A comparison of environmental visions of university students in Israel and Palestine

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Young people’s complex and contradictory understandings of the future are inevitably influenced by their past experiences and the environment in which they currently live. Where this environment is itself particularly complex or contradictory then the understandings young people hold of the future will affect. This paper, based on foresighting workshops held at three Israeli / Palestinian universities, examines the differing environmental attitudes and understandings of the future that young people hold in Israel and Palestine, before analysing the implications of these for achieving more sustainable development in the region. Despite the very real challenges the region is facing, these foresighting workshops showed that young people think systematically and rationally about the future. They are not filled with pessimism but recognise the challenges they face and can identify realistic solutions to those problems which they see as being of the greatest importance. The foresighting workshops showed that there was some common understanding of the participants about the key future environmental challenges that they face together with possible means for tackling these challenges.

**Keywords:** foresighting, environmental futures, young people, students, Israel, Palestine

**1.0 Introduction**

Successful development of more sustainable lifestyles is critically dependant on the type of future people envision individually which in turn society as a whole collectively tries to promote. However, many such visions remain poorly articulated or elaborated as stakeholders find it socially, culturally or politically difficult to articulate and discuss these, because these visions often reflect deeply held personal views about the future and because people may find it difficult to envision radically different alternatives given their current circumstances and predicaments. While humans are capable of determining and influencing their future, the future cannot be seen as an objective fact but is better seen as set of partially viewable alternatives [1].

Few studies have specifically targeted university students and their understandings and perceptions of the future despite the fact that graduates frequently go on to have a disproportionate impact on how their society develops. Hicks [2] for example, who conducted three workshops with university students in the south-west of England, notes that many students share a pessimistic understanding of the probable future, and in some cases this pessimistic view encourages despair rather than more positive reactions. Hicks [3] notes that young people’s concerns change
according to the current global situation, with young people seeing all levels of society as problematic for their future. This has obvious implications for sustainable development as a positive, desirable future state of society.

Eckersley [4] argues that the way in which young people perceive the future is both complex and contradictory, with some surveys suggesting that young people tend to be optimistic, while other surveys suggest that they are pessimistic. While this contradiction may spring from a tension that exists between realism and idealism in the hearts of young people, a better understanding of young people’s perception of the future is required [4]. Pessimism on the part of young people may also be due, in part, to neo-Malthusian long-term visions of the environment and the world that are put forward by various prominent international environmental and social organisations to which young people are exposed. However, it is university students who will likely be the decision-makers in the future and be the generation that has to carry the burdens associated with the unsustainable lifestyles of the present.

One methodology that is used to assess and plan for the future is foresighting. Foresighting was developed partly in reaction to the failure of many conventional approaches to forecasting [5]. It is a process that involves not only identification of the most likely scenario but the evaluation of many possible, (un)desirable or feasible scenarios. Indeed, developing accurate predictions or scenarios is not the primary aim of foresighting, but rather, to challenge and redefine knowledge and assumptions about the future [1].

Foresighting is defined by the UK Foresight Programme as a process which “produces challenging visions of the future to ensure effective strategies now” [6]. It is seen as a way of fostering better linkages between different sectors of society and of bringing together the knowledge and expertise from a range of perspectives in order to increase national wealth and quality of life. Foresighting is being used by many corporations and regional as well as national governments, to model, understand and shape the future to their advantage [7]. While many foresighting programmes have focused upon the role of technology in driving change, foresighting has been developed and used for a wide range of purposes. For example, Royal Dutch / Shell developed scenario planning methodology of foresighting, and the European Union supported national foresighting exercises in EU accession countries as a means of evaluating the possible effects of membership [5].

Foresighting is a process that by definition looks to the future. As such it makes sense to involve young people: For example, Agenda 21 developed at the Earth Summit in Rio in 1992 specifically emphasised the importance of involving young people in the development and implementation of sustainable development because of the unique perspective that young people can bring to debates about the future [8]. They ultimately have the greatest interest in setting and bringing about the kind of future that they see as desirable. After all, it is “their” future. The involvement of students in the development of future scenarios as part of the foresighting process is also beneficial to the foresighting process itself since young people are able to bring “fresher perspectives” that are less limited to existing conventional views of the future [9].

Young people’s complex and contradictory understandings of the future will inevitably be influenced by their past and current experiences and the environment (the physical, social and
political aspects) in which they currently live. Where this environment is itself particularly complex or contradictory, such as during times of significant economic or social upheaval, then the understandings young people hold of the future will affect.

Israel and the territories controlled by the Palestinian Authority (hereafter referred to as Palestine) have long been a region of conflict. The Palestinian – Israeli conflict began approximately 100 years ago and has evolved through various phases of intensity. During the 1990s a peace process was begun between the Israeli government and the Palestine Liberation Organisation. This led to the establishment of the Palestinian Authority and the ceding of some powers and territory by Israel to that Authority under the Oslo accords which were signed in Washington in September 1993. In September 2000, however, the peace process was effectively suspended and what became known as the second Palestinian uprising or the Al Aqsa Intifada began. This brought a renewed intensity to the Palestinian – Israeli conflict and the impact it had on daily life. In both Israel and Palestine there was a severe economic downturn and many fatalities resulted from the hostilities which ensued.

While the violence of the Palestinian Intifada has waned, a final end to the conflict and the uncertainty that it brings remains elusive. No final agreement is yet in sight nor is there clear agreement on the principles upon which a final agreement will be based. Thus even the final territorial extent of Israel or Palestine in a generation’s time remains highly uncertain, as do many other aspects relating to the future character of a Palestinian state, and to a lesser extent, the Israeli state. As a result many aspects of the region’s natural environment are also uncertain.

This paper, using a basic foresighting methodology, examines the differing environmental attitudes and understandings of the future that university students hold in Israel and Palestine, before analysing the implications of these for achieving more sustainable development in the region.

2.0 Methodology

A series of mini foresighting workshops were held at three Israeli / Palestinian higher education institutions. At the workshops held in Israel students were given the task:

*To develop a desirable vision of how Israel’s environment could look in 2025*

At the workshop held in Palestine, students were given the same task but were asked to consider the future of Palestine’s environment instead of that of Israel. No further instructions or information was given about what was meant by the terms “Israel”, “Palestine” or “environment”, thus students were collectively free to define the parameters of the task however they wished. Thus, they were free to take a maximalist or minimalist stance in terms of the territory they considered. With some of the groups, particularly those at the Arab-American University - Jenin, reaching agreement on the extent of the territory they were considering was a challenging issue as some students at this university wished to consider the entire area of historical Palestine (ie. the territories of what is now Israel, the West Bank and Gaza Strip) while other students wished to consider only the territories of the West Bank and Gaza Strip. Similarly, students were free to
consider the term “environment” in purely natural-physical terms, or alternatively, consider issues relating to the future of the social, economic and political environment in addition to those of the natural environment.

The task of developing a desirable vision of how the environment could look in 2025 was achieved by breaking the participating students in small groups of five or six students, and then running a series of breakout sessions. In the first breakout session, students were given 20 minutes to outline a basic vision of the nation’s environment for 2025. In the second breakout session, students were asked to discuss the implications of their vision for local people, land and resources, while in the third breakout session, students were asked to consider the practical steps that needed to be taken to achieve their desired vision. A plenary session followed each breakout session, during which representatives from some of the small groups summarised their group’s ideas for the rest of the workshop participants. This permitted the pooling of ideas between groups and also helped maintain interest in the overall workshop.

Prior to each workshop, all participants were required to fill out a short environmental attitudes questionnaire. This contained 33 statements to which participants were asked to respond using the five point Likert scale (Strongly disagree; Disagree; Neutral; Agree; Strongly agree). Space for open comments was also provided. At the conclusion of the workshop all participants were asked to complete a feedback questionnaire which also consisted of a series of statements to which participants responded using the Likert scale, followed by an open question where participants could comment generally. These questionnaires provided directly comparable data on attitudes about the environment for the different workshop groups.

The first workshop was held at the Arab American University - Jenin (AAUJ) in the northern West Bank, Palestine, in June 2004. This university was founded as a private Palestinian university which teaches courses in English based upon the American academic system, and began teaching its first students in 2000. It has faculties of Administrative and Financial Sciences, Allied Health Services, Arts and Sciences, Dentistry, Information Technology, and Law.

Fourteen students (79% aged 18-20 and 21% aged 21-23; 64% male) participated in the workshop as a voluntary extra-curricular activity. All of these students were from the West Bank, from both urban and rural-village backgrounds. While none of the students were majoring in environmental studies, all had previously taken the compulsory university course “Humans and the Environment” and so had at least a basic familiarity with environmental issues. A significant proportion of the participants were majoring in biology or biotechnology, which had a noticeable effect on some of the scenarios they developed.

The second workshop was held at the Hebrew University of Jerusalem (HUJI) in July 2004. The Hebrew University is Israel’s oldest university with approximately 24,000 students located on four campuses, three of which are in Jerusalem. It teaches a full range of academic disciplines at the undergraduate and postgraduate levels, and in many fields is considered to be the leading academic institution in Israel.

One-hundred and thirty-two students (21% aged 23 or below, 55% aged 24-26, 24% aged 27 or above; 39% male) participated in a workshop as a compulsory part of a general undergraduate
course on environmental issues in Israel that was offered by HUJI’s Department of Geography. Thus all students had at least some familiarity with basic environmental issues and the Israeli environment. The students, however, were not majoring in geography or environmental studies but were majoring in a wide range of disciplines across the university and were from a variety of year levels. This workshop was conducted in Hebrew, thus virtually all the participants were Israeli citizens. However, there was some diversity still in the audience as a number of participants were of immigrant backgrounds and some participants were part of Israel’s ethnic Palestinian minority.

The third workshop was held in March 2005 following the election of Palestinian leader Mahmoud Abbas and the cease fire that occurred after the death of Yassar Arafat. It was thus held at a time when the general atmosphere in the region was more positive than it had been for some time.

The third workshop was held at the Arava Institute for Environmental Studies (AIES). It offers a mixture of short courses, semester and year long programmes, as well as a Masters programme in Desert Studies / Environmental Studies. The student population of the Institute is drawn primarily from Israel, the Palestinian Territories, Jordan, Europe and North America, with all courses being taught in English. All students live together in Institute provided accommodation and thus experience co-existence between different cultures and religions in a very practical way; there is a deliberate policy of mixing different nationalities when it comes to room allocations.

Thirty students (43% aged 23 or below, 30% aged 24-26, 27% aged 27 or above; 47% male), virtually the entire student body, took part in the workshop held at AIES as part of the Peace Building and Environmental Leadership Seminar series. While the academic background of the students was mixed, all students were enrolled in courses in environmental studies in the Institute. Due to the diverse student body of the Institute, a question was specifically added to the environmental attitudes questionnaire about the national identity of participants. Of the 30 participants when asked which country they considered to be their home, 30% responded with U.S. / Canada, 27% with Jordan, 13% with Israel, 7% with Palestine, 7% Germany, and 17% either did not answer the question, were unsure, or said they had no country.

3.0 Differing environmental attitudes

Statistical analysis of the results of the questionnaires from the three workshops is hindered by the very unequal distribution of the students who participated in these workshops: 76% of the 180 students were from one university, hence the sample of Israeli students is approximately ten-times the size of the Palestinian sample. The ability to identify statistically significant differences between the three Universities was further hampered in that only AIES had postgraduate students, and the AAUJ age distribution was significantly younger, with no student over 23 years. For HUJI students participation in the study was a compulsory component of a course they were taking whereas for the AAUJ and AIES students participation was voluntary. The gender distribution was, however, broadly similar across the three groups.
Overall, environmental opinions and attitudes across the board were quite strong, and broadly in line with similar surveys conducted elsewhere. Fifty-six percent of all students strongly agreed that they *personally care about the environment* and 58% strongly agreed that *nature has a right to be protected*, with a further 1/3 of responses agreeing to the statement. (See Table 1 for a summary of responses to all attitudinal statements.)

On the translation of unspecified environmental views into activities, whilst over 80% of students said they personally cared about the environment, only 55% agreed that they *try to do their bit for the environment*, and 61% agree that they *encourage others to protect nature*, with the average responses from the HUJI workshop significantly lower than the others on both questions.

These general environmental opinions should also be seen in the light of whether personal actions are perceived to make a difference locally, regionally or globally. As said, over 80% of students *care personally about nature*, and while 55% state that they *do their bit to protect the environment*, only 37% of students agreed that personal actions *make a difference to the global environment* whilst 57% agreed that their personal actions would *make a difference to the local environment*. Students from HUJI showed significantly less optimism about the potential for their own actions to make a different in either case compared to the AAUJ or AIES students. It is interesting to note that the differences in average response between these two questions was far less than the differences in response to questions about their perceived ability to make changes environmentally, indicating that environmental problems have probably a somewhat different dynamic and complexity than problems of a more societal nature.

In addition, it appears contradictory that students from the HUJI workshop felt significantly less that *Environmental problems will probably destroy human civilisation within my lifetime*, and showed significantly less agreement to the statement *I believe that environmental conditions locally will improve over the next 20 years*, although the fact that significantly less also agreed to the view that *we need not sacrifice parts of our lifestyle in order to protect the environment* is consistent with the former statement.

Generally for all the survey questions, using chi-square tests to check for statistically significant differences found that these mostly lay between the HUJI group and the other two. This may in part be due to the smaller sample sizes of the other workshops, but it is curious that HUJI students overall had a less optimistic view of their own future, saw themselves as less environmentally active, and had a less favourable view of the role of international organisations and their government when compared to either the AAUJ or AIES students.

To gain a deeper understanding of different groupings of environmental opinions, three separate Factor Analyses were performed, firstly on general perceptions of the future and students’ ability to shape it, secondly on environmental attitudes generally and thirdly on attitudes specifically related to environmental activism. The resulting factors were then evaluated for their reliability, using alpha (Cronbach) reliability tests.

The first of these Factor Analyses produced three clusters, explaining 72% of the variance in the variables, thus a reasonably good fit. The clusters were:
1. F1a: Environmental conditions will improve (?=0.815). This factor consists of the three statements relating to the perception of the relative improvement of the local, regional and global environment over the next 20 years as well as the statement I am optimistic about my own future.

2. F1b: Young people shape futures (?=0.725). This factor consisted of the statements relating to the ability of young people to shape their own as well as their country’s future.

3. F1c: Pessimism about future and Environment (?=0.235). Whilst having a very low reliability coefficient, this factor consisted of the statements Environmental problems will probably destroy human civilisation within my lifetime and I am generally optimistic about the future.

These factors showed only one significant (F=5.344, p=0.000) difference for F1b between the youngest group (below 20 years) and the other age groups in that younger students adhere to that factor more, indicating greater optimism on their ability to shape futures. With regard to the workshops groups, students from the HUJI workshop scored significantly lower values on F1a and F1b compared to the other workshops, indicating a lower level of optimism amongst HUJI students compared to the other students. Gender did not appear to be a very strong predictor for the distribution of students for these factors.

The second Factor analysis covered all variables directly related to environmental attitudes generally. Notably, this analysis does not include specific environment-related activities, but focuses on 14 normative, attitudinal statements. 4 Factors could be identified:

1. F2a: Ecocentrism (?=0.724). This factor represents eco-centric views in that Nature has a right to be protected, and that the protection of natural systems are more important than both making financial profit and technical progress.

2. F2b: Cornucopians (?= 0.405): This factor has a low reliability, but it resembles strongly the cornucopian belief in the ability of humans to develop appropriate solutions, and in technical progress generally. The relevant variable statements suggest that there is no problem technology cannot solve, and that there is no problem that human ingenuity cannot solve, so that, as a result, we have not disrupted the harmony with nature.

3. F2c: Technical Rationality (?= 0.375): Where F2b focussed on the ability of technology and human ingenuity to solve (non-existing) problems, this factor focussed on technology as a specific way to address specific solutions. It is equally cornucopian as F2b, but offers less practical (technological) solution to the environmental problems, which are, as another difference, not denied.

4. F2d: Do Nothing (?= 0.408): This factor is probably best describes by what it not promotes: specific activities to promote or avert a set of desirable or undesirable possibilities. Recognising that most problems are unsolvable, and that nature poses limits upon us which are absolute, it also suggests that we need not sacrifice parts of our lifestyles in order to protect the environment and that the government cares about the environment.

As Tables 2-4 show, no statistically significant difference in these four factors could be found at
99% and 95% levels for age groups and gender. However, such differences could be found between workshop places (Table 4), indicating, again, that the place of study is the most significant predictor for the distribution of Factors.

The scores for F2a Ecocentrism for the HUJI students were significantly lower than the AIES students, and showed no significant difference to AAUJ students, although the latter is due to the low number of participants in the latter workshop. In contrast, even though the AIES students had the lowest overall score for Cornucopia (F2b), an important difference could be found between HUJI students (second lowest score) and AAUJ students. The same pattern was identified with regard to F2c (Technical Rationality), which in this case was statistically significant between HUJI and AAUJ, but not between HUJI and AIES. This is somewhat distinct to the results of the last Factor in this set, where F2d (Do nothing) had the lowest score for the HUJI group, significantly lower than both AAUJ and AIES.

With regard to the overall distribution of Factors by place, HUJI students scored low consistently on all 4 Factors, while AAUJ students scored relatively consistently high. AIES students scored low on the cornucopian perspectives (F2b and F2c), but scored higher on the Ecocentrist (F2a) and the somewhat fatalist (F2d) perspectives.

The third Factor analysis covered all 6 variables directly linking environmental attitudes with personal attitudes or actions. Two Factors, explaining 62% of the variance could be identified:

1. F3a: Personal Activism ($\hat{\alpha} = 0.682$). Here, encouraging others to protect nature was linked with I personally care about nature and I try to do my bit to protect the environment. Linked to this, albeit less important in the calculation of the Factor scores was also the statement I would not want to work for a company with a bad environmental reputation, all suggesting strong environmental activism and personal concern.

2. F3b: Effectiveness ($\hat{\alpha} = 0.698$). This factor comprised two statements, whether my personal actions make a difference to the global and the local environment.

Like the second Factor Analysis, no difference in these scores was found between gender groups, but F3b: Effectiveness was found to be different between the youngest age group (<20 years) and the two cohorts covering 21-26 years. With regard to workshop group, no differences were found between AIES and AAUJ, but between HUJI and the other two groups, with the HUJI students scoring significantly lower.

### 4.0 A range of possible futures

Table 5 presents a summary of the key issues covered in the scenarios developed by each of the different groups at the three workshops. A couple of issues were of overwhelming importance to virtually all the groups at all three institutions. Every group in all the workshops, except one group at AIES, discussed the issue of water resources in their scenarios, and all but three groups (except one at HUJI and two at AIES) mentioned the issue of environmental pollution. Other issues varied in their relative importance between the different student bodies.

The issues of land use planning, loss of open space, and transport were mentioned by all HUJI groups in one form or another. This is perhaps a reflection of the increasing congestion occurring in the centre of Israel (in the Tel Aviv...
– Jerusalem - Haifa area), and the general concentration of economic and social development in this area at the expense of the periphery of the country. Conversely in Palestine, development is geographically more evenly spread and there are much more fundamental issues than congestion which are of daily concern to students such as the uncertainty of getting to classes due to road blocks, travel restrictions and the overall dismal state of the Palestinian economy.

Generally the HUJI groups considered a wider range of environmental and social issues than the groups in the other workshops. This may be a result of these students being better informed about the state of the Israeli environment compared to the students at AIES or AAUJ, but it is more likely a reflection of the fact that HUJI groups spent less time discussing fundamental issues, such as food security or the territorial extent of the national entity they were considering.

A key issue for all the groups at the AAUJ workshop was the issue of agriculture and food production, an issue that was not considered by some of the HUJI or AIES groups. This is a reflection of the relative great importance of agriculture in Palestinian society compared to its importance in Israeli society. It may also be a reflection of the greater food insecurity facing Palestine compared to the high level of food security enjoyed by Israel as a result of its strong economic position.

The issue of the Palestinian-Israeli conflict featured much more strongly in the AAUJ and the AIES groups than with the HUJI groups. In the case of AAUJ this is probably because the immediate impact of the military occupation on daily life means that the conflict is ever present. Thus it is not possible for the students to consider the long term future without considering this issue. In the case of the AIES workshop, the very mixed nature of the student body meant that ongoing relations between the different ethnic groups were central to discussions, and the workshop was run as part of the Institute’s Peace Building and Environmental Leadership Seminar series.

It was difficult to classify the different groups’ visions as either optimistic, neutral or pessimistic as most visions had both positive and negative elements. For example, a group might have foresawn higher incomes and more efficient public transport but higher population densities and increased water scarcity, thus including both positive and negative elements in their vision. In Table 1, visions are classified as being either optimistic or pessimistic only where the content was more focused in one direction than the other.

4.1 Scenarios developed by students at AAUJ

The 14 students who participated in the workshop at AAUJ were divided into three small groups. Because of the high level of uncertainty relating to the future, no group was able to articulate a very clear or detailed vision of the future but all groups were able to identify key issues of concern and propose practical measures for dealing with these. In all of the groups similar issues such as access to water resources, loss of agricultural land to urbanisation, rapid population growth, and political uncertainty were seen as key challenges for the future of the environment.

Group 1:
This group understood that the future of the environment in Palestine would depend upon the effectiveness of the peace process with the Israelis, and the general stability of the political situation as both of these factors in turn would determine issues such as the return of Palestinian refugees to either Israel or Palestine or whether there would be a significant population transfer of
Palestinians out of Palestine. Key future challenges that would influence the Palestinian environment were: reduced water resources, high population growth, increased pollution, and the problem of limited agricultural land. This group’s vision for the future of the environment centred on the development of a greater understanding of the environment.

In terms of the actions required to deal with current environmental problems and bring about a better environment for 2025, this group considered a number of practical steps. To deal with water resource problems this group suggested increasing awareness about water usage issues amongst the general population, greater recycling of wastewater, desalination of sea water to increase water supplies, and using international law to protect the right to equal access to water. (This was the only group in any of the workshops who looked to international law as providing part of the solution to dealing with an environmental problem.) With regards to rapid population growth, it was proposed to improve education on family planning issues in Palestinian refugee camps. Reforestation was also seen as a priority in order to improve the environment.

**Group 2:**
This group understood that key environmental challenges for the future centred around increasing industrialisation and urbanisation, population growth due to the return of Palestinian refugees, and ensuring access to water. This group’s vision for the future focused on providing adequate access to food and water resources for everyone, and using advanced technologies to reduce environmental pollution.

In terms of practical steps required now to bring about their vision for the future environment, this group suggested that community based education and consultation on the environment was required. They also thought that the government needed to actively promote environmental research and better regulate water usage and recycling. Wastewater treatment and increasing the area of cultivated land were seen as important, along with the use of biotechnology, as means of increasing food production.

**Group 3:**
This group saw increasing water scarcity and population growth as the key environmental challenges for the future, with their vision for the future centred around developing a clean environment and ensuring adequate access to food and water resources.

In terms of practical steps to deal with water resource problems, this group saw increased government regulation of water usage, desalination, reuse of wastewater for agriculture, and genetic modification of agricultural crops for drought resistance as potential solutions. To deal with problems resulting from population growth, high rise housing to reduce land usage, increased recycling to reduce pollution and use of alternative energy sources were seen as mitigation measures.

**4.2 Scenarios developed by students at HUJI**

One hundred and thirty-two students participated in the workshop at HUJI, with these students being divided into 23 groups. Given the higher degree of certainty about the future compared to the Palestinian
students, many of these groups came up with visions of the future that were relatively similar and plausible. Most groups, for example, considered land-use and transport planning issues, particularly the degree to which national development would be concentrated in the centre of the country (in the greater Tel Aviv metropolitan area), and also the degree to which future development would be concentrated in existing urban areas, thus protecting remaining areas of open space. Most groups also considered water purification or desalination as a primary means for dealing with growing water scarcity and declining quality. The most significant difference between the visions that were articulated related to the level of optimism (or pessimism) about the ability of the Israeli government and society generally to deal with the major likely future challenges stemming from increased population and economic development. Samples of the groups’ visions are outlined below.

Group 1:
This group saw that population growth and economic and technological development would continue, thus producing a higher standard of living and diminishing open space. However, there would be greater economic inequality and social injustice. While technological solutions would be found for some environmental problems, generally there would be deteriorating environmental quality. Development would continue to be concentrated in the centre of the country at the expense of the periphery. Effectively, this group’s vision was a continuation of the status quo.

In terms of steps required now to deal with some of the problems foreseen, this group suggested greater investment in human capital via education. They also saw that more effective land-use and transport planning would be required, and new technologies would need to be used to deal with pollution, energy supplies, and water resources.

Group 2:
This group foresaw the development of an effective transport system, particularly public transport, which would allow more development to occur on the periphery of the country and thus reduce regional inequalities. Strict land-use planning would prevent development occurring in the open spaces remaining in the centre of the country. Waste minimisation and recycling would be enforced in order to preserve environmental quality, and desalination would be used reduce dependency upon diminishing water resources and reduce the need to co-operate regionally on water issues. Unlike the first group, this group’s vision was one of effective governance allowing economic development to occur in parallel with environmental preservation.

The steps required now to bring about this vision centred around better environmental education and political leadership, better environmental protection laws and enforcement, together with greater financial resources being devoted to environmental protection.

Group 17:
This group considering similar issues to those of the other groups such as continued urban development leading to the loss of open space and the merging of key urban areas such as Tel Aviv and Jerusalem. This group was one of only three HUJI groups, however, that mentioned the conflict with the Palestinians (or Arabs), and the only group that referred to it in any depth. They foresaw that dependency between Israel and Palestine would grow as a lack of resources forced co-operation; the actions of each side would directly affect the other. They thought that gaps between
the two sides would increase, and the problems faced by the Palestinians in relation to inadequate water and clean air, and a general lack of environmental awareness would cause a catastrophe in Palestine which would spill over into Israel.

This group suggested that one means to deal with common environmental problems would be through technological sharing with the Palestinians in order to lower tensions and improve the environmental quality for both Israel and Palestine.

4.3 Scenarios developed at AIES

Thirty students participated in the workshop held at AIES, with these students being divided into five groups. Given the mixed nature of the student body together with the ethnically mixed nature of each individual workshop group, it is not surprising that there was a lot more variety in the environmental vision of each group compared to the differences between workshop groups at AAUJ or HUJI. The scenarios developed at AIES tended to be more optimistic than those developed at either AAUJ or HUJI. This is probably due to the mixed Arab-Israeli nature of the group and that the students participating in this study were all involved in a conflict resolution seminar focusing on the conflict. A range of these visions are outlined below.

Group 1:
This group envisaged the establishment of a Middle East Environmental Union to deal with regional environmental problems, based upon the idea that scarcity would lead to co-operation, and co-operation would lead to peace and prosperity. This prosperity would be based upon the sharing of infrastructure, resources and knowledge.

In terms of implementing their vision, this group thought that the most critical thing was developing a belief in the possibility of change and understanding the urgency of change. Creating a core of professionals and raising money from national and international sources to tackle environmental problems and implementing pilot projects were seen as key steps.

Group 2:
Regional peace was envisaged by 2025 by this group. They foresaw a range of developments by 2025, including that there would be equitable access to water according to need, greater use of renewable energy, better public transport, sustainable self-sufficient agriculture, reduced consumption, and a change in leadership “from military to people who are more understanding”.

In terms of implementing this vision, this group saw the need to stop the occupation, minimize the military, and allow the Palestinians to have their own state. This was to happen simultaneously with education in both Israel and Palestine on tolerance and cultural co-existence. There were also a number of changes required with direct environmental benefits such as making agriculture more sustainable or installing solar panels for energy production in public institutions.

Group 3:
Group 3 developed the least optimistic scenario of the AIES workshop. This group foresaw higher air and water quality resulting from better government regulation, and more efficient public transport. However, they also foresaw the continued loss of open space due to a population
explosion which would lead to continued urban sprawl and valuable environmental spaces being developed for things such as airports.

In terms of implementing their vision, group 3 thought that their vision was more or less a continuation of the status quo and envisaged very little change.

5.0 Discussion and conclusion

Both Israel and Palestine face daunting social and environmental challenges over the next 25 years. Together, they contain an area of less than 27,000 sq. km., thus their combined territory is smaller than that of Belgium or the US state of Massachusetts. The population of Israel is likely to increase from around 6.1 million to 8.6 million, with the population density likely to rise from 294 to 414 persons / sq. km. [10, 11]. In Palestine the population is expected to increase from 3.2 million to 6.9 million, with average population density likely to rise from 563 to 1109 persons / sq. km. While there is considerable variety in the landscape, because of the harsh desert climate affecting much of the region, population densities in the inhabited areas of the region are and will continue to be much higher than these figures suggest. Naturally available freshwater resources will shrink from their already extremely low level, both in per capita terms and absolute terms. On top of the developmental challenges presented by a rapidly growing population, a shrinking natural resource base, and in the case of Palestine, severe poverty affecting the majority of the population, the Palestinian – Israeli conflict continues to impact upon economic and social development, and general stability. The region faces a long-term low intensity conflict, in which at certain times and in certain places the intensity increases substantially.

Despite the very real challenges the region is facing, the students who participated in the mini-foresighting workshops were not particularly pessimistic even though the Israeli students tended to be slightly more pessimistic about the future generally and the future of the environment specifically compared to their Palestinian counterparts. Israeli students were also more sceptical about their own ability to influence the future. Given the much higher standard of living achieved in Israel, the higher environmental quality standards, the lower population density and the better availability of natural resources, this greater degree of pessimism is perhaps somewhat unexpected. Even in terms of the Israeli – Palestinian conflict specifically, it might be expected that Israeli students should be more confident about the future and their ability to influence it as Israel appears to have the upper-hand in terms of determining events on the ground, with the conflict having a much greater impact on daily lives in Palestine than it generally does within Israel and producing a much higher degree of uncertainty in Palestine about what will happen in both the immediate and longer term future.

There are a number of general factors which may explain the difference in level of optimism about the future. Firstly, the Israeli students were older on average than the Palestinian students and as people age optimism can be replaced with scepticism. There are other factors that are related to the Palestinian – Israeli conflict which may also explain the difference though. With the conflict having a much greater impact on daily life in Palestine, thus leading to a very difficult living environment, individuals may try to compensate for the present difficulties by focusing more upon what they can only hope will be a better future. Conversely, with Israel appearing to have the upper-hand in the conflict at present, some Israelis may be pessimistic that Israel will be
able to maintain its advantage indefinitely.

Differences in terms of the issues considered in the future scenarios developed by the different groups of students were not unexpected given that Israel has a moderately prosperous developed economy while Palestine is at a much earlier stage of its national economic development. Whereas most Israeli scenarios dealt with the issue of increasing development and congestion occurring in the centre of Israel, the Palestinian scenarios focused on issues such as agriculture and food security. Differences in environmental priorities between societies and shifts within individual societies over time have been identified by others as a result of changing economic prosperity, with more prosperous societies generally placing less emphasis on basic material needs [12].

Another significant difference in the scenarios is the fact that the majority of Palestinian or mixed Palestinian-Israeli groups (in the case of AIES) considered the Palestinian – Israeli conflict, while only a minority of the Israeli groups did. This omission on the part of so many groups suggests that to many students the conflict is in the background and so not seen as a particularly fundamental issue to their life or the future generally. The fact that more Israeli than Palestinians students managed to ignore the issue whilst the effects of the conflict on daily life are more severe in Palestinian areas would tend to discount the counter possibility, namely that students consciously or sub-consciously blocked out the issue as a result of trauma or other reasons. It would not exclude the possibility though that some students ignored the issue because they simply didn’t see any hope of resolution.

Overall, these foresighting workshops showed that young people can (and do) think systematically and rationally about their future and the future of their environment. Even in a part of the world with a difficult past and present, and a future with many uncertainties, young people are not filled with pessimism but recognise the challenges they face and can identify realistic solutions to those problems which they see as being of the greatest importance.

While the various scenarios that students developed showed that there was no underlying shared recognition of the importance the Palestinian – Israeli conflict as a cause of many of the significant environmental, social and economic problems faced by Israel / Palestine, there were other critical factors common to all three workshops. All small groups except one recognised the importance of water issues to the region’s future, and most groups considered issues related to pollution and agriculture. Most groups also recognised the importance of education and research as key means for tackling the problems they identified. Thus, there would appear to be some common agreement amongst young people in Israel / Palestine about the key future environmental challenges that they face together with possible means for tackling these challenges.

References:

Table 1: Summary of frequency distribution for all attitudinal statements from the workshop questionnaire.

<table>
<thead>
<tr>
<th>Frequencies (%), all attitude statements, all places</th>
<th>Strongly</th>
<th>Disagreement</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Disagreement</td>
<td></td>
<td></td>
<td></td>
<td>Agreement</td>
</tr>
<tr>
<td>Nature poses limits upon us, which are absolute.</td>
<td>5.1</td>
<td>19.9</td>
<td>32.4</td>
<td>29.0</td>
<td>13.6</td>
</tr>
<tr>
<td>Nature has a right to be protected</td>
<td>0.6</td>
<td>1.1</td>
<td>6.7</td>
<td>33.3</td>
<td>58.3</td>
</tr>
<tr>
<td>I try to do my bit to protect the environment.</td>
<td>3.3</td>
<td>13.3</td>
<td>28.3</td>
<td>33.3</td>
<td>21.7</td>
</tr>
<tr>
<td>My personal actions make a difference to the global env</td>
<td>16.1</td>
<td>20.6</td>
<td>26.1</td>
<td>30.0</td>
<td>7.2</td>
</tr>
<tr>
<td>My personal actions make a difference to the local env</td>
<td>11.1</td>
<td>13.9</td>
<td>17.8</td>
<td>36.1</td>
<td>21.1</td>
</tr>
<tr>
<td>Young people have the ability to shape the future of their country</td>
<td>1.1</td>
<td>9.4</td>
<td>22.2</td>
<td>43.9</td>
<td>23.3</td>
</tr>
<tr>
<td>Young people can influence environmental policy</td>
<td>1.7</td>
<td>8.9</td>
<td>21.7</td>
<td>39.4</td>
<td>28.3</td>
</tr>
<tr>
<td>There is no environmental problem that technology cannot solve</td>
<td>22.8</td>
<td>35.0</td>
<td>27.8</td>
<td>9.4</td>
<td>5.0</td>
</tr>
<tr>
<td>We have disrupted the harmony of nature.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.4</td>
<td>6.7</td>
<td>19.0</td>
<td>41.9</td>
<td>29.1</td>
</tr>
<tr>
<td>There is no problem that cannot be solved with human ingenuity.</td>
<td>7.8</td>
<td>28.3</td>
<td>25.0</td>
<td>26.7</td>
<td>12.2</td>
</tr>
<tr>
<td>To solve environmental problems, we need more rationality</td>
<td>3.4</td>
<td>10.1</td>
<td>24.0</td>
<td>44.1</td>
<td>18.4</td>
</tr>
<tr>
<td>If we have to, we will adapt to nature any time</td>
<td>4.5</td>
<td>16.3</td>
<td>30.3</td>
<td>25.3</td>
<td>23.6</td>
</tr>
<tr>
<td>The best way to protect the environment is to have the right technology.</td>
<td>2.8</td>
<td>15.6</td>
<td>34.6</td>
<td>35.2</td>
<td>11.7</td>
</tr>
<tr>
<td>In order to protect the environment we need to be more self-sufficient.</td>
<td>3.9</td>
<td>3.3</td>
<td>16.1</td>
<td>35.0</td>
<td>41.7</td>
</tr>
<tr>
<td>We need not sacrifice parts of our lifestyle in order to protect the environment.</td>
<td>25.1</td>
<td>37.4</td>
<td>17.9</td>
<td>16.8</td>
<td>2.8</td>
</tr>
<tr>
<td>Environmental problems will probably destroy human civilisation within my lifetime</td>
<td>50.3</td>
<td>17.9</td>
<td>11.7</td>
<td>13.4</td>
<td>6.7</td>
</tr>
<tr>
<td>I am optimistic about my own future</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6.2</td>
<td>11.8</td>
<td>33.1</td>
<td>32.0</td>
<td>16.9</td>
</tr>
<tr>
<td>Int. bodies such as the United Nations are effective in dealing with global env. problems</td>
<td>16.7</td>
<td>25.0</td>
<td>28.3</td>
<td>27.8</td>
<td>2.2</td>
</tr>
<tr>
<td>Developing countries need to take greater initiative in managing their own env. problems</td>
<td>1.7</td>
<td>5.6</td>
<td>16.2</td>
<td>35.8</td>
<td>40.8</td>
</tr>
<tr>
<td>The government cares about the environment</td>
<td>25.7</td>
<td>36.9</td>
<td>19.0</td>
<td>14.5</td>
<td>3.9</td>
</tr>
<tr>
<td>I believe that environmental conditions globally will improve over the next 20 years</td>
<td>13.9</td>
<td>27.8</td>
<td>32.8</td>
<td>18.9</td>
<td>6.7</td>
</tr>
</tbody>
</table>

*Indicates that responses from the Israel Group were significantly higher (p=0.000)*
| Indicates that responses from the Israel Group were significantly lower (p=0.000) |
| Indicates that responses from the Palestine Group were significantly lower (p=0.000) |
Table 5: Summary of the key issues covered in the scenarios developed by each of the different groups at the three workshops.

<table>
<thead>
<tr>
<th>Group [ ] Optimistic</th>
<th>Environmental Issues:</th>
<th>Social / Political Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>2] t / pessimistic</td>
<td>Water Pollution</td>
<td>Population growth</td>
</tr>
<tr>
<td>stic vision for 2025</td>
<td>Land use planning</td>
<td>Recycling</td>
</tr>
<tr>
<td></td>
<td>Transport</td>
<td>Palestinian – Israeli conflict</td>
</tr>
<tr>
<td></td>
<td>Agriculture / food supply</td>
<td>Regional environmental issues</td>
</tr>
<tr>
<td></td>
<td>Energy</td>
<td>Incomes / Employment / social inequality</td>
</tr>
<tr>
<td></td>
<td>Sensitive environmental sites</td>
<td>Biodiversity</td>
</tr>
<tr>
<td></td>
<td>for 2025</td>
<td>for 2025</td>
</tr>
</tbody>
</table>

[1] Corresponding author. Tel: +44-1483-689096; Fax: +44-1483-686671; E-mail address: j.chenoweth@surrey.ac.uk
[2] Some of the HUJI groups did not submit written descriptions of their scenarios to the workshop organisers. These group’s scenarios are not included in this table.

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Table 2: ANOVA of Factors by Age Group

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Table 3: ANOVA of Factors by Gender

Table 4: ANOVAs of Factors by Institution