

Influence of Quality Management Process on Success of Agribusiness Projects in Rwanda, A Case Study of Post-Harvest and Agribusiness Support Project (PASP)

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Abstract: *Projects are generally undertaken because they are part of the plans to meet organizational needs and charter to new levels of performance; therefore, project success requires an effective quality management process. The general objective of this study was to analyze the influence of quality management process on success of agribusiness projects in Rwanda by taking into consideration the case of Post-Harvest and Agribusiness Support project in Southern province of Rwanda. The researcher adopted descriptive research design where quantitative methods of data collection and analysis were used. The study population included the project staff and beneficiaries of the Post-Harvest and Agribusiness Support project in Southern province of Rwanda which is equal to 1184 people and 8 project staff. The study used a sample size of 120 respondents. Since data were collected from the questionnaires, the researcher scrutinized the completed research instruments to identify and minimize errors, incompleteness and gaps in the information obtained from the respondents. Having the cleaned data, the Statistical Package for Social Sciences software was used to analyze data where independent and dependent variables were grouped to determine if there is a relationship between them (correlation). Based on the information drawn from findings the researcher concluded that the influence of quality planning process on success of Post-Harvest and Agribusiness Support project is significant. It was found out that the project could not succeed without a clear quality plan, the increase of one unit in quality planning influences the project success by .975 which prove a significant relationship between quality planning process and success project. This study demonstrated that there is a significant relationship between quality assurance process and success of Post-Harvest and Agribusiness Support project. It showed that the increase of one unit in quality assurance would increase the success of Post-Harvest and Agribusiness Support project by .693 units if other variables remain constant. Moreover the study concluded that quality assurance is a very important factor to the project success. The study demonstrated that there is a significant relationship between quality control process and success of Post-Harvest and Agribusiness Support project. If the researcher considers the level of significance which is 0.09, there is therefore a significant relationship between them because their p-value (0.000) is statistically significant at 9% level of significance. The researcher recommends that project managers must put in place the quality management plans that serve as quality guidelines to ensure project success. Project managers and their project staff have improve their ways and methods of quality auditing and improve quality audit strategies so as to keep their projects on track and on expected quality. Given the fact that quality control is a very important factor for project success, the issues of identification of quality non-compliance and its effects, suggesting corrective and preventive actions, recommending quality improvement, validating procedure for fault elimination, reviewing the results of corrective actions and producing quality control reports should be taken with seriousness by all project actors especially by the quality control department.*

Keywords: Quality, Quality Management Process, Success of Agribusiness Project

1. Introduction

According to Dale et al (2012), quality management is not an event - it is a process, a consistently high quality product or service cannot be produced by a defective process. Quality management is a repetitive cycle of measuring quality, updating processes, measuring, updating processes until the desired quality is achieved. Quality Management focuses on improving stakeholder's satisfaction through continuous and incremental improvements to processes, including removing unnecessary activities; it achieves that by the continuous improvement of the quality of material and services provided to the beneficiaries. It is not about finding and fixing errors after the fact, quality management is the continuous monitoring and application of quality processes in all aspects of the project (Hill, 2008). The process of quality management can be viewed from Quality Planning, to Quality Assurance, to Quality Control then to quality improvement (Dahlggaard, 2012). Globally, a number of organizations and projects have adopted quality initiatives. Toyota company for instance developed the

philosophy of "customer first" and "quality first". They set up quality assurance systems across various divisions and departments (Omware, 2013). They introduced statistical quality control (SQC) in 1949 followed by Total Quality Management initiatives based on the unchanging principles of "customer first" and "quality first". Through their quality initiatives, they won the Deming Application Prize in 1965 and the Japan Quality Medal Award in 1970 (Union of Japanese Scientists and Engineers, 2006).

The Government of Rwanda and International Fund for Agriculture Development (IFAD) have set up new partnership to support agriculture production processing operations to help developing an efficient post-harvest system driven by the private sector to reduce post-harvest losses and ensure food security of staple crops in Rwanda. The USD 85.862 million, funded by a loan and grant from IFAD, the government of Rwanda, private sector and beneficiaries, intended to benefit 32,400 rural households comprising poor smallholder farmers either engaged in production and primary processing in the priority CIP crops

and dairy, including poor farmers with some production potential and members of cooperatives who own small land plots, and smallholders who supplement their income through agricultural wage work including some privately owned SMEs.

2. Statement of the Problem

Most of IFAD funded projects are reported to be of poor quality delivery (IFAD, 2012), whereby most of them fail to meet the proposed schedule, budget and quality expectations. Many critics have been directed to the governments especially to the managers that they don't put their efforts in quality management process (Kubal, 2009). In Rwanda the failure rate of agricultural projects was at the rate of over seventy percent (World Bank, 2013). Post-Harvest and Agribusiness support project in southern province is failing to meet its objectives as intended (MINAGRI, 2016). From this failing more and more critics reflect to poor quality management process adopted by the PASP management team; while others go so far to blame the project sponsors and government to exclude the beneficiaries at the project planning stage, therefore this creates confusions to what is the real issue behind the failure of Post-Harvest and Agribusiness support project in southern region of Rwanda compared to the Northern and Eastern regions (Fabian, 2016).

Even if project quality concerns have become a topic of debate for many years ago and a number of studies have been done in the area of quality management; most of them have focused on the factors inside total quality management and the critical factors for implementation of total quality

management (Aspin wall, 1999). Also it is important to note that most of them have been carried out in manufacturing, construction and service delivering industries. That's why in this study; the researcher aimed at analyzing the influence of quality management process on success of agribusiness projects in Rwanda by taking into consideration the case of Post-Harvest and Agribusiness Support project in Southern province of Rwanda.

3. Objectives of the Study

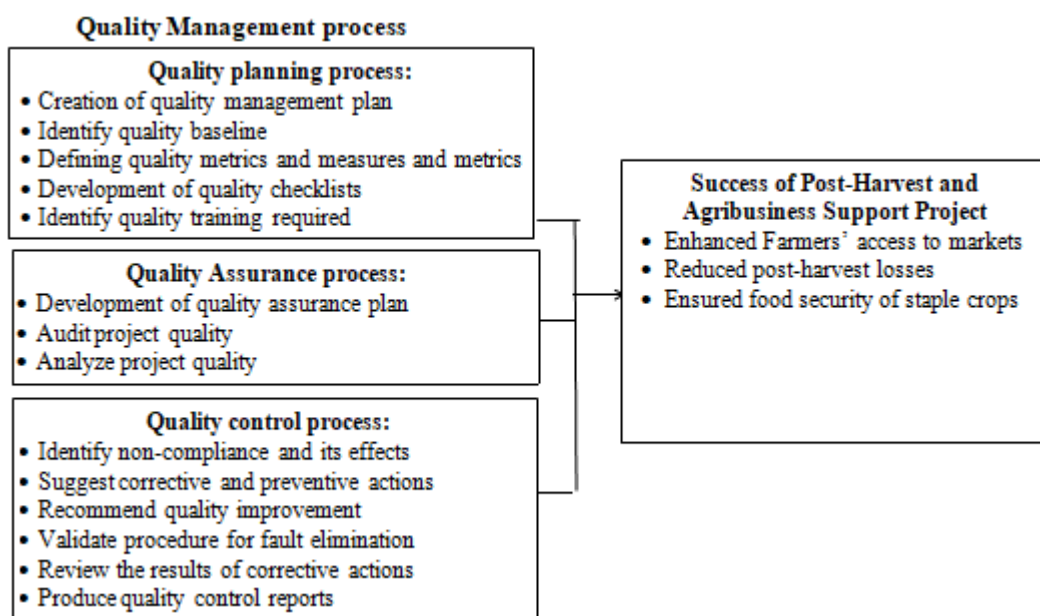
3.1 General Objective

The general objective of this study was to analyze the influence of quality management process on success of agribusiness projects in Rwanda.

3.2 Specific objectives

- 1) To examine the influence of quality planning process on success of Post-Harvest and Agribusiness Support project
- 2) To assess the influence of quality assurance process on success of Post-Harvest and Agribusiness Support project
- 3) To assess the influence of quality control process on success of Post-Harvest and Agribusiness Support project

4. Conceptual Framework of the Study



5. Research Methodology

- **Research Design:** The researcher adopted descriptive research design where quantitative methods of data collection and analysis were used
- **Target Population:** the population included the project staff and beneficiaries of the Post-Harvest and Agribusiness Support project in Southern province of

Rwanda which is equal to 1184 people since they had enough information on quality management process and its influence

- **Sample Size:** During this research, the sample size equaled to 120 respondents
- **Data collection instruments:** For this study, the primary data were collected by using questionnaires.

• **Data processing and analysis:** Since data were collected from the questionnaires, the researcher scrutinized the completed research instruments to identify and minimize errors, incompleteness and gaps in the information obtained from the respondents. Where the gaps were found, the data collected were recalled the information from a certain respondent. Having the cleaned data, the Statistical Package for Social Sciences software was used to analyze data where independent and dependent variables were grouped to determine if there is a relationship between them (correlation). Apart from the Pearson correlation model, descriptive and inferential statistics were also used during data analysis process.

6. Summary of Research Findings

Examination of the influence of quality planning process on success of Post-Harvest and Agribusiness Support project

Table 1: Descriptive Statistics on quality planning process and success of Post-Harvest and Agribusiness Support project

Indicators	N	Minimum	Maximum	Mean	Std. Deviation
Quality management plan	120	1	4	2.42	1.192
Quality baseline	120	2	5	2.93	1.143
Quality metrics and measures	120	1	5	2.87	1.622
Quality checklists	120	1	5	3.50	1.665
Quality training requirements	120	2	5	3.50	1.123
Valid N (listwise)	120				

Source: Field Data (2018)

The findings from the Table 1 show that the mean values for the first, second, third, fourth and fifth statements is 2.42 which is respectively rounded off to 2 (the code for agree), 2.93 and 2.87 are respectively rounded off to 3 (the code for neutral) while 3.50 is respectively rounded off to 4 (the code for disagree). The standard deviation for all statements is above 0.5 meaning that respondents' answers on these statements were far different from the mean, in other words, their answers to the statements were heterogamous. This means that respondents' views on the above statements were varied.

Table 2: Correlation between quality planning process and success of Post-Harvest and Agribusiness Support Project

Variables		Quality Planning	Project Success
Quality Planning	Pearson Correlation	1	.975**
	Sig. (2-tailed)		.000
	N	120	120
Success Project	Pearson Correlation	.975**	1
	Sig. (2-tailed)	.000	
	N	120	120

Source: Field Data (2018)

The findings in Table 2 revealed that the results of correlation between quality planning process and success support project was at 0.975 meaning that planning process influence project success at the level of 97.5% which prove

a significant relationship between quality planning process and success project. If the researcher considers the level of significance which is 0.09, there is therefore a significant relationship between them because their p-value (0.000) is statistically significant at 9% level of significance.

6.2 Assessment of the influence of quality assurance process on success of Post-Harvest and Agribusiness Support project

Table 3: Descriptive Statistic on quality assurance process on success of Post-Harvest and Agribusiness Support Project

Indicators	N	Minimum	Maximum	Mean	Std. Deviation
Development of quality Assurance plan	120	1	5	3.21	1.613
Auditing project quality	120	2	5	3.58	1.192
Analyzing project quality	120	1	5	3.46	1.478
Valid N (listwise)	120				

Source: Field Data (2018)

The findings from Table 3 indicate that the mean values for the first and third statements are approximately equal to the code of neutral and the second statement mean is approximately equal to the code of disagree. Their standard deviation is above than 0.5 meaning that respondents' answers on these statements were far different from the mean, in other words their answers to the statement were heterogeneous.

Table 4: Correlation between quality assurance process and success of Post-Harvest and Agribusiness Support Project

Variables		Quality Assurance Process	Project Success
Quality Assurance Process	Pearson Correlation	1	.693**
	Sig. (2-tailed)		.000
	N	120	120
Project Success	Pearson Correlation	.693**	1
	Sig. (2-tailed)	.000	
	N	120	120

Source: Field Data (2018)

The findings from Table 4 revealed that, the results of correlation between the quality assurance process and success of Post-Harvest and Agribusiness Support project was at 0.693 mean that quality assurance process influence success of Post-Harvest and Agribusiness Support project at the level of 69.3% which prove a significant relationship between quality assurance process and success of Post-Harvest and Agribusiness Support project. If the researcher considers the level of significance which is 0.09, there is therefore a significant relationship between them because their p-value (0.000) is statistically significant at 9% level of significance.

6.3 Assessment of the influence of quality control process on success of Post-Harvest and Agribusiness Support project

Table 5: Descriptive Statistic on quality control process and success of Post-Harvest and Agribusiness Support Project

Indicators	N	Minimum	Maximum	Mean	Std. Deviation
Quality non-compliance and its effects	120	1	4	2.84	1.209
Quality corrective and preventive actions	120	1	5	3.17	1.410
quality improvement	120	2	5	2.93	1.121
Fault elimination in order to control the quality situations	120	1	4	2.93	1.121
The results of corrective actions	120	2	5	3.35	1.179
Quality control reports	120	1	4	2.67	1.183
Valid N (list wise)	120				

Source: Field Data (2018)

The findings in Table 5 show that the mean values for all statements are approximately equal to the code of neutral and their standard deviation are above 0.5 meaning that respondents' answers on these statements were far different from the mean, in other words, their answers to the statement were heterogeneous.

Table 6: Correlation between quality control process and success of Post-Harvest and Agribusiness Support Project

Variable		Quality Control Process	Project Success
Quality Control Process	Pearson Correlation	1	.806**
	Sig. (2-tailed)		.000
	N	120	120
Project Success	Pearson Correlation	.806**	1
	Sig. (2-tailed)	.000	
	N	120	120

Source: Field Data (2018)

The findings from Table 6 revealed that the results of correlation between the quality control process and project success support project was at 0.806 mean that quality control influence the success of at the level of 80.6% which prove a significant relationship between the quality control process and success of Post-Harvest and Agribusiness Support project. If the researcher considers the level of significance which is 0.09, there is therefore a significant relationship between them because their p-value (0.000) is statistically significant at 9% level of significance.

6.4 Success of Post-Harvest and Agribusiness Support Project

Table 7: Descriptive Statistic on support project

Indicators	N	Minimum	Maximum	Mean	Std. Deviation
Enhanced farmers' access to markets	120	1	4	2.33	1.252
Reduced Post-Harvest losses	120	1	4	2.25	1.304
Ensured food security of staple crops	120	1	5	2.42	1.559
Valid N (listwise)	120				

Source: Field Data (2018)

The findings from the Table 7 demonstrated that the mean values for all statements is approximately equal to the code of agree and their standard deviation is above 0.5 meaning that respondents' answers on these statements were far different from the mean, in other words their answers to the statement were heterogeneous.

6.5 Estimated parameters for Quality planning, Quality Assurance and Quality control processes with the success of Post-Harvest and Agribusiness Support Project

Table 8: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.977 ^a	.954	.953	.272

Source: Field Data (2018)

- a. Predictors: (Constant), Independent variables (Quality planning, Quality Assurance and Quality control processes)
- b. Dependent variable: Success support project

The findings from Table 8 $AnR^2 = 0.954$ demonstrated that 95.4% of quality planning, quality assurance and quality control processes can be explained by success of Post-Harvest and Agribusiness support project leaving only 4.6% of the variation in the dependent variable being explained by the error-term or other variables other than project success.

Table 9: ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	178.054	3	59.351	799.364	.000 ^b
Residual	8.613	116	.074		
Total	186.667	119			

Source: Field Data (2018)

- a. Predictors: (Constant), Independent variables (Quality planning process, quality assurance process and quality control process)
- b. Dependent variable: Success of Post-Harvest and Agribusiness Support Project

The findings from Table 9 show that predictors: quality planning, quality assurance process and quality control have an effect on dependent variable, Success of post-harvest and agribusiness support project. This is statistically significant with a p-value (.000).

Table 10: Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.209	.064		3.260	.001
Quality planning	.964	.035	.917	27.476	.000
Quality assurance	.028	.034	.036	.808	.421
Quality control	.044	.056	.042	.777	.439

Source: Field Data (2018)

- a. Dependent Variable: Success of Post-Harvest and Agribusiness Support Project

The results indicate that quality planning, quality assurance and quality control processes have statistical significant effect on success of Post-Harvest and Agribusiness Support Project with a positive coefficient of determination of 0.977

which indicates that there is a strong and positive correlation between quality control, quality assurance, quality control processes and success of Post-Harvest and Agribusiness Support Project. The coefficients of independent variables β_1, β_2 and β_3 are respectively 0.964; 0.028 and 0.044 with a statistical significance ($p = 0.00$). Therefore, the model equation derived is: $y = 0.209 + 0.964x_1 + 0.028x_2 + 0.044x_3 + e$. The positive coefficient further demonstrates that a 1% increase in the quality control process is attributed to 0.964% improvement in success of Post-Harvest and Agribusiness Support Project and the t-statistic value (0.000) indicates that the effect is statistically significant at 91% confidence level. An increase of 1% at quality assurance will increase success of Post-Harvest and Agribusiness Support Project given by 0.028 % at the t-statistic value (0.421) indicates the effect is statistically significant at 91% confidence level while a positive coefficient demonstrates that a 1% increase at quality control will increase 0.044% on success of Post-Harvest and Agribusiness Support Project with t-statistic value (0.439) indicates the confidence level of 91% the effect is statistically significant.

7. Conclusions and Recommendations

7.1 Conclusions

According to the interpretation of collected and analyzed data during the course of this study; the researcher came up with the following conclusions:

Based on the information drawn from findings the researcher concluded that the influence of quality planning process on success of Post-Harvest and Agribusiness Support project is significant. It was found out that the project could not succeed without a clear quality plan, the increase of one unit in quality planning influences the project success by .975 which prove a significant relationship between quality planning process and success project.

This study demonstrated that there is a significant relationship between quality assurance process and success of Post-Harvest and Agribusiness Support project. It showed that the increase of one unit in quality assurance would increase the success of Post-Harvest and Agribusiness Support project by .693 units if other variables remain constant. Moreover the study concluded that quality assurance is a very important factor to the project success.

As per the third objective this study demonstrated that there is a significant relationship between quality control process and success of Post-Harvest and Agribusiness Support project. If the researcher considers the level of significance which is 0.09, there is therefore a significant relationship between them because their p-value (0.000) is statistically significant at 9% level of significance.

7.2 Recommendations

After analysis and interpretation of data, the researcher came up with the following recommendations To Whom It May Concern especially to project funders and managers. Project managers must put in place the quality management plans that serve as quality guidelines to ensure project success.

Project managers and their project staff have improve their ways and methods of quality auditing and improve quality audit strategies so as to keep their projects on track and on expected quality.

Given the fact that quality control is a very important factor for project success, the issues of identification of quality non-compliance and its effects, suggesting corrective and preventive actions, recommending quality improvement, validating procedure for fault elimination, reviewing the results of corrective actions and producing quality control reports should be taken with seriousness by all project actors especially by the quality control department.

References

- [1] Adams, R.(2010). *Quality function deployment; Its Promise and Reality*. . Michigan- USA: Rockwell International.
- [2] Afshin, P. &. (2012). Determining the Critical Success Factors in Construction Projects: AHP Approach . *Interdisciplinary of Contemporary Research In Business*, Vol.4(8), PP. 39-58.
- [3] Almaraz. (2014). Quality Management and the Process of Change. *Journal of Organizational Change Management*, 6-14.
- [4] Anselm, T. (2013). *Managing for Quality in the Financial Services Industry*. London: Chapman & Hall.
- [5] Black, S. (2004). *Total Quality Management: The Critical Success Factors*. Bradford: University of Bradford.
- [6] Bowen, R. C. (2010). *Measuring and Managing Service Quality. In service Management Effectiveness*. San Francisco: Jossey.
- [7] Collard, R. (1993). *Total Quality: Success Through People*. London: Institute of Personnel Management .
- [8] Dahlgaard. (2012). *Process Analysis and Improvement. Fundamentals of Quality Management*.
- [9] Dale, B. A. (2002). *Total Quality and Human Resources: An Executive Guide*. Oxford: Blackwell.
- [10] Dale, G. L. (2010). *The Process of Quality Management in Managing Quality*.
- [11] Dale, J. A. (2012). Continuous Quality Improvement: Why some organizations Lack Commitment. *International Journal of Production Engineering*, 52-67.
- [12] Deming, W. (1982). *Quality, Productivity and Competitive position*. Massachusetts:MIT.
- [13] Deming, W. E. (1986). *The Deming Route to Quality and Productivity: Roadmaps and roadblocks*. Washington DC.
- [14] Feigenbaum. (2013). *Total Quality Control: Engineering and Management*. New York: MacGraw-Hill.
- [15] Fox, M. (2013). *Quality Assurance Management*. London: Chapman & Hall.
- [16] Garvin, D. (2014). *What Does Product or Service Quality Really Means*. Solam Management Review.
- [17] Ghobadian A, S. (2013). Service Quality- Concepts and Models. *International Journal of Quality and Reliability Management*, 43-66.

- [18] Ghobadian, A. (2015). *How Alitalia Improves Service Quality Through Quality Function Deployment. Managing Services Quality.*
- [19] Gray, C. E. (2008). *Project Management: The Managerial Process, 4th Ed.* Boston: McGraw-Hill Irwin.
- [20] Guaspari, J. (1985). *I know It When I see It. A Modern Fable About Quality; AMACOM, Theory Why, . AMACOM.*
- [21] Guide, P. (2008). *Guide to the Project Management Body of Knowledge 4th Ed.*
- [22] Harmer, K. (2013). Total Quality Management Initiative at BCO. *The Journal of the Institute of Quality Assurance*, 192-195.
- [23] Harter, H. (2015). *Total Quality Management in professional services: An examination Part 1: Managing service Quality*
- [24] Hawcroft, B. (2013). Staff Perception of Service Quality in UK Clearing Bank: Some Empirical Findings. *Journal of Service Industry Management*, 5-34.
- [25] Haywood, F. (2008). A Conceptual Model of Service Quality. *International Journal of Production Management*, 19-30.
- [26] Hill, G. M. (2008). *The Complete Management Office Handbook 2nd Ed.* New York: Auerbach Publications.
- [27] Hokoma. (2010). The present status of quality and manufacturing techniques and philosophies within the Libyan iron and steel industry. *The Total Quality Management Journal*, 209-221.
- [28] Hopkinson, M. (2011). *Project risk maturity model 2nd Ed.* Farnham: Gower Publishers.
- [29] Ireland, L. R. (2011). *Quality Management For Projects and Programs.* Project Management Institute.
- [30] Juran. (1992). *Designs for World Class Quality.* Juran Institute.
- [31] Juran, J. (1988). *Juran's Quality Control Handbook, 4th Edition .* Mc Graw-Hill.
- [32] Juran, J. (1993). *Quality Planning and Analysis - From Product Development Through Use.* New York: MacGraw-I-Ell.
- [33] Juran.I.M. (1964). *Management Breakthrough.* New York: MacGraw-Hill.
- [34] MacDonald, I. (1990). *Global Quality: The New Management Culture.* London: Mercury Books.
- [35] Oakland, D. (1994). Total Quality Management in Services Part 1. *International Journal of Quality & Reliability Management*, 9-26.
- [36] Oakland, J. (1995). Total Quality Management Training: A Review and Suggested Framework. *Journal of Total Quality Management*, 299-316.
- [37] Omware. (2012). *Determinants of Quality Management Practices.* Nairobi: University of Nairobi.
- [38] Parasuraman, A. Z. (1985). *A Conceptual model for quality services.*
- [39] Philips, L. C. (1983). Product Quality, Cost position and Business Performance: A test of some hypotheses. *Journal of Marketing*, 26-43.
- [40] Rose, J. (2006). *Main Elements of a Project Quality plan.*
- [41] Sharon, K. (2011). Effects of Total Quality Management implementation on business performance in service institutions. *International Journal of Research studies*, 59-76.
- [42] Smith, D. (1989). The Competitive Advantages of Quality Customer Services. *Journal of Marketing*, 61-64.
- [43] Smith, J. (1993). Quality Complaints Lead to Quality customers. *The Joirnal of Institute of Quality Assurance*, 206-209.
- [44] Tuner, R. (2008). *Project Review Assurance and Governance.* Farnham UK: Gower Publishers.
- [45] Wilkinson, A. S. (1990). *Total Quality Management and the Management of labor.*
- Zeithaml, V. B. (1988). Communication and Control Processes in the Delivery of Service Quality. *Journal of Marketing*, 35-48.