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How Well Do Hat Yai, Thailand Urban Gardeners Meet Their Aims?

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Abstract Urban populations are growing, placing more and more stress on the natural world, social institutions and individuals. UN forecasts are for further urban population increases, including Thailand's cities. Residents of Hat Yai, Thailand's major southern city, meet these challenges through urban agriculture (UA). The objectives of this research were to gather basic data on these mostly hobby gardeners and their gardens, and explore how well they were meeting their intentions. Criterion Sampling was used with the sole criterion that respondents were at least preparing to start gardening. Data from a questionnaire filled out by UA group members, focus group results, and key informant interviews were analyzed. Results indicate that women do most of the gardening, the largest age group is 61-65, the majority have below average incomes, and a roughly equal number have a primary school education or a bachelor's degree. Most garden organically, wish to improve their health, and to save money. Many gardeners are short on gardening knowledge and skills, and complain of tight gardening spaces. Compared with Bangkok's UA group, Hat Yai's group on average harvests food with similar frequency but with about 4 times the number of gardening hours. By increasing gardening skills and knowledge, and density of use of growing spaces, yet without increasing gardening time, they may harvest more food, thus possibly improve their health and save money. Recommendations are for municipal officials and the group's parent organization to increase material assistance and gardening skills training, and help increase the efficiency of use of space.

Keywords: urban agriculture, hobby gardening, urbanization, Hat Yai

Introduction

Rising urban populations around the world increase the stress on social institutions and individuals. The UN (2014) reported Thailand's urban population in 1950 was 16.5% in 1950 and will reach 71.8% in 2050, or 7 of every 10 people. This study site, Hat Yai District, is among these growing urban areas. According to Thinhphanga (circa 2014-2015), "it is an important economic, trade, and tourism hub" where the urban part "has been growing at a dramatic rate in the last two decades and the city is now ranked as the third largest in Thailand after Bangkok and Chiang Mai" (p. 8-9). The district's 2015

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population was 362,267. Hat Yai District Office population data from 2006 to 2015 (Accessed on April 20, 2016), suggest a continued population increase. It is located in tropical southern Thailand's Songkhla Province, almost 1,000 kilometers south of Bangkok, near the border with northern Malaysia.

Urban agriculture (UA) is becoming more common worldwide, and is often considered for its potential to contribute to urban environmental and social sustainability (Orsini, Kahane, Nono-Womdim, & Gianquinto, 2013; Zezza & Tasciotti, 2010; Hamilton, *et al*., 2014). The potential benefits of UA may seem obvious, but solid evidence that these potentials are being met is lacking (Hamilton, *et al.*, 2014; Korth, *et al*., 2014). This research focused on hobby urban gardeners who, in contrast to commercial growers, were mainly motivated by reasons of personal health and financial savings. So that more people may do so, it is useful to know if they are meeting their aims, and to identify and address shortcomings. This research question asks if Hat Yai urban gardeners are meeting their health and financial aims.

Figure 1. Ari lives on a street with no space between homes, yet harvests enough for about 15 meals per week, spending about 20 hours per week.

Social effects of urbanization

This section will briefly review some of the literature regarding the health and income situations of residents of cities, particularly with respect to less wealthy classes. It can be said that health care in cities is more available than in rural areas. 22% of urban residents of the world do not have health care, and in

this way fare better than their rural counterparts, 56% of whom lack care (Scheil-Adlung, 2015). On the contrary, a news release by the World Health Organization (WHO) and the UN Human Settlements Programme (UN-Habitat) stated that in nearly 100 countries the inequities in access to health care and sanitation between the richest and the poorest city dwellers are a "persistent challenge" (World Health Organization, 2016). Millions of people migrate annually to cities in search of better livelihoods and higher incomes, though many do not realize what they hoped for (Hamilton *et al.*, 2014). Regarding employment and poverty, Grant (2012) examined "the capacity of urban areas to create jobs, [and showed] how growth is concentrated in cities that paradoxically offer mostly informal employment, and trap large shares of their residents in poverty" (p. 24).

The Food and Agriculture Organization (FAO) (2003) has defined *food security* as existing "when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life" (p. 29). Szabo (2016) studied how urbanization affects food security, concluding that the effects are often negative. She discussed physical and financial access to food, stating that urbanization brings better infrastructure, therefore better physical access to food, but that the poor have more difficulty than wealthier classes in securing adequate healthful and hygienic food. In a similar vein, a relatively recent concern are so-called *food deserts,* where millions of mostly lower-income classes, mainly in developed nations (mostly in the USA) live where there is "poor access to healthy and affordable food" (Beaulac *et al.*, 2009). In addition, Redwood (2009) illustrated that low income residents in several cities around the world often spend up to 60% and in some places, even 85% of their incomes on food. Mohiddin *et al.* (2012) reported a correlation between rapid urban growth in developing countries, slums, and undernutrition.

Objectives: To gather data on Hat Yai District gardeners, gardens and garden activities, and examine if they are improving their health and saving money.

Materials and methods

Criterion Sampling was used in choosing the Hat Yai urban gardening group which met the criteria of ease of access to members. It was used also for participant selection with the sole criterion that they were at least preparing to start a garden. The researchers attended several of the group's monthly trainings out of interest in gardening and the content of the training, and in order to become familiar with members of the group and how it operates.

Data was collected using a variety of tools. A focus group assessed members' experiences and perceptions of positive and negative aspects of UA in Hat Yai. Results of the focus group were entirely qualitative and were analyzed by content analysis. These data do not contribute to answering the objectives, but contribute to gaining a broad perspective of UA in Hat Yai and are briefly discussed at the end of the Results and Discussion section.

A 20-question questionnaire with closed-ended and open-ended questions was passed out to focus group participants, and later circulated to other members of the UA group. The questionnaire covered basic personal data, data about the gardens and garden activities, and asked-what problems and obstacles gardeners face and what recommendations they have for improving UA. 75 questionnaires were filled out and returned, with 67 selected for analysis. Responses were first tabulated by hand then analyzed by descriptive analysis, according to this research's 2 objectives. Interviews and focus group results were also analyzed for topics pertaining to the objectives.

In-depth interviews were conducted with 4 key informants involved in different capacities with UA in Hat Yai. Basic information about the Bangkok and Chiang Mai UA groups was obtained through email and social media.

Results and Discussion

Urban agriculture groups in Thailand

Several provinces in Thailand have UA groups. SCF's director claims that the Hat Yai group is second in size only to the Bangkok group. Both groups are named *Suan Phak Khon Meuang* (which translates as City People's Vegetable Garden). The Bangkok group is the oldest, has the largest membership, and the most extensive activities. Green Beauty Scented is the UA group in Thailand's 2nd largest city, Chiang Mai. Their outreach programs support and promote organic urban gardening, oriented mainly toward improving health and members' financial situations. Available data for these groups is given below.

Basic data on gardeners' households in Hat Yai District

Section 1 of the questionnaire gathered basic personal data in order to know the respondents' (and other household members') socio-economic variables, as per the first objective. The local municipal office and the group's parent organization may be able to use this information in outreach efforts.

Gender breakdown of the 67 respondents shows 87% were women while 13% were men. The Chiang Mai group also says that women predominately tend do the garden (W. Thala, personal communication, March 26, 2016). **Ages** ranged from the youngest at 24 to the oldest at 84. The 61- to 65-year age

bracket was the largest, with 18% of respondents. 76% were 46 to 75 years old, while 24.0% were aged 24 to 45. About 2/3 of urban gardeners in Malaysian cities were 26 to 45 years old (Rezai, Shamsudin, & Mohamed, 2016; Rezai, Shamsudin, Mohamed, Sharifuddin, 2014), while only about a quarter of Hat Yai urban gardeners were a similar age. The gender and ages of most respondents may be understood by considering that women typically take better care of their health than men (WHO, 2014), and in general, older people are more interested in health than younger people.

Income levels of respondents was compared with monthly household income for Songkhla Province. In 2015, the average monthly household income was 27,660 baht per month (National Statistical Office, n.d.a). Compared with respondents' monthly incomes, it is clear that 45% had income below this average, 37% had income above this average, and 18% had a similar monthly income. The most common monthly household income bracket was 10,000-19,999 baht (27% of respondents). This was below the provincial average, but above the poverty line, which for Songkhla Province in 2014, was 2,922 baht per person per month (National Statistical Office, n.d.b). 18% of respondents marked the lowest income bracket 0-9,999 baht. The initial UA group was started by middle-class residents, while nearly 45% of participants in this study had a lower than average income, suggesting an expansion of awareness of the potential benefits of growing one's own food.

Occupations Over half (54%) of respondents were either retired or for other reasons did not work outside the home and an appreciable number of respondents (22%) were self-employed. It is likely these groups were highly flexible with finding time for gardening, and so more likely to take it up in the first place. Nearly two-thirds of respondents had **education** levels on opposite ends of the education spectrum. 36% of respondents had a bachelor's degree, while 37% had a primary school education (though some did not finish primary school). Out of the 12 respondents who lived in the slum community, 10 had only a primary school education. 76% of the 25 respondents with a primary school education reported making clearly less than the provincial average for 2015, while only 4% (1 person) reported clearly more than the average. 63% of the 24 respondents with a bachelor's degree reported making clearly more than the provincial average, while 25% (6 people) reported making clearly less than the average. There is a correlation between education level and income, yet the data gathered in this research cannot answer why these 2 education levels are represented so much more than the others. In contrast, urban gardeners in Malaysia were much more likely to have the equivalent of a bachelor's degree than their counterparts in Hat Yai, with 61% and 44%, as reported in Rezai, *et al.*, 2014 and Rezai, *et al.*, 2016, respectively.

The gardens and garden activities

The 2nd section of the questionnaire gathered data on the gardens and activities in the gardens, as per the first objective. The purpose here was to get an understanding of the current characteristics regarding gardens, also for use in future outreach efforts. Below is a descriptive analysis of the results.

Motivations for starting a garden Health was unsurprisingly the main reason that respondents started a garden, with 94% marking this reason, including the youngest and all but the oldest respondent. The next most common reason was to save money, with 67% of respondents. 58% of respondents started gardening as a hobby. The Chiang Mai group's website says that lower income households started gardening largely to save money, while higher income households took more interest in health (Pholsawek, J. Oct. 13, 2014). McClintock, Mahmoudi, Simpson, and Santos (2016) corroborated by stating that higher income gardeners in Portland, OR, USA considered avoiding pesticides more important than saving money, while lower income gardeners considered saving money more important. Urban gardeners in the Malaysian studies saw health as a benefit of UA, and though the studies do not state clearly, it seems health was not a strong motivation (Rezai *et al.*, 2014; Rezai *et al.*, 2016). In addition to health and financial motivations, social and environmental reasons were cited by the Hat Yai UA group on the questionnaire and in the focus group, members of the Bangkok and Chiang Mai groups, and hobby gardeners in other countries (Guitart *et al.,* 2012; Scheromm, 2015; McClintock *et al.*, 2016).

Garden inputs Organic fertilizers were the most common, with 88% responding positively. Leaders of the UA group support and encourage organic gardening, but this is not required (W. Phetmisri, personal communication, May 6, 2016) and 27% use chemical fertilizers sparingly. This contrasts slightly with the Chiang Mai group members, who avoid synthetic agricultural chemicals entirely, emphasizing inputs which are close at hand in order to reduce their dependence on outside inputs, and the Bangkok group, whose members also completely avoid synthetic inputs (W. Thala, and V. Nimhattha, personal communications, March 26, 2016, and May 26, 2016).

How gardeners use produce All 67 respondents marked that they consume garden produce at home. Next most common, 61%, marked giving away produce. 40% said they exchange produce with others. Only 9 respondents marked selling produce, as indeed, few have enough space to grow enough for all their own needs, let alone enough to sell. Only two from the lowest income bracket were among the 9 selling produce, both of whom live in the slum, where there is no space surrounding homes, thus it is all but impossible for a large enough garden to grow to sell at the nearby fresh market.

Gardening methods The most common way of planting was to use planters and pots, with 88% responding that this was among the ways they plant. Due to the nature of city living, many homes have little or no land for planting, so planting in pots on the street in front of one's home is the most common option. Simply planting in in-ground beds was next, with 50%. Using various discarded containers, such as UHT milk cartons, or small baskets was marked by 34%. A leader in the UA group is an agricultural extension agent, and together with SCF, have promoted a method called *Plaeng Phak Buffet* (which translates as *Buffet Bed*). The beds were designed for urban spaces, so about one square meter is the suggested size. Despite making its productivity clear through promotion via social media and frequent demonstrations, only 8 respondents marked using this method.

Garden locations 94% reported using the space immediately adjacent to the house for planting, due to space limitations. Though many homes in Hat Yai have balconies, only 5 people reported using them for planting. Surprisingly, nobody among these 67 gardeners had a rooftop garden.

Do Hat Yai urban gardeners fulfill their intentions for gardening health and savings

The 2nd objective was to examine whether Hat Yai urban gardeners are meeting their most common intentions for gardening, i.e. to improve their health and to save money. By analyzing the number of meals per week with something from their gardens, and the number of hours per week spent gardening, it was possible to speculate on how well they were fulfilling their intentions. No effort was made in this research to determine to a high degree of certainty whether or not they are in fact fulfilling these intentions. Establishing improvements (or deterioration) in health and / or a financial savings (or loss) as definitely a result of UA would have required more complex research, well beyond the scope here. Below is a descriptive analysis of the results.

Number of meals per week with produce from gardens 63% of respondents consumed fewer than 7 meals per week containing produce from their gardens. The average number of meals was 9. It is possible that some meals consisted of only a few leaves from vegetable plants or culinary herbs. Also possible is that some meals consisted of a large amount of produce from the garden, especially among those marking one meal a week. 13% of respondents reported 1 meal per week, while 19% reported 21 meals. In Chiang Mai, members consumed produce from their gardens 2-3 times per week (W. Thala, personal communication, March 26, 2016). For some members of the Bangkok group, every meal had something from their gardens, but for most members, 2 meals, 3-5 days per week was the norm (V. Nimhatta, personal

communication, May 26, 2016). Chiang Mai gardeners averaged 2.5 meals per week and Bangkok gardeners averaged 10. Hat Yai gardeners' average of 9 meals per week was just below the Bangkok group's average.

Number of gardening hours per week 36% of respondents spent less than 5 hours gardening each week, which is a little more than those who spent from 5.0-9.9 hours per week (33%), while 21% spent 10.0-14.9 hours. The 2 smallest brackets spent the most time tending their gardens: 3% spent 15.0-19.9 hours and 8% spent 20.0 hours or more. Members of the Chiang Mai group generally spent up to 3 hours per week gardening (W. Thala, personal communication, March 26, 2016) and Bangkok members spent at least 1-2 hours each day (V. Nimhatta, personal communication, May 26, 2016). The Hat Yai respondents averaged 7.9 gardening hours per week, while the range was from 1 hour (3 people) to 35 hours (1 person). The family of the respondent reporting 35 hours per week lives in a peri-urban part of the district, and has a 1.2-acre commercial farm, the largest among respondents.

Table 1. Weekly number of meals & gardening hours (n=67)

Items	No.	%	Avg.	Min-Max
Number of meals per week with produce from gardens	-	-	9.0	1-21
≤3	25	(37.3)	-	-
4-7	17	(25.4)	-	-
8-11	3	(4.5)	-	-
12-15	7	(10.4)	-	-
16-21	15	(22.4)	-	-
Number of hours per week spent gardening	—	—	7.9	1-35
≤ 4.9	24	(35.8)	-	-
5.0-9.9	22	(32.8)	-	-
10.0-14.9	14	(21.0)	-	-
15.0-19.9	2	(2.9)	-	-
≥ 20.0	5	(7.5)	-	-

The data in this research shows that Hat Yai urban gardeners spent nearly twice the time per meal on average than their Bangkok counterparts, thus it appears there is considerable potential for increased productivity and efficiency. Due to somewhat infrequent harvests, it is likely that most respondents' health and financial situations have not substantially improved as a result of gardening. Many Hat Yai urban gardeners complained of various garden pests and soil problems, limiting their harvests. Thus, attending to these issues would likely increase harvests, and perhaps lead to improvements in

health and increases in savings. Another limiting factor is that many respondents marked giving away produce, reducing their own consumption.

A large number of respondents' main obstacle was space. Because an abundance of DIY methods and commercial container gardening products are available that address space limitations, the municipal office and the UA group's parent foundation may promote these methods and products in support of gardeners. Hat Yai urban gardeners overwhelmingly use pots and planters for gardening so many people may readily adopt the DIY methods and container gardening. Future UA research in Hat Yai could focus on the issue of limited space, garden pests, and soil health. With increased outside support, it is possible that productivity and/or efficiency will increase, thus facilitating more Hat Yai urban gardeners improving their health and financial situations.

Conclusion

In Hat Yai, true to its origins among health-conscious individuals, urban gardening is still practiced mainly by middle-aged and older health-minded folks. Three quarters of urban gardeners are 46 and older, so are more likely to be interested in health than their younger peers. Mainly due to this interest in health, most garden organically. Their two most common motivations for gardening were to improve their health and to save money, yet due to comparatively low productivity, it is likely that neither of these motivations was realized by most urban gardeners in the Hat Yai group.

Respondents and key informants want increased support from government and non-government agencies for training and materials, who are well aware of this wish. Because methods and products are available that may suit Hat Yai's urban gardening situations, it is possible that municipal officials and SCF could promote these in order to increase yields and decrease time spent, and over the long term, improve gardeners' health and finances.

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