



***Gelderland & Overijssel***  
Combined Innovation Force  
***Summary***  
***Annual Report 2011***



**European Union**  
European Regional Development Fund

Investing in your future!

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# Preface

In an unstable economic period as we are witnessing now, regional economic structure enhancement is of great importance. Continued investments in innovative projects and projects that create a positive climate for innovations, are an incentive for the regional economy. A long-term subsidy programme such as ERDF 2007-2013 ensures stability and plays an important role in the East Netherlands region. The European subsidy may be that extra helping hand to enable the start of a project. In 2011 as well, the GO-EFRO (ERDF) programme has helped to enable the realisation of a wide range of projects that were a success!

Our focus on Food, Health & Technology keeps us on a clear course. We stimulate cooperation between the business community and knowledge institutes. Europe, the central government, regions and cities make joint investments. This is the only way to achieve tangible results in the region and to generate growth. Moreover, I am pleased to see that the cooperation between the Valleys is intensifying. Where the Valleys in the past mainly used to operate in their own areas, we now also see connections emerging between them. Project partners extend their networks this way and this creates new opportunities for future cooperation. There is an increasing number of projects at the interface of Food & Health and Health & Technology.

In 2012 and 2013 we will continue the programme as before. Presently, preparations are underway for the next ERDF period 2014-2020. Just as the European Commission, I place great store by a regional management of structural funds. We have seen ample proof in the past that a regional project office creates additional value. A regional project office is embedded in regional networks in which cooperative arrangements and projects arise, and it may stimulate, facilitate and monitor such initiatives. This is also in line with the subsidiarity principle: structural funds' activities should be carried out as close as possible to citizens and businesses. It is good to see that great results for the regional economy can be achieved thanks to the GO-EFRO programme and that it creates and preserves jobs.

When we look at Europe 2020, the spearheads are smart, sustainable and inclusive growth. Smart growth enables the European Union to do better in the area of research and innovation. New products and services create growth, employment and social progress. As East Netherlands we must work vigorously on Food, Health, High Tech Systems & Materials and Energy Environmental Technology. These key areas closely match the policies of both the Province of Gelderland and that of Overijssel. In order to reach sustainable growth, entrepreneurship needs to be encouraged especially concerning SMBs. Inclusive growth to promote employment and 'lifelong learning'. I feel that stimulation of innovation in SMBs can be realized very well in the region.

*Annemieke Traag*  
*Chairman Supervisory Committee GO-EFRO*  
*Member of the Provincial Executive of Gelderland.*



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# Implementation progress

The main target of the Operational Programme East Netherlands (OP Oost) is "to develop East Netherlands into a leading European innovative region." The GO-EFRO programme is a joint programme of the Provinces of Gelderland and Overijssel with the five urban networks located in the region: Urban Region Arnhem Nijmegen (Stadsregio Arnhem Nijmegen), Network City Twente, Zwolle-Kampen Network City, The Valley Region and the Urban Triangle (Stedendriehoek). In the Provinces of Gelderland and Overijssel, the programme is implemented under the title: "GO Gelderland & Overijssel, Combined Innovation Force".

The European Commission supports the Operational Programme East Netherlands (OP Oost) from the European Regional Development Fund (ERDF, in Dutch EFRO). The fund is one of the instruments deployed by the European Commission for its objective of turning the European Union into the most prosperous and competitive region in the world.

## Targets

Food Valley, Health Valley & Technology Valley are the driving forces of the development of the knowledge economy in the region and constitute the foundation of the GO-EFRO programme. In addition to the Triangle, there is ample room for new, upcoming knowledge clusters.

East Netherlands is in the lead with respect to knowledge and innovation and it is designated as a national innovation region. The OP East Netherlands was set up to reinforce and expand this position. East Netherlands has the potential to develop into a European top region. This requires the exploitation of the regional (knowledge) economy and turning any bottlenecks into new opportunities. In terms of measures taken and financial efforts, the OP East Netherlands clearly focuses on reinforcement of the knowledge economy and innovation force.

The priorities of the Dutch ERDF Operational Programme are worked out in four sub targets:

- Reinforcing the knowledge economy and the regional innovation potential by deploying and enhancing the knowledge clusters in place;
- Reinforcing the competitive position of the business community, stimulating entrepreneurship and creating sustainable employment;
- Increasing the attractiveness and the quality of life of East Netherlands, especially in the urban networks;
- Increasing the socioeconomic appeal of the urban areas.

## Financial progress

The attention of the Managing Authority for safeguarding the quality of a sound programme implementation is proving to be fruitful. Positive decisions were issued for a total of 40 projects (excluding Technical assistance) in 2011. Fifteen projects of the 120 that were committed before the end of 2011, are completed.

The total of committed ERDF means for the programme, amounts to € 125,277,359 end 2011 (see table 1).

The commitments of ERDF means in Priority 1 are almost € 20 million ahead of planning and with a level of € 86 million, constitute 90% of the total amount.

In the autumn of 2011 various projects were submitted. Expectations are that the total volume for Priority 1 will be committed in 2012. The commitments of Priority 2 of 2011 are considerably higher than budgeted in the annual tranche. This puts Priority 2 almost at the level of overall planning, end 2011. Priority 3 has seen another catch-up movement, but this has not made up for the arrears of the first years. Because Priority 3 projects usually have a shorter lifespan than projects in the two other priorities, the coming years still have extra opportunities to reach the target for the entire programme period.



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**Table 1: Financial overall view originally committed amounts OP Oost 2011 (Operational Programme East Netherlands)**

	TSC*	ERDF			NATIONAL PUBLIC			NATIONAL PRIVATE		
		COMMITTED 31/12/2011	BUDGETED UNTIL 31/12/2011	TARGET TOTAL PROGRAMME PERIOD	COMMITTED 31/12/2011			TARGET TOTAL PROGRAMME PERIOD	COMMITTED 31/12/2011	TARGET TOTAL PROGRAMME PERIOD
					GOVERN.	REGION	TOTAL PUBLIC			
<b>Priority 1</b> Regional innovation force, knowledge economy and entrepreneurship	291,730,514	85,943,221	66,710,000	95,276,000	35,577,832	47,576,764	83,154,596	95,276,000	122,632,697	21,173,000
<b>Priority 2</b> Reinforce innovation climate in urban networks	98,855,611	28,124,542	31,599,000	45,128,000	11,587,218	55,583,324	67,170,542	55,156,000	3,560,527	0
<b>Priority 3</b> Strengthen attractive towns	25,089,139	8,279,472	11,995,000	17,132,000	2,600,000	13,159,007	15,759,007	19,036,000	1,050,660	1,904,000
<b>Priority 4</b> Technical assistance	5,860,247	2,930,123	4,596,000	6,564,000	0	2,930,124	2,930,124	6,564,000	0	0
<b>Total</b>	<b>421,535,511</b>	<b>125,277,359</b>	<b>114,900,000</b>	<b>164,100,000</b>	<b>49,765,050</b>	<b>119,249,219</b>	<b>169,014,269</b>	<b>176,032,000</b>	<b>127,243,884</b>	<b>23,077,000</b>

\* Total Subsidisable Costs



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**Table 2: Financial overall view committed amounts (incl. adjustment established realisation figures) OP Oost 2011**

	TSC	ERDF			NATIONAL PUBLIC			NATIONAL PRIVATE		
		COMMITTED 31/12/2011	BUDGETED UNTIL 31/12/2011	TARGET TOTAL PROGRAMME PERIOD	COMMITTED 31/12/2011			TARGET TOTAL PROGRAMME PERIOD	COMMITTED 31/12/2011	TARGET TOTAL PROGRAMME PERIOD
					GOVERN.	REGION	TOTAL PUBLIC			
<b>Priority 1</b> Regional innovation force, knowledge economy and entrepreneurship	292,432,914	85,715,382	66,710,000	95,276,000	35,562,791	47,526,928	83,089,720	95,276,000	123,627,812	21,173,000
<b>Priority 2</b> Reinforce innovation climate in urban networks	98,865,525	27,925,200	31,599,000	45,128,000	11,587,218	55,792,580	67,379,798	55,156,000	3,560,527	0
<b>Priority 3</b> Strengthen attractive towns	25,298,576	8,275,833	11,995,000	17,132,000	2,600,000	13,372,083	15,972,083	19,036,000	1,050,660	1,904,000
<b>Priority 4</b> Technical assistance	5,860,247	2,930,123	4,596,000	6,564,000	0	2,930,124	2,930,124	6,564,000	0	0
<b>Total</b>	<b>422,457,262</b>	<b>124,846,538</b>	<b>114,900,000</b>	<b>164,100,000</b>	<b>49,750,009</b>	<b>119,621,715</b>	<b>169,371,724</b>	<b>176,032,000</b>	<b>128,238,999</b>	<b>23,077,000</b>



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**Table 3: Substantive progress of the programme**

INDICATOR	PRIORITY 1			PRIORITY 2			PRIORITY 3			TOTAL		
	TARGET	COMMITMENT 2011	REALISATION 2011	TARGET	COMMITMENT 2011	REALISATION 2011	TARGET	COMMITMENT 2011	REALISATION 2011	TARGET	COMMITMENT 2011	REALISATION 2011
Number of R&D projects	15	88	66							15	88	66
Private R&D projects (in euro)	10,000,000	107,175,164	9,803,753							10,000,000	107,175,164	9,803,753
Public R&D projects (in euro)	10,000,000	160,783,821	9,949,904							10,000,000	160,783,821	9,949,904
Number of supported start-ups and small businesses < 5 years	150	577	577				30	135	38	180	712	615
Obtained private follow-up investments in euro	25,000,000	58,281,837	22,017,313							25,000,000	58,281,837	22,017,313
Number of supported SMBs	2,000	1,049	695				30	101	11	2,030	1,150	706
Number of new partnerships between businesses and knowledge/research institutes	100	77	184							100	77	184
Number of projects improved accessibility alternative transport modes				10	12	2				10	12	2
Number of projects improved accessibility				10	15	3				10	15	3
Number of redeveloped or new urban facilities				25	16	3	10	11	3	35	27	6
Number of hectares modernised business park				200	158	40	10	0	0	210	158	40
Number of recreational tourism projects				10	13	4				10	13	4
Number of projects aimed at improvement of nature, landscape or cultural heritage				14	10	1				14	10	1



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**Table 3: Substantive progress of the programme (continuation previous page)**

INDICATOR	PRIORITY 1			PRIORITY 2			PRIORITY 3			TOTAL		
	TARGET	COMMITMENT 2011	REALISATION 2011	TARGET	COMMITMENT 2011	REALISATION 2011	TARGET	COMMITMENT 2011	REALISATION 2011	TARGET	COMMITMENT 2011	REALISATION 2011
Number of projects aimed at entrepreneurship, urban community economy							25	5	2	25	5	2
Number of projects aimed at participation, quality of life or social activation							25	12	4	25	12	4
Number of m <sup>2</sup> modernised business locations							200,000	4,800	4,200	200,000	4,800	4,200
Number of gross created jobs in fte (outcome)	900	3,623	593	1,250	309	52	25	23	23	2,175	3,955	668



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## Approved projects

In the reporting year, fourteen projects were completed. A number of details of these fourteen projects are included below. Table 4 states all fourteen projects with the realisation values of the indicators.

**Table 4: Completed projects in 2011**

PROJECT NAME MEASURE	Number of R&D projects	Private R&D investments in euro	Public R&D investments in euro	Number of supported start-ups and small businesses < 5 years	Obtained private follow-up investments in euro	Number of supported SMBS	Number of new partnerships between businesses and knowledge/research institutes	Number of projects improved accessibility alternative transport modes	Number of projects improved accessibility	Number of redeveloped or new urban facilities	Number of hectares modernised business park	Number of recreational tourism projects	Number of projects aimed at improvement of nature, landscapes or cultural heritage	Number of projects aimed at entrepreneurship, urban community economy	Number of projects aimed at participation, quality of life or social activation	Number of m <sup>2</sup> modernised business premises	Number of gross created jobs in the (outcome)
1.2 Central Filling in combination with automated medicine dispensers	1	1,167,105	858,845	2	358,593	2	1	0	0	0	0	0	0	0	0	0	17
GO Cargobikes	1	213,030	230,100	0	75,000	4	2	0	0	0	0	0	0	0	0	0	3
Achterhoeks Technology Centre ACT on its way to...	8	588,000	0	15	835,000	77	22	0	0	0	0	0	0	0	0	0	46
N-GAP	1	2,019,618	2,019,619	0	714,945	4	1	0	0	0	0	0	0	0	0	0	33
SUNrise	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WPM: Operational principle of dry sorting	1	405,970	405,970	2	81,883	2	1	0	0	0	0	0	0	0	0	0	3
X750, New generation advanced test equipment for integrated electronic circuits (chips)	1	2,139,723	1,181,642	0	587,882	4	1	0	0	0	0	0	0	0	0	0	27
2.1 HOV-Midden Phase 3 and 4	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	43
Improvement accessibility business park Zwolle	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
2.2 Cultural Mile	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
Sustainable industrial park Schuttersveld-Zuid	0	0	0	0	0	0	0	0	0	0	40	0	0	0	0	0	0
International Indoor Sport Centre Almelo (IISPA)	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	6
Theatre and culture Hertme in the "Groene Poort"	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1
3.1 Multifunctional centre DOK Zuid	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	3,600	3





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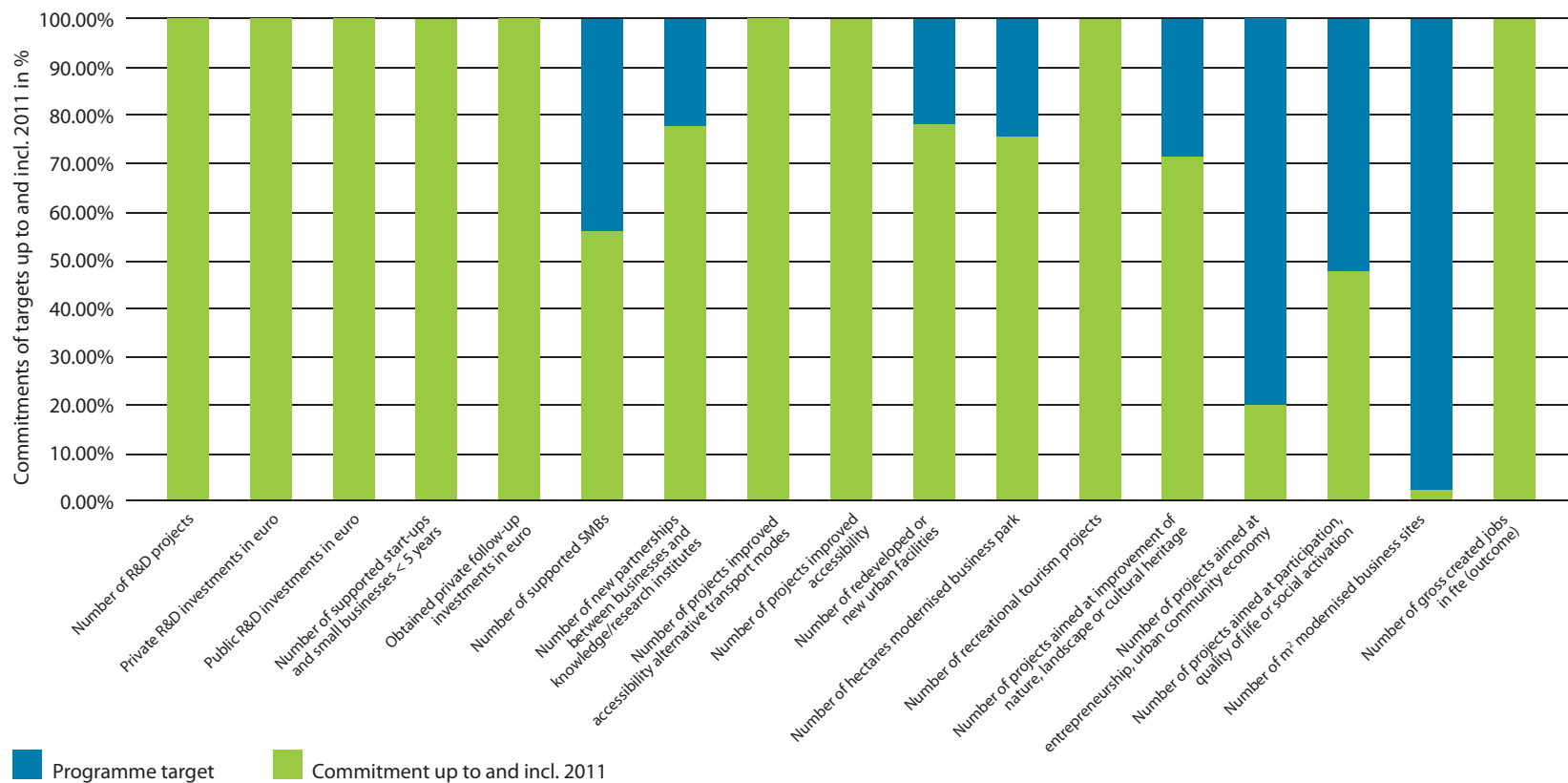
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## % Total



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**Table 5a: Committed projects 2011 Priority 1**

MEASURE	PROJECT NAME	APPLICANT	TSC IN € (COMMITTED)	ERDF IN € (COMMITTED)
1.1	Consortium Translational Medicine	RTM BV	20,050,008	4,511,252
1.1	"Samen Sterk Maken"	Synerlogic BV	2,031,735	765,868
1.1	247Tubestore	247 Tubestore BV	5,197,704	1,299,426
1.1	"Meer-Waarde van Vlees"	Hulshof's Protein Technologies BV	3,575,800	893,950
1.1	Venture Lab Twente education & training 2	University of Twente	1,829,868	600,000
1.1	"Licht op kwaliteit"	Meluna Lifetech BV	2,077,625	520,069
1.1	CMIInen innovation cluster	University of Twente	3,017,500	730,750
1.1	Dynamic Control of Respiration (DCR)	Van Amerongen BV	1,304,170	338,666
1.1	Innovation 2 Industrialisation for Advanced Micro- & Nanosystems	Business Cluster Semiconductors	10,664,406	1,804,085
1.1	Phage Processing, en route to a world class phagen pilot production plant	Micreos BV	2,482,850	620,713
1.1	"Meten in Melk" – Sustainable innovations in dairy chain	Qlip NV	1,500,383	366,226
1.1	Immunoforce	Trouw Nutrition Nederland BV	5,327,111	887,852
1.1	General Adhesive Tissue tape	GATT Technologies BV	3,518,792	877,590
1.1	Go without Salt	Heinz BV	3,333,358	755,723
1.1	Superbug Testing	Check-points BV	2,677,647	483,866
1.1	DAISY	Thales	4,851,474	1,123,261
1.1	Biocase: Composite Carrier Solutions	Cato Composite Innovations BV	1,221,868	200,433
<b>TOTAL 1.1</b>			<b>74,662,299</b>	<b>16,779,730</b>



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### Continuation table 5a

MEASURE	PROJECT NAME	APPLICANT	TSC IN € (COMMITTED)	ERDF IN € (COMMITTED)
1.2	Gelderland Transition Centre	Energy and Environmental Technology Cluster Stichting kiEMT	1,200,000	540,000
1.2	Development sustainable sublimation production chain	Kamp Coating BV	5,337,608	1,759,065
1.2	SUNrise	Synerlogic BV	499,789	163,172
1.2	Healthy nutrition thanks to residual streams rich in fibre	TOP BV	1,126,836	281,710
1.2	Soil decontamination in greenhouse cultivation without herbicides	Thatchtec BV	1,300,000	325,000
1.2	3D Lab and 3D Atelier	Housing association Stichting Portaal	2,012,370	450,000
1.2	Kinetic Energy Storage	S4 Energie	1,775,246	552,813
1.2	Development of high-end yarns and foils for safety paper	ArjoWiggins Security BV	1,587,598	357,669
1.2	Cater with Care	Wageningen University	4,266,840	819,065
<b>TOTAL 1.2</b>			<b>19,106,287</b>	<b>5,248,494</b>

<b>PRIORITY 1</b>			
<b>TOTAL</b>		<b>93,768,587</b>	<b>22,028,224</b>



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**Table 5b: Committed projects 2011 Priority 2**

MEASURE	PROJECT NAME	APPLICANT	TSC IN € (COMMITTED)	ERDF IN € (COMMITTED)
2.1	Area development centre of Westervoort	Municipality of Westervoort	2,737,168	750,000
2.1	RijnWaalpad Nijmegen	Municipality of Nijmegen	1,155,937	500,000
2.1	Laan van Malkenschoten	Municipality of Apeldoorn	4,583,000	2,000,000
2.1	Auke Vleerstraat incl. the third access road Kanaalzone	Municipality of Enschede	3,335,000	1,500,750
<b>TOTAL 2.1</b>			<b>11,811,105</b>	<b>4,750,750</b>

2.2	Make way for river cruising	Municipality of Arnhem	7,920,434	3,200,000
2.2	Experience the river the Berkel, Window to the Future	Municipality of Lochem	1,017,851	500,000
2.2	Restructuring Oranje Nassauplein	Municipality of Brummen	924,667	450,000
<b>TOTAL 2.2</b>			<b>9,862,952</b>	<b>4,150,000</b>

<b>PRIORITY 2</b>				
<b>TOTAL</b>			<b>21,674,057</b>	<b>8,900,750</b>



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### Table 5c: Committed projects 2011 Priority 3

MEASURE	PROJECT NAME	APPLICANT	TSC IN € (COMMITTED)	ERDF IN € (COMMITTED)
3.1	Strengthening the railway station area of Almelo	Municipality of Almelo	2,073,249	1,041,000
3.1	TETEM connects cultural energy	Stichting TETEM Art Space	147,900	72,000
3.1	The centre of Stroinkslanden-Zuid	Municipality of Enschede	1,893,166	800,000
3.1	Pocket money project by Stichting 't Geerdink	Municipality of Hengelo	130,134	75,000
3.1	Brinkpark	Municipality of Apeldoorn	2,216,582	1,000,000
3.1	Sustainable inner city distribution Deventer	Sallcon Werk talent	52,200	25,000
3.1	Shopping street management Deventer	Municipality of Deventer	427,120	278,000
<b>TOTAL 3.1</b>			<b>6,940,351</b>	<b>3,291,000</b>

PRIORITY 3			
<b>TOTAL</b>		<b>6,940,351</b>	<b>3,291,000</b>

### Table 5d: Committed Technical assistance Priority 4

YEAR	TSC	ERDF COMMITTED	ERDF BUDGETED	GOVERN.	REGION	PRIVATE
up to and incl. 2010	4,274,688	2,137,344	3,640,000	0	2,137,344	0
Changes	-567	-284	0	0	-283	0
2011	1,586,126	793,063	956,000	0	793,063	0
<b>TOTAL</b>	<b>5,860,247</b>	<b>2,930,123</b>	<b>4,596,000</b>	<b>0</b>	<b>2,930,124</b>	<b>0</b>



# Communication

The European Commission considers it important to inform the general public on projects financed with European funds. It is for this reason that the joint Managing Authorities and the Ministry of Economic Affairs, Agriculture and Innovation (EL&I) organise the national Europe Viewing Days (in Dutch, Europa Kijkdagen). From 13 up to and including 15 May everybody could see what happens with funds from various European subsidy programmes. More than 100 projects were freely

accessible, including thirteen Gelderland and Overijssel projects. These projects were visited by more than 300 interested persons in all. The European Commission designated the Europe Viewing Days as 'best practice' in the area of 'major annual information activity'. This, because of the fruitful cooperation between the MAs and the cooperation between the Interreg programmes.

Provincial Executive member Ms. Annemieke Traag visits Pulverizing Air Dryer project



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MARTIJN KUIT, MANAGING DIRECTOR OF THE RESEARCH INSTITUTE MIRA OF TWENTE UNIVERSITY AND CMIINEN

*“A clinical question from the hospital leads to an innovative product that helps both the doctor and the patient.”*



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The CMIInen Innovation Cluster project wants to create an open innovation cluster. The cluster gives the business community of East Netherlands access to high-quality knowledge, expertise and facilities in the area of medical imaging techniques. This enables them to make the most of international opportunities in the healthcare sector. Martijn Kuit, Managing Director of the research institute MIRA of Twente University and CMIInen explains the significance of the CMIInen Innovation Cluster.

## **“Medical technology *must reach patients*”**

“Innovative technological developments are always interesting. But it is even better when they lead to actual improvements in practice. And this is exactly the objective of the Centre for Medical Imaging North East Netherlands (CMIInen). The idea was the result of meetings between the MIRA Institute for Biomedical Technology and Technical Medicine, Siemens and the University Medical Centres of Groningen and Nijmegen. We shared the view that there is a wide gap between medical technology development and (daily)

practice. A lot of important developments were consigned to the dustbin so to speak and never saw the light of day. And this is of course a waste of efforts, time and money. All the more so, because those important medical developments never reach the patients. With the innovation cluster, we want to close the gap between development and practice.

### **Robot Arm**

Regional businesses can join the innovation cluster and start specific projects together.

A clinical question from the hospital leads to an innovative product that helps both the doctor and the patient. A good example of such a project is the development of a robot arm for an MRI puncture of the prostate. Because of the magnet in the MNRI scanner the use of metal is not a simple option. And in principle this also applies to a robot arm. However, this was actually needed. Through the innovation cluster a robot arm was developed that does function in an MRI scanner. The result: the doctor sees what he is





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doing during an MRI and this way he can avoid having to perform too many painful punctures of the prostate.

### **Medical imaging**

Medical imaging – to put in simply: making images of the human body – enables doctors to make very precise diagnoses. The CMIInen wants to contribute to a further reinforcement of the cooperation between Groningen, Enschede and Nijmegen. Together we can improve the application of imaging techniques in oncology, cardiology and neurology. The early detection and treatment of patients in those specialisms is of great importance to their health and quality of life. But there is a social interest as well, among others to limit healthcare costs.

### **Employment**

The CMIInen has set a number of objectives. We wanted to commit more than twenty parties to the cluster within five years after the start in July 2011. Within six months we had already reached this objective. Furthermore, we also want to create 97 FTE jobs in the regional business community in that same period of five years. In addition, we want to attract (inter) national companies to the region. And our final goal is to enhance the international reputation of the region in the area of medical imaging through a.o. publications in academic journals and by organising network meetings and congresses.

### **Knowledge cluster stimulates entrepreneurship**

The interchange between the medical world and the business community produces great results: contacts, knowledge and jobs. We set



***“A lot of important developments were consigned to the dustbin so to speak and never saw the light of day.”***

up a physical location on the campus of the Twente University where businesses can meet. Knowledge exchange is paramount. The fact that a company like Siemens is participating in the cluster, is a great advantage. A party with such an amount of global knowledge and contacts stimulates regional entrepreneurs. And entrepreneurship is essential to bring the technology to the patients.

### **The entire region benefits**

Clustering all medical centres, research centres and the business community leads to new activities, e.g. the company that manufactures the earlier mentioned robot arm. It is good to see that the project is supported by the authorities. The Provinces of Overijssel and Gelderland have assisted us very well with the application for ERDF subsidy.

The East Netherlands Development Company Oost NV also supports us with advice, just as the Innovation platform Twente and the

Twente Region. Another excellent example of the importance of cooperation and knowledge sharing.”

## Opportunities for East Netherlands

**The innovation cluster CMIInen brings the medical world into contact with the business community. This promotes knowledge exchange and entrepreneurship. It creates extra employment for the region and enhances the international reputation of the region in the area of medical imaging.**

**Beneficiary: MIRA, Institute for Biomedical Technology and Technical Medicine of the Twente University**

- Total public co-funding: € 1,461,500
- Granted ERDF contribution of the total amount: € 730,750

**Term: 1 July 2011 up to and incl. 31 December 2015**



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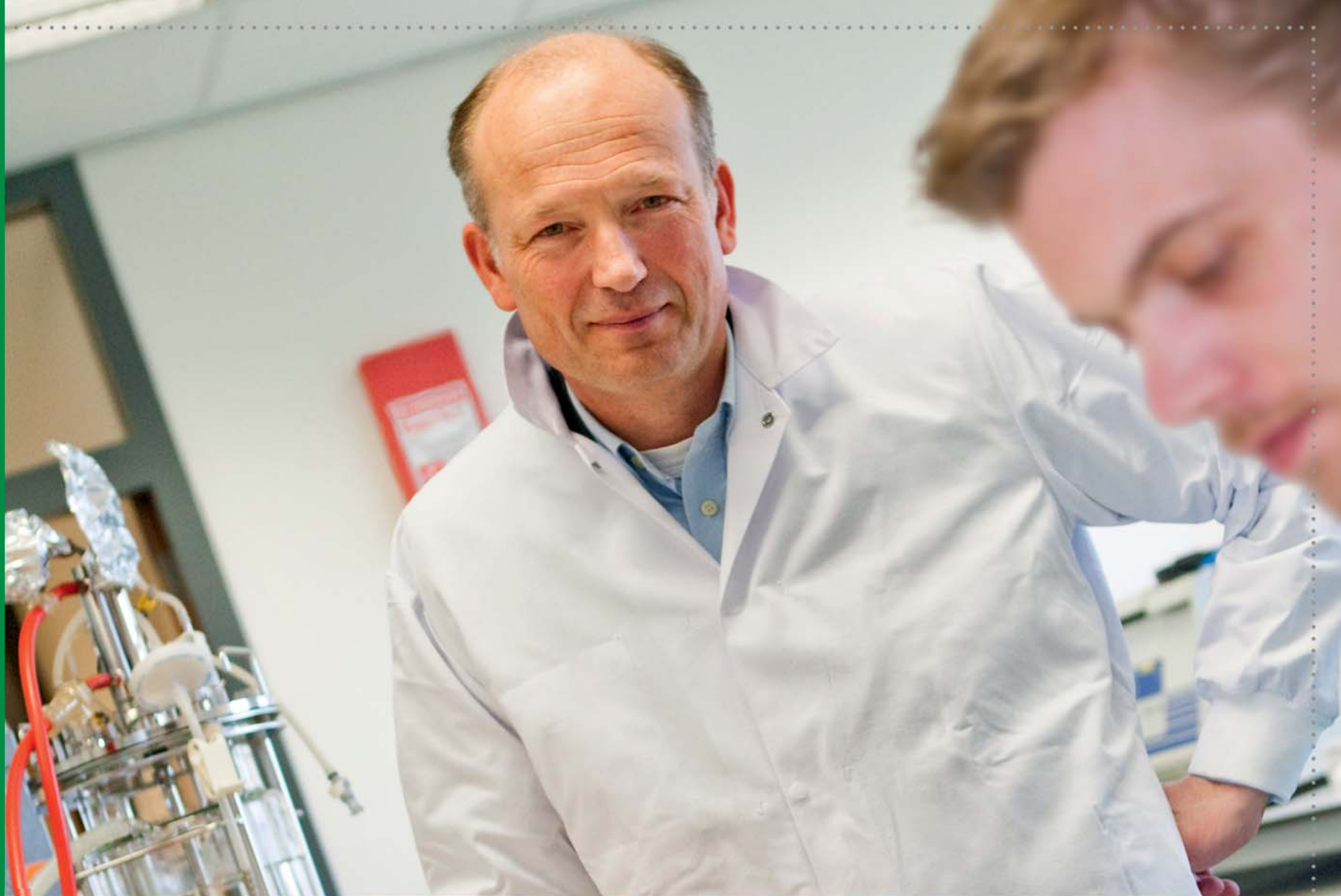
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WIM NUBOER, CHIEF OPERATING OFFICER WITH MICREOS

*“With the knowledge and expertise from Food Valley and Health Valley, we can develop a Phage Valley that is unique in the world.”*

**GO**

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A consortium headed by Microes is developing phage products to protect the health of man and animal. Phages are the natural enemy of bacteria. Wim Nuboer, Chief Operating Officer with Microes in Wageningen, discusses the phage processing project 'underway to a world-class pilot production plant'.

***“We want to make the world literally a better place.”***

“Early 1900 it was discovered that bacteria have a natural enemy: bacteriophages, in short called: phages. At that time the electron microscope had not yet been invented. And as these micro organisms were not visible with ordinary microscopes, there was no knowledge about how phages functioned exactly. With the rise of antibiotics, phages sank into oblivion. Through the rapid increase of antibiotics resistance in man and animal, the deployment of phage technology is catching up. We are one of the world players in this area.

Microes develops phage technology. Phages are the natural enemies of bacteria and use bacteria to reproduce. This micro organism has a kind of head, neck, feet and tail components. The DNA is in the head. How does the phage go about it? With its feet the phage attaches itself to even the smallest of bacteria and it penetrates the bacterium's cell wall with its tail. The DNA in the head passes through the hole in the cell wall into the bacterium. The DNA ensures that the bacterium starts to produce new phages, which then leave

and go look for new bacteria. Any bacterium that is attached by a phage, dies. Phages are everywhere around us, in water, food stuffs and on our bodies. Phages are absolutely harmless to man and animal.

### ***Listeria***

We can successfully fight Listeria. This is the bacterium that can cause Listeriosis. In practice, chances of contamination with Listeria are small. But the consequences can be very serious. Listeria is commonly known



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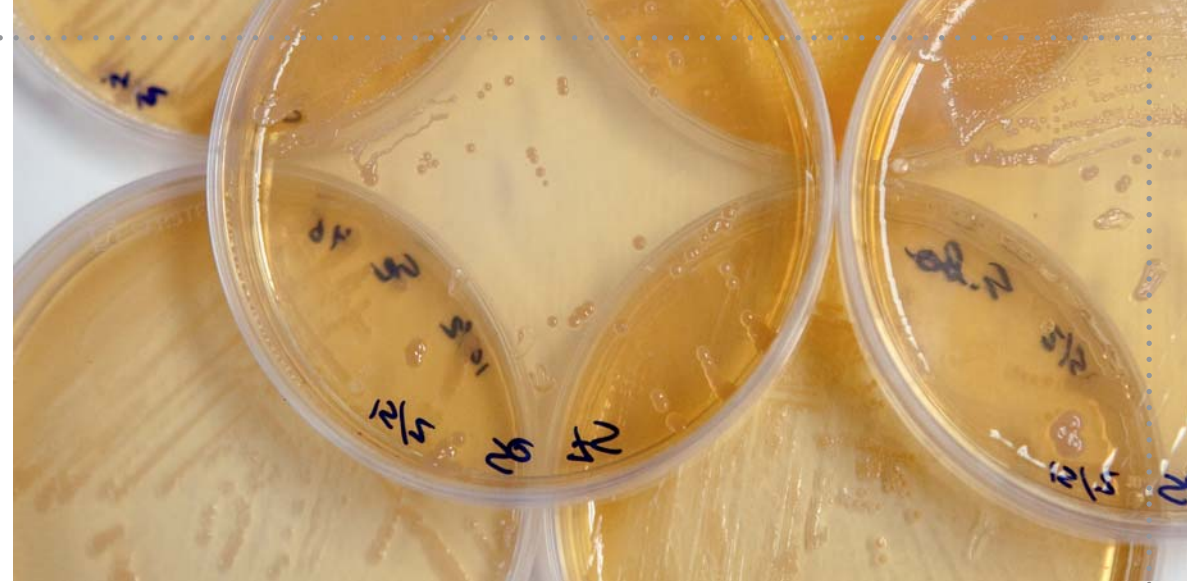
as the cause of miscarriage with pregnant women. With a mortality rate of around 30%, contamination poses extra threats to the elderly. Listeria is sometimes found in raw milk, soft cheese such as camembert and brie, but may also occur in smoked salmon or mackerel. Our anti-Listeria phages exclusively fight this single pathogenic bacterium. This contrary to antibiotics for example, which destroy both beneficial and harmful bacteria. Therefore, phages can be deployed very specifically against exclusively pathogenic bacteria.

### **Cooperation**

Our company wants to deal with pathogenic bacteria and this way make the world literally better. In the fight against Listeria we are on the right way. But we know that we can also fight Salmonella bacteria and the hospital bacteria MRSA through the use of phages. This requires an increase in scale. Microeos is still too small. We are limited in our speed and scope for action. Therefore we looked for cooperation in a consortium with businesses that we know and trust, i.e. Infors, Santorius Stedim and Kadans Biofacilities. We started this project together and we want to market new phage products for healthcare, the food processing industry, crop protection and livestock farming.

### **Larger volumes**

Together we have the knowledge and the facilities to make the process from phage production to market product a success. It all starts with a well-equipped laboratory for ultra clean processes and the purchase of specially manufactured equipment for phage production. We want to produce various phages step by step in various volumes. We already find that major



market players are ready to commit themselves to us. These are companies that want to purchase phages and businesses that seek cooperation in phages development. Based on our knowledge and production, we want to lead the market, now and in the future.

### **Unique in the region and in the rest of the world**

The East Netherlands region is very suited for the development of phage products. With the knowledge and expertise from the Food Valley and Health Valley, we can develop a 'Phage Valley' that is unique in the world. We are operating in a high-quality academic research environment. For this reason, we expect that in the course of the subsidy period we will be able to market products to fight Salmonella and MRSA.

### **Subsidy**

The East Netherlands Development Agency (Oost NV) gave us excellent advice on the options of ERDF subsidies. The application was handled immediately and was processed as planned. A good thing. This means there are no delays.

Project progress reporting takes place through a practical web tool of the Province of Gelderland. The subsidy enables us to produce, test and further develop our products much faster, which supports our position as world leader in this area."

## Opportunities for East Netherlands

**If the project 'phage processing, en route to a world-class pilot production plant' is a success, it will quickly lead to higher employment in the area of research and development, marketing & sales as well as distribution. The project results also have a major impact on the Food and Health sector of the region. Moreover, it concerns a very interesting export product.**

**Beneficiary: Microeos**

- Total public co-funding: € 1,241,425
- Granted ERDF contribution of the total amount: € 620,713

**Term: 1 July 2011 up to and incl. 1 July 2013**



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PIETER-JAN VAN DER EIJK, PROJECT MANAGER WITH THE PROVINCE OF GELDERLAND AND JAN BAKKER,  
PUBLIC WORKS MANAGER WITH THE MUNICIPALITY OF WIJCHEN

*“ERDF subsidy is very important. Without it,  
we would have to settle for less quality.”*



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In the past year, extensive road works were carried out over one and a half kilometres of the provincial road De Graafseweg (N324) near Wijchen-Oost and Alverna. This resulted in improved accessibility of both the residential centres and the business park. A set of innovative measures ensures reduced noise nuisance and increased safety. The redevelopment also contributes to the quality of life of the surrounding communities. The Municipality of Wijchen and the Province of Gelderland worked closely together in this project. The partners concerned, Jan Bakker of the Municipality of Wijchen and Pieter-Jan van der Eijk of the Province comment.

## ***“We not only focused on the road, but also on upgrading the centre.”***

Jan Bakker: “Actually we moved from a maintenance project to a noise and a quality of life project. We were dealing with high noise levels alongside the provincial road the N324. Through a number of measures we succeeded in reducing the 63dBa to 55dBa. This was done by narrowing the road from four to two lanes, reducing the maximum speed from 80 to 50 kilometres per hour by lowering the road surface half a metre, placing especially designed noise barriers and the use of a more silent type of tarmac.

### ***Acoustic barrier***

Our first idea was placing an acoustic barrier of four metres high. This meant that East and West Alverna would be separated. Moreover, the residents would be facing high barriers. A lot of people were not happy about this, and rightly so. We then organised some forty meeting with all stakeholders, consultative groups varying from residents to logistic parties, the police and disabled persons. Pieter-Jan van der Eijk: “The initial resistance by those involved slowly changed into thinking along in order to find successful solutions.”

### ***Upgrading the centre***

Bakker: “We not only focused on the provincial road, but also on upgrading the centre. The centre had lost its appeal and looked somewhat shabby. When driving through, there was no appeal to get out of the car.” Van der Eijk: “Because of the restructuring we have now created a clear centre function and a feeling of ‘this is where it’s happening.’” Bakker: “Another issue was closing a side-road to improve the flow of traffic. By creating a square function on the other side of the road



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with a playful character, we enhanced the quality of life and gave the village centre back its original function."

### ***Ideal picture***

Van der Eijk: "After consultations with all involved, a clear ideal picture emerged. But at considerable costs. The Municipality then applied for ERDF subsidy through the Province." Bakker: "We were not involved in the process, this was done by our predecessors. And they deserve all the credits." Van der Eijk: "That's right. It's our task to account for the project. There is a considerable amount of money involved. This implies that we have to show our results."

### ***Realistic picture***

"Once the subsidy was granted, we got a realistic picture of the available budget. We then checked if implementation costs could be cut, for example by saving on not immediately necessary matters and the use of material. The list of remaining requirements was within the budget." Bakker: "Eventually the projects costs amounted to some 5.4 million Euros. The ERDF subsidy played an important role. Without it, we would have to settle for less quality. And this would have been at the expense of the quality of life. Fortunately, we were assisted by the Province."

### ***Festive opening***

Van der Eijk: "The project was completed at the end of December 2011 with a festive opening of the renewed N324 on 21 January 2012. Despite the bad weather, there were a lot of spectators." Bakker: "People were quite reluctant at first and the months of road works were quite a



***"The restructuring not only improved the accessibility but also the quality of life."***

nuisance, but in the end everybody is very pleased with the results." Van der Eijk: "The centre's quality of life has much improved and the new centre function creates new

opportunities. This project realized both the provincial and local interests, I'd say that that is biggest success."

## Opportunities for East Netherlands

For this project, the Province of Gelderland and the Municipality of Wijchen received the European Soundscape Award 2011. The jury of the European Environment Agency & Noise Abatement Society is very positive about the measures and the result. The combination of relatively simple solutions has the same environmental effect as placing four-metre high acoustic barriers. The project not only changed the provincial road but the entire surroundings.

Additional benefits are the improved traffic safety, air quality, the quality of life in the village and reduced fuel consumption. The design seems applicable in other (village) centres and with all innovations and sustainable solutions certainly serves as an example.

Final beneficiary: Wijchen

- Total public co-funding: € 5,102,000
- Granted ERDF contribution of the total amount: € 750,000

Term: 1 January 2008 up to an incl. 31 December 2011



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### Cover photograph

One of the promising applications of the ultra sensitive nuclear magnetic resonance (NMR) equipment is a diagnostic test for the early detection of prostate cancer. The technology may also be used for the development of new medicines for example and for analysing food ingestion and digestion or any digestive disorders (such as obesitas). The Radboud University Nijmegen, UMC St Radboud and partners are cooperating in this project called UltraSense.

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