,629 housing units in 63 settlements started.<sup>5</sup> Alongside this escalation, there has been an upswing in settler violence towards Palestinians, with ‘price-tag’ operations being launched in response to any Israeli government attempts curb settlement expansion (real or perceived). According to the United Nations Office for the Coordination of Humanitarian Affairs, the weekly average of settler attacks resulting in Palestinian casualties and property damage increased by 40% in 2011 compared to 2010, and by over 165% compared to 2009.

*“Violence by Israeli settlers undermines the physical security and livelihoods of Palestinians living under Israel’s prolonged military occupation. This violence includes physical assaults, harassment, takeover of and damage to private property, obstructed access to grazing and agricultural land, and attacks on livestock and agricultural land, among others.”<sup>6</sup>*

Unfortunately, attacks on Palestinian farmers and their livelihoods are not perpetrated by Israeli settlers alone. The State also plays a role, and demolitions of Palestinian homes and infrastructure (notably rainwater harvesting cisterns) have also been on the increase over the past few years, often causing the

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<sup>4</sup>Palestine Monitor (2010) Factsheet on Israeli Settlements in the West Bank. <http://www.palestinemonitor.org/spip/spip.php?article7>

<sup>5</sup>FMEP (2010) Post Moratorium Construction Update. Foundation for Middle East Peace, Settlement Report, Volume 20, No. 6, November-December 2010. <http://www.fmep.org/reports/archive/vol.-20/no.-6/post-moratorium-construction-update>

<sup>6</sup>OCHA (2011) Israeli settler violence in the West Bank, November 2011. United Nations Office for the Coordination of Humanitarian Affairs. [http://www.ochaopt.org/documents/ocha\\_opt\\_settler\\_violence\\_FactSheet\\_October\\_2011\\_english.pdf](http://www.ochaopt.org/documents/ocha_opt_settler_violence_FactSheet_October_2011_english.pdf)

displacement of the affected community.<sup>7</sup> The majority of these incidents occur in 'Area C' of the West Bank, which comprises 60 % of the total land area and is under complete Israeli civil and military control.

*"Since 2009, a total of 44 cisterns and rainwater collection structures in Area C have been demolished, twenty of them between January and July of 2011. Those demolitions have directly affected the lives of 13,602 Palestinians. Having lost their access to water, 127 people have been displaced, including 104 children."*<sup>8</sup>



*Left: Farmers being turned away from their land near Efrat settlement in Bethlehem governorate during a community tree planting event; Right: A cistern and watering point near Maale Amos settlement in Bethlehem governorate, later destroyed in March 2011 (image by Cara Flowers, EWaSH)*

In addition, the construction of the 'Security Barrier' is causing further hardship for Palestinians, particularly for farmers, as communities are surrounded, access to their land is impeded or rendered impossible, land is confiscated and trees are uprooted.<sup>9</sup> In the few years since Bustan Qaraaqa was founded, work on the Wall in the Bethlehem area (where the project is situated) has continued apace, with several nearby communities being almost completely surrounded.<sup>10</sup>

Essentially, a process of 'concentration' and 'ghettoisation' is taking place, whereby Palestinians are being driven off the land and into cities surrounded by high fences and concrete walls. Their ability to provide for themselves in the most basic sense is being eroded. At the same time, the economy is in crisis, aid budgets are being slashed and unemployment is sky high, meaning that the cities cannot

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<sup>7</sup>OCHA (2011) Displacement and Insecurity in Area C of the West Bank. United Nations Office for the Coordination of Humanitarian Affairs, August 2011. [http://www.ochaopt.org/documents/ocha\\_opt\\_area\\_c\\_report\\_august\\_2011\\_english.pdf](http://www.ochaopt.org/documents/ocha_opt_area_c_report_august_2011_english.pdf)

<sup>8</sup>Diakonia (2011) Israel's administrative destruction of cisterns in Area C of the West Bank. Legal brief, September 2011. [http://www.diakonia.se/documents/public/IHL/IHLanalysis/Diakonia\\_Cisterns\\_Legal\\_Brief\\_28092011\\_LOW.pdf](http://www.diakonia.se/documents/public/IHL/IHLanalysis/Diakonia_Cisterns_Legal_Brief_28092011_LOW.pdf)

<sup>9</sup> Palestine Monitor (2009) The Wall: Factsheet. <http://www.palestinemonitor.org/spip/IMG/pdf/Wall.pdf>

<sup>10</sup>BTselem (2010) Separation Barrier strangles Al Walajah. [http://www.btselem.org/separation\\_barrier/20101114\\_al\\_walajah\\_separation\\_barrier](http://www.btselem.org/separation_barrier/20101114_al_walajah_separation_barrier)

absorb all of these people and the Palestinian Authority cannot support them either. This translates into widespread poverty and food insecurity.

*“Economic growth in [the West Bank and Gaza Strip] has slowed down in 2011, and together with the shortfall in external funding, this has led to a fiscal crisis for the Palestinian Authority,”* according to a 2011 World Bank report.<sup>11</sup>

A World Food Program survey socio-economic survey completed in 2010 found that: *“33 % of the Palestinian population continue to be food insecure. Additionally, 13 % are vulnerable to food insecurity, 21 % are marginally secure and 33 % are food secure. In absolute terms, 1.43 million people in the occupied Palestinian Territories are food insecure.”*<sup>12</sup>

These developments have only served to convince us of the urgency and relevance of our work here in Palestine. As we move into our fourth year in operation, we are in a stronger position than ever before to implement environmental projects with the Palestinian community as our network of partners has grown and strengthened, and our site has developed into a unique permaculture education centre.

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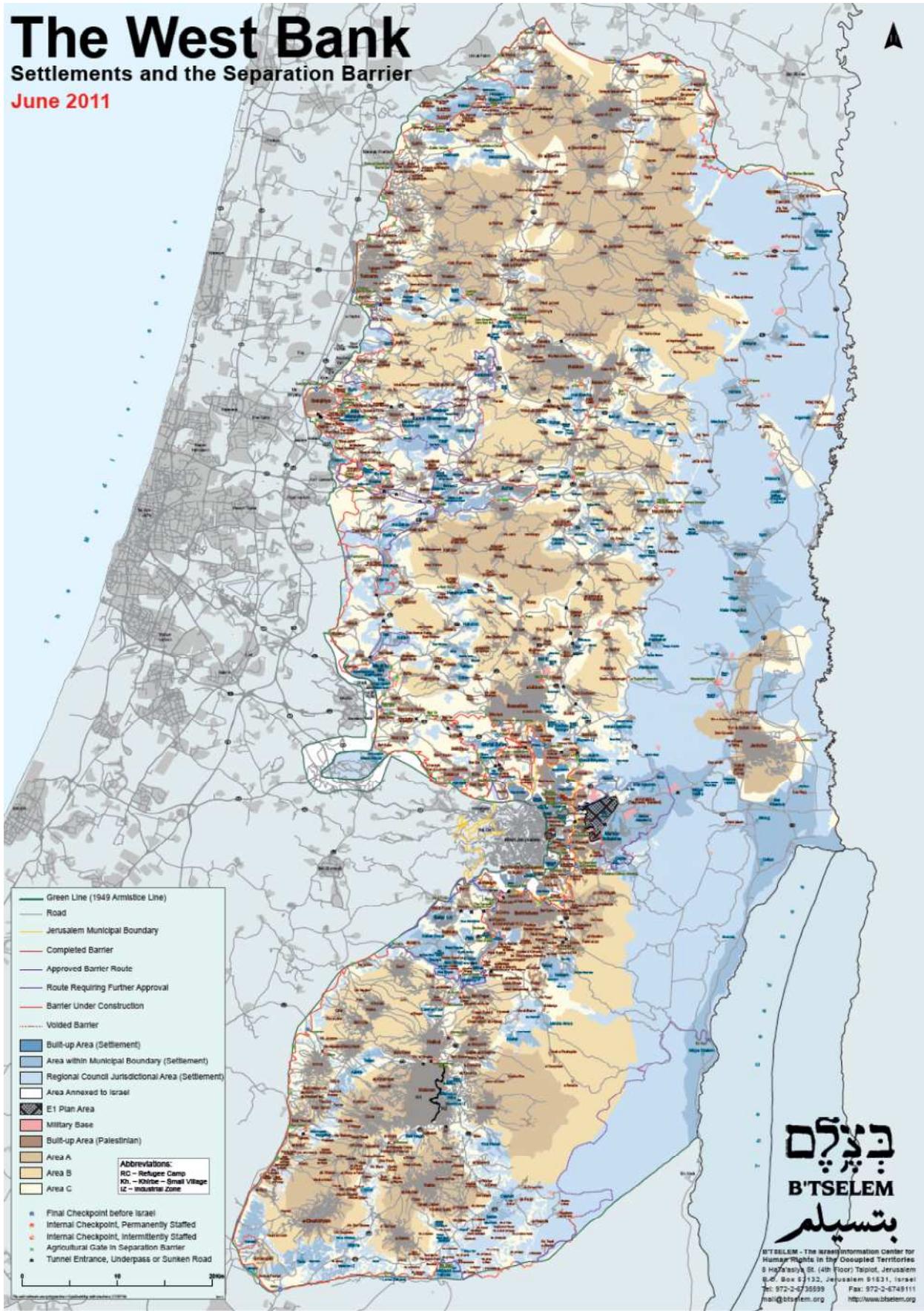
<sup>11</sup>Haaretz (2011) World Bank report warns Palestinians headed for ‘acute financial crisis’.  
<http://www.haaretz.com/news/middle-east/world-bank-report-warns-palestinians-headed-for-acute-fiscal-crisis-1.383864>

<sup>12</sup>World Food Programme (2011) Occupied Palestinian Territory Situation Report, January 2011.  
[http://reliefweb.int/sites/reliefweb.int/files/resources/Full\\_Report\\_100.pdf](http://reliefweb.int/sites/reliefweb.int/files/resources/Full_Report_100.pdf)

# The West Bank

## Settlements and the Separation Barrier

June 2011

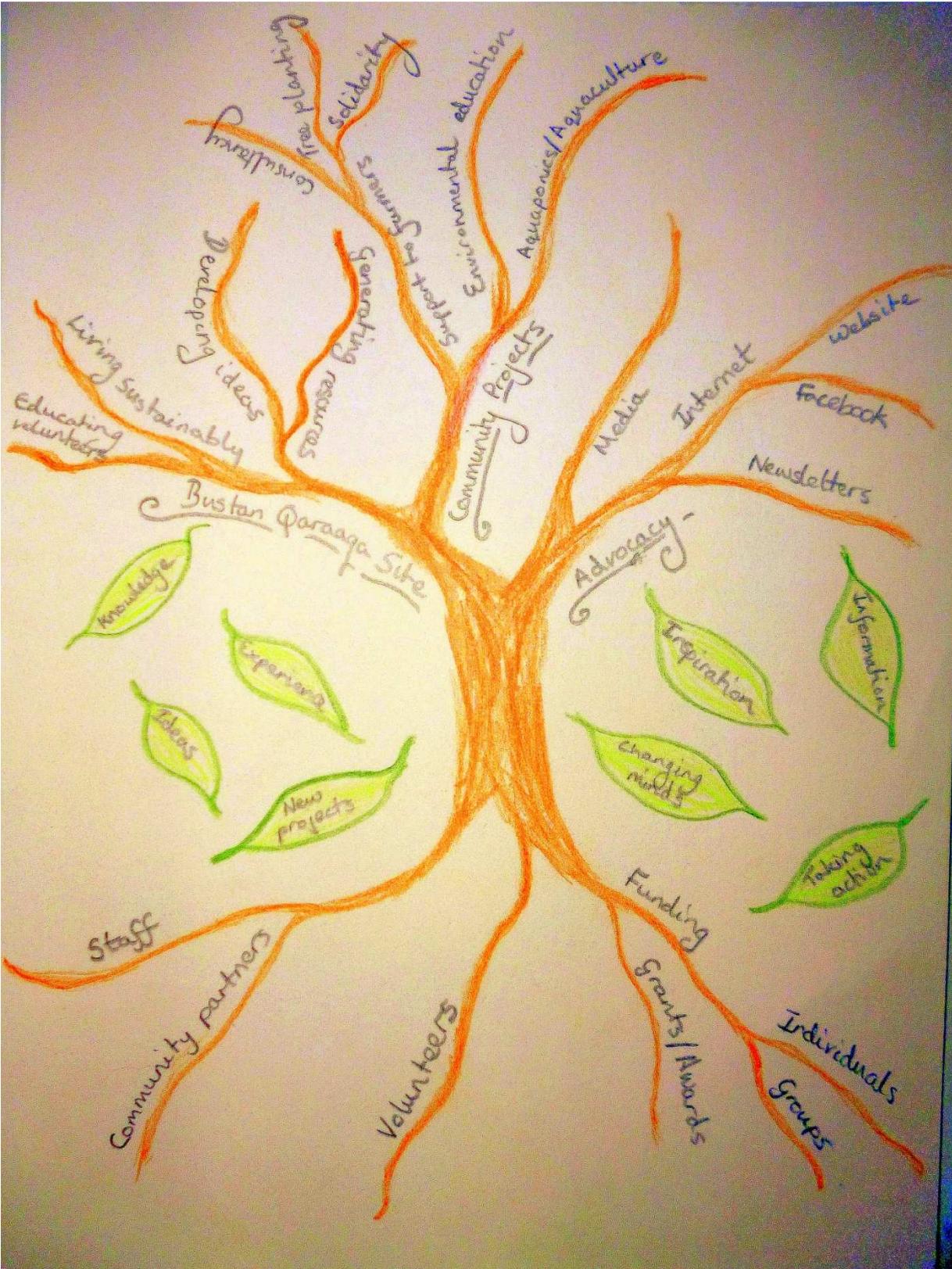


- Green Line (1949 Armistice Line)
  - Road
  - Jerusalem Municipal Boundary
  - Completed Barrier
  - Approved Barrier Route
  - Route Requiring Further Approval
  - Barrier Under Construction
  - Voided Barrier
  - Built-up Area (Settlement)
  - Area within Municipal Boundary (Settlement)
  - Regional Council Jurisdictional Area (Settlement)
  - Area Annexed to Israel
  - E1 Plan Area
  - Military Base
  - Built-up Area (Palestinian)
  - Area A
  - Area B
  - Area C
- Abbreviations:**  
 RC - Refugee Camp  
 Kh - Khirbe - Small Village  
 IZ - Industrial zone
- Final Checkpoint before Israel
  - Internal Checkpoint, Permanently Staffed
  - Internal Checkpoint, Intermittently Staffed
  - Agricultural Gate in Separation Barrier
  - Tunnel Entrance, Underpass or Sunken Road

**ב'תסלם**  
**B'TSELEM**  
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B'TSELEM - The Israeli Information Center for Human Rights in the Occupied Territories  
 9 Herta and Paul Amirson Way, 4th Floor, Tel Aviv, Jerusalem 61021, Israel  
 Tel: 972-3-5735599 Fax: 972-3-5748111  
 mail@btselem.org http://www.btselem.org

# Project structure



## Current Staff

The Bustan Qaraaqa staff team are a self-selecting, close-knit and dynamic bunch, who are committed to turning the vision of the project into reality. All members of the team work very closely together, supporting each other's projects and sharing ideas and experience. All are involved to some extent in site development and maintenance; and in educating and training volunteers in permaculture living and activism, and about the political and environmental situation in Palestine. Alice, Lyra and Tom live at the Bustan Qaraaqa farm, whereas Phil and Lorena live half a kilometre away, next door to the Al Basma centre (the site of their aquaponics development project). Awad Abu Sway has facilitated so many aspects of our work over the last year and volunteered so much of his time that we account him as a team member (although he is actually employed by the Palestinian Ministry of Agriculture), and sub-contracted to him to facilitate our work in Halawe Community. We hope that we can continue to cooperate as closely and productively in the future.

### **Lyra Eisen-Proctor, Guesthouse Coordinator and Assistant Administrator**

**Main duties:** Communicating with prospective guests/ volunteers prior to arrival, maintaining project profiles on volunteering sites (e.g. GoAbroad, Idealist, Love Volunteers etc.), induction of new volunteers, coordinating the basic maintenance of the house (cleaning, keeping the kitchen stocked, watering kitchen garden etc.), financial record keeping.

**Short bio:** Lyra studied History at the University Of Oregon in Eugene and graduated with a MA in 2006. After completing her studies, Lyra took the opportunity travel in the Middle East, and lived in Egypt and Jordan (where she worked with a Bedouin-run tour company) before joining the Bustan Qaraaqa project in May 2009. In addition to her work on the Bustan Qaraaqa project, Lyra reads tarot, crafts jewellery, and travels as much as possible.



### **Thomas Fernley-Pearson, Site Development Coordinator and Ecology Expert**

**Main duties:** Designing, planning and coordinating the development of the Bustan Qaraaqa Centre into a functioning permaculture system, coordinating volunteer activities onsite (maintenance and development), educating volunteers, cooperating with the Community Projects Coordinator to implement environmental education activities at Bustan Qaraaqa and to design and implement off-site projects, and reporting.



**Short bio:** A born and bred farmer who having spent nearly a decade researching the ecosystems of East Africa, South America, the Mediterranean Sea and the North Atlantic Ocean paused to help found the BQ project in 2008, motivated by an interest to apply an understanding of ecological function to developing sustainable human culture in the challenging context of the Palestinian West Bank. A graduate of the University of Wales and la Universitat de Barcelona, Tom has worked with various research laboratories including; University of California, Los Angeles and la Universidad Nacional de Colombia, Bogotá and presently lectures part-time at University of Jerusalem (Al Quds Bard College) in Environmental Studies. His research interests range from ethnobotany, marine biology, tropical forest ecology to evolutionary zoology.

**Alice Gray, Community Projects Coordinator and Project Administrator**

**Main duties:** Building a network of partners in the local community, organizing cooperation between Bustan Qaraaqa and other organizations, planning and coordinating events both onsite and offsite, coordinating volunteer participation in community projects, fundraising, web development, communications (newsletters etc.), report writing.



**Short bio:** Alice studied Ecology at Durham University in the UK (BSc Hons), before moving to the University of Wales, Bangor to research belowground carbon dynamics under climate change conditions (MPhil). After completing her studies, she took an internship at the Applied Research Institute of Jerusalem, a Palestinian environmental monitoring and development NGO, where she worked in the Water and Environment Unit, from March 2006 to April 2007. In 2007, Alice co-founded LifeSource, an NGO focusing on water advocacy in Palestine, and in 2008 she also helped to found Bustan Qaraaqa. Alice splits her time between her work at Bustan Qaraaqa and a part-time job at Al Quds Bard College in Abu Dis, where she teaches Environmental Studies.

**Philip Jones, Aquaponics and Aquaculture Project Coordinator**

**Main duties:** Planning and developing aquaculture and aquaponics systems at Bustan Qaraaqa, building a network of community partners to implement systems in other localities, coordinating volunteer participation in fish-based fun, training staff, volunteers and community participants, fundraising and reporting.

**Short bio:** Philip first visited Palestine and Israel in 2003, whilst studying Marine Biology with Zoology at the University of Wales, Bangor (BSc). After completing an M.Sc in “Marine Environmental Protection”, he returned to Palestine in 2006 to work with the Applied Research Institute – Jerusalem (ARIJ), an NGO based in



Bethlehem which focuses on environmental impacts of the occupation and innovative agricultural strategies. After a year working on a marine conservation project in Mexico in 2007, Philip returned again to the West Bank. During this trip he conducted the groundwork to assess the feasibility of conducting an aquaculture project in Artas. In spring 2010 Philip and his partner Lorena embarked on an epic cycle adventure from the UK, arriving at Bustan Qaraaqa 3 months later to begin implementing fish farming projects in the West Bank.

**Lorena Viladomat, Aquaponics and Aquaculture Project Coordinator**

**Main duties:** Planning and developing aquaculture and aquaponics systems at Bustan Qaraaqa, building a network of community partners to implement systems in other localities, coordinating volunteer participation in fish-based fun, fundraising and reporting.

**Short bio:** Lorena worked with the Palestinian Hydrology Group (PHG) in Ramallah during late 2008 while conducting research for her dissertation investigating access to water in the West Bank. After graduating from her degree in “3rd World Development Studies” at the University of Middlesex, London, she took a course in Water and Sanitation: Sewage Solutions at the Centre for Alternative Technology (CAT) in Wales and subsequently decided that she would like to return to Palestine to work in the field of sustainable development and food security projects. Lorena joined the Bustan Qaraaqa team in June 2010, after cycling all the way from the UK to raise funds and awareness.



**Awad Abu Sway, Community Projects Facilitator (part-time/volunteer)**

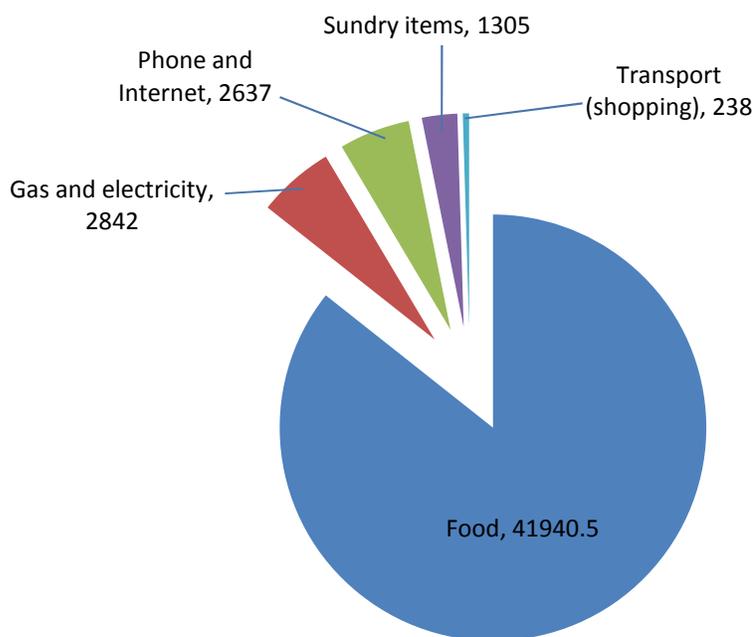
**Main duties:** Identifying partners for community projects (tree planting and aquaculture), bringing local volunteers to onsite work days, facilitating workshops and workdays.

**Short bio:** Awad is a committed community organizer and activist who has connections to the popular committees for resisting the Wall and Settlements, and is active in his own community of Artas in promoting land-based resistance to colonisation. Awad’s own family’s land was bulldozed to make way for the Wall in 2007 and over 30 apricot trees were destroyed. Awad also works for the Palestinian Ministry of Agriculture in the department for resisting the Wall and Settlements and as a Public Relations officer. He has worked with Bustan Qaraaqa since spring 2009 to help organize tree planting events with local farmers, and this year was also instrumental in setting up partnerships for our aquaculture pilot project and facilitating our work in Halawe community.



## Guesthouse and Volunteer Report

The Bustan Qaraaqa Guesthouse and Volunteer Project is the money-making arm of the project, allowing us to some extent to generate our own income, thus conferring some financial sustainability, as well as providing housing for our workforce. In the past year, Bustan Qaraaqa has hosted 142 people as volunteers, guests or couchsurfers, generating a total income of 63,840 ILS (approximately 12,518 GBP). During the same period, the guesthouse running costs amounted to 48,962.5 ILS (not including rent, see graph below for breakdown). Thus a surplus of 14,877.5 ILS (approximately 2,917 GBP) was generated to put towards other project expenses.



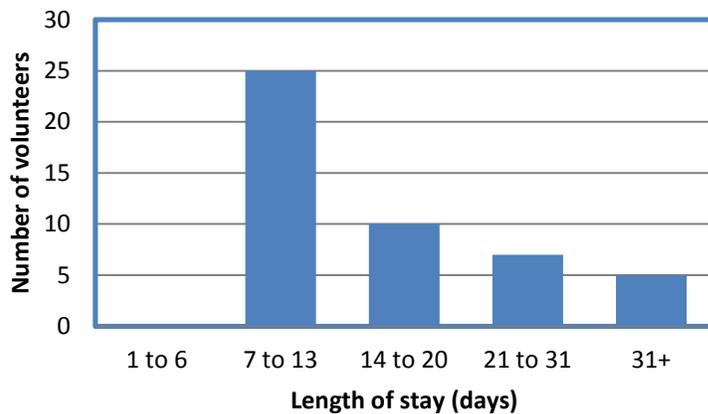
*Breakdown of Guesthouse/Office running costs from May 2010 – April 2011 in Israeli Shekels (ILS)*

### Volunteers:

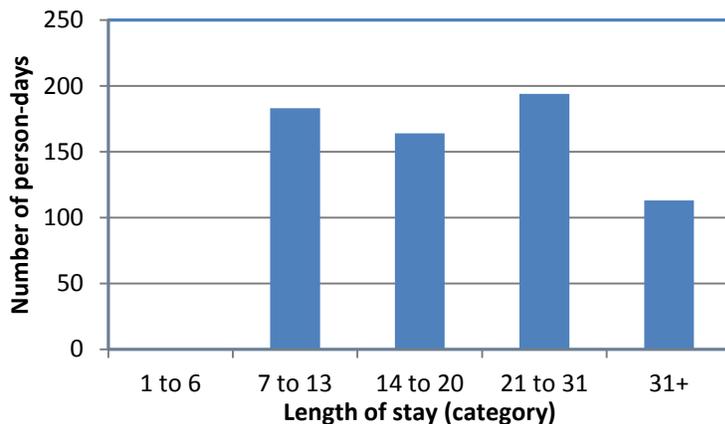
During the reporting period, Bustan Qaraaqa hosted 47 volunteers for a total of 889 person-days, generating 47,170 ILS in revenue (approximately 9,249 GBP). Of these volunteers, 25 of them stayed for 7-13 days, 10 for 14-20 days, 7 for 21 to 31 days, and 5 stayed for over 1 month (see graph below for length of stays and person days associated with each category). In November 2010 we decided to create a 'minimum stay' for volunteering of 1 week in order to make the integration of volunteers into the project more manageable. Those who cannot commit to one week are welcome to stay, but do so as guests and pay the 'guest rate' of 100 ILS per day half-board, rather than the volunteer rate of 500 ILS per week all food included.

We feel that any volunteer stay of 1 week or more is productive from our perspective, but the benefits to the volunteers themselves increase with time invested, as those who stay longer gain a sounder understanding of the work they are engaged in and the principles behind it. However, we deeply appreciate all the contributions that volunteers have made to the Bustan Qaraaqa project over the last year. We couldn't have done it without them!

Nevertheless, the most useful category to us are the small number of people committing over a month of their time to the project, as they became fully integrated members of the team and are able to help train the short-term volunteers and lift a great deal of pressure from our small staff team. In addition, the quality of their work increases over time, and the amount of staff supervision they require declines. It is still our ambition to work to increase the number of volunteers we get in this category, and we are developing a more organized educational program to help attract people who want to gain hands-on experience of permaculture and expand their existing knowledge.



*Number of volunteers staying at Bustan Qaraaqa from May 2010 to April 2011, and length of stays*



*Number of person-days associated with each volunteer stay-length category*

**Guests:**

During this report year, a total of 88 people stayed at Bustan Qaraaqa as guests. They generated a combined sum of 14,410 NIS (approximately 2,825 GBP); a funding stream well worth having for the effort it costs us to host short-term guests. The number of people choosing to stay with us suggests that Bustan Qaraaqa is becoming well-known in eco-travel circles, and that people will support our project by choosing to stay in a permaculture-themed guesthouse instead of a more wasteful environment. We are still slowly working on building up an eco-tourism network in Palestine and the rest of the Middle East and hope to be able to progress on this mission in the coming year.

**Couchsurfers:**

In addition to the other categories, Bustan Qaraaqa has hosted 17 'couchsurfers' this year (amounting to 84 person-days). For more information on the ethics and goals of the couchsurfing project, please visit their website: [www.couchsurfing.org](http://www.couchsurfing.org). This group obviously generated the smallest portion of revenue, at 2,260 ILS this report year (roughly 27 shekels/person/day). However, their contribution in work form was very high, and it is important to us as a project not to exclude willing volunteers who lack the funds to pay the full rate (although obviously we rely heavily on those who can pay). In addition, we tend to attract a number of couchsurfers who are travelling in Israel and might not otherwise visit the West Bank, and therefore, in terms of outreach and advocacy, this is an important part of the project (for evidence of this please visit Bustan Qaraaqa's couchsurfing profile at [www.couchsurfing.org/profile.html?id=4AIG57U](http://www.couchsurfing.org/profile.html?id=4AIG57U) ).

The only problem with this arrangement is the inequality between long-term volunteers who pay the full rate and couchsurfers who do not. We get around this by allowing the 'surfers to camp onsite in caves or on roof-tops rather than staying in the volunteer dorm, and this seems to satisfy all concerned. Furthermore, many people who initially contact us via the couchsurfing website elect to become volunteers in any case.

## Site development report

The Bustan Qaraaqa site has continued to be the thriving heart of the project. As time goes by, it is becoming a unique educational resource, show-casing innovative permaculture techniques that are appropriate and relevant to the Palestinian context. It has proved a vital testing ground for developing ideas (such as aquaponics and aquaculture); giving BustanQaraaqa staff the opportunity to learn by experience (making a few mistakes along the way!) before implementing projects in the Palestinian community. In addition, it has generated vital resources (mainly trees from our nursery) for our community projects, and provided some recompense (in terms of knowledge exchange and practical experience) for our international volunteers, who continue to be the lifeblood of the BustanQaraaqa project.

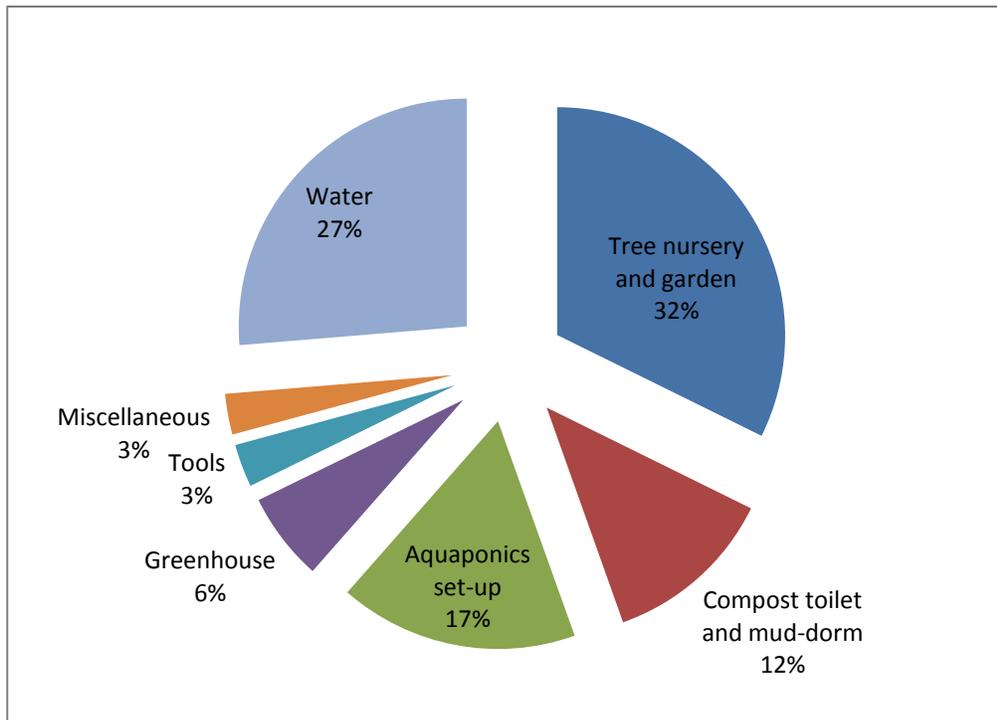
### Volunteer involvement:

Overall, the functioning of the site is driven by BustanQaraaqa staff in cooperation with the volunteer team. This year we have refined our coordinating mechanism to involve a weekly meeting of staff and volunteers at which chores are divided between the people who will be present that week, goals are agreed and a schedule for activities throughout the week is drawn up. In this way, volunteers participate fully in the life of the farm, from waste management to food production, as well as visiting and working with Palestinian farmers in the local area. The 'one week minimum' volunteer rule that we introduced in the autumn has proven to be extremely helpful in this regard, as we are able to integrate people more thoroughly into the team for the duration of their stay, and there is more of a sense of cohesion between members of the team.

We have also benefited hugely from the help of volunteers living locally (both Palestinians and Internationals) who have continued to support our weekly 'open volunteer days'. These days, with their large work-forces, have been vital in driving forward the larger on-site projects that we have undertaken this year, as well as providing a mechanism for anyone who is interested to learn about and participate in the project. In addition, we have occasionally hosted youth groups for educational workshops that have also contributed to the overall development of the site.

### Summary of work undertaken and expenditure (May 2010 – April 2011):

Project/item	Cost (ILS)	Timeframe of implementation
Tree nursery and garden	4069	All year ongoing
Compost toilet and mud-dorm	1546.5	July 2010-October 2010
Aquaculture	Funded by Byspokes.org	July 2010-October 2010
Aquaponics	2134	January 2010-April 2010
Greenhouse	789	March 2010 ongoing
Tools	384	n/a
Miscellaneous	366	n/a
Water	3316	n/a
<b>Total</b>	<b>12604.5</b>	(approximately 2500 GBP)



Breakdown of costs for onsite projects, May 2010 – April 2011

## Major projects undertaken this year:

### Tree nursery and garden:

The production of food and trees at BustanQaraaqa continues to be a central feature of the project. Due to a busy tree planting season through the winter and spring of this year (see community projects report), the tree nursery stock was reduced to just a few hundred trees, and we are currently in the process of building it up again (we have space for at least another 1000 trees, and many seeds in stock).

Seed collection throughout the autumn and winter season was also highly successful, and we have 4 new species to add to our repertoire: *Geoffrea decorticans*, *Cordia sinensis*, *Balanites egyptica* and *Bosea cyprea*.

Food production on the site is expanding steadily, although it is worth noting that due to the high level of energy that staff and volunteers are currently pouring into community projects, this aspect of our work sometimes ends up taking a bit of a back seat. In addition, the lengthy drought that persisted throughout November retarded the planting of winter crops so that we did not grow as much food during this period as we have managed in previous years.

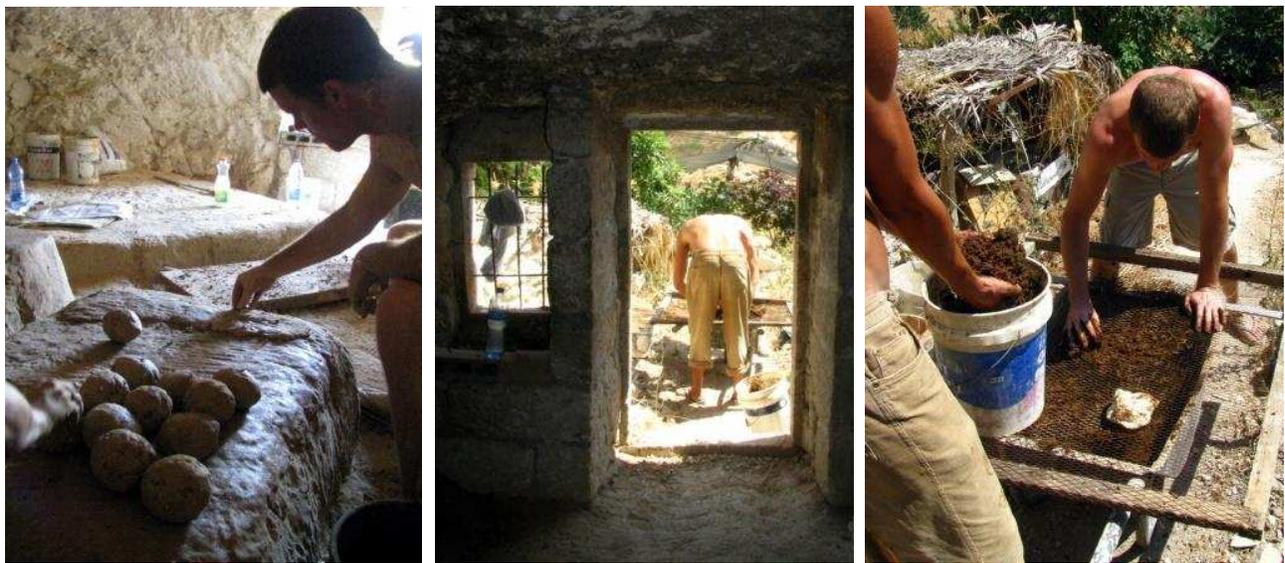
Nevertheless, we have grown a diverse array of crops this year including lettuce, cabbage, basil, spinach, rocket, onions, garlic, cape gooseberries, aubergines, amaranth, chickpeas, lentils, broad beans, runner beans, sugar-snap peas, tomatoes, peppers, chillies, artichokes, lemongrass, chives, sunflowers etc. Although we are still far from self-sufficient, we do produce significant quantities of food on a seasonal basis, and we feel that although progress is slow, we are making headway. In addition, the other project outputs that are taking energy away from food production are worth the cost.

In the orchards we have continued our efforts to bring greater productivity, applying well-rotted manure and mulches, pruning the trees and maintaining the swales. The survival rate of the hundreds of saplings we planted last winter season was over 90%, and trees that died have been replaced. Planting of new trees at BustanQaraaqa this year was mainly limited to these replacements, as well as a few workshops with school groups, and did not exceed 60 trees (meaning that over 90% of tree planting activities this year took place off-site with Palestinian partners).

### **Mud-dorm:**

The mud-dorm, built in a cool and spacious cave in the BustanQaraaqa grounds, is an expansion of the volunteer accommodation available at the farm. It can get quite crowded at BustanQaraaqa on occasions, particularly when we are hosting large groups. By expanding the number of people we can host, we open up new opportunities for hosting courses and workshops over several days, and hopefully also increase the guesthouse revenue as a secondary benefit.

Of course, we also seized the opportunity to experiment with eco-building techniques, and to use the whole experience as an educational resource for our local and international volunteers. The bedsteads were constructed of rubbish-stuffed tyres encased in cob and then plastered smooth and flat. Thus we sequestered the non-reusable rubbish we had been collecting (as a point of principle we deal with all our own waste in the farm), and created additional accommodation.



## Compost Toilet:

The first compost toilet we designed at BustanQaraaqa was based on the original latrine toilet used by the family who built the farmhouse approximately 100 years ago. However, it had a number of drawbacks, including its location at the centre of the house, the fact that we had to then use a 'removal' system, where the waste was collected in large bins and subsequently dumped onto a compost pile (not the most pleasant of jobs to have to do on a daily basis!), and the slightly poky nature of the turret (tall people would bang their heads on the ceiling!). We decided that it was not the best 'show-case' to encourage people to build their own compost toilets, and so set out to create 'the ultimate compost toilet experience', constructing the most beautiful and easy to use and manage toilet we could design.



As with all of our projects, we also challenged ourselves to do it as cheaply and as sustainably as we could; using scavenged and recycled building materials, and experimenting with new techniques for incorporating them into the building in ways that are both attractive and functional. We gathered timber for the frame from building sites, scoured the dumps for palm fronds for the thatch, and collected bottles from the bars to fill the walls. Windows were constructed from plastic bags ironed into coloured sheets, cut and ironed again into designs which glow like stained glass in the evening sun.

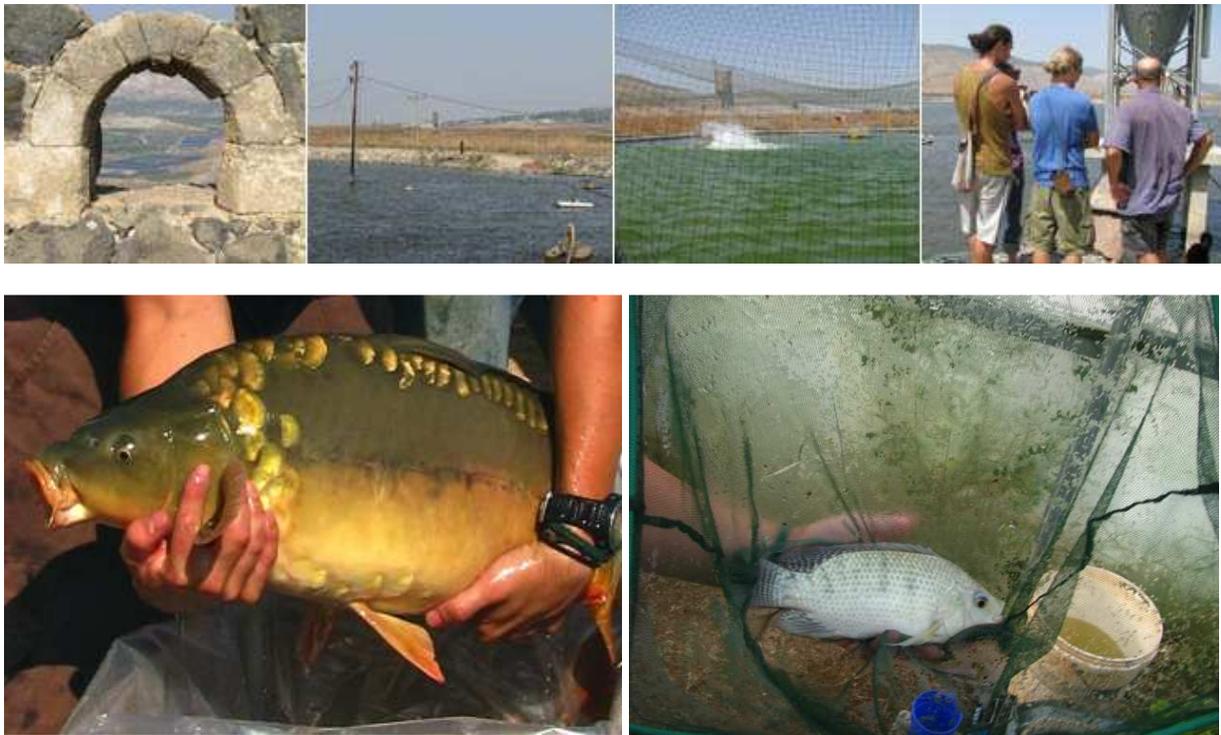


## Aquaculture:

Sustainable aquaculture presents an alternative to the high intensity industrial aquaculture, which requires a high financial investment and is heavily reliant on technology, power and fishmeal based fish food. Instead, the aquaculture systems we advocate rely on fairly low stocking densities and enhancing natural pond productivity through fertilisation of the water with manures and/or supplemental feeding with domestic and agricultural vegetable and cereal wastes.

Many farmers in the West Bank have large water storage ponds that would be ideal infrastructure for initiating aquaculture, with scarcely any additional investment, few modifications to existing practices and very low inputs. As ever with our 'bright ideas' for enhancing food security and sustainability in Palestine, the first stage was to test it out at BustanQaraaqa.

First of all, we had to make a few modifications to our rainwater cistern. The first of these was a system to keep solid wastes out of the expensive and extensive drip irrigation network, and the second was to put up a bird-proof cover after a king-fisher found its way to the site and started to feast on the fingerlings. In September 2010 we were ready to stock the pond, and acquired tilapia fingerlings from kibutz Hefzi Bar in Israel. The tilapia (*Oreochromis aureus*) fingerlings were introduced into our rainwater cistern in order to see if tilapia could survive the Sahouri winter – sadly, we discovered that our winter is too cold for tilapia but is great for carp (*Cyprinus carpio*). So we started our detective work to find a source of carp.



In parallel to these efforts, we began to look for community partners so that we could expand our 'pilot project'. Over the last couple of years, BustanQaraaqa has built up relationships with several farmers in

the village of Artas – a small town near Bethlehem – through a variety of activities including tree planting and sustainable design consultancy.

Artas is blessed with a permanent spring that is shared by the farming community in a manner which has remained unchanged for generations: the spring feeds into a canal which passes through the whole valley; farmers in the valley have access to the spring water on a rotational basis, usually for about 12 hours every 10 days, which they control by small sluice gates in the canal. Each farmer has a cistern on their land which they fill up with this water, and then use this stored water to irrigate their fields the rest of the time. Thanks to these factors, and the fact that Awad Abu Sway (our ever-active, ever-cooperative, mostly unpaid community facilitator) lives in the village and was willing to help us, Artas was chosen as the right place to pilot a project to integrate sustainable aquaculture in existing irrigation cisterns (see Community Projects Report for details).



### **Aquaponics:**

In March 2010 we also started to construct an aquaponic system at BustanQaraaqa. In fact, we can boast to have built the first ever aquaponics system behind the Wall!



We made lots of discoveries (some may say mistakes) along the way, but have managed to develop an aquaponic system that works well, and is appropriate for the West Bank. We have developed a system which:

- Uses cheap, locally available materials mainly re-claimed or re-cycled
- Works with the extremely high alkalinity and high pH of the groundwater in the West Bank
- Grows plants which thrive in the local conditions, and are already part of the local diet
- Enables production of plants with high water requirements even during the driest times of the year
- Offers the opportunity to grow “exotic” plant species that are not consumed locally at present, such as basil, lemongrass and butternut squash



Based on this experience we managed to secure funding to construct a second, larger aquaponic system in al-Basma centre – a centre for disabled young adults – in Beit Sahour. This second system was used a focus for delivering training workshops to staff of al-Basma centre and other interested individuals, and to run a comparative investigation into water use and cost/benefits of aquaponic farming versus soil farming (see Community Projects Report for more details).



### **Greenhouse (Beit Igzaz):**

The Bustan Qaraaqa Greenhouse is the most ambitious building project we have undertaken thus far. Practical work on this venture began in earnest in March 2011, although the design process began two years before – we just never found the time or resources to implement it until now.

On a shoestring budget and learning many techniques as we go, the task of constructing a building to serve as a rainwater catchment, shower, kitchen, jungle and laundry among many other functions is now well underway. Bringing ecological services right into the centre of daily life the structure will help us to use our resources as efficiently as possible. Year round growth of lush tropical food crops and a kitchen designed for fuel grown on the farm, laundry, and more efficient grey water recycling are just some of the advantages. As well as this, we will be able to use up much of the 'recycling' that we have been hoarding for years, demonstrating that functional and attractive buildings do not need to be expensive, and can actually be constructed from materials that are all around us, if we can imagine ways of using them effectively.

The Greenhouse aims to demonstrate four main design considerations using a variety of techniques for sustainable living:

### **Reduction of consumption of materials**

#### **i. Multipurpose architecture:**

Reducing consumption of building materials and space by putting many functions under one roof (see earthship). The building will contain: shower, sauna, kitchen, laundry, aquaponics, food production aquaculture, winter fruits, tropical foods, mushrooms, smokery and brewery. We aim to create a spacious, bright and green space to live in.

#### **ii. Reuse of "rubbish" and salvaged materials**

To avert the environment damaged caused by the extraction, manufacture and distribution of building materials we set ourselves the aim of collecting all materials locally by either scavenging or salvaging.

Scavenged materials from the rubbish:

- glass bottles to build the walls
- plastic bottles to build the roof
- metal cans/tins to make the rocket stoves

Note: There is no facility to recycle these materials the West Bank.

Salvaged materials from dumps, demolitions and scrap merchants:

- scrap iron for the frame
- reclaimed timber for the doorframes, construction scaffold, kitchen unit
- reclaimed kitchen sink
- leaky water tanks as shower screen
- rotten cement for levelling and smoothing floors

### iii. Use of local materials for natural building

In addition to collecting and reusing manufactured materials we are using locally abundant and free natural materials:

- soil & goat manure is used as a matrix to hold the glass bottles in the walls (a sort of natural cement)
- field stones are used to build the walls
- olive wood trunks are used as lintels

## 2. Water conservation

The building's roof is designed to collect clean rainwater and deliver it to a storage tank so it can be used through the dry summer months. This water can be solar heated or supplied *al clima* to the shower, laundry, kitchen and aquaponics directly. The greywater is then collected, reused and filtered before being reused for cleaning, laundry (prewash), climatic amelioration and crop irrigation. The water flows from one component to the next with gravity along a water quality gradient. Precaution is taken to prevent unnecessary reduction in water quality by salty soaps and detergents. Finally the water's quality is improved by a living filter of plants as it passes through a wetland flowing into a pond overflowing into a forest soil irrigating a tropical forest food production system (see finca). The water will also play a key role in storing solar energy to heat the space on cold winter days and cool the air on hot summer days. Every drop of water used will be reused by another component of the design as we aim to achieve the most efficient use of this versatile but scarce resource.

## 3. Climatic amelioration

The building is designed to take full advantage of the wind and sun to have cooling effect on hot days and a warming effect on cool days.

On cold days the vents are closed and roof and walls trap solar energy as sun warms the rock and air inside. Solar energy stored in warm rocks and water is released through the night raising minimum temperatures and preventing frost. Additional sources warmth are: the shower room producing solar heated water and steam, the sauna, and the kitchen where the wood fuelled bread oven and rocket stoves warm the space. The fuelwood is growing on the farm.

On hot days the ventilation is opened. The steeply pitched roof angled into the prevailing wind allows for the efficient extraction of hot air. The exiting hot air draws in evaporation-cooled air through a duct then the shower room where more evaporation occurs further cooling the incoming air. In theory the stronger the sun shines the faster the cool air will be pulled into the building. The ceiling is 7m high at its highest keeping the hot air high above head height. The entire roof can be shaded to limit the amount of solar energy entering the building. A solar oven replaces to need the need to use the bread oven on hot days. The large volume of water in the system has a cooling effect as it evaporates and transpires from surfaces.

#### 4. Increased food production

The “finca”, inspired by diverse gardens of subtropical American and African forests, will provide a diverse array of foods. The finca will give us the opportunity to grow vegetables and fruits on the farm all year and to grow tropical fruits we now buy from the market. The warmth and recycled water will allow us to continue cropping heat loving crops through the winter such as: tomato, aubergine, cucumber, peppers, passion fruit and to harvest frost intolerant perennials such as: banana, avocado, guanabana, starfruit, zapote, cassava and taro. The possibilities are endless! Imitating the stratified and diverse structure of tropical forest ecosystems every plant life form is exploited to maximise productivity in a limited space. From the soil up, a ground layer of taro, tomato, and pepper is shaded by a subcanopy of shrubs and small trees such as banana, coffee, cacao, papaya and starfruit supporting climbing vines like black pepper, passionfruit and pitaya, all under a six meter high canopy of avocado, zapote and gunanbana trees. Transpiration and shade will cool the atmosphere of the building in the summer months.

To date we have dug out the area for the constructed wetlands and tropical crops, welded together the metal frame that will contain the bottle walls, laid the concrete beam that will be the foundation of the bottle walls, constructed a scaffold out of reclaimed wood to use for building activities and started to build the walls themselves. With a long way yet to go, it is our ambition to finish the building before the rains start to fall in the Autumn of this year (2011).



## Community projects report

### Overview:

The community projects component of Bustan Qaraaqa’s work has continued to grow and flourish over the past year. Building on the experience of previous years, we were able to organize an extremely successful tree planting season, continue our support to long-term project partner Abed Rabbo in Al Wallaja, continue our consultancy at Paidia, and implement educational workshops at the farm in cooperation with Juzoor. Furthermore, this year we were able to obtain project funding for 3 exciting new initiatives: Aquaculture in Artas community (Bethlehem), Tree planting and environmental management workshops in Halawe community (South Hebron Hills) and Aquaponics set-up and workshops at the Al-Basma Centre in Beit Sahour.



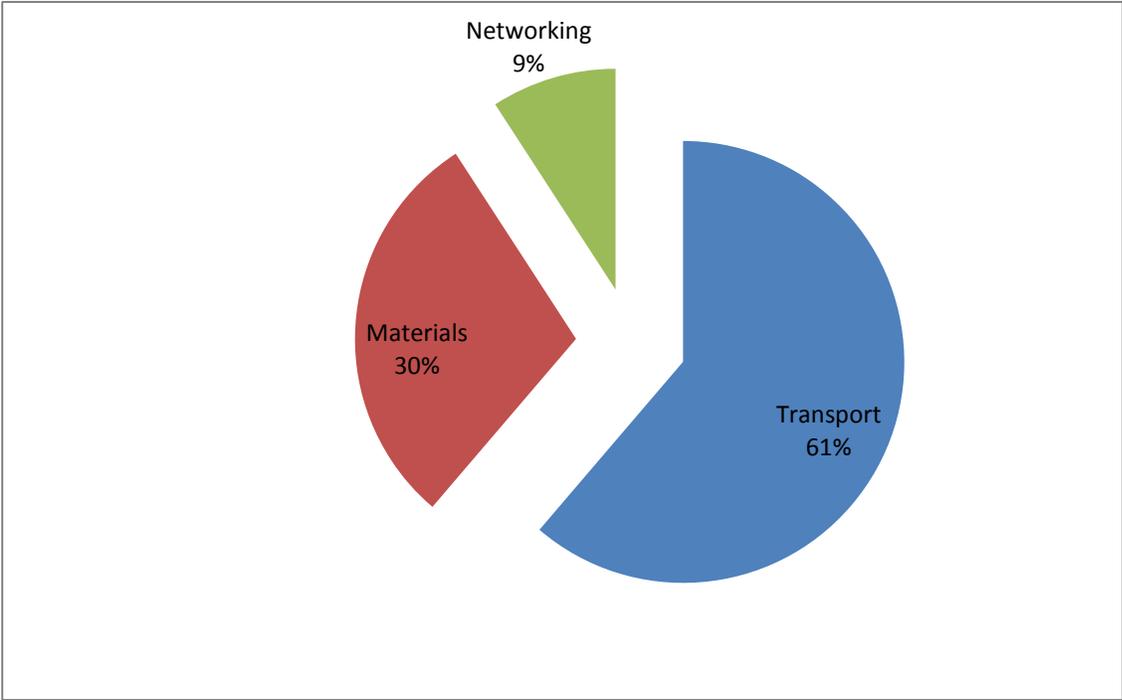
We view the implementation of community projects (both educational and practical) as the ultimate purpose of Bustan Qaraaqa: propagating a grassroots permaculture movement in Palestine and promoting knowledge transfer, such that our project will eventually become obsolete – just one example among many. We are very pleased to have achieved so much in this regard over the past year, which has been our most active and successful yet. We have come a long way since the founding of the project 3 years ago, and are in a strong position to build on existing relationships and experience to have an even greater impact over the coming year.

### Community projects undertaken from May 2010 to April 2011 and major outputs

Project	Funding Stream	Duration	Major outputs
Support to Abed Rabbo	Core funding	All year ongoing	<ul style="list-style-type: none"> <li>- Rainwater harvesting system built</li> <li>- Compost toilet improved</li> <li>- 4 donkeys delivered (donated by Mohammed Zahalka)</li> <li>- 50 trees planted (donated by BQ)</li> </ul>
Tree planting and land defence	Core funding	December 2010 – April 2011	<ul style="list-style-type: none"> <li>- 12 tree planting events organised</li> <li>- over 800 trees donated by BQ</li> <li>- over 1000 trees planted</li> </ul>
Environmental education workshops at BQ (Juzoor)	Core funding/ Juzoor	June 2010, December 2010, March 2011, April 2011	<ul style="list-style-type: none"> <li>- 2 water awareness workshops implemented (50 attendees)</li> <li>- 3 tree planting workshops implemented (70 attendees)</li> </ul>
Site development consultancy (Paidia)	Core funding	All year ongoing	<ul style="list-style-type: none"> <li>- water catchment designed</li> <li>- food garden designed</li> <li>- 2 BQ volunteer days at Paidia site</li> </ul>
Aquaculture pilot project (Artas village)	Core funding and ELSAMEX	August 2010 – December 2010	<ul style="list-style-type: none"> <li>- 600 common carp (<i>Cyprinus carpio</i>) stocked into 6 irrigation cisterns in</li> </ul>

			the community - 8 capacity-building workshops delivered to participants
Tree planting, water harvesting and environmental management workshops (Halawe community)	Project funding: ActionAid Australia	November 2010 – April 2011	- 109 trees planted at 4 sites in community - water harvesting earthworks designed and implemented at all sites - 4 environmental management workshops implemented with 8 community participants
Aquaponics at Al Basma Centre	Project funding: Operation Blessing	March 2011 ongoing	- Flood-and-drain Aquaponics system built at Al-Basma Centre - Aquaponics manual written - 10aquaponics workshops held with 8local participants

Total expenditure of core funds on community projects during the reporting period amounted to 8,447 ILS (approximately 1,660 GBP, see Figure X below for breakdown). The majority of this expenditure was on transport: shuttling materials and people to meetings (networking) and projects (transport). Financial expenditure on materials was fairly low, however, Bustan Qaraaqa also donated over 800 trees from our nursery to various community partners (these trees would have a retail value of more than 16,000 ILS or 3,130 GBP if sold for 20 ILS each).



*Breakdown of Bustan Qaraaqa Core Fund expenditure on Community Projects from May 2010 to April 2011*

## Core-funded projects

### Supporting Abed:

Abed Rabbo is Bustan Qaraaqa's longest standing community partner – we have been working together since December 2008 – very early on in the history of the project. Abed lives in a cave on his land close to the village of Al Wallaja. He is forbidden to build a house there (or any other structure) and receives no municipal amenities such as a supply of water or electricity or rubbish or sewage collection. Abed's land is being cut off from Bethlehem by the construction of the Wall, and pressure on him to leave and move back to the Dheisha refugee camp (where he grew up) is high.



*Abed Rabbo on his land near Al Wallaja*

Our cooperation with Abed continues to work very well for all concerned: he is obviously living in a context where permaculture is a particularly appropriate way of tackling the problems he faces. Thus we are able to support him practically; working on his land, suggesting innovative ways of making the best of the little resources he has, and building infrastructure to help him to cope with the situation he is in (e.g. compost toilet, rainwater harvesting system). Even without the practical assistance we provide, our visits in themselves help to ameliorate Abed's isolation and demonstrate solidarity with his struggle.



*Left: Abed's improved compost toilet with panels made from ironed-together plastic bags; Right: Climbing out of the Wadi Nar en route to Al Wallaja with a gift of donkeys for firewood and water collection (kindly donated by Mohammed Zahalka)*

Conversely, Abed is a fantastic host, and visiting him is an activity much appreciated by our volunteers. It is also an important education for them, since although Abed is unusually committed to defending his land from annexation, to the extent that he is prepared to live in a cave to do it, his situation is emblematic of that of many Palestinian farmers, who are under extraordinary pressure to abandon their

land. It is also a very clear demonstration of how permaculture can be used as a land-based resistance strategy.

This year activities have included liming, manuring and watering trees; collecting firewood; setting up a rainwater collection system (from the porch roof to strategically placed tanks); planting trees (donated by Bustan Qaraaqa); digging out the floor of the cave to expand the living space; improving the compost toilet and general site maintenance activities (e.g. weeding and watering planted crops etc).

In the meantime, the building of the Wall that will eventually completely encircle Al Wallaja and cut Abed off from his community has continued apace. In addition, the expansion of the nearby Israeli settlement of Gilo has been licensed (1,200 new housing units are to be built across the valley from Abed). Although Abed's land has not yet been directly affected, many olive trees belonging to Al Wallaja residents have been bull-dozed to make way for the Wall, and the access road for the bulldozers (which may eventually be converted to an access road for Cremisan Monastery which will also be on the 'Israeli' side of the Wall) runs directly along the edge of his plot.



*Left: A young resident of Al Wallaja is led away by Israeli troops during a rally against the Wall (image from [www.demotiximages.com](http://www.demotiximages.com)) Right: Uprooting trees in Al Wallaja to prepare for Wall construction (image by Anne Paq, [www.activestills.org](http://www.activestills.org))*

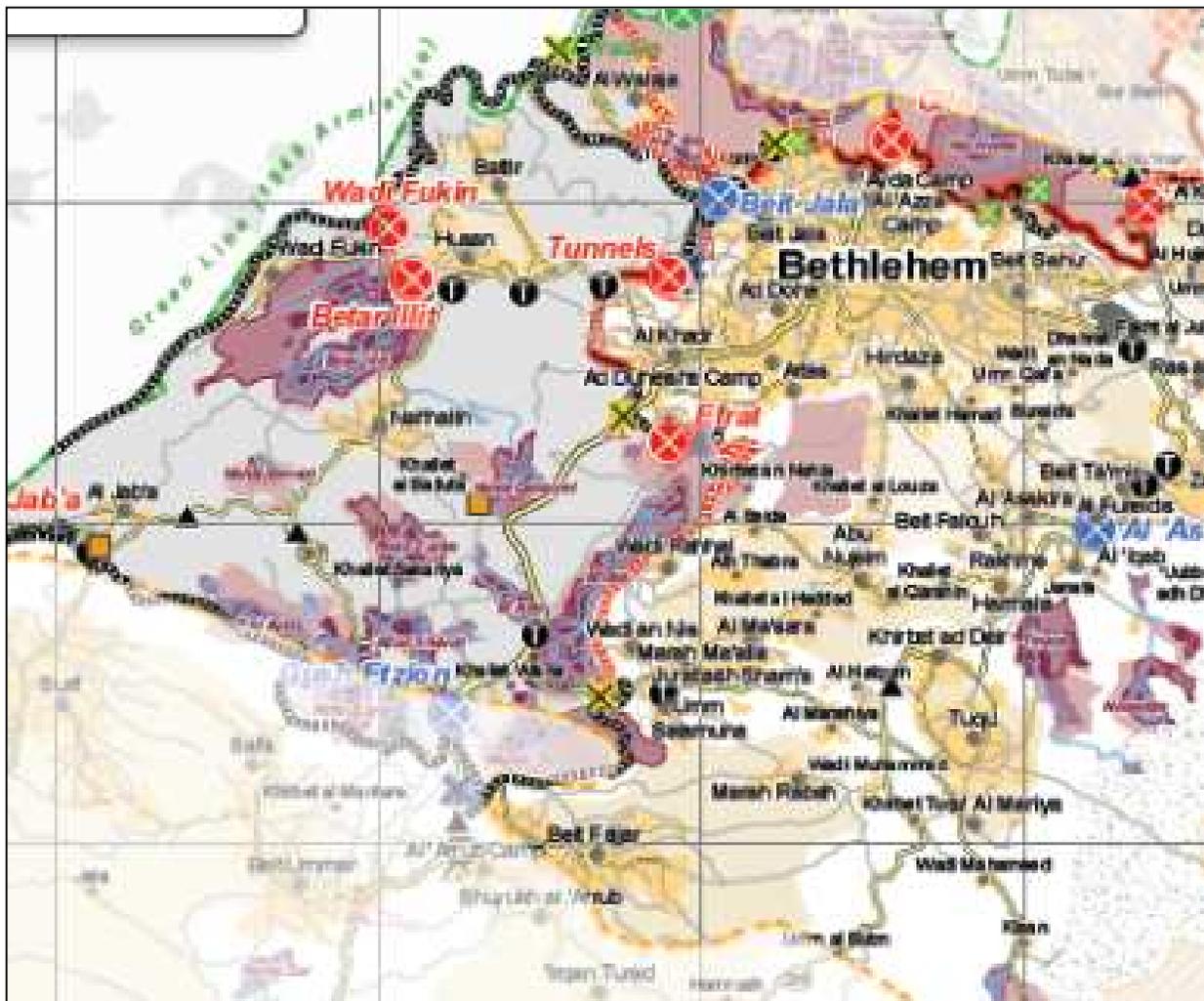
Non-violent demonstrations by local residents and peace activists have been put down with brutal force by Israeli authorities (tear-gas, rubber bullets, beatings and occasionally live ammunition), and there have been many arrests and a few hospitalizations. Currently it is still possible to access Abed's land from Bethlehem via Cremisan Monastery, however we expect that this route will be closed eventually and his isolation will increase. In short, the situation looks set to deteriorate. Nevertheless, as we stated this time last year, for as long as Abed is prepared to resist we are prepared to support him, and will continue our visits as before (on a weekly to bi-weekly basis).

### **Tree Planting and Land Defence (Green Intifada):**

The tree planting season started in December 2010 following the first rains (a severe drought in November delayed us for a while), and lasted until the rain stopped falling in late April 2011. Once

again, we are indebted to Awad Abu Sway for helping us to coordinate with Palestinian farmers for this project.

Awad works for the Palestinian Ministry of Agriculture in the department for Resisting the Wall and Settlements. The Ministry of Agriculture has a program to supply farmers who are at risk of displacement with agricultural trees (e.g. olives, almonds, grapes, apricots etc.) at a very low cost (1 shekel per tree). In the course of coordinating the program, Awad meets with many farmers, some of whom qualify for Ministry support and some of whom do not. Thus he was in an ideal position to connect us with people who would appreciate our help. It is worth noting that Bethlehem governorate is one of the hardest hit areas in terms of construction of the Wall and expansion of illegal Israeli settlements, and thus there is a great deal of land defence work to do in this area (see map below).



Map of Bethlehem area showing the route of the Wall and the location of Israeli settlements as well as the location of Bustan Qaraaqa (Beit Sahour), and field partners in Al Wallaja, Artas, Nahhalin, Teqoa, Al Khadr and Um Salamoneh. From UN Office for Coordination of Humanitarian Affairs, 2010 closure map.

Where farmers were receiving trees from the Ministry of Agriculture, we added some native stock from our nursery (e.g. *Quercus caliprenos*, *Ceratonia siliqua*, *Pistacia palaestina*), some nitrogen fixers to aid soil fertility (e.g. *Leucaena leucocephala*, *Albizia lebbeck*), some stock barriers/ windbreak species (e.g. *Zisypus spina-christi*, *Prosopis juliflora*, *Acacia tortilis*) and some firebreaks (*Opuntia ficus-indica*). We also helped with orchard design and water catchment construction, as well as providing a volunteer workforce to plant all the trees. Where farmers were not receiving any additional trees, we provided a diverse mix of food trees (e.g. figs and grapes that we propagated from cuttings, mulberries, carob, loquatetc.) as well as all the others.



*Top Left: The team at work planting trees in Artas village, Bottom left: Lunch in the field after a morning preparing a field for planting in Nahhalin, Right: An oak tree planted next to the Security Fence in BeitSahour.*

In total this year we participated in 12 planting days in 7 different villages in the area surrounding Bethlehem (Nahhalin, Um Salamoneh, Teqoa, Al Wallaja, Beit Sahour, Artas and Al Khadr) donated over 800 trees from our nursery and planted several hundred more which were supplied by the Ministry of Agriculture or the YMCA Olive Tree Campaign. In addition, we were approached by at least 5 farmers asking us for trees, which we were happy to donate to them to plant themselves. In these instances we often give a tour of our site and have a discussion about how we are using different tree species at

Bustan Qaraaqa to build a robust and productive system that yields food alongside other useful tree products such as fuel-wood, timber, fodder etc.

We plan to rebuild our tree nursery over the summer this year (we also have some stock left that was not mature enough to plant out), and hope to have as busy a season next year as we did this time. In addition, we plan to conduct some follow-up visits to this year's partners in the autumn to assess the survival rates of the trees we planted. Hopefully in this way we will be able to learn which species are the most robust in differing environmental situations and which planting techniques are most effective. In addition we should be able to assess in which situations trees are more likely to survive and how farmer behaviour has affected the survival rate, and thus decide whether we need to adjust our program to include more educational workshops alongside tree planting activities.

### **Environmental Education Workshops at Bustan Qaraaqa:**

This year, we continued our cooperation with Juzoor ([www.juzoor.org](http://www.juzoor.org)), an NGO working in the health and social development sector. Juzoor have an initiative called the 'Youth Parliament' ([www.jyouthp.org](http://www.jyouthp.org)), which "engages a diverse group of students ages 12-17 from fifteen Jerusalem Schools in a Youth Parliament which is designed to foster leadership, development and community building, as well as provide youth with knowledgerelevant to their growth and maturity" (Youth Parliament website).



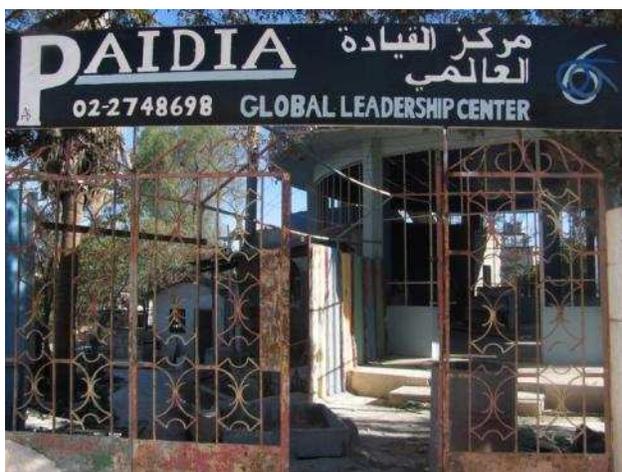
*Left: Watering a newly planted tree with rainwater collected in the cistern, Right: Planting a tree at Bustan Qaraaqa*

Bustan Qaraaqa started working with Juzoor in October 2009, and continued the partnership throughout this year, organizing 2 water awareness workshops in June 2010 (approximately 50 children attended) and three tree planting workshops in December 2010, March 2011 and April 2011

(approximately 70 children attended). It had been our ambition to implement tree planting workshops at East Jerusalem schools, but despite making several field visits to the schools, this program was unfortunately not implemented due to organizational difficulties and lack of time. However, we hope that in the future we will be able to develop a strategy in cooperation with Juzoor to make this happen.

### **Paidia consultation:**

*“Paidia exists to engage individuals, especially youth, in ethical leadership development empowering them to transform themselves and their communities”* (Paidia website: [www.paidia.org](http://www.paidia.org)). Paidia are currently developing a new site in Beit Sahour as an experiential learning centre. We have been working with them as consultants since the start of this project (in early 2009) to incorporate permaculture principles into its design. This year we have mainly been helping with the design of a food garden which is to be used as part of their ‘Stepping Stones’ program – an initiative to *“develop social, physical and cognitive abilities among a broad range of developmentally and physically disabled through experiential education”* (Paidia website).



*Left: The Paidia Global Leadership Centre in Beit Sahour, Right: The participants in the ‘Stepping Stones’ program with Paidia volunteer Brady Maccarl (our main contact for developing the garden).*

Essentially, the program participants will work in the garden, growing some food crops and some marketable produce that will be sold to give the program an element of financial sustainability, and the participants a sense of satisfaction and self-worth. We designed a system for them that incorporated elements of easy access, easy operation, water conservation, robustness and productivity. We mainly acted as consultants in this regard, advising Paidia volunteers on the design of the garden and what crops to grow, but in addition, we contributed a volunteer work team to do some of the bigger jobs on two occasions, as well as lending our volunteer team to Paidia to help implement a festival for the participants of the Stepping Stones program.

## Pilot Projects (External funding)

### Aquaculture Pilot Project, Artas Village

This project was conducted in collaboration with Byspokes, and funded in part by a donation from Elsamex S.A. de C.V, and in part from Bustan Qaraaqa's core funding. A full project report is available online at [www.bustanqaraaqa.org](http://www.bustanqaraaqa.org) and [www.byspokes.org](http://www.byspokes.org).

Food security is a serious issue in the Occupied Palestinian Territories (OPT) – nearly 40% of the population are chronically food insecure. Part of the reason for this food insecurity is the inability of the agricultural sector to provide adequately for the population, and thus the OPT are heavily reliant on food imports. Two of the major constraints limiting the agricultural sectors ability to realise its full potential are a lack of access to water resources, and severely restricted access to agricultural lands; in the West Bank, Palestinians are only permitted to use 20% of the sustainable yield from the mountain aquifer, and denied access to the Jordan River entirely, and farmers have access to only 37% of their agricultural lands. Both of these factors can be directly related to activities and policies of the Israeli occupation.



*An irrigation cistern (bir) and irrigated lettuce field in Artas*

In August 2010 we commenced a pilot project in Artas village, just outside Bethlehem, to trial a novel technique for maximizing the use of these scant water and space resources: integrating sustainable aquaculture with irrigation infrastructure. Agricultural cisterns (bir) are relatively commonplace in the West Bank. They are used as small reservoirs of irrigation water, which are periodically filled with spring, rain or purchased water depending on availability. By growing food fish in these bir we are able to provide a double use for the both the water within and space occupied by the bir.

The primary objectives of this pilot project were to demonstrate sustainable aquaculture techniques in a community setting, and to prepare training materials, and deliver workshops to participants to enable them to independently manage systems.

We developed the aquaculture project in a manner aimed at keeping financial, labour and technological input requirements to a minimum. We chose to rely on pond fertilisation rather than direct feeding of fish, and to focus on producing common carp (*Cyprinus carpio*) at low stocking densities:

- Unlike manufactured fish food, animal manures used to fertilise ponds are readily available and free.
- Fertilising ponds promotes growth of natural aquatic biota, from phytoplankton to snails and insect larvae, thus providing a completely natural diet for the fish.

- Carp are omnivorous, and thus able to consume any type of naturally produced food in addition to kitchen/agricultural scraps which may be added as supplemental feed.
- Carp are tolerant of the wide range of water temperatures encountered throughout the year, and of varying water quality, making them hardy and easy to care for.
- Maintaining stocking densities fairly low means that there is no need for supplementary aeration or water filtration.



*Stocking carp to a bir*

We started to deliver training workshops in October 2010, and in early November were able to distribute 600 carp fingerlings, donated to us by the Israeli Dor Fisheries Research Centre, amongst the bir of the 6 participants. The number of fish stocked in each bir depended on the size of the bir and participants' wishes.

It is expected that the fish will grow out to a harvestable size of around 500g within 12-18 months. In addition, common carp breed well in captivity and we expect that

if some mature individuals are left in the bir then they will reproduce, enabling this project to self-sustain, or

better – enabling other community members to develop similar projects using fish fingerlings and knowledge available locally.

During 2011 we have made several return trips to Artas to check everything is running smoothly, and discuss progress with participants. Unfortunately, several of the participants seemed to lose interest in the project soon after they had received the fish. This meant that they did not turn up on time (or at all) to subsequent workshops and training sessions. Ideally, we would have delivered all workshops before bringing any fish for participants, only distributing fish to participants who attended all the workshops.



*Some of the project participants*

Unfortunately, we were unable to co-ordinate activities as efficiently as we would have liked as we had difficulty obtaining a reliable translator, and the donated fish were available at short notice and for one day only. In an attempt to mitigate this problem (which we envisaged from the outset), we charged a token 1 Israeli Shekel (ILS) for each fish in order that each participant had a financial investment at stake, and thus motivation to see a return. However, given the ranging socioeconomic backgrounds of participants it was hard to select an appropriate, fair price per fish; the 1ILS /fish investment obviously was not enough incentive for some participants to devote the necessary attention to their aquaculture

project, while at the same time was too high for other participants to be able to afford to fully stock their cisterns.

The end result is that some of the cisterns have not been managed correctly, as their owners did not receive the full training course. We expect to see reduced fish growth in these cases. Hopefully, observation of higher yields from other cisterns will encourage some participants to commit a little more time to managing their cisterns.

## Tree Planting Pilot Project, Halawe Community

This project was funded by ActionAid Australia and had a total budget of X (See Appendix X). A full report of all activities was prepared and submitted to the funders on completion of the project, and can be found on the Bustan Qaraaqa website. A summary of project outputs is included below in Table X.

### Major project activities and outputs of Halawe community tree planting pilot project

Activity no.	Project Activities	Achievement
<b>Output 1:</b> Reverse environmental degradation mainly soil erosion and biodiversity loss and increase access to resources.		
1.1	Planting of appropriate native tree crops	109 trees planted (of which 94 surviving at end of project) at 4 different locations in Halawe village
1.2	Creation of rainwater harvesting earthworks	Swales, bunds, pit planting and stone mulching demonstrated at various locations in the village. Participants trained in use of water levels for surveying land.
<b>Output 2:</b> Increasing awareness about environmental issues in the community		
2.1	A series of environmental awareness workshops with various sectors of the community (women/ youth/ shepherds).	4 workshops on water harvesting, soil management, functions and uses of trees and propagation of trees held. A total of 8 different participants taught (although not all people attended all the workshops)
<b>Output 3:</b> Evaluation of the pilot project's success for potential scaling up		
3.1	Survey about community perception of environmental problems and the potential of tree planting to provide vital resources	Qualitative data collected throughout project period Observations included in report
3.2	Soil quality test at the beginning and at the end of the project	Soil analysis implemented at the beginning of the project providing baseline data for future research
3.3	Community feedback and assessment at the end of the project	Community feedback survey administered
<b>Additional outputs:</b> Unplanned bonuses		
1	Water	1300 litres of water delivered to the community to help keep trees alive
2	Awareness raising/ advocacy	10 volunteers from 7 different countries introduced to the Masafr Yatta area and educated about the plight of the people living there  Coverage of project on Maan News

In the course of this project, from November 2010 to May 2011, Bustan Qaraaqa team members Alice and Tom made 12 visits to Halawe community, planting 109 trees and implementing 4 environmental awareness workshops. We were very excited to work in the arid Eastern Slopes environment, which has a somewhat different ecology to the mountain ridge around Bethlehem where most of our other tree planting activities are focused. We were also pleased to include Bustan Qaraaqa volunteers in the activities, since it was also very interesting for them to visit a pastoralist community, which differs a great deal culturally from the fellahin and city-folk we normally encounter in the course of our work.

We hope that the extensive report we prepared following this project will aid us in securing more project funding to implement similar initiatives next year, and in addition that we can build on this experience to improve our performance in the future, so that we can create a greater environmental impact and facilitate more extensive knowledge transfer for the energy we expend.



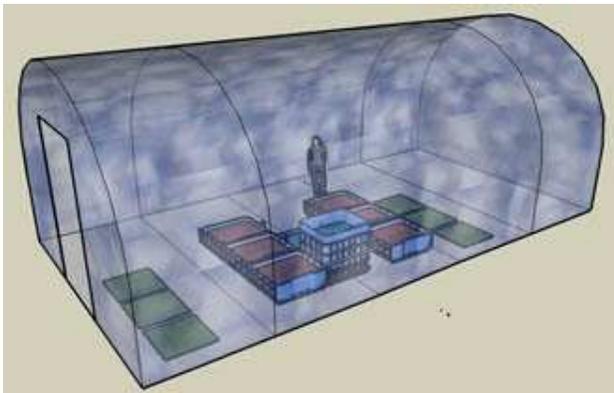
*Top left: a typical dwelling in Halawe community, Top right: a dust storm sweeping through the village and stripping the topsoil, Bottom left: villagers riding donkeys on the ridge-top above Halawe, Bottom right: Workshop in progress in an orchard in the village.*



*Top: planted trees and rainwater-harvesting swale on the ridge top, Bottom left: tea in the field during a workday, Bottom right: project participant planting tree*

## Aquaponics at the al-Basma Centre

In March 2011 we started another exciting new project in collaboration with byspokes, funded by Operation Blessing International. This is a pilot project to investigate the viability of aquaponic systems for sustainable food security and/or micro-enterprise in the Occupied Palestinian Territories (OPT), based in al-Basma centre in Beit Sahour. The Al-Basma centre is a vocational centre for young adults with special needs that provides clients with training and activities in a range of different skills and trades. The director is always looking to expand the range of activities they offer, and keen to find activities that could be profitable for the centre. The centre has a greenhouse on site where in previous years they had grown cucumbers, but this activity was making a significant financial loss and had been discontinued. We suggested using this space to develop an aquaponic system, and were met with enthusiasm



*System design for al-Basma centre Constructed system*

Aquaponics is the fusion of recirculating aquaculture (production of food fish) with hydroponic plant growth (production of fresh vegetables and fruits) in a single system, in which fish wastes are broken down by microbes to form plant nutrients; plant growth subsequently cleans the water by removing these nutrients. Aquaponic systems have several potential benefits that make them appear to be very suitable in the Palestinian context:

- Aquaponic systems recirculate a volume of water to grow both fish and plants. Water is added only to compensate for evaporative losses and plant growth. In the OPT, access to water is a serious constraint both to agricultural development and to standards of living. Thus, a recirculating system for food production enables maximum use to be extracted from the limited water resources.
- Aquaponic systems are space efficient and can be placed almost anywhere, a significant advantage in the OPT where availability of space for food production is a serious problem, particularly in urban areas and refugee camps. In agricultural areas, land access is being lost through Israeli controls and through effective annexation by the Israeli “Security Fence”.

- The plants have ample nutrition (in the form of fish wastes) and water around their roots at all times, potentially enabling crops to be planted at higher densities, or to give higher yields and grow faster than in traditional agriculture. Nutrient conversion and uptake by the plants maintains good enough water quality to stock fish at fairly high densities, making a viable harvest of food fish possible even in small spaces.
- By producing abundant fresh, organically grown produce, including a high quality protein source (fish), aquaponic systems can help combat malnutrition and food insecurity, and provide new opportunities for income generation in the OPT. At present up to 40% of the population in the OPT (25% in West Bank) are classed as “chronically food insecure” (OCHA 2010), and unemployment stands at around 25% (PCBS 2009).

The objectives of this pilot study are to:

1. Construct a pilot domestic scale aquaponic system and evaluate its effectiveness in terms of water and cost efficiency in producing vegetable and fish harvests compared to growing crops in soil.
2. Prepare a training manual and workshop series, to assess the effectiveness as tools for knowledge transfer, and training participants to set up and maintain aquaponic systems independently in the future.



*Transformation of the greenhouse*

Project activities started in March 2011, with the first workshop delivered to 8 participants on March 6<sup>th</sup>. The aquaponic system was designed with 6 separate growbeds, each of 1m<sup>2</sup>, and mirroring each growbed we prepared a 1m<sup>2</sup> irrigated soil patch to enable direct comparisons of plant growth. Over the coming months we aim to:

- Stock the aquaponic system with tilapia
- Monitor growth and health of plants in the soil patches and aquaponic system
- Monitor water consumption of the aquaponic system and soil patches
- Monitor fish growth rates in the aquaponic system
- Prepare a detailed aquaponics training manual in English and Arabic
- Deliver a complete training programme to the staff of the al-Basma centre and additional participants
- Calculate the daily production of the aquaponic system and soil patches in economic terms

## Financial Summary

Annual Financial Summary									
Bustan Qaraaqa Core Funding: May 01 2010 - April 30 2011									
		Balance							
		Palestine	Transfers (from UK)			UK account			
			ILS	GBP					
<b>Start Balance:</b>		-276.4			3354.38				
<b>Total income:</b>		65010			24088.54				
<b>Total transfers:</b>			81319.5	15945					
<b>Total outgoings:</b>		143401			15945				
<b>Final balance:</b>		<b>2652.1</b>			<b>11497.92</b>				
<b>Outgoings:</b>					<b>Income:</b>				
	<b>Cost (ILS)</b>				<b>Amount (ILS)</b>	<b>Amount (GBP)</b>			
<b>Site rent</b>	<b>36000</b>			<b>Guesthouse and volunteer revenue:</b>	<b>63840</b>				
<b>Staffing costs:</b>	<b>35640</b>			<i>Volunteers:</i>	<i>47170</i>				
<i>Stipends</i>	<i>33600</i>			<i>Guests:</i>	<i>14410</i>				
<i>Training</i>	<i>2040</i>			<i>Couchsurfers:</i>	<i>2260</i>				
<b>Guesthouse running costs:</b>	<b>48962.5</b>			<b>Workshops:</b>	<b>1170</b>				
<i>Food</i>	<i>41940.5</i>			<b>Grants from Charities:</b>		<b>18400</b>			
<i>Gas and electricity</i>	<i>2842</i>			<i>LUSH Charity Pot:</i>		<i>5500</i>			
<i>Phone and Internet</i>	<i>2637</i>			<i>British Shalom Salaam Trust:</i>		<i>10000</i>			
<i>Sundry items</i>	<i>1305</i>			<i>Ryklow Charitable Trust:</i>		<i>2400</i>			
<i>Transport (shopping)</i>	<i>238</i>			<i>Sydney Franklin dec'd trust:</i>		<i>500</i>			
<b>Site maintenance/development:</b>	<b>14246.5</b>			<b>Private donations:</b>		<b>5688.54</b>			
<i>Materials</i>	<i>10930.5</i>			<i>Groups (fundraising events):</i>		<i>2030.1</i>			
<i>Water</i>	<i>3316</i>			<i>Individuals:</i>		<i>3658.44</i>			
<b>Community projects:</b>	<b>8447</b>								
<i>Transport</i>	<i>5176</i>								
<i>Materials</i>	<i>2496</i>								
<i>Networking</i>	<i>775</i>								
<b>Fundraising</b>	<b>105</b>								
<b>Grand Total</b>	<b>143401</b>			<b>Totals:</b>	<b>65010</b>	<b>24088.54</b>			

## Self-Assessment

### Stated objectives from last report compared to actual achievements

Stated objectives from last report:	Achievements	Comments
<b>Visas:</b> -Secure stable visas for staff members	-1 year multiple entry visas secured for 2 team members via Al Quds University	-2 team members remain without long-term visas. We hope to be able to secure them by forming a partnership with a larger NGO (possibly Oxfam)
<b>Funding:</b> -Expand funding base  -Secure project funding  -Pay staff higher salaries	-Renewed funding from BSST -Increased grant from LUSH -New grant from Ryklow Trust  -Project funding from ELSAMEX, ActionAid Australia and Operation Blessing -Staff salaries stand at 600 ILS per month. Some improvement via project funding	-Hopefully it will be possible to renew support from existing sponsors and expand the funding base to new sponsors, based on experience gained in the past year  -We will try to secure enough core funding to pay a little more, and seek further consultancies and external funding
<b>Onsite developments:</b> <b>Sustainable building:</b> -Build new compost toilet -Renovate cave to act as overflow dormitory -Build new multi-purpose eco-building <b>Livestock:</b> -Develop fish farming in cistern  -Integrate chickens into farming practices -Experiment with bee keeping <b>Trees:</b> -Expand and restock nursery -Plant 50-100 trees at Bustan Qaraaqa <b>Water infrastructure:</b> -Expand water storage facilities (build new cistern) -Build overflow system for existing cistern	-New compost toilet completed -Overflow dorm completed  -Ecobuilding project started – in progress at time of report  -Cistern stocked with tilapia and carp -Insufficient funding and time  -Insufficient funding and time  -Nursery restocking in progress -60 trees planted  -Insufficient funding and time  -Overflow system designed and built	-Functioning of the site significantly enhanced  -This is a huge project that we hope to finish in the coming year  -Next stage is to establish breeding population -Maybe next year  -Maybe next year  -4 new species added -System diversified, dead trees from previous season replaced  -Maybe next year  -Significantly improved functioning of rainwater harvesting system

<p><b>Agroforestry/ food production:</b></p> <ul style="list-style-type: none"> <li>-Develop alley-planting system</li> <li>-Test no-plough conservation strategies for olive farming</li> <li>-Develop inter-cropping systems for olive trees and other orchard species</li> <li>-Continue food forest experiments</li> </ul>	<ul style="list-style-type: none"> <li>-Leucaena trees planted, soil prepared, sunflowers planted</li> <li>-Trees manured, limed and mulched</li> <li>-Failed to acquire the seeds we wanted</li> <li>-Food forest developing nicely. Tree health and growth patterns are being monitored, some new trees added</li> </ul>	<ul style="list-style-type: none"> <li>-System is ready for further development</li> <li>-Olive harvest an improvement on previous year (&gt;70 kg)</li> <li>-Will keep trying</li> <li>-Will continue to monitor system as it develops</li> </ul>
<p><b>Community Projects:</b></p> <p><b>Tree planting:</b></p> <ul style="list-style-type: none"> <li>-Plant at least 2000 trees at 10-20 different sites</li> </ul> <p><b>Fish farming:</b></p> <ul style="list-style-type: none"> <li>-Develop aquaculture projects in 5 communities</li> </ul> <p><b>Consultancies:</b></p> <ul style="list-style-type: none"> <li>-Continue Paidia consultancy</li> <li>-Develop new partnerships</li> </ul> <p><b>Workshops:</b></p> <ul style="list-style-type: none"> <li>-Continue and expand Juzoor partnership</li> <li>-Widen network for onsite and offsite workshops</li> </ul> <p><b>Support to farmers:</b></p> <ul style="list-style-type: none"> <li>-Continue support to Abed Rabbo</li> <li>-Network with Awad to identify more tree planting partners</li> <li>-Seek networking opportunities with other organizations</li> </ul>	<ul style="list-style-type: none"> <li>-12 tree planting events organised, over 1000 tree planted</li> <li>-Pilot aquaculture project completed with 6 participants in 1 community</li> <li>-Paidia consultancy continued</li> <li>-Juzoor partnership continued. 5 workshops implemented. Diversification of workshops.</li> <li>-Offsite workshops implemented as part of aquaculture, aquaponics and tree planting projects</li> <li>-Regular visits maintained</li> <li>-12 partners identified</li> <li>-Partnership with ActionAid led to work in South Hebron Hills</li> </ul>	<ul style="list-style-type: none"> <li>-Slightly overestimated number of trees we could plant in a day. Follow-up to do on survivorship.</li> <li>-Underestimated effort required to set up community aquaculture. Also, put a lot of effort into developing aquaponics pilot project (not in original plan)</li> <li>-No new site development consultancies</li> <li>-No planting at schools (original plan). Lack of time and difficulty with coordination to blame.</li> <li>-Still room for improvement in knowledge transfer to the community. Will step up efforts in this department.</li> <li>-Will continue to organize visits at least once per month</li> <li>-Follow-up to determine tree survivorship</li> <li>-Try to build on pilot project. Seek support from AAA or other partners.</li> </ul>
<p><b>Volunteer program:</b></p> <ul style="list-style-type: none"> <li>-Host at least 100 volunteers/guests at the farm</li> <li>-Try to get more long-term volunteers (stays of over 1 month)</li> </ul>	<ul style="list-style-type: none"> <li>-142 people hosted</li> <li>-5 volunteers stayed for more than 1 month and 7 stayed for more than 3 weeks</li> </ul>	<ul style="list-style-type: none"> <li>-Keep diversifying and expanding advertising network</li> <li>-Seek interns from permaculture and academic networks</li> </ul>

<b>Staffing:</b> -Acquire funding to employ a workshop facilitator and a community projects field worker in full or part-time positions	-Roles fulfilled by Awad Abu Sway. Failed to get funding though – only able to pay as sub-contractor on ActionAid project	-The goal stands.
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As can be seen from the table above, it has been a very active and successful year, and although we have not achieved quite everything that we set out to do, we were nevertheless working at full stretch for most of the season. It seems that we have a tendency to be overambitious and to underestimate the time and effort that is actually required to successfully implement projects. We will try to learn from experience, and set ourselves more achievable goals but at the same time, keep pushing ourselves to deliver ever more excellent projects. As always, we have had to tailor our work to the funding and opportunities that were available. This too, as well as our own ambitions, will continue to shape and influence our achievements.

## Objectives for the coming year

The Bustan Qaraaqa project is maturing nicely, as the site develops, the staff become more experienced, and our community network strengthens and grows. However, as the project grows, it is also important that we do not lose sight of our over-arching objective which is to propagate a grassroots permaculture movement in Palestine.

Thus our focus over the coming year will be to try to build capacity for more strategic environmental education: using the facilities we have built on-site to inspire and educate more local people, building the capacity of our community partners to understand and teach permaculture themselves, and building communication between Palestinian permaculturalists and the global permaculture network, so that the growing movement is connected and supported.

### Site development

- **Food production**
  - **Increase food crop productivity**
    - Continue soil structure and fertility improvement strategies including sheet mulches, manuring, liming and use of green manures
    - Implement targeted soil management techniques to maintain onsite biodiversity prioritising edible crops (e.g. ploughing for spontaneously occurring ephemeral herb crops)
    - Maintain irrigation to food forest to establish transplanted trees
    - Maintain pruning/coppicing regimes to maximize tree food crops
    - Replace unsuccessful tree transplants from nursery stock exploiting the opportunity to build a more diverse and ecologically robust food producing system
    - Build a greenhouse component (a function of the *beit igzaz*) into the farm system for year round food production including extending the period of fruiting of tomato, chilli, pepper, aubergine, cucumber etc...
  - **Increase food crop diversity**
    - Build a greenhouse component (a function of the *beit igzaz*) into the farm system for year round food production including diversification into the production of non-frost-hardy crops such as avocado, banana, guanabana, zapote, taro, sweet potato, cassava, coffee etc...
    - Establish tilapia fish breeding population in greenhouse to restock fish meat production systems on farm and throughout the community.
- **Resource management**
  - **Enhance rainwater harvesting capacity**
    - Increase rain water catchment area
    - Improve harvested rainwater quality
    - Increase rainwater storage capacity

- **Improve water conservation and utility**
  - Integrated domestic water reuse system
  - Constructed wetland greywater recycling
  - Greenhouse for **year round** food production from used water
- **Transition to sustainable energy sources; improve fuel conservation, reduce fuel costs and reduce pollution.**
  - design and construct fuelwood kitchen including rocket stoves and oven
  - integrate solar and fuelwood energy sources for year round cheap and carbon neutral water heating
  - build a through-the-wall solar oven into the dining room for convenient, clean, cheap heating and cooking to substitute electricity consumption
  - build greenhouse to store winter solar energy for bright and warm winter living and work space
- **Use amassed materials in regenerative design components**
  - create the *beit igzaz* from reused materials: glass bottles, plastic bottles, old doors, car tyres, reclaimed glass panes and lengths of scrap steel and wood
  - build fertile soil for *beit igzaz* food production system from humanure from the compost toilet and other composted organic materials including card and paper
- **Design and deploy cements, matrices, cobs and plasters using only natural and where ever possible onsite materials in regenerative system components.**
  - experimentation with, manure, soil, paper, chalk and sand for construction of *Beit Igzaz* and fuelwood kitchen facilities
- **Fuel Production**
  - Manage fuelwood producing trees to maximize fuel production
    - Coppicing leucaena spp, Albizia spp
    - Pruning e.g. Olea, Tipuana, Prosopis spp, Acacia spp
- **Aquaponics**
  - Develop an affordable method for maintaining water temperatures through the winter months
  - Investigate alternative power supply options so that system can run off-grid
  - Establish a breeding population of crayfish in the sump tank of the existing system
  - Train and provide practical experience to other Bustan Qaraaqa staff so that they become capable of delivering aquaponics and aquaculture training courses
- **Aquaculture**
  - Establish breeding population of carp in the large, outdoor cistern
  - Establish breeding population of tilapia in tank inside the Beit Igzaz (when completed)
- **Tree nursery**
  - Donate at least 500 trees to community partners
  - Restock/ diversify/ expand the nursery to contain at least 2000 trees of at least 50 different species

## Community projects

- **Aquaponics and Aquaculture:**
  - Complete Al-Basma Aquaponics Pilot Project
    - Construct functioning aquaponics system at the Al Basma Centre
    - Train 4-8 community participants in aquaponics set-up and maintenance
  - Develop pilot “floating-raft” and “nutrient film technique” aquaponics systems at the Al Basma centre, so that it become a “show-case” for aquaponics techniques
  - Construct 6 aquaponic systems in the Jordan Valley to investigate knowledge transfer, water use and plant performance
  - Publish a scientific report of the findings of the above study
  - Assist at least 3 individuals in the construction of their own aquaponic systems
  - Deliver a training course each month in either aquaponics or sustainable aquaculture, reaching a total of 60 participants
  - Train and provide practical experience to the staff of at least 1 local NGO in order that they become capable of delivering aquaponics and aquaculture training courses
- **Tree planting and support to farmers:**
  - Follow up last year’s tree planting program, discover survivorship rates and determine necessity for a) return visits and b) tree planting and maintenance workshops
  - Plant 1000 trees on the mountain ridge in 10-15 tree planting events, and deliver at least 2 environmental management workshops to farmers participating in the program
  - Plant 100-200 trees in the Eastern Slopes and deliver at least 2 environmental management workshops to participants from the program
  - Continue regular field visits to Abed Rabbo and assist him in developing his site
- **Environmental education:**
  - Diversify environmental education activities to include NGO workers and volunteers from other organizations, moving towards a ‘training the trainers’ model
  - Offer at least one short “Introduction to Permaculture” course at Bustan Qaraaqa for professionals and practitioners in environmental and educational NGOs and community groups
  - Increase education activities with university students – try to connect with ‘environmental clubs’ and support them in getting active in implementing environmental projects
  - Do groundwork to offer a full PDC course at Bustan Qaraaqa (maybe in late 2012)

## Volunteering:

- Host at least 100 volunteers and guests
- Increase the number of volunteers staying for more than one month
- Try to set up some internships for PDC graduates and students studying relevant academic disciplines

**Staffing:**

- Try to get funding to employ at least 1 Palestinian team member as community projects facilitator on at least a part-time basis

**Funding:****Sketch budget for May 1<sup>st</sup> 2011 to April 30<sup>th</sup> 2012**

Item	Unit	Cost/Unit (ILS)	Number	Total cost (ILS)
Site rent	month	3200	12	38400
Food	month	4000	12	48000
Gas and electricity	month	250	12	3000
Phone/internet	month	250	12	3000
Water	month	300	12	3600
Site development	month	2000	12	24000
Community projects	month	2000	12	24000
Staff stipends	person/month	1500	6 x 12	108000
Sub-total				252000
Contingency (5%)				12600
<b>Grand total (ILS)</b>				<b>264600</b>
<b>Grand total (USD)</b>	(ex-rate = 3.5)			<b>75600</b>
<b>Grand total (GBP)</b>	(ex-rate = 5.5)			<b>48109</b>

Note: Budget is only an outline – activities and salaries are always adjusted to available resources

Money in bank at time of report: 11497 GBP

Expected self-generated income: approx 12000 GBP

Fundraising target = 48109-11498-12000

= 24611 GBP

