

## **Sustainable Housing Production, thanks to the Economic Crises**

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### **Abstract**

*A drastic effect of the economic crises 2009 is the cutback of housing production in the Netherlands, a down-hill trend from 80.000 to 45.000 a year. Unless the population of the country is stable there is an enormous need for new housing every year. Housing production is required because of vitalisation of cities. Housing production in the Netherlands is not only luxury. Young people need new houses because the elderly stay, due to the well organized neighbourhood care-systems in their housing longer. In cities reconstruction of older neighbourhoods needs new housing too. This production crashed in the beginning of 2009 because financing of households and investors became less available. The situation has become worse because of the system of development. In the Netherlands housing developers only start building when 80% of the houses are sold from drawings. People that have the money have choice in existing stock, they do not wait two and more years before moving to a new house. So new systems are needed, systems by which the housing production is brought into motion again. With the cyclic innovation model' in hand, lessons learned from out of other branches are suggested to use to construct such a new system. The conclusion is that houses should be developed on stock. The number of real-estate developers that search for this methodology is still small, although first steps are in progress. The new system asks for a re-shift of the land- and housing financial system, for which the housing owner takes more responsibility than before. Thereby, in the new system the housing will become a product of quality instead of quantity. Sustainable choices will unmistakably be part of such quality in future.*

Keywords: Housing, production, sustainability, economic-crises, city-development,

### **Introduction**

At the Delft University sustainability has become an integral part of the study and research programs. The Faculty of Architecture has its daily focus on the practise of projects, on quality and on production, of housing and other building activities. The scope of interest spreads from the designing practise of urbanism, architecture and construction technology towards the position of residents and users, their habits and the quality they ask for. The topic of sustainability has developed from a more technical scope towards processes, the battle of interest and the people involved. Being a PhD on the topic of 'social-sustainability' the position of the residents, of the customers of housing, deeply has my interest. That focus made me perceptive on some first remarkable effects, of the economic crises 2008 – 2010 on the practise of housing business. It seems that the quality demand of people got more impact on the housing market now. That insight formed the base for new study and research ending-up in this paper.

### **1. The Dutch economic crises cut-down of housing production**

## WS-01: HOUSING FINANCE AND REGULATION

Credit crises in the Netherlands started like in other countries (CPB 2010), first the banking and insurance companies broke down because of risk full investments. Then the real estate lost financing and devaluation followed because of lack of money from people and institutes. The Dutch government acted fast, the most important financial companies were saved, with the Fortis buying-out privatization as the most remarkable act. It is remarkable how the economic crisis in the Netherlands developed further. Like economic crises before, the depth of the disturbance was livable. To some extent the crisis was less deeper with lesser effect on society than in other countries. Unemployment went up to a acceptable 6% and the National growth stayed positive unless it tempered from a 6% to 1,5%. This comparing to other countries could be seen as quite a well performance (source: European Commission), see figure 1.

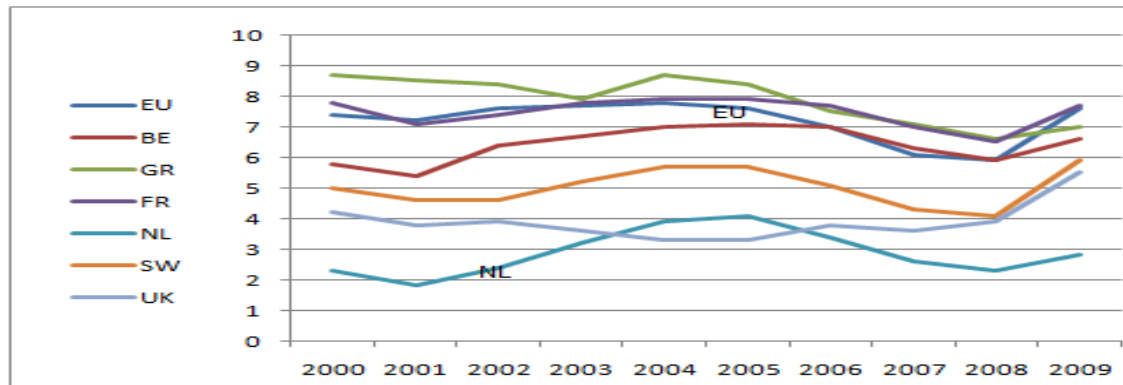


Figure 1, unemployment, a selection of EU countries and the EU, period 2000 – 2009 (Eurostat 2010).

These facts show that Dutch government acted fast enough to prevent a drastic situation. The effect for the Dutch people has not been dramatic until now, maybe because the Dutch can handle some income inconvenience in general. This has all given the impression that the economic fall of 2009 has blown over in The Netherlands. However in reality the opposite seems to be true. In hindsight, comparing to other European countries, the Dutch economic growth in the period after such a crisis stays typically lazy, (CPB 2010).

The effects of this typical slow growth in the economy shows unfortunately great influence on investments, has great negative effects on large investments, especially on real estate investments. The effect is drastic, a cut down on new housing production to 70% production in 2010 referring to the period 2005 - 2009, see figure 2. And maybe even less production in years to come, 45.000 in 2011 is mentioned, seeing the small numbers of new developments started (Dutch CBS statistics 2010).

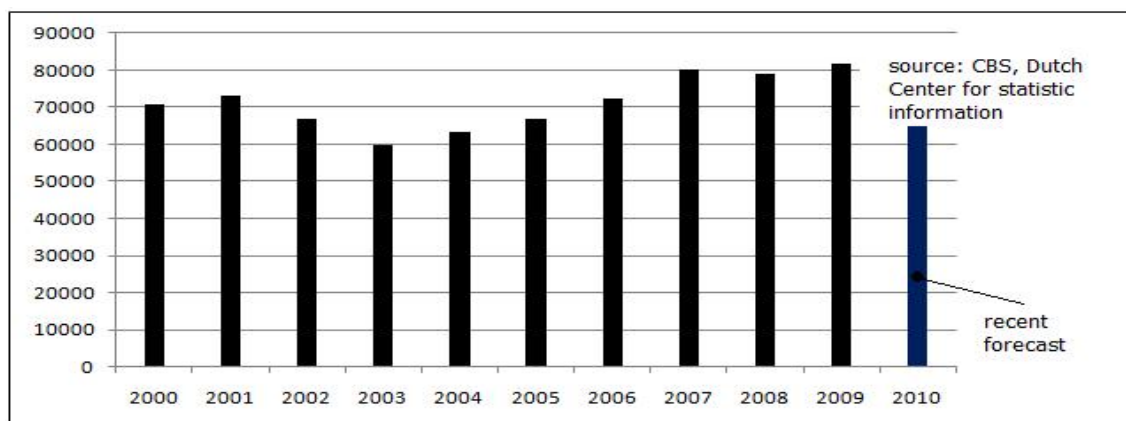


Figure 2, Dutch housing production fall-back, period 2000 – 2010 (Dutch CBS Statistics)

The subsequent alarming effect of low housing production, is the negative influence on the vitality of cities, especially negative for certain groups in society (Wal 2009). The large governmental revitalisation program concerning 40 existing neighbourhoods, the so called Vogelaar-neighbourhoods for instance, great city neighbourhoods up to 15.000 inhabitants, is to some extent linked to demolishing high-rises and rebuilding new housing (VROM 2009). The need for small housing for young people and young couples is another need for housing that could suffer from the slowing down of housing production. Thirdly, the number of elderly will increase enormously the coming twenty years. This group has its special needs in housing and the existing housing stock does not provide enough to fulfil these requirements (VROM 2006).

These market pressure implications could be the reason why house prices have not decreased dramatically, only 5% at the end of 2009, which was seen as the depth of the economic crisis (CBS Statistics 2010), see figure 3. In the same period the number of existing houses for sale were doubled. (NVM data 2010). These observations can be seen as a sign that the market is still willing.

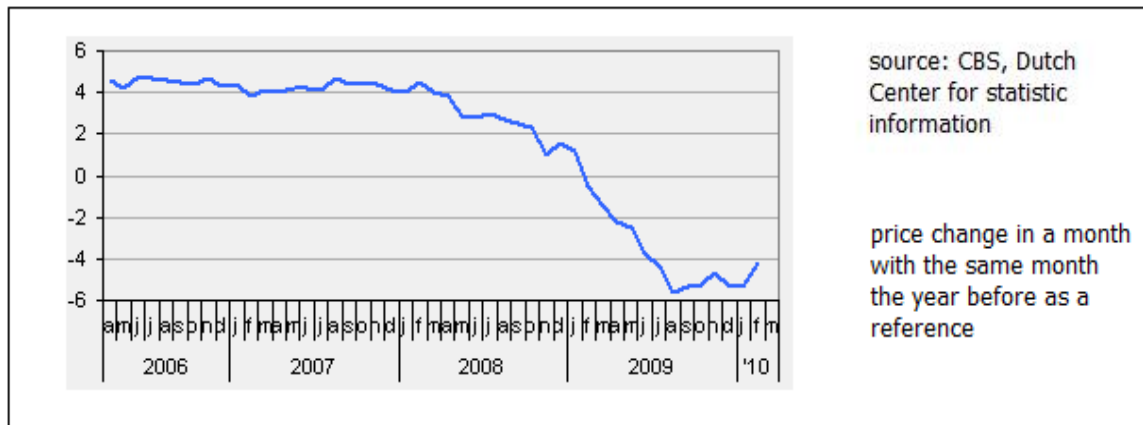


Figure 3, prize change of houses for sale in the Netherlands (CBS data 2010).

The problem of the housing market still seems to be the lack of financing, the same reason the economic crises started. As said by the largest Dutch mortgage bank, we are more careful and we ask higher income by giving mortgages to the people even when the housing production is due to decrease (RABO Bank 2010).

Combining all these factors: unless the market is still willing, and unless the housing sales due to lack of financing are under pressure, this situation will not change soon and will be the situation for the coming years.

## 2. The Dutch autonomous need for new housing

In 2009 on a world scale, the number of people living in cities overwhelmed the number of people living in the country and this due to the everlasting trend of urbanisation (NICIS 2009). Even in the Netherlands, which is a very small country on scale of other countries in the European Union, this trend is visible. Even though the Dutch population decreases in number slightly every year since 2008, urbanisation stays in progress, see figure 4a.

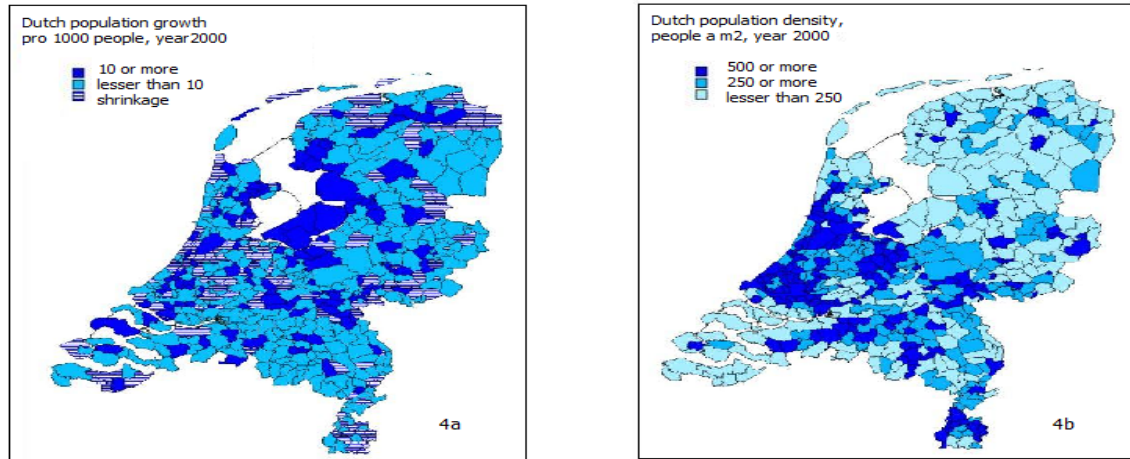
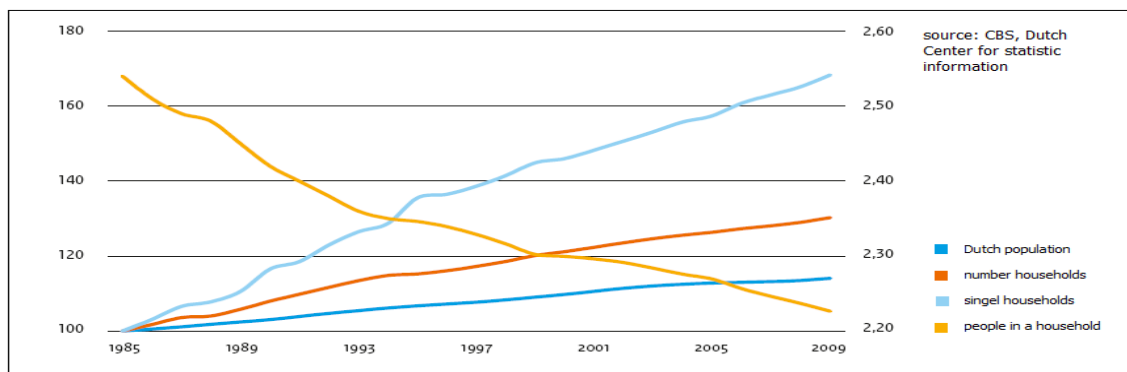


Figure 4, Dutch population density, growth and shrinkage in the year 2000 (Otter and Heida 2002)

Concentrating on Amsterdam and Rotterdam the trend can be seen where the cities populations have steadily grown since WW II. Amsterdam has grown from 500.000 in 1900 to today's figure of 760.000 (+50%), Rotterdam has grown even faster from 300.000 in 1900 to 550.000 (+85%) in 2010. On the scale of the Delta-Metropolis, covering the Western part of the Dutch country where most of the people live and most of the cities lay, this urbanisation became very visible too, see figure 4b. A driving push proving this urbanisation was the VINEX-law, in which a 42 countrywide area was given away free for housing developments in 1988. This law gave extra space for a production of 400.000 new houses in total. Most of this production was positioned in this Delta-metropolis, and urbanisation got a push forward because these new houses helped people and households to make the move towards the city easier.

Unbelievable but the urbanisation phenomenon is not the greatest reason for the increasing need of extra houses. The most influential trend is, that the number of people in houses reduces over the years (CBS data 2009), see picture 5. This trend is about young people leaving their parents on earlier age and older people getting older and living single by getting older. In cities as Amsterdam up to 40% of the inhabitants are single, a percentage with great impact of the number of homes needed. Countrywide the number of people in a household already changed from 2.55 in 1985 to 2.25 in 2005, a 0,3% in 10 years.



Picture 5, average number of people in households in the Netherlands 1985 – 2009 (CBS 2009)

Based on this trend it can be calculated that the need for new housing in the Netherlands accounts to around 100.000 houses a year. There was a period in Dutch housing history, in the period 1975 – 1985 that the yearly production was on its top, a 120.000 houses a year. Calculating, this production gave a

20.000 houses free for the urbanisation trend. Now in 2010 the housing production fulfils only half of what is basically required. It is obvious that the demand for new houses will explode in the coming years. Maybe this demand in quality terms will be different than before. Single people are predicted to ask for apartment housing, although many older single still prefer housing with garden and a front door out onto the street, and why should younger people not have similar housing?. Maybe the housing production brake-down, due to the economic crisis can be used to reset on quality and reprogram the situation giving market-driven production. Not forgetting government targets of sustainability and housing production.

### **3. The Dutch housing development system, blocking housing production**

It has been a successful story in the history of housing development in the Netherlands in the period from WW II until now. After WW II a giant housing emergency emerged. People wanted a better life, the old housing mostly from the century before had to be renewed and the Dutch people started to raise family and children with new energy, the so called baby-boom (de Wagt 2003). Well before WW II hundreds of social housing organizations were started, with support from government and the social-housing law of 1901. It was these social-housing organizations that started-up housing developments all over the Dutch country. On government land they developed whole neighbourhoods, one after the other. The production of new housing started slowly, but soon came into regular production. WW II was a period of downtime, and it took until 1962 until housing production came into 'flow' again. That year the government declared the lack of good housing as the most important factor to tackle. From that moment on housing production fell in the hands of social-housing companies and commercial developers. Due to the scale of production, social-housing companies were forbidden, by government, to develop high priced housing.

The Netherlands, as a typical Western European country, followed the Eastern European housing planning methodology for many years, so different to the surrounding countries like Belgium and England (Boelhouwer et al 1991). Due to this system a 100.000 houses a year and more were constructed in the period 1960 – 1975. Houses were sold so easily that the commercial developers could take huge risks by concurring these social-housing organizations in their production. It became attractive for banks and other investors to take part in financing such building projects. There was one criteria stated from the investors: 60% of the houses for sale, should be sold before starting more construction. In general this was no problem, houses were sold easily.

How different the situation is these days and probably will be in the near future, during and after the economic crisis of 2009. Banks and investors are very careful with funding such new housing projects now. If they finance building projects they ask for 80% presale today (RABO 2010). The customers for new houses are careful too: they have to sell their former house first and then they have the uncertainty of financing their new house. It very often happens that projects started with selling do not reach this 80% presale, people step out the buying process before the 80% limit is reached because it takes too long. Even when building permits are under control there is uncertainty as the presale is no guarantee that construction will begin when 80% is sold! It looks like that production will not increase in this uncertainty. There is a reasonable chance that new housing production will reduce drastically over the coming years unless other methods to handle the situation are found.

To explore the situation and possibilities, the hypothesis of a blocking production, a number of Dutch key-note developers in the field of housing have been interviewed. Interviewees included the RABO-Bouwfonds, Synchroon and ING, all Real-Estate developers. Here is a summary of the results:

*Housing developers and others dealing with these developments like social-housing organisations and contractor are searching for new ways of handling developments. They have the urgency and they grasp it. Scanning the progress and possible effects of first innovations. Most of the steps made are modulations on the existing methodology. Of course these innovations help to repair the first production*



*loss and these can hopefully be the beginning of further innovations ahead, innovations that will make the difference. The innovations mentioned are:*

- 1. Cutting-up projects into pieces with an average of 25 houses, presale requires fewer houses sold,*
- 2. Re-designing projects into smaller and cheaper houses, to sell faster or place them in rent.*
- 3. Guarantee to people that their previous house will be bought when buying a new house.*
- 4. Selling houses to social-housing companies as rental-homes, to reach some presale as a start.*

*In general the interviewees do not think that the former times with presale will easily return in future. People searching for new housing will in future market circumstances not wait 3 or more years before their new house is delivered. Like in other countries as in the USA people will only wait when those new houses deliver an advantage over the older houses. An important advantage mentioned is the value of houses, financially and qualitatively, that these gain in time. Land has always been the factor of value growth, that will be over for a long period. Sustainable additions will maybe take over that crucial place*

*It is foreseen that there will be a lack for money for many years. Therefore financial systems will change and the preference of people searching for new houses will change. It also therefore follows that the strong separation between rental homes and houses for sale will also change. Self owned houses and rental properties will be available in all sorts of combinations to attract buyers/inhabitants for example as suggested by CPO: Future buyers will maybe be asked to participate in the risks of housing developments beforehand, to take an option on a house or as a donor.*

*Real Estate development should maybe in future be seen as a societal responsibility, the work of development for a fee instead of revenue. The production of houses will restore on a lower level. Revitalisation programs in the cities will slow down for a long time relatively more than in the suburban green fields. At the end as said, all the pieces of the former jigsaw puzzle of housing production will come together again only the outcome will be different.*

#### **4. Redesign of the housing developing system**

The interviews seem to affirm that the old housing-production system does not work anymore, in the present economic situation the system based on presale cannot not anymore lead to a production level as in 2007 and the years before. The interviews show the vitality of the branch of housing developers. New innovations be sought and are found. The problem is that these innovations are of small scale, labour-intensive and thereby not very productive as said in the interviews. It is remarkable that these housing-developers, , do not actively search or investigate the following steps to innovations that are more connected to production. As analysed in chapter 3 there is an autonomous demand for new houses, a demand that asks for production on a higher level than the actual performance. The future can still be prosperous if new methods for housing development are found.

*The question is: Are there alternative methods than comparing housing-development by presale that can lift-up the level of housing production in the Netherlands, in future years?*

The ‘Cyclic innovation model’ (Berkhout 2006) can be used to answer these questions. It brings together challenges of product development, with technological change, research data, in a market driven context, see figure 6. The model brings the soft of knowledge and the hard of production together as said by Prof. Guus Berkhout, TU Delft.

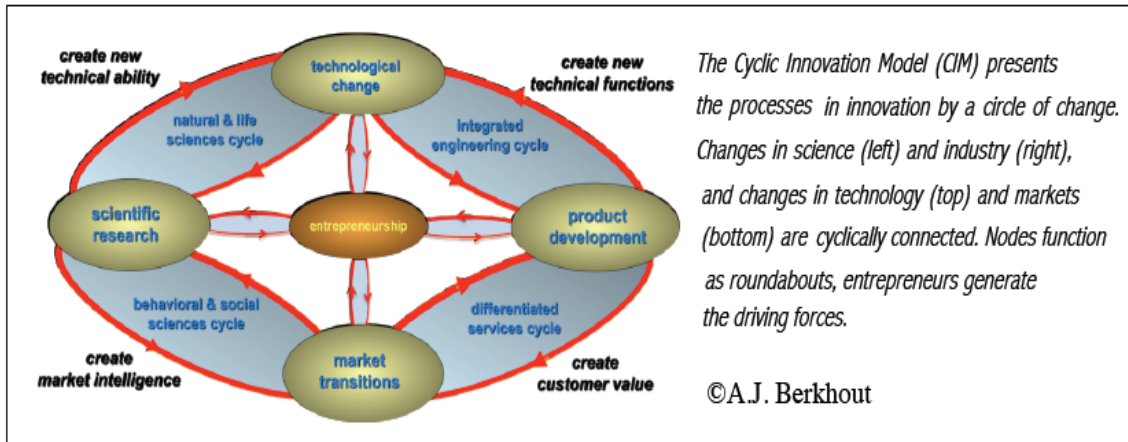


Figure6, cyclic innovation model (Berkhout 2006)

The model helps to compare the thesis of ‘housing development without presale’ with other branches, branches that handled in the past with a similar challenge. The question is which branches do we compare? An idea is branches that under are pressure in a more selective market changed from production by presale to another system and with success.

Two kinds of production innovation from the last years were selected, with product-examples to bring the case a step further. Those two groups are:

- Pimp a basic product from stock: A basic model is produced on stock, when a customer wants to buy the product it is made custom made by accessories, furnishing and financial arrangements. Examples are: the TATA Nano ([www.tata.com/nano](http://www.tata.com/nano)) and the new AIRBUS A380.



- Design by people: The design is brought in hands of the people, when enough customers want to buy the production starts. Examples are: RYZ shoes ([www.ryz.com](http://www.ryz.com)) and the LEGO factory ([www.designbyme.lego.com](http://www.designbyme.lego.com)).



Pimp a basic product from stock,

TATA introduced the Nano-car in 2009. It should become the cheapest car of the world. Logically this car is a car without luxury, no radio, no air condition and only one wiper. On the other hand the car will be accompanied by a list of accessories which can be selected to personalise your own model. The production can be made economically efficient without boring the consumer with a standard vehicle. With the A380 the European Airbus company choose for the same kind of production. The airplane is produced on stock while the whole interior, can be not only be designed but also produced by the customer if wished so. Production efficiency, reduced price and tailor-made sales have been combined into a whole new attitude to production.

For the Dutch housing industry these examples are a lesson to be learned. TATA and Airbus combine standard efficient production with personal product performance. The basic model can be produced as stock so that delivery can be arranged fast. People searching for other housing in the Netherlands can fulfil their housing dreams (Weber 1998) more than before. The analysis in chapter 3 shows that people will only wait for new housing if their wishes are satisfied above what is to offer on the existing market. In conclusion we can learn from the given examples that new housing can be sold more successfully when production on stock, without presale, can be combined with programs for personal furnishing.

Design by the people,

Shoes can be used as another example to compare in assessing the behaviour of presale In the housing development system in the Netherlands. Shoe manufacturers sell numbers of shoes by showing a prototype. When approximately 60% are sold, the production starts. RYZ turned this model around and it became very successful. On internet people can design their own shoes and show it to others and ask if they want to buy the same shoe. When 50 customers order these designed shoes, production starts. LEGO production functions in the same way. Children and older children can design their own car, airplane or star cruiser and order it. The fabric brings together all the pieces needed and the box is delivered at home. The design stays on internet so others can order the same design, the customer receives a price reduction when many others ask for his or her design.

Designing your own house as a production method, as people do normally in so many countries, has almost disappeared in the Netherlands. It has been revived in the last few years, called PO and CPO when people individually (PO) or as a group (CPO) not only design but also developed their own housing. This new production development trend is growing fast over the country. The economic crisis does not influence production much because the numbers of houses produced by CO and CPO remain minimal. It requires skills from people, that they don't normally have. Firms that help these people to start-up their PO or CPO are few and far between. The development is promising but making production in numbers by PO and CPO is unrealistic!

For the period ahead, the coming years after the economic crisis, financing will be the big challenge for housing production, as said in chapter 3. In the analysis above the housing production PO and CPO lays the problem of financing directly in the hands of the buying party. The individual or household, designing and building their own house has to arrange their own financing in the early stage of the production, privately or within a group. Unfortunately at the moment there are no breakthrough programmes from CO and CPO to help achieve an increase in production. Producing housing on stock requires money. The financing of houses on stock is a challenge need to be met before a difference can be made. How can that financing be arranged? That is the difficult question for housing production in the Netherlands.



## 5. Prosperous times for sustainable choices and production, a final word

An economic crisis is the result of lack of confidence and can only be recovered by restoring this confidence, as said by the Secretary General of the Dutch Ministry of Economic affairs in January 2009. He went on further to say, it will be the sustainable products that will offer the confidence to the market, that investments and financing will find their way back to normal (Buijink 2009).

Translating this message to the coming future of housing in the Netherlands, it will be prosperous that sustainable building becomes more important in the coming future. All trends worldwide present the same message, in the near future the monthly costs of housing will be determined by energy-costs more than before, more than today (CPB 2010). There can be foreseen that the value growth of sustainable housing, comparing to the lesser sustainable quality of the existing housing stock, will be impressive in the coming decades. In the past professional housing developers had motivating problems by making that choice, by choosing for sustainable housing to the best as possible. In times of a over asked market, the market of housing is so much coupled to the financing capacity of buyers that they preferred to add the revenues to themselves, or to the land value. The land value was mentioned the residual value of housing developments. Nowadays this value had a fall-down, when houses are not sold the land does not gain this value, it loses value. A reset of real-estate financial exploitations seems to be ahead. The sustainable investments in housing seems to take over the place of residual value. In the coming decades sustainable adds to housing will be a factor of costs only, there will be value added to the houses as a natural financial compensation. And, there are first signals, there are eye catching results in actual housing projects that show that this effects is mobilizing already;

- The Dutch city Culemborg gave space for a 200 houses housing development called 'Eva Lanxmeer' with sustainability as the target ([www.eva-lanxmeer.nl](http://www.eva-lanxmeer.nl)). The projects was planned to be an example to all kinds of sustainable goals, no carbon energy use, no disposal in future and water recycling. After a difficult start in 1996 the project step by step came into rapids. The last houses were delivered in 2005. Today these houses are asked for, despite the economic crises, people stand in lines when a house comes for sale.
- In Amsterdam the Dutch capital the innovating project of 'Buiksloterham' was started in spring 2010 recently ([www.duurzaamvastgoed.com/winnaars-duurzame-tender-buiksloterham-bekend](http://www.duurzaamvastgoed.com/winnaars-duurzame-tender-buiksloterham-bekend)). By tender the land prize was fixed by local government and a selection on sustainability design was given out. The goals were let open, the goal was a context on quality. Numbers of professional, of amateurs and combination of these signed interest in the six land parcels of this tender. They had to pay the land parcels immediately after winning the contest, and this seemed no problem despite the difficulty of financing this days
- At 'Hoogvliet' near the Dutch city of Rotterdam the 'Hof van Eden' ([www.hofvanedenhoogvliet.nl](http://www.hofvanedenhoogvliet.nl)) was developed in the last five years. Only one out of three blocks was given extra sustainable quality. How remarkable it was that it was this parcel that sold all houses last year, in the top of the economic crises.

What counts in this matter is value capturing (Huisman 2006), that value gaining in the future can be used, can be mobilized for investments, for the financing of these investments. Else, this effect can only be written down in papers and not be realized in reality. In the examples mentioned it were the people and professional organizations that arranged financing, there were no special arrangements from banks and other financial institutes. Projects like the given examples can in the situation of the Netherlands, only count houses in numbers when financing systems become added to this new trend, that sustainable choices determine the value growth of new housing is the hypothesis given for debate!

There are some first signs that institutes take up this opportunity. Energy producers and energy brokering step in financing sustainable adds. The contract the housing owners that they are willing to fix the energy prize to the future, the investments are financed by fixed cash flow. Still, also these actions do have the limitations of financing, according to the trustworthy of these firms. A real breakthrough will be there when individual households can make financing true. That asks a change of attitude of people, and as it seems out of the given examples the first people are heading towards this new future already (Sanders 2009). As presented, the economic crises has started custom made housing to, into personal furnishing, PO and CPO programs. It seems that the economic crisis has accelerated these two developments surprisingly 'in each other's arms', towards new changes for sustainable housing in the Netherlands.

Still, new mechanisms will be needed to couple financing of new houses in stock. That asks treasury innovation on the level of the individual housing. Investors do have all kind of financial products for treasury even in these days. It will be wise to translate these experience to the world of housing. Maybe people should arrange their own investors vehicle, to finance sustainable investments as a group, as a neighbourhood or otherwise. Maybe energy related companies can step-in by product-innovation or by being that investor itself. That will give new challenges to group-dynamics, new successful coalitions and new companies that work on housing developments in other ways than in the past.

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