

Chapter 12

The Situation Around 1910: A New Order



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Abstract After tackling extreme poverty in the nineteenth century (see Chaps. 7, 8, 9, 10 and 11) the Netherlands faced new societal challenges around 1910: the food supply, public health care, public housing and labour issues. Water management also continued to be an important issue in well-being.

Pillarisation, universal suffrage and the emergence of political parties ensured a long period of political stability with a dominant role for the confessional parties.

Based on the monitors of 1910 and 1970, this chapter sketches the growth of material welfare, the improvement in personal characteristics and the investments in social, economic, and human capital. It also shows the emergent problems of natural capital, both within the Netherlands and in foreign countries. It also provides an overview of shifts in the three main categories of resources (organic, mineral, and fossil) and the associated supply chains. In this way the chapter forms the introduction to a more detailed analysis of trade-offs in the chains of agriculture and foods (Chap. 13), construction (Chap. 14) and energy (Chap. 15).

Keywords Monitor · Well-being · Suffrage · Pillarisation · Economic growth · Natural capital

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12.1 1918 – The Counter-Revolutionary Breakthrough

We are living in troubled times. The spirit of revolution is stalking our borders. As yet they remain closed to its pernicious entry, as yet our sober reason and a healthy Dutch calm deliberation prevail, that does not easily let itself be seduced into undertaking actions opposed to order and authority. Yet unrest can arise among our people. A certain agitation coupled with fear for things that may come.¹

On the 12th of November 1918 an appeal went out to Dutch Catholics to be prepared. The previous day, the Social Democratic Workers' Party (SDAP) had rattled the revolutionary sabres.

Comrades, the mighty movement that is causing Europe to shake on its foundations is approaching the borders of our country and is urging Dutch workers too to fulfil their historic task... Do not let the moment pass, seize the power cast into your laps and do what you must and what you can.²

The SDAP leader P.J. Troelstra had treated his Rotterdam public to a fiery speech. Troelstra called for an orderly and civilized seizure of power.

Do not defile this great time with unworthy deeds, let it be said in times to come: the Dutch proletariat showed itself equal to its task, the Dutch proletarian revolution was the moment of glory in Dutch history.³

These words were followed by a 'lengthy and enthusiastic applause,' according to the socialist newspaper *The People (Het Volk)*.⁴

Sunday, November 10, 1918, the last day of the First World War, marked the start of a week of great confusion and uncertainty. The German Emperor Wilhelm II fled to the Netherlands. Hunger had Dutch cities in its grip and hungry soldiers were becoming restless in their barracks. On Saturday morning, the mayor of Rotterdam, A.R. Zimmerman, had discussed the proletarian seizure of power with leaders of the SDAP. Troelstra called out the revolution on Monday. The government in The Hague made an inventory of preventive measures and negotiated with the British about fast shipments of food.

On November 12, Troelstra demanded the transfer of power in a long speech to the Second Chamber of Parliament. The government did not comply. The non-socialist papers announced emergency consultations of various societal organizations, but also the first food shipments and the fact that the Dutch fishing fleet had put to sea. A few fearful days followed, but on the streets there was no sign of anarchy or socialist revolution, only well-orchestrated demonstrations of appreciation for the royal family and the government. After several days Troelstra admitted his 'mistake.' On November 18, the queen appeared, apparently spontaneously, at one of the largest demonstrations on the Malieveld, the national mall, in The Hague.

¹ 'Katholieken..Paraat' in *De Tijd: godsdienstig-staatkundig dagblad*, 12-11-1918.

² 'Aan de Nederl. Arbeidersklasse' en 'Een Rede van Troelstra' in *Het Volk, dagblad voor de arbeiderspartij*, 12 November 1918.

³ 'Een Rede van Troelstra' in *Het Volk, dagblad voor de arbeiderspartij*, 12-11-1918.

⁴ 'Een Rede van Troelstra' in *Het Volk, dagblad voor de arbeiderspartij*, 12-11-1918.

The near-revolution had big political consequences. It reinforced the position of the monarchy and above all of the established confessional parties, i.e. those rooted in religious denominations.⁵

The revolution in the Netherlands was announced at a curious moment, at least so it seemed. Many of the original socialist ambitions to improve well-being had just been agreed to or had already been implemented since the turn of the century. The so-called ‘social question’ had become part and parcel of the political culture. Just about every politician was busy with the ‘uplifting of the worker and the people.’ Working conditions, public housing, public health and similar issues were all candidates for improvement. Nineteenth century initiatives arising in the ‘societal midfield’ had gained the support of the ‘progressive liberals’ (*sociaal liberalen*) and led among other things to the labour law (1889), the accident-law (1901) and the housing law (1901). These became the foundations of what would later be called the welfare state.

But at the time the question was what such a state would look like. The new laws still had to be applied in practice. Important issues like universal suffrage and the organization of education still had to be fought out. Extreme poverty had not yet been eradicated. Food supplies remained problematic. In short, at the outset of the twentieth century the quality of life of the poor and the workers was still – as we concluded earlier – the most important issue regarding well-being.

In many respects the First World War resulted in an about-face on the issue of well-being. The struggle for universal suffrage and education had been won. That created an entirely new political constellation and a new turn in political culture. The role of government changed fundamentally.

Since the nineteenth century male suffrage had been coupled to incomes, savings and diplomas. Between 1900 and 1913 the percentage of men allowed to vote increased from 46% to 67% (of men older than 23 years of age). The growth of the electorate benefitted especially the confessional and socialist parties. After 1900 the liberals began to lose power. By 1913 this led to a political impasse. None of the political power blocks represented a majority and none was prepared to give an inch in respect of their specific standpoint on universal suffrage.⁶ Given the circumstances prevailing during the war – in which the Netherlands succeeded in remaining neutral – the parties were prepared to submit to a ‘pacification’ to put an end to this interminable dispute. In 1917 universal male suffrage was introduced, followed by women’s suffrage in 1919. In the first elections under this new regime the confessionals, above all the Catholics, were the big winners. The liberals were the losers.

⁵F. Wielenga, *Nederland in de twintigste eeuw* (Amsterdam 2009), 73–77.

⁶Another issue was under discussion in those years, namely education. The political debate concerned mainly the question of the financing of ‘special’ (i.e. confessional) education with state funds. The debate became known as the ‘school struggle.’ The issue was resolved in a negotiated compromise between the confessional parties who wanted ‘special’ schools treated on an equal footing with non-denominational public schooling and liberal and socialist parties who wanted to introduce universal suffrage. The outcome of these negotiations became known as the ‘pacification.’ See: Wielenga, *Nederland in de twintigste eeuw*, 34–44.

Table 12.1 Total value of assets of 100 largest industrial companies as a percentage of GDP 1913–1990

	1913	1930	1950	1973	1990
United States of America	23	31	18	30	35
United Kingdom ^a	12	29	22	18	38
Germany	13	20	16	–	31
The Netherlands	20	38	62	88	77
The Netherlands Excluding Royal Dutch Shell	14	27	34	52	42

^aMarket share of stocks

Source: Van Zanden, *Een klein land in de 20^e eeuw*, 1997

The socialist parties grew but it was not the political landslide that had been anticipated. This may have been the motivation for Troelstra's revolution.

The proclaimed proletarian revolution became a confessional counter-revolution. Much to the socialists' surprise and dismay, their proclaimed revolution forged a strong alliance among confessional parties. This coalition dominated the post-First World War political landscape.⁷ The interbellum was the start of a period of political stability that persisted up to the mid-1960s. Catholics (30%), Protestants (25–30%), social democrats (20–25%) and liberals (10–20%) comprised the political spectrum. At a national level, the confessional parties colluded in their joint aversion to the 'red danger.' At a local level, especially in the bigger cities like Amsterdam, social democrats participated in government.

The First World War turned out to be a catalyst for the resolution of a number of thorny political issues. Wartime circumstances created an experimental setting to try out new approaches in direct state intervention in the economy. Due to Dutch neutrality and the maritime blockades, more emphasis began to be placed on national independence and autarchy. This translated into more intensive exploitation of the national territory. Investments increased, among others in the State Coal Mines. After extensive flooding in 1916 around the Zuiderzee, definite plans were made for closure and partial reclamation. The national government also saw itself compelled to intervene in the market for foodstuffs and other scarce commodities. Wartime conditions created closer relations of cooperation between government and business.

After the war there was a successful transition from a wartime to a peacetime economy as a new economic context for the development of well-being and sustainability emerged. As in many western countries in the twentieth century, modernisation of society was first and foremost understood as industrialisation (see Table 12.1). During the 'golden years' between 1923 and 1929, economic growth and labour productivity rose to great heights. Six companies contributed significantly: Shell, Philips, the State Mines (presently DSM), Hoogovens, AKU (presently AkzoNobel) and Unilever (a 1929 merger of the Margarine Union with the British Lever Brothers). It was during this period that the Netherlands acquired its characteristic dual economic structure with a top-six of big companies and a large number of smaller

⁷Wielenga, *Nederland in de twintigste eeuw*, 73–77.

enterprises. The share of the big companies in industrial employment increased threefold in the period between the wars.⁸ They attached great importance to research and set up their own laboratories.

Forceful regulation of the economy by the government disappeared after the First World War, but cooperation among the firms continued. The forced wartime cooperation had led to the emergence of clusters in the chemicals and food-processing industries. After the war these were reinforced and assumed the form of cartels in various branches of industry. Despite the revival of international trade, the national perspective did not entirely drop off the radar. It remained a palpable factor in the production of food and in investments in basic industries.

The government continued to concern itself intensively with food supplies, public housing, education and other social issues. The political blocs had different opinions regarding the role of the government. Socialists preferred active governments with broad competencies in social-economic domains. The confessional parties preferred in principle a limited role for the national and local governments. They envisioned a corporatist model. This defined the state as a modern night-watchman, providing overall legal and financial frameworks. On this view, the execution of the societal agenda should be left to the 'societal midfield.' In this confessional perspective the 'midfield' consisted of specific organizations from within their own confessional community with in many cases close ties to politics and church authorities.

The Catholics succeeded in developing an institutional and governance system that penetrated deeply into the capillaries of Catholic life via countless associations. Catholics associated at work, in leisure time and in private life, read the same newspaper, went to the same kind of school, were members of a Catholic trade union, etc. The same was true of the socialists. The Protestant and liberal currents were less rigidly organized but here too many organizations and associations were founded on the basis of a specific shared ideology. This process of extremely fragmented and varied initiatives was the foundation for so-called 'pillarisation' and for the rise of a new political culture in which the pillarised 'midfield' interacted intensively with parliament, the government and the state apparatus. The different pillars each tried to shape societal development based on their particular perspective on the world. Authority and control were an important motivation. What influence did pillarisation have on the production of well-being? Did a specifically Dutch kind of welfare state come into being?

The 'midfield' was more inclusive than just the pillars. Even before the First World War it was densely populated by all kinds of professional groups like physicians and engineers. They were closely associated with the enactment of laws and would continue to participate in political debates on the social question. In time, new groups like spatial planners, psychologists and sociologists would also join in. Was the influence of these professionals in the pillarised Netherlands at all noticeable?

⁸Jan Luiten van Zanden, *Een klein land in de 20^e eeuw, economische geschiedenis van Nederland, 1914–1995*, (Houten, 1997), 59; E. Bloemen, J. Kok and J.L. van Zanden, *De top 100 van industriële bedrijven in Nederland 1913–1990*, (Den Haag, 1993), 10.

The social movement around landscape and nature had a special role. As we saw earlier, around 1900 the countryside had a mesmerising effect on the bourgeois elite. They regarded the countryside as a still reasonably authentic idyll suffused with folklore and pastoral delights. Impressionist painters in artists' colonies like Laren, Katwijk and Plaswijk recorded this cherished landscape on canvas.

The simple rural huts and farms, surrounded here and there by trees, are picturesquely spread out across the heathlike farmer's fields and marshes.⁹

A society like the Association for the Preservation of Natural Monuments (1905) wanted to conserve these special landscapes and their flora and fauna as in a collection. The General Netherlands Cyclists' Union (*ANWB*, 1883) stimulated the discovery of the idyllic countryside and 'nature' by bicycle, automobile or just walking. In these circles, country living was romanticized, it was a place of refuge and a perfect counterpart to modern industrializing city life.¹⁰ Would these movements succeed in getting biodiversity, the environment and other aspects of sustainability on the political agenda?

Various movements active prior to 1914 had survived the First World War. In addition, the war had created entirely new frameworks for well-being and sustainability. These form the starting point for an analysis of the period 1910–1970. We will start with a comparison of the monitor of well-being for 1910 with that of 1970 and of the material flows in both years.

12.2 Well-being 'Here and Now': A Life longer and Happier, 1910 Versus 1970

Dutch population grew from 5.9 million in 1910 to 13.0 million in 1970. Real per capita consumptive expenditures increased by a factor of 1.75, while income inequality declined (Table 12.2). This meant that in this period extreme poverty was nearly banished. At the outset of this period some 8.5% of the population lived below the poverty line. In absolute terms, this still represented a sizable number of 500,000 people.

Living conditions for the urban poor were difficult. According to socialist critics the cities were:

modern, ugly and repulsive heaps of humanity, (...) cancerous growths on the beautiful earth, ruined by smoke and stench and degenerate people (...)!¹¹

⁹J.S. Göbel, *De Plasmolen: Gids voor de bezoekers van den Plasmolen en omgeving*, (1910). The colonies even drew groups of American painters who came to paint what was in their eyes a 'Dutch Utopia,' the as yet unspoiled Dutch countryside.

¹⁰A. van der Woud, *De nieuwe mens: De culturele revolutie in Nederland rond 1900* (Amsterdam 2015), 217–25.

¹¹The socialist Frederik van Eeden cited in Jan Bank and Maarten van Buuren (eds.), *1900, Hoogtij van Burgerlijke Cultuur*, vol. 3, *Nederlandse Cultuur in Europese Context* (Den Haag 2000), 449.

Table 12.2 Dashboard well-being ‘here and now,’ 1910–1970

Theme	Indicator	Unit	±1910	±1970	Corresponding CBS methods
Population		million inhabitants	5.9	13.0	
Material welfare and well-being					
Consumption, income	Consumptive expenditures per capita, constant prices	index (1850=100)	200	340	↑
	Income inequality, general	Gini coeffic. 0–1	0.47	0.36	↑
	Gendered income inequality	% difference in hourly wage M/W	?	29%	?
Subjective well-being	Satisfaction with life	score 0–10	?	7.4	?
Personal characteristics					
Health	Life expectancy	years	55	75	↑
Nutrition	Height	cm	173	182	↑
Housing	Housing quality	% slums	60	6	↑
	Public water supply	m ³ /capita	19	109	↑
Physical safety	Murder victims	number per 100.000 inhabitants	0.4	0.7	↓
Labour	Unemployment	% workforce	2.0	1.6	↑
Education	Level of Education	year	5.8	9.0	↑
Free time	Free time	in hours/week	?	47.9	?
Natural environment					
Biodiversity	MSA	% original biodiversity	54	66	↑
Air quality	SO ₂	kg SO ₂ /capita	4.6	21.0	↓
	Greenhouse gas emissions	ton CO ₂ /capita	3.8	10.1	↓
Water Quality	Public water supply	m ³ /capita	18.7	109.0	↑
Institutional environment					
Trust	Generalised trust	% population with adequate trust	?	?	?
Political institutions	Democracy	democracy-index 0–100	9.5	39.0	↑

Legend

↑	Positive development
↓	Negative development
↔	Not positive/not negative
?	Unknown or irrelevant

Source: See note 23 of Chap. 2

The poorest members of society lived in hovels, in cellars fronting on cramped and crowded alleyways. It was hardly surprising that politicians aimed to improve these living conditions. Of the entire Dutch population a bit more than 38% lived in towns with more than 20,000 inhabitants, and 22% in the three largest cities, (Amsterdam 10%, Rotterdam 7% and The Hague 5%).

The majority of Dutch people in 1910 lived in the countryside. Daily life for the smallholders and agricultural workers on the sand grounds had hardly changed. Working conditions were still unremittingly heavy. Added to this was the huge social problem of agricultural unemployment around 1900. Many day-labourers abandoned the crop-farming regions and the grasslands for the cities. The unemployed were put to work in reclamations, forestry, but also in 'unproductive labour like breaking up rocks, unwinding rope and similar things that have been invented to maintain an illusion of industry.'¹² Living conditions and housing were miserable. For example, in Emmen, in the province of Drenthe, 80% of the dwellings had only one-room.

Between 1910 and 1970 the Dutch economic landscape totally changed. The share of agricultural labour fell from 28% to 7%. Industrialisation transformed Dutch society. By 1970, 28% of the workforce was employed in industries, 31% in international services and 35% in the building trades and other services.¹³ The difference in income between rich and poor diminished and most likely also the pay-differential between men and women. Regarding the latter, exact figures for 1910 are lacking. Women's share of the labour force remained nearly constant between 1910 (23%) and 1970 (26%). We can estimate that at the end of the nineteenth century women earned half or two-thirds of what men earned.¹⁴ Opinions differed greatly on the subject of female labour and its remuneration. In 1924, for example, laws on legal competence were enacted, preventing women from working as civil servants. These were retracted in 1956. In the early 1950s the average gross hourly wage of women amounted to 56% of what men earned. In 1958 European agreements led to regulations enforcing equal pay. By 1960 the average hourly wage of women had risen to 60% and by 1970 to 70% of the gross hourly wage of men.¹⁵

On average, material welfare increased, but were the Dutch more satisfied with their lives? Here too figures for 1910 are lacking, as are time-series data for the period. But we can assume that the picture must have been quite erratic in view of the two world wars and a big economic recession. Increased satisfaction might have been expected after the Second World War thanks to economic growth and the augmentation of the welfare state. We shall return to this.

The nutritional situation in 1970 relative to 1910 was much improved with more and better food. Conditions during the First World War had drawn attention to the

¹² Citation from the *Landbouwkundig Tijdschrift* in: Auke van der Woud, *De nieuwe mens*, 221.

¹³ J.L. van Zanden and R.T. Griffiths, *Economische geschiedenis van Nederland in de 20^e eeuw*, (Utrecht, 1989), 27.

¹⁴ H. Pott-Buter and K. Tijdens (eds.), *Vrouwen, leven en werk in de twintigste eeuw* (Amsterdam 1998), 180.

¹⁵ Pott-Buter and Tijdens (1998), 183.

production and distribution of food. During the war and the depression of the 1930s, food production acquired a national character in which a balance had to be sought between continuity of production and acceptable prices. For the unemployed and those on welfare the depression was a time of 'hunger and misery.' Nightmares became reality during the 'hunger winter' at the end of the Second World War when access to and distribution of food became critical. In this period, food security was one of the crucial aspects of well-being. Improvements in nutrition as well as in medical technology became manifest in increases in average height and age.

Housing conditions also improved greatly. The number of occupants per dwelling decreased from 4.45 to 3.42. The number of dwellings with fewer than three rooms declined from 68% to 8%. Most homes in 1970 had facilities like a toilet (86%), running water (99%) and electricity (99%). The number of years of schooling increased. Leisure time and travel increased. In 1952 44% of the population left home for vacation, of which 7% to foreign destinations. By 1969 this number had increased to 65% of which 28% to foreign destinations.¹⁶

The development of the institutional environment was a final indicator that pointed to improvement in well-being. The reform of the voting system increased democratic participation. Compulsory voting ensured turnouts of about 95%, of which only a small minority (7–10%) submitted invalid votes. In this way, a large part of the population participated in the political process. The district system was replaced by a system of equal representation. This stimulated the formation of national political parties along ideological lines. These parties were the political instruments of the pillarised social institutions.

Developments between 1910 and 1970 were not necessarily linear. The period was characterised by external vulnerabilities: two world wars and the Great Depression of the 1930s. Unemployment in both 1910 and 1970 amounted to about 4% of the workforce. In the 1930s it climbed to above 17%, and for the male workforce to about 20%.¹⁷ Unemployment during the depression left deep scars in the collective memory. Not for nothing did the populace demand of the post-war government, that it devotes a good deal of attention to the creation of jobs.

Data on housing shortages in 1910 and 1970 also fail to provide an adequate picture of the problematic nature of well-being in the intervening decades. At 1% this seemed quite low for 1910, even though many lived in miserable conditions. Around 1970 the housing shortage stood at 5%. But in this case too the problem actually reached its zenith between the two sample years. In the latter 1940s, the Netherlands experienced a housing shortage reaching nearly 20%. Public opinion surveys revealed that combatting the housing shortage in the 1950s and early 1960s was considered the most important issue for the government to work on.¹⁸

¹⁶Nederlands Instituut voor de Publieke Opinie (NIPO), *Zo zijn wij: De eerste vijftig jaar NIPO-onderzoek* (Amsterdam 1970), 40–41.

¹⁷B. Lodder, *Twee eeuwen beroepsbevolking* (Den Haag 2010).

¹⁸Nederlands Instituut voor de Publieke Opinie, *Zo zijn wij: De eerste vijftig jaar NIPO-onderzoek*, 112.

There are two areas for which the monitor in this period shows a problem. First of all in the area of physical safety. The number of murders per hundred thousand inhabitants was 0.4 in 1910 versus 0.71 in 1970. Up to 1965, it rose marginally. After 1965 the number of murders increased, particularly in the big cities. With greater frequency, men between the ages of 14 and 65 were the victims. The increase seems to be associated with new forms of criminality.¹⁹

A second, more inclusive problem, was the change in the natural environment. Biodiversity (in terms of MSA) declined, especially due to scale increases in agriculture. Industrial water and air pollution assumed serious proportions. These issues were recognized by some contemporaries. Heated debates were carried on about the effects of carbon dioxide on the climate, with dire predictions both of a new ice age and of global warming.²⁰ It was seen as one of the many, but not the most important, environmental problems. It was the local problems of air and water pollution from which the first groups emerged that critically began to question the ‘price of progress.’ In these years, modernisation became ever more ‘contested.’

12.3 Well-being ‘Later’: Materials and Energy for a Better Future, 1910 Versus 1970

The substantial improvements in quality of life in 1970 relative to 1910 had been achieved by the investments of successive generations of Netherlanders in economic, human and social capital (Table 12.3). These resources were essential for the development of well-being ‘later.’ The foundation of social capital – namely political participation and trust in the political institutions – had been laid during and just after the First World War with universal suffrage and pillarisation. For the next half century this ensured reasonably stable social relations. This came to an abrupt end in the 1960s. Increasing secularisation and individualism brought new opinions and a rearrangement of the ‘societal midfield.’

As far as economic and human capital are concerned, we can only conclude that the period 1910–1970 shows an extremely positive development. Economic capital grew impressively. Capital-intensity (quantity of capital per worker) rose remarkably

¹⁹ P. Nieuwebeerta and I. Deerenberg, ‘Trends in Moord en Doodslag, 1911–2002,’ *Bevolkingstrends*, Centraal Bureau voor de Statistiek, 1st quarter (2005): 56–63.

²⁰ Around 1970 less than 10% of the scientific meteorological and oceanographic investigations into the effects of CO₂ emissions made reference to global warming or cooling. In 1971 S.I. Rasool and S. Schneider published an article on the rising levels of sulphate aerosols in the atmosphere that could lead to global cooling and a new ice age. *Time Magazine and Newsweek* reported these findings in respectively 1974 and 1975. In the course of the 1970s about 60% of the relevant scientific studies predicted global warming, about 10% global cooling and 40% made no predictions about temperature change. D. Nuccitelli, *Climatology versus Pseudoscience, Exposing the Failed Predictions of Global Warming Skeptics* (Santa Barbara 2015), 19–22.; Th. C. Peterson, W. M. Connolley, and J. Flerck, ‘The myth of the 1970s global cooling scientific consensus’, *Bulletin of the American Meteorological Society* 89, no. 9 (2008): 1325–37.

Table 12.3 Dashboard well-being ‘later’: 1910–1970

Theme	Indicator	Unit	±1910	±1970	Corresponding CBS methods
Natural capital					
Energy	Energy consumption	TJ / capita	0.05	0.16	↓
Non-fossil subsoil assets	Gross domestic consumption	ton/capita	3.8	9.4	↓
Biodiversity	MSA	% original biodiversity	54	66	↑
Air quality	SO ₂ emissions	kg SO ₂ /capita	4.6	21.0	↓
	Greenhouse gas emissions	ton CO ₂ / capita	3.8	10.1	↓
Water	Public water supply	m ³ /capita	19	109	↑
Economic capital					
Physical capital	Economic capital stock /capita	index (1850=100)	141	518	↑
Financial capital	Gross national debt	% GDP	71	48	↓
Knowledge	Stock knowledge capital	index: 2010=100	< 0.5	30	↑
Human capital					
Health	Life expectancy	years	55	75	↑
Labour	Unemployment	% workforce	2.0	1.6	↑
Level of education	Schooling	years	5.8	9.0	↑
Social capital					
Trust	Generalised trust	% population with sufficient trust	?	?	↑
Political institutions	Democracy	democracy index 0–100	9.5	39.0	↑

Legend

↑	Positive development
↓	Negative development
↔	Not positive/not negative
?	Unknown or irrelevant

Source: See note 23 of Chap. 2

during the Great Depression. In order to save on labour costs, entrepreneurs increasingly invested in labour-saving technologies. The increase of this form of capital accelerated after the Second World War and this set the stage for an extremely high rate of growth in Dutch productivity, certainly by international standards. A better educated population was an important investment in human capital. Laws on compulsory education that came into force after 1917 ensured an increase in the number of secondary school students and an increase in the length of schooling. Education became more accessible and achievable for all layers of the population.

Around 1910 the Dutch economy was in a period of transition. It was a mix of traditional and new sectors. Services (51%), industry – excluding foods and luxury foods – 24%, and agriculture (25%) shaped Dutch economic activity. The considerable

agricultural interests were coupled in the agrarian sector (16%) and the food processing and luxury foods sector (9%). In this respect, the economy still exhibited a very traditional structure. New activities were visible in the contributions of a diverse set of industrial sectors. These constituted another quarter of the Dutch economy. Textiles, construction, and raw metals were the most important sectors. Commercial services, among which trade, transport, and retailing, constituted the biggest piece of the Dutch economic pie in 1913.

In the years after the First World War, the Netherlands in many respects invested in a modern economy. Big companies like Shell, the State Mines, and Philips pioneered in chemicals and electrical engineering – the leading sectors of the second industrial revolution. Steel, the new trend-setting material, was produced on a large scale as was the electric motor as the new source of motive power. A modern knowledge infrastructure emerged with the industrial laboratory as an icon. The government continued to invest in and elaborate the number of state and semi-state laboratories. An important step was the founding in 1932 of TNO, the Central Organization for Applied Scientific Research. Additionally, other knowledge institutes came into being, like the provincial Economic-Technological Institutes (ETIs). The government also invested in vocational training. In the course of time, for example, technical education was provided at four different levels: lower, middle, higher and university-level programs of study.

In this period the role of the state increased substantially. It was responsible for maintaining the constitutional state and busy passing social and economic legislation that would eventually lay the foundations for a future welfare state. This was evident in the state budget. Using income from taxes and other sources these expenditures increased after the First World War from several tens to nearly one hundred euros per inhabitant.

The government had always invested in water management and infrastructure. ‘Large works’ characterized this period. 1918 marked the commencement of the project to close and partially reclaim the Zuiderzee, a project that was completed in 1968 with the drainage of Flevoland. The great flood of 1953 initiated the Delta Works, a rigorous improvement of and shortening of the coastline. From the 1930s the government invested in a national road plan, shaped around a new network of limited access highways. At regional and local levels new basic services like running water, electricity, and municipal sewers and gas were implemented. The efforts of provinces and municipalities resulted in a high degree of coverage throughout the country.

The improved well-being also had a price. The Netherlands had to surrender part of its natural capital. The landscape changed considerably. In 1910 the countryside was still a kaleidoscope of different landscapes. A large variety of small-scale farmland alternated with large tracts of frequently open land. Every region was characterized by its own crops, cattle, and farming techniques. Agricultural statistics in 1910 distinguished 83 different ‘farming regions.’²¹ These were increasingly

²¹ J. Bieleman, *Boeren in Nederland, Geschiedenis van de Landbouw, 1500–2000* (Amsterdam 2008), 36–41; Van der Woud, *De Nieuwe Mens*, 185–90.

replaced after the Second World War by large-scale farming and urban expansions. This had an adverse effect on biodiversity.

Time series data for energy consumption and CO₂ emissions both show that up to the mid-twentieth century there was a modest increase in pressure on the environment. A period of strong growth set in after the Second World War, certainly by comparison with other western countries. After 1950 the consumption of materials and energy increased dramatically under the impact of economic growth and increased consumption. Mass production led to price reduction per unit product and increased purchasing power to mass consumption. The refrigerator, the radio, the electric iron and other consumer goods had already been introduced before the war. Developments like the Marshall Plan and the orientation to America, the introduction of the free Saturday and the emergence of large department stores contributed to the advent of a consumer society. There was a new attitude toward disposal and reuse. The quantity of household garbage per capita increased substantially.

12.4 Well-being ‘Elsewhere’: From Colonial to Global Trade, 1910 Versus 1970

In consequence of two world wars and the Great Depression of the 1930s the Dutch economy became more autarchic in the first half of the twentieth century. In addition the economic slow-downs during the war and depression years reduced the need for energy and therefore also demands on the natural capital of other countries. Energy supply was above all solved domestically by developing the coal mines in the province of Limburg. Exceptions were materials that were scarce or non-existent in the Netherlands. These included building materials like wood and metals, and specific raw materials like cotton for the textile industry and plant oils, and coffee and cacao beans for the food processing industry.

Up until the Second World War the Dutch East Indies, present-day Indonesia, was an important factor in Dutch foreign relations. The Dutch East Indies were regarded as an inseparable part of the kingdom. Like other colonial powers the Netherlands had also developed an ever more effective dual policy since the turn of the century, a policy that sought to invest in the land *and* the population of the colony. In the context of the latter, administrators sought to promote the development of well-being among the colonial population as well, by establishing schools, libraries, and stimulating cooperatives and savings banks.²²

Investments in the land included above all exploration, making hinterlands and resources accessible, exploitation and other forms of modernisation. Firms like the petroleum company Shell, the Batavian Petroleum Company (*Bataafsche Petroleum Maatschappij*) and the mining company Billiton Inc. played an important role in the exploitation of the natural resources of the colonies. The main offices, from which

²²H. Baudet and I.J. Brugmans, eds., *Balans van beleid: terugblik op de laatste halve eeuw van Nederlandsch-Indië* (Assen 1984), 35–65.

Table 12.4 Dashboard well-being ‘elsewhere,’ 1910–1970

Theme	Indicator	Unit	±1910	±1970	Corresponding CBS methods
Material Welfare					
Consumption, income	Development aid	% gdp	–	0.6	↑
Natural capital					
Natural capital	Import of raw materials	ton/capita	3.3	8.6	↓

Legend

↑	Positive development
↓	Negative development
↔	Not positive/not negative
?	Unknown or irrelevant

Source: See note 23 of Chap. 2

trade was coordinated, were located in the Netherlands. In the domain of agricultural products there were also close ties with companies located in the Netherlands. These flows of trade created the foundation for industries in refining and in producing consumer goods using raw materials from the Orient. After Indonesian independence many of these relations continued to exist, although the companies involved also broadened their horizons.

Decolonisation had far-reaching consequences for the diplomatic and political relationships with foreign countries. Administratively, the Netherlands became ‘smaller’ and had to realign itself in its foreign relations. To a greater extent than previously this became an orientation to the role of the Netherlands in a West-European context. In this way the Netherlands once again became strongly embedded in the world economy.

The monitor well-being ‘elsewhere’ reveals an ambiguous situation (see Table 12.4). The relationship with the poor countries was called ‘development aid.’ In this context the Netherlands helped implement some of the technical aid programs set up by the United Nations after the Second World War. After 1960 bilateral aid programs were started in the areas of education, agriculture and health care in the poorest countries. Experience and knowledge gained in the colonies were dusted off, applied here once again and further developed. The higher goals were fighting hunger and poverty and the improvement of living conditions in these regions.

Import of goods from abroad reached previously unheard of levels. Industrial growth and well-being in the Netherlands in the period 1950–1970 were nourished to a large extent with imported natural resources. Rotterdam became the largest European petrochemical complex. Dutch harbours became the points of transshipment in streams of agrarian products and metal ores. Portions were processed here or sent on to the European hinterland. Rotterdam acquired the appropriate name of ‘Europoort.’

12.5 Natural Capital and Material Flows 1913 Versus 1970

Get on out there, gentlemen Delft mining students (...) If we are not yet become a nation of sluggards, then extracting money from mining must also be an important item on our national agenda; the equal of trade and shipping, agriculture and traditional industry (...). If we be only granted 'time of life,' then will we see the Golden Century return in palpable form, then will our descendants, thanks to burrowing ever deeper into the core of the earth, experience a time that they can give their children lumps of gold and diamonds to play with (...) We have been asleep; long asleep, but the nap is over.²³

Mining engineer G.P. Rouffaer made no secret of his optimistic expectations about the future of the Netherlands thanks to mining activities. The occasion was the appointment of two full professors in mining technology at the Delft Institute of Technology and the increased political interest in domestic geology. A State Agency for the Exploration of Subsoil Assets (*Rijksdienst voor de Opsporing van Delfstoffen*) was established in 1903. This agency was set up to promote and coordinate the exploration of subsoil assets. Politicians and engineers were convinced that through intensive exploitation of natural capital it would be possible to develop well-being and thus launch a new 'Golden Century.' This conviction turns out to contain a lot of truth, if we compare the use of natural capital and its derivative material flows in 1913 with those of 1970. The increase in well-being, as we could see in the monitor, was accompanied by an enormous input of energy and matter. In this section we provide an overview of the changes in the material flows.

The availability of raw materials (domestic production and import) increased spectacularly in terms of weight (Table 12.5). Between 1913 and 1970, three times more bio-raw materials (including agricultural products and wood) were used, ten times more mineral subsoil assets (sand, gravel, ores etc.), and six times more fossil subsoil assets (among others coal and petroleum). Use of materials also increased in a relative sense, that is per capita. The use of bio-raw materials grew from somewhat more than 2400 kg/per capita to about 3300 kg/per capita, mineral subsoil assets from 1300 kg to 6100 kg per capita and fossil subsoil assets from 2800 to 8000 kg per capita. The growth of mineral and fossil subsoil assets is statistically the most impressive. In the top-ten list of material resources by weight for 1970, they occupy the first seven places (over against the first two places in 1913, see Table 12.6). Mineral oil (68,920 kton) and natural gas (25,650 kton) are on top in a class by themselves, followed by gravel, sand, rocks, coal and clay. The Dutch delta in 1970 was the scene of energetic construction in pursuit of a comfortable and safe existence and that cost a lot of energy.

There was a remarkable shift to processed products (Table 12.7). Raw materials and subsoil assets were ever more seldom directly consumed, but instead served as inputs to industry. That was already the case for mineral subsoil assets, but by 1970 it also held for bio- and fossil raw materials. Imports also increasingly consisted, in both an absolute and relative sense, of processed products, a development mirrored in Dutch exports as well (Table 12.8). These shifts are typical of production and

²³ G.P. Rouffaer, in het Tijdschrift van het Koninklijk Nederlandsch Aardrijkskundig Genootschap, Tweede Serie, deel XXIII, 1906, p. 1034–1042, geciteerd in Patricia E. Faasse, *De ontdekking van de ondergrond, anderhalve eeuw toegepast geowetenschappelijk onderzoek in Nederland* (Utrecht 2002).

Table 12.5 Raw materials in the Netherlands 1913–1970 in kton and ton/capita

	1913	1970	Ratio 1910:1970
Bio raw materials:			
Gross Available (kton)	14,740 kton	42,400 kton	1: 2.9
Bio/capita (ton/cap.)	2.4 ton/cap.	3.3 ton/cap.	1: 1.4
% import	22%	22%	1: 1.0
% export	14%	9%	1: 0.6
Mineral subsoil assets:			
Gross Available (kton)	8,040 kton	80,120 kton	1: 10.0
Mineral/capita	1.3 ton/cap.	6.1 ton/cap.	1: 4.7
% import	34%	38%	1: 1.1
% export	7%	8%	1: 1.1
Fossil subsoil assets:			
Gross Available (kton)	17,430 kton	104,890 kton	1: 6.1
Fossil/capita	2.8 ton/cap.	8.0 ton/cap.	1: 2.9
% import	80%	69%	1: 0.9
% export	33%	22%	1: 0.7
Total raw materials:			
Gross Available (kton)	40,210 kton	227,400 kton	1: 5.7
Raw materials/capita	6.8 ton/cap.	17.5 ton/cap.	1: 2.7
% import	50%	49%	1: 1.0
% export	21%	16%	1: 0.8

Remark: Gross available = domestic production + imports

Source: F. Lambert, *Massastromen in Nederland. In de jaren 1850, 1913, 1970, 2010* (researchrapport Technische Universiteit Eindhoven, oktober 2016)

Table 12.6 Ten most massive raw materials (in kton) and the proportion imported (in procent), 1913–1970

		1913	1970	1913	1970
		Raw material (kton)	Raw material (kton)	Import (%)	Import (%)
Bio Raw Materials	Total, of which	14,740	42,400	22	22
	Milk	3,210	8,330	1	0
	Cereals	2,830	6,180	68	78
	Potatoes	2,650	5,040	2	0
	Sugar beets	1,710		3	
Mineral Subsoil Resources	Total, of which	8,040	80.120	33	38
	Clay	3,450	8,470	2	10
	Sand	1,750	22,980	9	5
	Gravel	1,200	27,170	67	47
	Stone	1,060	10,390	100	68

(continued)

Table 12.6 (continued)

		1913	1970	1913	1970
		Raw material (kton)	Raw material (kton)	Import (%)	Import (%)
Fossil Subsoil Resources	Total, of which	17,430	104,890	81	69
	Coal	15,610	9,160	88	53
	Turf	1,600		6	
	Mineral oil		68,920		97
	Natural gas		25,650		0
	Total	40,007	227,400	50	49
	35,085	197,040	45	44	

Source: F. Lambert, *Massastromen in Nederland. In de jaren 1850, 1913, 1970, 2010* (researchrapport Technische Universiteit Eindhoven, oktober 2016)

Table 12.7 The portion of raw materials and subsoil resources industrially processed (in percent), 1913–1970

	1913	1970
	Industrial processing of raw materials and subsoil resources	Industrial processing of raw materials and subsoil resources
Bio-raw materials	51%	69%
Mineral subsoil resources	60%	60%
Fossil subsoil resources	7%	62%

Remark 1: Industry, excluding mineral and fossil subsoil asset extraction

Remark 2: Mineral resources such as clay and sand directly used in building activities (in for example dikes) are not treated as processed materials

Source: F. Lambert, *Massastromen in Nederland. In de jaren 1850, 1913, 1970, 2010* (researchrapport Technische Universiteit Eindhoven, oktober 2016)

Table 12.8 Import of processed products in kton and percent, 1913–1970

	1913	1970
Total import	26,000 kton	155,920 kton
Import processed products	6,060 kton	44,640 kton
Import processed products (% of Total)	23%	30%
Total export	11,420 kton	95,500 kton
Export processed products	3,110 kton	62,020 kton
Export processed products (% of Total)	27%	65%

Source: F. Lambert, *Massastromen in Nederland. In de jaren 1850, 1910, 1970, 2010* (researchrapport Technische Universiteit Eindhoven, oktober 2016)

Table 12.9 Ten most sizeable processed products (in kton) and the portions imported and exported (in percent), 1913–1970

		1913	1970	1913	1970	1913	1970
		Processed products (kton)	Processed products (kton)	Import (%)	Import (%)	Export (%)	Export (%)
Food Processing Industry	Flour	750		30		10	
	Bread	860		0		0	
	Processed fodder	1260	13,020	8	25	13	6
Wood-Industry	Woodworking	1450		61		0	
Mineral Processing Industry	Utility ceramics (e.g. bricks)	3100	7960	10	4	0	7
	Concrete products	580	11,600	0	5	0	4
	Concrete and asphalt		26,000		0		0
	Cement		6930		33		2
Chemical Industry	Cokes	1330		64		50	
	Artificial fertilizer	880		81		30	
	Petroleum products		75,330		16		56
	Anorganic chemicals		7250		60		20
Metal- and Machinery Industry	Metal products	950		86		4	
	Machine building	610		20		6	
	Raw steel		5330		5		3
	Steel mill products		8020		41		35
	Iron slag		5320		66		1

Source: F. Lambert, *Massastromen in Nederland. In de jaren 1850, 1913, 1970, 2010* (researchrapport Technische Universiteit Eindhoven, oktober 2016)

consumption chains that grow longer and more complex. That development too, as we shall see, made its mark on well-being and sustainability in the period 1910–1970.

Shifts in material flows moreover reflected the development of a new type of economy. An important shift is that in the fossil subsoil assets. Turf disappeared from the top ten most massive raw materials and coal fell from the first place in 1913 to the sixth in 1970. They were replaced by mineral oil and natural gas (Table 12.5). This also marked the end of cokes as a coal product from the list of top ten processed commodities, while the category of petrochemical products crowned the new top ten list (Table 12.9).

In building materials, wood and woodworking lost their dominant role in construction, bricks maintained their position, but new processed building materials were introduced: cement, concrete and concrete products. In the metalworking and machinery industry steel replaced iron as the material of choice for metal products and machinery.

The shift in processed products in the area of bio raw materials is also interesting. In 1913, flour, bread and grain fodder were on the top ten list of processed bio products. Flour and Bread were absent in the 1970 list. Cattle fodder remained in the top-ten of most sizeable processed products (Table 12.9). It was mainly utilized in meat producing cattle breeding. This is the origin of important issues in the period after 1970 such as the manure-surplus and the bio-industry.

Autarchy was an important issue in the Netherlands in the period 1910–1917. During the First World War, the country was faced with the shortage of two essential raw materials: grain and coal. In 1913 the Dutch imported 68% of their grain and 88% of their coal (Table 12.6). And yet it appears that subsequently the situation did not improve. In 1970 grain imports were even more voluminous (with an import percentage of 78%). And the Netherlands was almost wholly dependent on foreign sources for mineral oil (with an import percentage of 97%). That said, it was fully independent as far as its natural gas was concerned (0% import). The striving for autarchy had consequences for the exploitation of natural capital, the environment and the landscape. It is an important question for the following chapters.

In 1913, the Netherlands faced a big challenge. As the monitor 1910–1970 shows, there was a lot of work to be done in the area of well-being, from a present-day no less than a contemporary perspective. Extreme poverty persisted. Public health and public housing were important issues. The satisfaction of primary needs left much to be desired, both in a quantitative and qualitative sense. At the same time the population continued to grow and to inhabit an unsafe delta.

To solve these issues, the Netherlands looked to a new way of exploiting natural capital, ‘here’ in the Netherlands and ‘elsewhere.’ The changes in material flows point to this. But that brought new problems to the fore. The monitor for 1910–1970 reveals that these were situated in the domain of the natural environment and natural capital. The most important question is thus: in what way is the dynamism in the material flows related to changes in well-being and sustainability? To make this analysis we take as our points of departure the bio-materials (agriculture and foods), mineral substances (construction and building materials) and fossil substances (energy and plastics).

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