

## International Conference on Engineering and Technology Development



# 3<sup>rd</sup> ICETD 2014

28, 29 October 2014, Bandar Lampung, Indonesia

Hosted By :

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Bandar Lampung University, Indonesia



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# 3<sup>rd</sup> ICETD 2014

THE THIRD INTERNATIONAL CONFERENCE  
ON ENGINEERING AND TECHNOLOGY DEVELOPMENT

28 -29 October 2014  
Bandar Lampung University (UBL)  
Lampung, Indonesia

## PROCEEDINGS

Organized by:



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## **PREFACE**

The Activities of the International Conference is in line and very appropriate with the vision and mission of Bandar Lampung University (UBL) to promote training and education as well as research in these areas.

On behalf of the Second International Conference on Engineering and Technology Development ( 3<sup>rd</sup> ICETD 2014) organizing committee, we are very pleased with the very good response especially from the keynote speaker and from the participants. It is noteworthy to point out that about 80 technical papers were received for this conference.

The participants of the conference come from many well known universities, among others : University Kebangsaan Malaysia – Malaysia, IEEE – Indonesia, Institut Teknologi sepuluh November – Indonesia, Surya Institute – Indonesia, International Islamic University – Malaysia, STMIK Mitra Lampung – Lampung, Bandung Institut of Technology – Bandung, Lecture of The Malahayati University, B2TP – BPPT Researcher – Lampung, University of Kitakyushu – Japan, Gadjah Mada University – Indonesia, Universitas Malahayati – Lampung, Lampung University – Lampung,

I would like to express my deepest gratitude to the International Advisory Board members, sponsor and also to all keynote speakers and all participants. I am also grateful to all organizing committee and all of the reviewers who contribute to the high standard of the conference. Also I would like to express my deepest gratitude to the Rector of Bandar Lampung University (UBL) who give us endless support to these activities, so that the conference can be administrated on time

Bandar Lampung, 22 October 2014

Mustofa Usman, Ph.D  
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# Hawkers Empowerment Strategy to Promote Sustainable Economy in Surakarta

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**Abstract**—Surakarta has implemented strategies of hawkers arrangement, such as relocation and stabilization. However, in 2012, after the arrangement, the number of hawkers increased not only new hawkers but also those who had been arranged before. They returned to illegal location due to perception that their needs were not accommodated. On the other side, hawkers' needs are different depending on their commodity types. The correlation among the characteristics of hawkers by commodity types, hawkers' involvement in arrangement process and the arrangement success, has prompted authors to develop hawkers empowerment strategies in Surakarta, which is adaptive to those components. The analysis was done by frequency distribution and descriptive techniques. The results of this study showed that the arrangement process has not been able to fully empower the hawkers. Strategies are then formulated into five groups according to the type of commodity: non-food, raw-food, consumed-at-place fast food, take-away fast food, and services.

**Keywords**—*Empowerment strategy, Hawkers arrangement, Hawkers characteristic, Partisipatory, Sustainable economy*

## I. INTRODUCTION

Urbanization has caused the emergence of urban informal sectors by middle-lower class people who have limited skill, education, access, and chance to attend formal sectors ([1], [2]). Informal sectors, including hawkers, have big elasticity and endurance in absorbing employees who failed attending formal sectors [7]. It can be said that informal sectors contribute to solve urban poverty problem as income sources of poor people [7]. Moreover, informal sectors also play an important role in providing cheap goods and services for middle-lower people in urban area [6]. The ability of informal sectors to fulfill this market segment develops mutual relationship with its costumers, especially those coming from middle-lower class people in fulfilling their needs [9]. It indicates that informal sectors have important function and role in supporting urban life.

On the other hand, Indonesian Constitution ([10], [11]) defines the characteristic of informal sectors –including hawkers- which have small operational scale due to its small financial capital/ assets and activity cycle, so that it does not give much contribution to city development [9]. In addition, its less contribution and its existence become one of problem sources in urban area. Due to economical reason, hawkers with their portable and unarranged equipments often sell their commodity in strategic but illegal area. It causes urban problems such as traffic jam and dirty area.

Hawkers arrangement in one of efforts carried by Surakarta government to solve conflicts in hawkers empowerment. In general, there are two kinds of hawkers arrangement which accommodate the government and the hawkers' interest, namely relocation and stabilization [4]. Arrangement in form in relocation places hawkers as formal seller/ formalization, while stabilization arrangement legalizes and builds permanent trading location and equipments.

Through those types of arrangements, it is hoped that the subjects of this kind of people economy become more prosperous and empowered, and also create well public order and clean environment [8].

Surakarta is one of cities in Indonesia which has implemented hawkers arrangement strategy. Based on a research done by Rahayu, et. al. [8], most hawkers in Surakarta (69%) have been arranged (SD), while the rest has not been arranged (BD). The hawkers arrangement consist of relocation and stabilization. Relocation was mostly implemented to non-food hawkers (including peddler), services hawkers and consumed-at-place fast food hawkers, for example the relocation of Monjari hawkers to KlithikanNotoharjo Market, the relocation of Jl. Veteran hawkers to Silir Market, and the relocation of hawkers in UNS backside to Panggungrejo Market [8]. Meanwhile, stabilization arrangement was done to consumed-at-place and take-away fast foods hawkers and raw-food hawkers by giving trading facilities like shelters, knock-down tent, and mobile carts [8].

The process of hawkers arrangement in Surakarta has run for almost eighteen years since the publication of Government Regulation No. 8/1995 about Hawkers arrangement and training [12]. Based on data from the Market Management Department [8], the number of hawkers in 2005 reached 5.817, this number decreased to 3.917 in 2007, and there were 2.104 left in 2010. This significant decrease was due to the hawkers arrangement in some areas by relocation, for example relocation of hawkers in Monumen 45 Banjarsari to Notoharjo Market and hawkers in UNS backside to PanggungRejo Market. However, based on observation carried out up to July 2012 [9], the number of hawkers increased to 2.816. The hawkers were not all new hawkers. An interview with PaguyubanGuyubRukun (one of hawkers association) [9], showed that costumers of the arranged hawkers were relatively decreased so that the new location was not be able to meet the hawkers aspiration. Therefore, to get as many costumers as before, the hawkers rebuilt their business in their previous location or new location which is not too far from the previous one. Another reason was too small shelters which do not accommodate their need to do their activities so that they looked for new location which was large enough for running their business.

It indicates that there is different perception between the hawkers and Surakarta government toward appropriate arrangement. It causes the arrangement and control of the hawkers' number –which is known as *zero growth*-has not been successful [8]. The hawkers' perception toward their needs in running their business can not be equally seen because their trading activities are varied [9]. Mc Gee and Yeung [4] divide hawkers into four categories based on the commodities, there are raw commodity, foods -both *unprocessed* and *semiprocessed foods*-, non-food, and services. It means that there four groups of hawkers

characteristics which influence their perception and preference toward their needs in running their business. To reach the purpose of hawkers economy empowerment, persuasive approach which can adopt the hawkers characteristics is needed in the arrangement process as base in formulating appropriate arrangement strategy, that are being city aesthetical component and able to empower the hawkers to promote sustainable people economy development as it is stated in Surakarta Government Regulation No. 3/2008 about hawkers management [12].

Based on the description above, the purpose of this research is formulating a participative hawkers arrangement strategy in Surakarta to promote sustainable people economy. There are steps to do including:

1. Hawkers characteristic identification and management strategy evaluation in promoting sustainable economy development;
2. Mapping of stakeholders' role and capacity in hawkers management, and
3. Comprehensive analysis on hawkers empowerment strategy development to promote sustainable people economy.

## II. RESEARCH METHOD

This research used bottom up approach that is a field empirical approach to the research subjects, hawkers in Surakarta. This approach was chosen to elicit actual and accurate information which improve people's understanding and capacity through communication process among the hawkers, society, government and UNS as external mediator [5]. This approach elicits information deeply and accurately also represents empirical condition of hawkers based on research variables which are formulated from norms and theories (deductive).

Qualitative method was used, that is giving description about preference happened in the research field through frequency distribution from the result of questionnaires. Then, the results of quantitative data analysis would be discussed completely and in detail, in the form of description to give justification about the hawkers' role and capacity.

The techniques of data collection were done through observation, questionnaire, and interview. Questionnaire was used to elicit data about the hawkers' characteristic, role, and capacity in arrangement process, and its results. Population of this research were hawkers in Surakarta which were grouped based on trade commodities by following Mc Gee and Young [4] classification, involving non-food, consumed-at-place fast food, take-away fast food, services, and raw-food. Samples were put by quota sampling by taking 30 hawkers per category so that the total respondents were 150 hawkers. Meanwhile, interview was carried out to the chief of hawkers association and Market Management Department to elicit deeply any information about hawkers arrangement by using structured interview.

Analysis was done by using frequency distribution technique toward the respondents' answer, involving [9] :

1. Hawkers' characteristic analysis for each commodity type

- The hawkers' social and economy
- The hawkers' trading activities, including duration, working time, and service characteristic

Then, comparison between arranged hawkers (SD) and unarranged hawkers (BD) for same commodity was done to know to what extent the purpose of the hawkers arrangement has been achieved.

2. Hawkers' capacity analysis

- Hawkers' capacity in getting trading equipments. Describing the characteristic of trading equipments and supporting facilities fulfillment which are important for the hawkers trading activities. How the current arrangement system is and what the role of the hawkers is as a part of the arrangement up to their ability in providing better trading equipments.

- Hawkers' capacity in providing trading location. Started from the previous research result about the correlation between trading activity and location characteristics. The hawkers' priority scale in choosing location. How the current condition is compared to the expected condition, and the hawkers' management capacity in fulfilling their obligation to government.

3. Analysis on hawkers' role/involvement in arrangement process which consists of 12 steps, namely socialization, commodity types determination, trading location determination, grouping determination, types and equipments determination, working time, shelter area, layout, facilities, utility, contribution, and post-arrangement management. Then, the participatory level of each group was measured by using scoring technique. Participatory level was seen by dividing the gap of highest and lowest scores with 3 stages, so that 3 intervals were formulated, 0%-33,3% low participatory level; 33,4% – 66,6% medium participatory level; and 66,7%-100% high participatory level [9].

4. Hawkers empowerment strategy synthesis in promoting sustainable people economy

## III. RESEARCH RESULTS AND DISCUSSION

This research (1) compares social, economy, and trading activities of arranged hawkers (SD) and unarranged hawkers (BD) for each commodity type; (2) identifies the hawkers' capacity in providing trading location and equipments; and (3) identifies the arranged hawkers participation in the arrangement process. Results of those three targets become input in arranging hawkers empowerment strategy to promote sustainable people economy in Surakarta [9].

### A. Hawkers' Characteristics in Surakarta

1) *Social**Characteristic*

**TABLE 1**  
**HAWKERS' SOCIAL CHARACTERISTIC**  
**BASED ON ARRANGEMENT STATUS AND COMMODITY TYPES IN SURAKARTA**

<b>Hawkers Classification</b>	<b>Hawkers Origin</b>	<b>Trading Duration</b>	<b>Latest Education</b>
<b>Non-food Hawkers</b>	Most of SD hawkers come from Surakarta, while BD hawkers come from Surakarta and other regions	SD hawkers are dominated by those who have run the trading for 3-10 years, while BD hawkers are dominated by those who have run their trading for more than 10 years.	Most of SD and BD hawkers graduated from junior and senior high schools
<b>Take-away Fast Food Hawkers</b>	Most of SD hawkers come from Surakarta, while most of BD hawkers come from other regions	SD hawkers are dominated by those who have run the trading for 3-5 years, while BD hawkers are dominated by those who have run their trading for 1-3 years.	Both SD and BD graduated from elementary schools, junior high schools and senior high schools. The percentage of BD hawkers who graduated from senior high schools is higher than SD hawkers.
<b>Consumed-at-place fast food Hawkers</b>	Most of SD hawkers come from Surakarta as well as other regions, while most of BD hawkers come other regions	The trading duration of SD and BD hawkers is similar, that is more than 10 years.	SD hawkers mostly graduated from senior high schools, while BD hawkers mostly graduated from junior high schools
<b>Service Hawkers</b>	Most of SD hawkers come from outside Surakarta, while most of BD hawkers come from Surakarta	Their trading duration is more than 10 years	Both SD and BD hawkers graduated from senior high schools
<b>Raw-food Hawkers</b>	Most of SD hawkers come from outside Surakarta, while most of BD hawkers are Surakarta people	Their trading duration is more than 10 years	Both SD and BD graduated from senior high schools, junior high schools, and elementary schools.

Source :Rahayu, et. al., 2013

2) *Economy Characteristic*

**TABLE 2**  
**HAWKERS' ECONOMY CHARACTERISTICS**  
**BASED ON ARRANGEMENT STATUS AND COMMODITY TYPES IN SURAKARTA**

<b>Hawkers Classification</b>	<b>Side-jobs</b>	<b>Working duration in a week</b>	<b>Average Daily profit</b>	<b>Daily achieved money</b>	<b>Business development planning</b>	<b>Association membership</b>
<b>Non-food Hawkers</b>	Generally SD hawkers have no side	Mostly 7 days a week	<b>Average daily profit Rp 100.000,00</b>	• Most of SD hawkers	• Most of SD hawkers want financial	• Most of SD hawkers have

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Hawkers Classification	Side-jobs	Working duration in a week	Average Daily profit	Daily achieved money	Business development planning	Association membership
	job, while some of BD hawkers have side jobs		<ul style="list-style-type: none"> <li>The highest profit of SD hawkers is Rp1.000.000,00 – Rp5.000.000,00.</li> <li>The highest profit of BD hawkers is Rp500.000,00</li> </ul>	<p>achieved Rp100.000,00 - Rp500.000,00 perday, even some SD hawkers achieved Rp1.000.000,00 – Rp 5.000.000,00,</p> <ul style="list-style-type: none"> <li>Most of BDhawkers only received Rp100.000,00, with the highest achieved moneyRp 100.000,00-Rp 500.000,00</li> </ul>	<p>support to develop their business</p> <ul style="list-style-type: none"> <li>Most of BD hawkers who have no permanent place want permanent place and improvement of trading place</li> </ul>	<p>joined hawkers association</p> <ul style="list-style-type: none"> <li>Most of BD hawkers do not join hawkers association</li> </ul>
<b>Take-away fast food hawkers</b>	<ul style="list-style-type: none"> <li>Most of SD hawkers have side jobs</li> <li>Majority of BD hawkers have no side job, selling take-away fast food is their main job</li> </ul>	<ul style="list-style-type: none"> <li>Many SD hawkers do their activity once a week, although there is high percentage of hawkers who do their activity 7 days a week.</li> <li>Almost all of BD hawkers do their activity 7 days a week.</li> </ul>	<p><b>Average daily profit Rp 500.000,00</b></p> <ul style="list-style-type: none"> <li>The highest SD hawkers' profit is Rp 1.000.000,00 – Rp 5.000.000,00.</li> <li>The highest BD hawkers' profit reaches Rp 1.000.000,00.</li> </ul>	<ul style="list-style-type: none"> <li>Most of SD hawkers receive money Rp 100.000,00- Rp 500.000,00, and even some of them receive Rp 1.000.000,00 – Rp 5.000.000,00,</li> <li>Most of BD hawkers can only receive Rp 100.000,00- Rp 500.000,00.</li> </ul>	<ul style="list-style-type: none"> <li>SD hawkers want financial support to improve their trading place</li> <li>BD hawkers want financial support and permanent trading place.</li> </ul>	<ul style="list-style-type: none"> <li>Most of SD hawkers have joined hawkers association</li> <li>Most of BD hawkers do not join hawkers association</li> </ul>
<b>Consumed-at-place fast food hawkers</b>	Mostly, this is the main job of the hawkers, although some of them have side jobs	Both SD and BD hawkers mostly do their activity 6-7 days a week	<p><b>Average daily profit of SD and BD is similar Rp 1.000.000,00 – Rp 5.000.000,00.</b></p> <ul style="list-style-type: none"> <li>The percentage of SD hawkers who achieve profit Rp 500.000,00 -Rp 5.000.000,00 is higher than BD hawkers</li> </ul>	<ul style="list-style-type: none"> <li>More money is achieved by BD hawkers (&gt;Rp 5.000.000,00), but the lowest amount of money is Rp 0 – Rp 100.000,00.</li> <li>SD hawkers receive similar amount of money Rp</li> </ul>	<ul style="list-style-type: none"> <li>SD hawkers want improvement of trading place to support their business</li> <li>BD hawkers want permanent trading place</li> </ul>	<ul style="list-style-type: none"> <li>Most of SD hawkers have joined hawkers association</li> <li>Most of BD hawkers do not join hawkers association</li> </ul>



Hawkers Classification	Side-jobs	Working duration in a week	Average Daily profit	Daily achieved money	Business development planning	Association membership
				100.000,00 – Rp 5.000.000,00		
<b>Service Hawkers</b>	Most of the hawkers have no side jobs	6-7 days a week	Average profit is >Rp.100.000,00 but BD hawkers get less than that.	For service hawkers, profit and achieved money is almost the same because they sell skills	<ul style="list-style-type: none"> <li>• Most of SD hawkers need financial support.</li> <li>• BD hawkers want to be arranged and to be given financial support support their business development.</li> </ul>	Most of SD and BD hawkers do not join hawkers association
<b>Raw-food hawkers</b>	Most of the hawkers do not have side jobs	7 days a week	Average profit is <Rp. 100.000	The achieved money reaches Rp. 500.000	<ul style="list-style-type: none"> <li>• SD hawkers want financial support</li> <li>• BD hawkers want financial support and permanent trading place.</li> </ul>	Most of SD and BD hawkers do not join hawkers association

Source: Rahayu, et. al., 2013

### 3) Trading Activity Characteristic

TABLE 3

HAWKERS' TRADING ACTIVITY CHARACTERISTIC  
BASED ON ARRANGEMENT STATUS AND COMMODITY TYPES IN SURAKARTA

Hawkers Classification	Commodity Types	Working Time	Service Types
<b>Non-food Hawkers</b>	<ul style="list-style-type: none"> <li>• Accessories: wallet, belt, clothes, shoes, cigarettes, and spareparts.</li> <li>• Not only selling non food commodity, the hawkers also provide services/ repairment which is relevant to their commodity, for example tire seller who provide tire repair and vulcanization</li> </ul>	<ul style="list-style-type: none"> <li>• Most of SD hawkers work 4-8 hours per day and only few of them who work more than 8 hours; the working time is dominated from morning to afternoon.</li> <li>• Most of BD hawkers work 8-12 hours per day, varied from morning to night</li> </ul>	The commodities are displayed on a mat or cart because the hawkers are mobile.
<b>Take-away Fast Food Hawkers</b>	Snacks, such as juice, crispy chips, fried food, serabi, burger/kebab, and so on.	<ul style="list-style-type: none"> <li>• SD hawkers work 0-4 hours per day</li> <li>• Most of BD hawkers work 4-8 hours per day.</li> </ul>	The main trading equipments is mobile cart
<b>Consumed-at-place Fast Food Hawkers</b>	Main dishes, such as soto, sate, and so on.	<ul style="list-style-type: none"> <li>• SD hawkers work only 4-8 houes per day, although few of them work &gt; 12 hours.</li> <li>• Most of BD hawkers work 4-12 hours per day</li> </ul>	Consumed-at-place fast food hawkers need larger shelter to accommodate their costumers. They locate in tents or shelters
<b>Service Hawkers</b>	Shoes sole service, tire repair, barber, tailor/jeans altering, vehicle repair service and electronic repair service.	<ul style="list-style-type: none"> <li>• 53% of SD hawkers work for &gt;12 hours per day, 20% of them work 8-12 hours and the rest works 4-8 hours per day</li> </ul>	<ul style="list-style-type: none"> <li>• Dominated by automotive repair service, electronic repair service, and clothes</li> </ul>

Hawkers Classification	Commodity Types	Working Time	Service Types
		(27%). <ul style="list-style-type: none"> <li>• BD hawkers mostly work for 8-12 hours per day (72%), 14% of them work 4-8 hours per day and the rest works for &gt; 12 hours per day..</li> </ul>	hawkers, 68% of them want permanent place, although on call service has been popular today, for example tailor, tire repair service and massage service. <ul style="list-style-type: none"> <li>• Even though they provide on call service, they also have permanent trading place when there is no calls.</li> </ul>
<b>Raw-food hawkers</b>	Fruits and vegetables sellers	<ul style="list-style-type: none"> <li>• Most of SD hawkers (90%) work &gt; 12 hours, and the rest works 8 – 12 hours.</li> <li>• 32% of BD hawkers work 8-12 hours per day. While, 28% of them work 4-8 hours and &gt;12 hours. The rest (12%) work for &lt; 4 hours per day.</li> </ul>	They have had permanent place.

Source :Rahayu, et. al., 2013

#### B. Hawkets' Capacity in Providing Trading Equipments and Location in Surakarta

The locations placed by the hawkers in Surakarta are in line with Mc. Gee, et. al. [4] theory, where generally hawkers are centralized in wide pathways or sidewalks, most visited public places which are near to public market, bus station, and commercial areas. The centralization type of hawkers in Surakarta can be grouped into four types, based on their preference in fulfilling their main activities needs [8]:

- Non-food hawkers in Surakarta place public spots in trading areas and open areas;
- Consumed-at-place fast food hawkers place public spots near to schools, health center, open public areas and high populated housing/potential spots in Surakarta CBD area;
- Take-away fast food hawkers prefer locations which are near to schools, open public area, housing/residence, trading and service center. Different from consumed-at-place fast food hawkers who choose locations in which the costumers do their activities, and
- Service hawkers mostly place public spots in trading and service center and city public spots.

Beside those reasons above, according to Rahayu, et.al. [8] the hawkers location characteristics are identified specifically as follows:

- Fast food hawkers both consumed-at-place and take-away, generally choose locations which provide or near to facilities that support their activity, for example clean

water supply, electricity, and parking lot. Strategic location also becomes important reason for fast-food hawkers beside specific need reasons;

- For consumed-at-place fast food hawkers, the longer their working time and the longer transaction time needed by costumers to consume their food, the more considerations/reasons in choosing their trading place;
- Consumed-at-place fast food hawkers who do their activities at evening and night will have many considerations in choosing their trading locations. Besides, the more expensive the food, the more considerations needed other than strategic location.
- Strategic location becomes the main reason of non-food hawkers and service hawkers in choosing their trading places, such as locations near to main road and transportation center.
- Raw-food and semiprocessed food hawkers are flexible, they have no specific patterns in choosing trading place. They do not need many supporting facilities and the commodity which is dominated by fruits invites the costumers to come to the trading place because some fruits are available only in certain season. Therefore, there is no specific customer target or certain service scale.

##### 1) Non-food Hawkets

Most of non-food hawkers want permanent trading service, completed by shelters. The shelters area must be >3 meters to accommodate their trading activities and space needs [8]. One thing to improve from the current arrangement is the fulfillment of visitor room and parking

lot. For the supporting facilities, attention to parking lot, promotion board, and appropriate storage for non food hawkers is needed. While, for the utility, clean water supply as one of hawkers arrangement aspects needs to be one of the priorities. If those needs are not well fulfilled, the arrangement process is potentially failed, in which the hawkers will move to other locations or add facilities to support their activities without considering other hawkers' need or public interest. If that condition occurs, the purpose of city aesthetics will fail.

Related to the hawkers' capacity in providing their trading location, every non-food hawkers has tried to fulfill their activity needs. It can be seen from the trading place selection which is near to main road and in cluster/group to invite many costumers [9]. Also, the hawkers are willing to pay some money for sanitation and security, even double payment is occurred in some cases, but it gives benefits for the hawkers. It can be seen as one effort of the hawkers to sustain their trading location. However, the hawkers' involvement in hawkers association is still low. Therefore socialization and approach to the hawkers are needed to share information about the benefits of being the association member to get legal trading location and able to accommodate their economic activity needs.

#### 2) *Take-away Fast Food Hawkers*

Most of take-away fast food hawkers want permanent trading service and the government regulation in determining the trading equipments in the arrangement process has been appropriate with the commodity types and the hawkers' aspiration [9]. The improvement needs to be focused on providing toilets and storages. For the supporting facilities, attention to the need of toilets, washing room and parking lot should be focused on. For the utility, improvement on all aspects of take-away fast food hawkers arrangement is needed, especially water supply and garbage disposal utilities..

Related to location, the hawkers have chosen ideal locations which have high market potential, closeness to main roads, and legality [9]. From those three factors, it can be said that most of the hawkers give positive respond toward arrangement regulation which gives legality aspect for their activities. However, what need to be considered is that legality aspect places the third priority, therefore fulfillment of high market potential and closeness to main roads should become consideration in choosing arrangement location. The hawkers' willingness to pay some money for sanitation and security is also needed, even double payment is occurred in some cases, but it gives benefits for the hawkers to sustain their trading location. The participation of the hawkers in hawkers' association meeting is also needed to share information about the benefits of being the association member.

#### 3) *Consumed-at-place Fast Food Hawkers*

Like take-away fast food hawkers, consumed-at-place fast food hawkers also want permanent trading service. The government regulation in determining trading equipments in the arrangement has been appropriate with the commodity types and the hawkers' aspiration [9]. However, the priority of the arrangement improvement is different; they are storages and parking lot. For the supporting facilities, the priorities are washing room, toilets, and storage. Water utility also needs to be improved.

For trading location, consumed-at-place fast food hawkers have chosen ideal locations which are near to main roads, not in group/cluster to avoid rivalry and can invite high market potential [9]. The hawkers are willing to pay some money for sanitation and security, even double payment is occurred in some cases (to government and security staffs), but it gives benefits for the hawkers. It can be seen as an effort of the hawkers to sustain their trading location. However, the hawkers' involvement in hawkers association is still low. Therefore socialization and approach to the hawkers are needed to share information about the benefits of being the association member to get legal trading location and able to accommodate their economic activity needs.

#### 4) *Service Hawkers*

Kinds of trading equipments are closely related to types of services carried out by hawkers [9]. Hawkers who display their merchandise on mat and kiosk will settle at certain location in doing their activity, although they also provide on call service. On the other hand, hawkers with carts prefer to move around in doing their activity.

The arrangement that has been done so far has strength and weakness [9]. The strength can be seen from the display/better aesthetic factor, neatness and easiness to control the new hawkers' number. Meanwhile, the weakness is on the small area provided whereas the hawkers need wider place because the hawkers do all of their trading activities there from preparation, process/workshop, storage, and closing. However, even though the provided area is limited, SD hawkers are satisfied enough with the arrangement. They can expand their shelters by sharing shelter with other hawkers or costumers area sharing.

The current trading location has met the hawkers priority, namely (1) near to main roads, although it is far enough from their homes and city center; (2) high market potential, it means that there are many costumers around their trading area; (3) in group, where a cluster will be formed to make them easier to complement, help, and substitute each other [9]. The hawkers have strong intention to sustain their trading location, which can be seen from their willingness to pay sanitation and security contribution.

#### 5) *Raw-food Hawkers*

Most of SD hawkers state that their needs of trading utilities with storage, promotion room, consumer place, and

other supporting facilities have been well fulfilled [9]. The supply of clean water and electricity is enough for their current needs. Moreover, there is no rivalry in providing better trading utilities because the raw-food hawkers have similar way in displaying their goods.

All of the hawkers have been satisfied with the current location because raw-food hawkers are more flexible in choosing trading location [9]. Even though they are flexible, there are also priorities in choosing appropriate location, i.e. high market potential (80%), closeness to main roads (40%) and legality. Hawkers who are illegal (do not pay retribution) consider strategic location as the main reason in choosing location. On the other hand, legal hawkers consider not only strategic location but also specific factors that support their activities.

### C. Hawkers' Role/ Involvement in Arrangement Process

The hawkers role/involvement in participatory-based arrangement in Surakarta is identified from their involvement in 12 activities, namely socialization, types of arrangement determination, trading location determination, grouping determination, types and trading utility determination, working time, shelter area, space/layout needs, facilities, utilities, amount of contribution and post-arrangement management. They give suggestion, involve directly in the activities, agree with any decision, give written suggestion, or give suggestion via the chief of their association or figures in society [9].

TABLE 4  
HAWKERS ROLE/INVOLVEMENT IN ARRANGEMENT PROCESS IN SURAKARTA

Number	Hawkers involvement in arrangement process	Non-food	Take-away Fast Food	Consumed-at-place Fast Food	Service	Raw-food	Number of respondents
1.	Socialization	3,00 7%	10,00 24,5%	11,00 27%	7,00 17%	10,00 24,5%	41
2.	Types of arrangement determination	15,00 56%	2,00 7%	4,00 15%	0,00 0%	6,00 22%	27
3.	Location determination	2,00 11%	4,00 21%	8,00 42%	0,00	5,00 26%	19
4.	Working time determination	1,00 10%	2,00 20%	6,00 60%	0,00	1,00 10%	10
5.	Grouping determination	0,0	2,00 18%	4,00 36%	2,00 18%	3,00 28%	11
6.	Equipments determination	0,0	10,00 50%	7,00 35%	1,00 5%	2,00 10%	20
7.	Area determination	0,0	6,00 60%	4,00 40%	0,00	0,00	10
8.	Need of place determination	0,0	3,00 60%	2,00 40%	0,00	0,00	5
9.	Facility types determination	0,0	1,00 100%	0,00	0,00	0,00	1
10.	Utility types determination	0,0	1,00 100%	0,00	0,00	0,00	1
11.	Contribution determination	0,0	0,00	0,00	0,00	0,00	0
12.	Arrangement management	0,0	1,00 33%	2,00 67%	0,00	0,00	3

Number	Hawkers involvement in arrangement process	Non-food	Take-away Fast Food	Consumed-at-place Fast Food	Service	Raw-food	Number of respondents
Hawkers participation average (%)		7	41,125	30,16	3,333	10,04	

Source :Rahayu, et. al., 2013

The table above shows low involvement of the hawkers in arrangement process, in which only fast food hawkers perform medium involvement, 41,125%. The hawkers' involvement average in arrangement process is low. It indicates that the hawkers are not be able to define their own destiny due to [9].

(1) Previous arrangement record, that is Monjari hawkers relocation which was successfully done without conflict, therefore the hawkers are able to accept the government regulation;

(2) Economy needs to continue their trading activities and get profit;

(3) Limited power to convey they needs as hawkers, therefore some of the hawkers do not know and care about the government policy [3].Even though not many, but some of the hawkers do not know the arrangement program because there is no information comes to them or because they are not understand and do not care with the policy;

(4) Other reasons, basically, they are not willing to be arranged

TABLE 5

HAWKERS' PARTICIPATORY LEVEL IN ARRANGEMENT PROCESS IN SURAKARTA

Hawkers Commodity Types	Participatory Score	Participatory Level
Raw-food	10,04	Low
Service	3,333	Low
Consumed-at-place fast food	30,16	Low
Take-away fast food	41,125	Medium
Non-food	7	Low

Source :Rahayu, et. al., 2013

#### IV.CONCLUSION

Based on descriptions above, it can be concluded that most of SD hawkers have better economy and trading activities characteristics than BD hawkers. However, research result about hawkers' role and capacity shows that the arrangement process has not been able to empower the hawkers thoroughly. It is indicated from their low participatory level in hawkers arrangement process. Therefore it can be said that the empowerment strategy which is implemented to reach hawkers management purpose has not been adaptive enough with the hawkers' characteristics.

In this case, the most potentially arranged hawkers are BD hawkers which has lower income than SD hawkers, but has become member of hawkers association. In contrary, hawkers who do not join the association are difficult to be arranged. Membership in hawkers association is a requirement to get membership card, which is used as main data in hawkers arrangement program by Surakarta government.

Hawkers empowerment strategies can be formulated based

on the result of the hawkers' characteristics, capacity, and role/involvement identification in arrangement process in Surakarta to make them empowered as the arrangement purpose. The strategies are [9] :

##### A. Non-food hawkers

- Strengthening the association's role as mediator and catalyst between its members and other parties;
- Forming cooperative enterprise which focus on its members' assets and financial capital development;
- Fulfilling supporting facility of promotion room
- Fulfilling location need which is near to main roads and in cluster form;
- Improving the hawkers' capacity and role in determining post-arrangement management, and
- Giving law socialization to motivate the hawkers in fulfilling their obligation and respecting others' rights.

### B. Take-away Fast Food

- Strengthening the association's role as mediator and catalyst between its members and other parties;
- Providing trading location which is near to main roads and in cluster/in group with other commodities;
- Forming cooperative enterprise which focus on its members' assets and financial capital development, and
- Giving socialization and training of health aspect and standard food processing.

### C. Consumed-at-place Fast Food Hawkers

- Strengthening the association's role as mediator and catalyst between its members and other parties;
- Forming cooperative enterprise which focus on its members' assets and financial capital development;
- Fulfilling the need of larger shelter;
- Fulfilling supporting facilities such as cooking place, parking lot, and water supply;
- Providing trading location which is near to main roads with high customer potential and
- Giving socialization and training of health aspect and standard food processing.

### D. Service Hawkers

- Strengthening the association's role as mediator and catalyst between its members and other parties;
- Forming cooperative enterprise which focus on its members' assets and financial capital development;
- Fulfilling supporting facilities such as process/workshop room, water supply and electricity supply;
- Providing appropriate location which does not need to near to customers;
- Giving law socialization to motivate the hawkers in fulfilling their obligation and respecting others' rights; and
- Improving the hawkers' capacity and involvement in determining post-arrangement management.

### E. Raw-food Hawkers

- Strengthening the association's role as mediator and catalyst between its members and other parties;

- Forming cooperative enterprise which focus on its members' assets and financial capital development;
- Providing trading location which is near to main roads with high consumer potential;
- Fulfilling supporting facilities such as parking lot and electricity supply;
- Giving law socialization to motivate the hawkers in fulfilling their obligation and respecting others' rights, and
- Improving the hawkers' capacity and involvement in determining post-arrangement management.

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### REFERENCE

- [1] Hariyono, Paulus. 2007. *Sosiologi Kota untuk Arsitek*. Jakarta : PT Bumi Aksara
- [2] Hilton, Maher, Selto. 2003. *Cost Management Strategies for Business Decisions*. Second Edition. Published by Irwin/McGraw-Hill, 2003
- [3] Manning, Chris dan Tadjudin Noer Effendi. 1996. *Urbanisasi, Pengangguran dan Sektor Informal di Kota*. Jakarta: Yayasan Obor Indonesia.
- [4] Mc. Gee, T. G dan Yeung, Y. M. 1997. *Hawkers In Southeast Asian Cities: Planning for The Bazaar Economy*. Canada: International Development Research Centre.
- [5] Mikkelsen, B. 2001. *Metode Penelitian Partisipatoris dan Upaya-upaya Pemberdayaan- Buku Pegangan bagi Para Praktisi Lapangan*. Indonesia : Yayasan Obor.
- [6] Rachbini, D. dan Abdul H. 1994. *Ekonomi Informal Perkotaan*. Jakarta : LP3ES
- [7] Rahayu, et. al. 2007. *Studi Penataan Pedagang Kaki Lima di Kabupaten Sukoharjo*. UNS Surakarta
- [8] Rahayu, et. al. 2012. *Strategi Pemberdayaan PKL secara Partisipatif dalam Mendorong Ekonomi yang Berkelanjutan di Kota Surakarta*. UNS Surakarta
- [9] Rahayu, et. al. 2013. *Strategi Pemberdayaan PKL secara Partisipatif dalam Mendorong Ekonomi yang Berkelanjutan di Kota Surakarta*. UNS Surakarta
- [10] Undang-undang RI No.9 tahun 1995 tentang Usaha Kecil
- [11] Undang-undang RI No. 20 tahun 2008 tentang Usaha Mikro, Kecil, dan Menengah
- [12] Perda No. 3 tahun 2008 tentang Pengelolaan pedagang Kaki Lima Kota Surakarta

# PROCEEDINGS

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